



August 10, 2012

Mr. Scott Rose Voluntary Cleanup Program Coordinator Washington Department of Ecology Southwest Regional Office P.O. Box 47775 Olympia, WA, 98504-7775

RE: PacifiCorp Energy Chehalis Power Plant Voluntary Cleanup Program Application Facility-Site ID: 3336951, Cleanup Site ID: 11776

PacifiCorp Energy Chehalis Power Plant (Chehalis Power) submits the attached documents for the Washington Department of Ecology (Ecology) Voluntary Cleanup Program (VCP). The VCP Application addresses the oil spill incident on January 20, 2011. A Generation Step Up Transformer #1 (GSU#1) containing non-PCB mineral oil experienced an explosive failure and subsequent fire which resulted in a release of mineral oil around the transformer and also impacting the stormwater system. Chehalis Power cleaned up the release and remediated the affected area immediately after the incident. Chehalis Power contracted with KTA Associates, Inc. (KTA) to assist with investigating and planning the remedial actions.

T. Patrick Sanchez of Chehalis Power and KTA representatives met with you and Cris Matthews on June 21, 2012 in your office to discuss the VCP process. Since then, we have reviewed the available information on the spill incident cleanup and remediation and the VCP requirements. Chehalis Power has decided to enter the VCP and has completed the VCP Application and VCP Agreement, which are attached.

Chehalis Power conducted extensive confirmation sampling through Cowlitz Clean Sweep after the remediating soil and surface water affected by the spill. In addition, with KTA coordination, Chehalis Power conducted a groundwater investigation of the spill site several months after the incident. The Site Investigation was conducted by TEC, Inc. The 79 soil and groundwater confirmation samples indicated that MTCA Method A levels for mineral oil in soil and groundwater were not exceeded in 77 of the 79 samples. Based on this information, Chehalis Power and KTA prepared a Cleanup Action Report which is attached to this letter which describes the remedial actions at the site, confirmation sampling and conclusions.

As described in the Cleanup Action Report, Chehalis Power has concluded site remediation is complete and a No Further Action opinion is appropriate. Chehalis Power requests that Ecology proceed to review the VCP Application and Cleanup Action Report and provide an opinion to Chehalis Power under the VCP.

The VCP Application and the Cleanup Action Report are provided in both hard copy and Adobe PDF electronic file formats. Due to the length of the laboratory analysis report, it is not included with the hard copy. However, it is included in the electronic copy on the enclosed compact disc. In addition, the laboratory analysis data (along with other required information) in electronic format is being input to Ecology's Electronic Information Management system.

If you have questions or need additional information, please contact Patrick Sanchez or myself at 360-748-1300; or you may contact Lenora Westbrook, KTA Associates, Inc. at 877-736-1499.

Sincerely,

Mark A. Miller
Plant Manager

Attachments

cc w/electronic copy of attachments:

Bill Teitzel
Code Compliance Supervisor
Lewis County Public Health and Social Services
2025 NE Kresky Avenue
Chehalis, WA 98532-2626

Mr. Kevin Hancock Washington Department of Ecology Southwest Regional Office P.O. Box 47775 Olympia, WA, 98504-7775

Jim LaSpina
Siting Specialist
Energy Facility Site Evaluation Council
1300 S. Evergreen Park Dr. SW
P.O. Box 43172
Olympia, WA 98504-1372

Lenora Westbrook - KTA Associates, Inc.

Attachment 1

VCP Application



Voluntary Cleanup Program

Washington State Department of Ecology Toxics Cleanup Program

APPLICATION FORM

Under the Voluntary Cleanup Program (VCP), the Department of Ecology (Ecology) may provide informal site-specific technical consultations to persons conducting independent remedial actions at a hazardous waste site. Ecology may provide such consultations under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC.

To enter the VCP, complete and submit to the Department of Ecology (Ecology) a VCP Application. The Application consists of the following two documents:

- 1. Application Form (including required attachments).

 THIS DOCUMENT
- 2. Agreement.

For guidance on how to complete your Application, please refer to the Application Instructions, which are available separately on the VCP web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm.

Part 1 - ADMINISTRATION								
A. Customer Information. The Customer is the person or organization requesting services from Ecology under the VCP, and is responsible for paying the costs incurred by Ecology. The authority and duty of the Customer are explained in the Agreement.								
Name of Customer: Chehalis Power Plant								
What type of entity is the Custom	ner?							
☐ Person	If the Customer is a "person," then the Customer shall serve as both the Manager and Billing Contact for the Project. When identifying the Project Manager below, please enter the name of the Customer and his or her contact information.							
	If the Customer is an "organization," then please identify below both a Manager and Billing Contact for the Project. Those persons must be employed by the organization.							
What is the Customer's involvem	ent at the Site? Please check all that apply.							
Property owner Past property ov Future property Property lessee Other – please s	owner Consultant Attorney							
If not the current property owner,	, is the Customer acting as the agent for the property owner?							
☐ Yes ☐ No								
If not the current property owner,	, is the Customer authorized to grant access to the property?							
☐ Yes ☐ No								

Part 1 – ADMINISTRATION continued

B. Project Manager Information enter the required information belo		d this persor	all officia	al correspondence. Please					
Name: T. Patrick Sanchez			Title: E	nvironmental Analyst					
Mailing address: 1813 Bishop Roa	ad								
City: Chehalis	nalis State: WA Zip: 98532								
Phone: 360-748-1300	Fax: 360-740-1891		E-mail: Patrick.Sanchez@PacifiCorp.com						
C. Project Billing Contact Information. Ecology will send this person monthly invoices.									
Is the Project Billing Contact the same as the Project Manager?									
Yes If you answered "YES," then skip to the next question.									
☐ No If you answ	wered " NO, " then pl	lease enter th	ne require	d information below.					
Name:			Title:						
Mailing address:		_							
City:		State:		Zip:					
Phone:	Fax:		E-mail:						
D. Project Consultant Information.									
Is the Customer a consultant?									
Yes If you answered "YES," then skip to the next question.									
No If you answered " NO " and the Customer hired a consultant to conduct the independent remedial action, then enter the required information below.									
Name:			Title:						
Organization:									
Mailing address:				1					
City:		State:		Zip:					
Phone:	Fax:		E-mail:						
Do you want Ecology to contact the	e Project Consultan	t?							
☐ Y s ☐ No									
E. Property Owner Information.									
Is the Customer the owner of the p	roperty where indep	endent reme	edial action	n is being conducted?					
⊠ Yes If you answe	ered " YES," then en	ter the type o	of entity an	d skip to the next question.					
☐ No If you answ	ered " NO, " then ple	ase enter all	of the req	uired information below.					
Name:			Title:						
Organization:									
Mailing address:									
City:		State:		Zip:					
Phone:	Fax:		E-mail:						

Part 1 – ADMINISTRATION continued What type of entity is the property owner? Please check only one. Private County Tribal Municipal Federal Mixed Public School State Other – please specify: F. Request for Written Opinion. Are you requesting a written opinion at this time? Yes No If you answered "YES," on what planned or completed remedial action do you want a written opinion? Cleanup and remediation of transformer oil spill; confirmation testing supports No Further Action (NFA) Please attach to this Application any additional remedial action plans or reports you want Ecology to review. Ecology will base its opinion on the information contained in the Site file, including any information attached to this Application. If you answered "NO," please explain why you are enrolling in the VCP at this time and when you expect to request a written opinion from Ecology. Attach additional pages if necessary. G. Reporting Requirements. Please comply with the following reporting requirements when requesting written opinions on planned or completed remedial actions: ☐ Licensing. Documents submitted containing geologic, hydrologic, or engineering work must be under the seal of an appropriately licensed professional, as required by Chapters 18.43 and 18.220 RCW. □ Data Submittal. Environmental sampling data must be submitted in both a printed form and an electronic form capable of being transferred into Ecology's data management systems. For instructions on how to submit the data, please refer to the following Ecology web site: www.ecv.wa.gov/programs/tcp/data submittal/Data Requirements.htm. Failure to comply with these requirements may result in unnecessary delays. Ecology will not issue a

No Further Action (NFA) opinion unless these requirements are satisfied.

Part 2 - DESCRIPTION OF THE SITE								
	A. Name of the Site. If Ecology has already identified the Site, enter the name provided by Ecology. Otherwise, enter a suggested name for the Site. You may also include an alternate name.							
Name: Chehalis Power LP Generation Facility								
Alternate Name: Chehalis Power Plant								
B. Location of Property where the Releases Occurred (Source Property).								
The "source property" is the property where hazardous substances were released into the environment. For example, if petroleum was released from a leaking UST, the source property is the property where the UST was located.								
Do you know on which property the releases occurred?								
	Yes If you answered "YES," then please refer to the source property when answering the following questions.							
1	No If you answered " NO ," then please refer to the property addressed by your remedial action (cleanup) when answering the following questions.							
Physical Addre	ess. Please enter the	e physical address	of t	he property below.				
Street Address:	1813 Bishop Road							
City: Chehalis			Sta	te: WA	Zip: 98532			
	osition. Please ent			• •	erty below. For additional web site.			
0	LATITUDE:	Degrees: 46		Minutes: 37	Seconds: 20			
COORDINATES	LONGITUDE:	Degrees: -122 Minutes: 54 Seconds: 57			Seconds: 57			
	CATION ON PROPERTY: elease or center of parcel]							
	COLLECTION METHOD: GPS or address matching]	D: Aerial photo location						
	Collection Source: [i.e., map scale] Google Earth							
[i.e., base refere	HORIZONTAL DATUM: nce for coordinate system]	WGS84						
ACCURACY LEVEL: 30 feet								

Legal Descriptions.

	<u> </u>				
	TRS DATA:	Township: 13N	Range: 2W	Section: 10	Quarter-Quarter: SW SE
TAX	PARCEL #(s):	0177740006005			

An "a	affected property" is erty. For example, po	erties affected by the Releases (Affected Properties). a property affected by the release of hazardous substances on the source etroleum released from a leaking UST on one property (source property) may ground water onto an adjacent property (affected property).							
Do a	Do any of the releases affect any properties adjacent to the source property?								
	☐ Yes	If you answered "YES," then please identify below each property that you know has been affected by the releases on the source property. If you need to identify additional properties, please attach additional pages.							
1	⊠ No	If you answered "NO," then skip to the next question.							
	Unknown	If you answered "UNKNOWN," then skip to the next question.							
1.	Address:								
	Tax Parcel(s):								
2.	Address:								
	Tax Parcel(s):								
3.	Address:								
	Tax Parcel(s):								
4.	Address:								
	Tax Parcel(s):								
D. Id	lentification of Publ	ic Right-of-Ways affected by the Releases.							
Do a	ny of the releases affo	ect any public right-of-ways (e.g., streets)?							
	☐ Yes ⊠	No Unknown							
If you	ı answered " YES " ab	ove, please specify below. Otherwise, skip to the next question.							
Attac	h additional pages if nece	ssary.							
E. E	xtent of the Site.								
Wha	t is the approximate a	real extent of the Site? Please check only one.							
	□ > 5,000 s								

F. Description of Release(s) at the Site.	
Source of Release(s).	
What are the source(s) of the release(s) at the Site? Please check all that apply.	
 Point source (e.g., leaking tank) Non-point source (e.g., contaminated soil used as fill) Area-wide lead and arsenic soil contamination (see questions below) Other – please specify: Unknown 	
To the extent known, please describe the source(s) of the release(s):	
Electrical transformer GSU#1 containing 11,100 gallons (estimated 2,000 gallons release) of	_
non-PBC mineral oil, experienced an explosion at the electrical connections at the top of the	
transformer.	
Attach additional pages if necessary.	
Circumstances of Release(s). To the extent known, please describe below the circumstances of trelease(s).	the
The transformer GSU#1 failed at 04:15 on January 20, 2011, and an estimated 2000 gallons of the	
11,100 gallons of mineral oil in the transformer sprayed on to the transformer containment structure	_
and on to the soil outside the containment. The transformer fire suppression system initiated	
automatically and sprayed water over the transformer. The Fire Department responded and	_
extinguished the fire using water aqueous fire-fighting foam. The water and foam pooled around the	_
transformer and flowed onto the ground and into the adjacent stormwater ditches. Most of the	
oil and water was captured from the ditches into trucks for disposal; a small amount reached the stormwater pond.	е
Attach additional pages if necessary.	
Circumstances of Release Discovery. To the extent known, please describe below to circumstances of the discovery of the release(s).	the
Automatic alarms initated immediately after the transformer failure.; power was shut down.	
The on-duty control room operator sent the equipment operator out to check on the problem.	
The transformer fire deluge system was operating and water was filling the transformer containment	
structure. The equipment operator found the transformer had exploded from electrical connections	
at the top and oil had sprayed around the transformer onto the ground and into the containment.	_
Attach additional pages if necessary.	-

Area-Wide Soil Contamination. For information to the following web site:					

Done any of the contemination at the City name a threat or notantial threat to an existing dejuting water
Does any of the contamination at the Site pose a threat or potential threat to an existing drinking water source (ground water or surface water)?
☐ Yes ☐ Unknown
If you answered "YES" above, what type of drinking water system is threatened by the contamination? Please check all that apply.
☐ Single Family ☐ Community
Indoor Air.
Are contaminant odors present in any buildings, manholes, or other confined spaces?
☐ Yes ☐ Unknown
If you answered "YES" above, please specify:
Attach additional pages if necessary.
Attach additional pages if necessary. H. Maps of the Site.

Part 3 - OPERATIONAL HISTORY OF THE SITE A. Current Use of Source Property. Note that the following questions refer only to the Source Property, not other properties affected by the Site. Answer these questions to the best of your ability. Current Property Owners. To the extent known, please identify below the current owner of the source property. Name: Chehalis Power Plant Title: Organization: PacifiCorp Energy Mailing address: 1813 Bishop Road State: WA Zip code: 98532 City: Chehalis Phone: 360-748-1300 Current Business Owner (Operator). To the extent known, please identify below the current owner of the business located on the source property. Name: PacifiCorp Energy Title: Organization: Mailing address: 1813 Bishop Road State: WA Zip code: 98532 City: Chehalis Phone: 360-748-1300 Current Business Operations. To the extent known, please identify below the current operations of the business located on the source property. What is the current land use of the source property? Please check all that apply. Residential School Commercial Childcare facility ☐ Park Agricultural Other – please specify: Is there a currently operational commercial or industrial business located on the source property? ☐ Unknown ⊠ Yes □ No If you answered "YES" above, please identify in the following table the current business operations using the North American Industry Classification System (NAICS) codes and specifying the operations. **NAICS CODE DESCRIPTION OF OPERATIONS** EX: 447110 Gasoline Stations with Convenience Stores 22112 Fossil Fuel Electric Power Generation

Part 3 – OPERATIONAL HISTORY OF THE SITE continued

Is there a solid waste handling facility located on the Source Property?								
☐ Yes ☐ No ☐ Unknown								
If you answered "YES" above, please identify:								
Attach additional pages if necessary.								
Is there a dangerous waste treatment, storage, or disposal facility located on the Source Property?								
☐ Yes │ No ☐ Unknown								
If you answered "YES" above Inlea	If you answered "YES" above, please identify:							
in you allowered 120 above, place	aco lacitally.							
Attach additional pages if necessary.	0 4							
Regulation of Current Business	•							
Does the business operate under substances into the environment (any federal, state, or local permits e.g., NPDES permit)?	related to th	ne release of hazardous					
⊠ Yes □ No	Unknown							
If you answered "YES" above, ple	ease specify the regulated operation	n, the nam	e of the permit, and the					
date it was issued in the table belo		,	1 /					
REGULATED OPERATION	PERMIT		DATE ISSUED					
EX: Wastewater discharge	NPDES permit		02/02/02					
Stormwater Discharge	Industrial General Stormwater NPDE	S Permit	07/01/2012					
Air Emissions	EFSEC Notice of Construction/PSD	Approval	07/17/2006					
Air Emissions	Title V Air Operating Permit; EFSEC	06-01 R1	10/10/2011					
Air Emissions	Acid Rain Permit: EFSEC 06-01-AR	R1	June 2001					
Has a state or federal notice of en the release of hazardous substance	forcement action (e.g., notice of vices at the business?	olation) eve	r been issued related to					
☐ Yes ☑ N ☐ Unknown								
If you answered "yes" above, please specify (notice and year issued):								
Have business operations resulted in any other spills or other unpermitted releases on the source property?								
⊠ Yes □ No □ Unknown								
If you answered "YES" above, plea	ase specify in the table below.							
RELEASE	DATE OF RELEASE STATUS OF RELEASE							
Gravel and soil pile contaminated with								
diesel identified during internal	00/01/0007	Contaminate	ed soil removed and site					
environmental audit. Likely excavated from storage area drain sump overflow	08/21/2007	remediated						
in 2004.								
Transformer GSU#3 failed and mineral								
oil ignited. Fire suppresion water and	00/4 6/0006		from ditches and stormwater					
fire fighting foam filled the transformer containment and mineral oil overflowed	03/16/2006	pond. Conta	aminated soil removed and					
to the stormwater ditch.		sic icilicula	ica					

Part 3 - OPERATIONAL HISTORY OF THE SITE continued

Storage Tank Information. In table below, please identify all above ground storage tanks (AST) and underground storage tanks (UST) that have been used for storing hazardous substances on the source property, irrespective of whether the tanks are still in use or in place. *If you are unable to provide answers to specific questions regarding a tank, please enter "U" for unknown.*

IDE	NTIFICATION	ON		STATUS AND CLOSURE RELE				EASES	
Hazardous Substance	Type (AST/UST)	Size (Gallons)	TANK ID	Date Install	IN USE (Y/N)	Date Closed	CLOSURE METHOD (*)	Past (Y/N)	CURRENT (Y/N)
EX: Diesel	UST	10,000	4	02/87	N	05/98	Removed	Υ	N
No. 2 Fuel Oil	AST	1,700,000	1	2000	N	5/12	Closed in Place	N	N
No. 2 Fuel Oil	AST	1,700,000	2	2000	N	5/12	Closed in Place	N	N
Waste Fuel Drain	AST	556 ea.	21, 22	2000	Υ			N	N
Inlet Natural Gas Drain	AST	2219 ea.	23, 24	2000	Υ			N	N
Oil-Water Separator	AST	300	26	2000	Υ			N	N

(*) Options = Removed or Closed in Place

B. Past Use of Source Property. Note that the following questions refer only to the Source Property, not other properties affected by the Site. Please answer these questions to the best of your ability.

Past Property Owners. To the eat the time the release occurred.	extent known, please i	identify	below t	the owner	of the source property		
Name:				Title:			
Organization:							
Mailing address:							
City:		State:			Zip code:		
Phone:	Fax:			E-mail:			
Past Business Owners (Operator) business (operator) at the time the		iown, pl	ease id	lentify bel	ow the owner of the		
Name:			Title:				
Organization:							
Mailing address:							
City:		State:			Zip code:		
Phone:	Fax:			E-mail:			
Identification of Past Business Operations. Please identify in the following table the past operations of businesses located on the source property using the North American Industry Classification System (NAICS) codes and/or specifying the operations.							
NAICS CODE	DESCRIPTION OF OPERATIONS						
EX: 447110	Gasoline Stations with Convenience Stores						

Part 3 – OPERATIONAL HISTORY OF THE SITE continued

C. Future Use of Source and Affected Properties. The following questions refer to both source and affected properties. Please answer these questions to the best of your ability.
Will any ownership interest in the source or affected properties be conveyed prior to, or upon completion of, the cleanup?
☐ Yes ☐ Unknown
If you answered "YES" above, please specify:
Attach additional pages if necessary.
Will any of the source or affected properties, or portions of those properties, be redeveloped as part of the cleanup?
☐ Yes ☐ Unknown
If you answered "YES" above, please specify the proposed land use below. Please check all that apply.
Residential School Commercial Childcare facility Industrial Park Agricultural Other – please specify:
Please also specify the activities proposed for that land use:
Attach additional pages if necessary.

Part 4 – ADMINISTRATIVE HISTORY OF THE SITE	
Have you previously reported the release(s) of hazardous substances at the Site to Ecology?	
∑ Yes – If so, when? 01/20/2011 □ No □ Unknown	
Has the cleanup of the Site, or any portion of the Site, ever been managed under the VCP?	
 Yes − If so, please specify the VCP Project Number: No Unknown 	
Has the cleanup of the Site, or any portion of the Site, ever been managed under a federal or state order or decree?	ate
 Yes − If so, please specify the type and docket number: No Unknown 	
Part 5 – DESCRIPTION OF INDEPENDENT REMEDIAL ACTIONS AT THE SITE	
A. Scope of Remedial Actions.	
Do you plan to characterize and address all of the contamination at the Site, including a contamination located on affected adjacent properties, as part of the VCP project?	ny
If you answered "NO" above, please describe below the scope of the VCP project, including to contamination (properties, portions of a property, media and/or hazardous substances) that you INOT plan on characterizing and/or addressing as part of the VCP project. Please include addition pages if necessary.	00
	_
	_
	_
	_
	_
	_
Attach additional pages if necessary.	_

Part 5 - DESCRIPTION OF INDEPENDENT REMEDIAL ACTIONS AT THE SITE continued

B. Status of Remedial Actions.

What is the current status of remedial actions at the site? Please check all that apply in the table below.

REMEDIAL ACTION	PLANNED	ONGOING	COMPLETED	NOT APPLICABLE
INITIAL RESPONSE (UST ONLY)				X
INTERIM ACTION			X	
REMEDIAL INVESTIGATION			X	
FEASIBILITY STUDY			X	
CLEANUP ACTION			X	

C. Documentation of Remedial Actions.

Please list in the table below all known remedial action plans or reports produced for the site, including:

- The title of the plan or report,
- The author (e.g. consulting firm) of the plan or report,
- The date the plan or report was produced,
- Whether the plan or report has been submitted to Ecology,
- The date the plan or report was submitted to Ecology.

	TITLE		DATE	SUBMITTED TO ECOLOGY		
			DATE	Y/N?	DATE	
Ex:	John Doe's Site: Remedial Investigation Work Plan	Mom's Consulting Firm	02/20/05	NO	N/A	
1.	PacifiCorp Energy Chehalis Power Plant Transformer GSU#1 Oil Spill Status Report	PacifiCorp Energy/Cowlitz Clean Sweep	04/28/11	Yes	05/02/11 submitted to K. Hancock Ecology SWRO	
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

Part 6 – STATEMENT AND SIG	SNATURE				
A. Statement and Signature. The undersigned affirms that the information contained in this application is true and accurate to the best of his or her knowledge. Please note that someone other than the Customer may sign this Application Form.					
Name: Mark A. Miller			Title:	Plant Ma	nager
Signature: Will Will	PZS451			[Date: 8/14/20(Z
Organization: PacifiCorp Energy	Chehalis Power Plant	t			
Mailing address: 1318 Bishop Ro	ad				
City: Chehalis	City: Chehalis State: WA Zip code: 98532				Zip code: 98532
Phone: 360-748-1300	Fax: 360-740-1981			E-mail: mark.a.n	niller@pacificorp.com
B. Affiliation.					
What is the signatory's involvement	nt at the Site? Please	check	all that	t apply.	
☐ Customer☐ Property Owner☐ Consultant☐ Attorney☐ Other – please see	pecify: <u>Plant Manage</u>	<u>er</u>			

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.



Chehalis Power Plant Transformer GSU#1 Oil Spill Facility and Site Location Map

Attachment 2

VCP Agreement

VCP AGREEMENT



INSTRUCTIONS: Submit this Agreement (original) to Ecology as part of your Application. Before submitting, enter the Customer's name and the Site's address on the first page and sign the Agreement on the second page. If your Application is accepted, then Ecology will do the following: 1) identify the Site and VCP project in the box below; 2) sign the Agreement; and 3) send you a copy of the completed Agreement.

This document constitutes an Agreement between the State of Washington Department of Ecology (Ecology) and PacifiCorp Energy Chehalis Power Plant

(Customer) to provide informal site-specific technical consultations under the Voluntary Cleanup Program (VCP) for the Site identified below and associated with the following address:

1813 Bishop Road, Chehalis, WA 98532

The purpose of this Agreement is to facilitate independent remedial action at the Site. Ecology is entering into this Agreement under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC. If a term in this Agreement is defined in MTCA or Chapter 173-340 WAC, then that definition shall govern.

Services Provided by Ecology

Upon request, Ecology agrees to provide the Customer informal site-specific technical consultations on the independent remedial actions proposed for or performed at the Site consistent with WAC 173-340-515(5). Those consultations may include assistance in identifying applicable regulatory requirements and opinions on whether the remedial actions proposed for or conducted at the Site meet those requirements.

Ecology may use any appropriate resource to provide the Customer with the requested consultative services. Those resources may include, but shall not be limited to, those of Ecology and the Office of the Attorney General. However, Ecology shall not use independent contractors unless the Customer provides Ecology with prior written authorization.

In accordance with RCW 70.105D.030(1)(i), any opinions provided by Ecology under this Agreement are advisory only and not binding on Ecology. Ecology, the state, and officers and employees of the state are immune from all liability. Furthermore, no cause of action of any nature may arise from any act or omission in providing, or failing to provide, informal advice and assistance under the VCP.

Payment for Services by Customer

The Customer agrees to pay all costs incurred by Ecology in providing the informal site-specific technical consultations requested by the Customer consistent with WAC 173-340-515(6) and 173-340-550(6). Those costs may include the costs incurred by attorneys or independent contractors used by Ecology to provide the requested consultative services. Ecology's hourly costs shall be determined based on the method in WAC 173-340-550(2).

Ecology shall mail the Customer a monthly itemized statement of costs (invoice) by the tenth day of each month (invoice date) that there is a balance on the account. The invoice shall include a summary of the costs incurred, payments received, identity of staff involved, and amount of time staff spent on the project.

The Customer shall pay the required amount by the due date, which shall be thirty (30) calendar days after the invoice date. If payment has not been received by the due date, then Ecology shall withhold

FOR COMPLETION BY ECOLOGY ONLY	Facility / Site Name:
	Facility / Site No.:

any requested opinions and notify the Customer by certified mail that the debt is past due. If payment has not been received within sixty (60) calendar days of the invoice date, then Ecology shall stop all work under the Agreement and may, as appropriate, assign the debt to a collection agency under Chapter 19.16 RCW. The Customer agrees to pay the collection agency fee incurred by Ecology in the course of debt collection.

Reservation of Rights / No Settlement

This Agreement does not constitute a settlement of liability to the state under MTCA. This Agreement also does not protect a liable person from contribution claims by third parties for matters addressed by the Agreement. The state does not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). Ecology's signature on this Agreement in no way constitutes a covenant not to sue or a compromise of any Ecology rights or authority.

Ecology reserves all rights under MTCA, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

Effective Date, Modifications, and Severability

The effective date of this Agreement shall be the date on which this Agreement is signed by the Toxics Cleanup Program's Section Manager or delegated representative. This Agreement may be amended by mutual agreement of Ecology and the Customer. Amendments shall be in writing and shall be effective when signed by the Toxics Cleanup Program's Section Manager or delegated representative. If any provision of this Agreement proves to be void, it shall in no way invalidate any other provision of this Agreement.

Termination of Agreement

Either party may terminate this Agreement without cause by sending written notice by U.S. mail to the other party. The effective date of termination shall be the date Ecology sends notice to the Customer or the date Ecology receives notice from the Customer, whichever occurs first. Unless otherwise directed, issuance of a No Further Action opinion, either for the Site as a whole or for a portion of the real property located within the Site, shall constitute notice of termination by Ecology.

Under this Agreement, the Customer is only responsible for costs incurred by Ecology before the effective date of termination. However, termination of this Agreement shall not affect any right Ecology may have to recover its costs under MTCA or any other provision of law.

Representations and Signatures

The undersigned representative of the Customer hereby certifies that he or she is fully authorized to enter into this Agreement and to execute and legally bind the Customer to comply with the Agreement.

STATE OF WASHINGTON	PacifiCorp-Chehalis Gen
DEPARTMENT OF ECOLOGY	Name of Customer
	Wille posic,
Signature	Signature Mark A. Miller
Printed Name	Printed Name of Signatory
Section Manager,	Manager, 6as Plant
Toxics Cleanup Program Section	Title of Signatory
Date:	Date: 8/14/2012
	/ *

If you need this document in an alternative format, please call the Toxics Cleanup Program at 360-407-7170. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

Attachment 3 Terrestrial Ecology Evaluation



Voluntary Cleanup Program

Washington State Department of Ecology Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

- 1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
- 2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
- 3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm.

Step 1: IDENTIFY HAZARDOUS WASTE SITE		
Please identify below the hazardous waste site for which you are documenting an evaluation.		
Facility/Site Name: Chehalis Power Plant		
Facility/Site Address: 1813 Bishop Road, Chehalis, WA 98532		
Facility/Site No: 3336951 VCP Project No.: #####		

Step 2: IDENTIFY EVALUATOR				
Please identify below the person who conducted the evaluation and their contact information.				
Name: Lenora Westbrook Title: Senior Env. Engineer				
Organization: KTA Associates, Inc.				
Mailing address: 800 Fifth Avenue, Suite 4100				
City: Seattle			State: WA Zip code: 98104	
Phone: 877-736-1499	Fax: 360-252-8832		E-mail: lwest	brook@ktainc.net

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS A. Exclusion from further evaluation. 1. Does the Site qualify for an exclusion from further evaluation? ⊠ Yes If you answered "YES," then answer Question 2. No or If you answered "NO" or "UKNOWN," then skip to Step 3B of this form. Unknown 2. What is the basis for the exclusion? Check all that apply. Then skip to Step 4 of this form. Point of Compliance: WAC 173-340-7491(1)(a) All soil contamination is, or will be,* at least 15 feet below the surface. All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination. Barriers to Exposure: WAC 173-340-7491(1)(b) All contaminated soil, is or will be,* covered by physical barriers (such as buildings or \boxtimes paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination. Undeveloped Land: WAC 173-340-7491(1)(c) There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride. toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene. For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site. Background Concentrations: WAC 173-340-7491(1)(d) Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709. * An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology. [±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil. # "Contiquous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

В.	Simplified	evaluation.			
1.	Does the Site qualify for a simplified evaluation?				
		es If you answered "YES," then answer Question 2 below.			
	☐ N Unkn	o or own If you answered " NO " or " UNKNOWN, " then skip to Step 3C of this form.			
2.	Did you co	nduct a simplified evaluation?			
	Y	es If you answered "YES," then answer Question 3 below.			
	□ N	o If you answered "NO," then skip to Step 3C of this form.			
3.	Was furthe	er evaluation necessary?			
		es If you answered "YES," then answer Question 4 below.			
	□ N	o If you answered "NO," then answer Question 5 below.			
4.	If further e	valuation was necessary, what did you do?			
		Used the concentrations listed in Table 749-2 as cleanup levels. If so, then skip to Step 4 of this form.			
		Conducted a site-specific evaluation. If so, then skip to Step 3C of this form.			
5.	If no furthe	er evaluation was necessary, what was the reason? Check all that apply. Then skip f this form.			
	Exposure A	Analysis: WAC 173-340-7492(2)(a)			
		Area of soil contamination at the Site is not more than 350 square feet.			
		Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.			
	Pathway A	nalysis: WAC 173-340-7492(2)(b)			
		No potential exposure pathways from soil contamination to ecological receptors.			
	Contamina	nt Analysis: WAC 173-340-7492(2)(c)			
		No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.			
		No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.			
		No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.			
		No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.			

C.	Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. See WAC 173-340-7493(1)(c).
1.	Was there a problem? See WAC 173-340-7493(2).
	Yes If you answered "YES," then answer Question 2 below.
	No If you answered " NO ," then identify the reason here and then skip to Question 5 below:
	No issues were identified during the problem formulation step.
	While issues were identified, those issues were addressed by the cleanup actions for protecting human health.
2.	What did you do to resolve the problem? See WAC 173-340-7493(3).
	Used the concentrations listed in Table 749-3 as cleanup levels. <i>If so, then skip to Question 5 below.</i>
	Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. <i>If so, then answer Questions 3 and 4 below.</i>
3.	If you conducted further site-specific evaluations, what methods did you use? Check all that apply. See WAC 173-340-7493(3).
	Literature surveys.
	Soil bioassays.
	☐ Wildlife exposure model.
	☐ Biomarkers.
	☐ Site-specific field studies.
	☐ Weight of evidence.
	Other methods approved by Ecology. If so, please specify: #####
4.	What was the result of those evaluations?
	Confirmed there was no problem.
	Confirmed there was a problem and established site-specific cleanup levels.
5.	Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?
	☐ Yes If so, please identify the Ecology staff who approved those steps: #####
	□ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region:
Attn: VCP Coordinator
3190 160th Ave. SE
Bellevue, WA 98008-5452

Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775 Central Region: Attn: VCP Coordinator 15 W. Yakima Ave., Suite 200 Yakima, WA 98902

Eastern Region: Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

Attachment 4 Cleanup Action Report



CLEANUP ACTION REPORT FOR:

CHEHALIS POWER PLANT

GENERATOR STEP-UP TRANSFORMER No. 1 (GSU #1) OIL SPILL



Prepared for: PacifiCorp Energy

Prepared by: KTA Associates, Inc. 800 Fifth Avenue, Suite 4100 Seattle, WA

August 2012

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COMMON ACRONYMS

AST Above-ground Storage Tank

ASTM American Society for Testing and Materials

bgs below ground surface

CERCLA Comprehensive Environmental Response, Compensation and Liability Act

CCS Cowlitz Clean Sweep

ESA Environmental Site Assessment

KTA KTA Associates, Inc.

MTCA Model Toxics Control Act

NWTPH-Dx Northwest Total Petroleum Hydrocarbons-diesel extended range

NWTPH-Gx Northwest Total Petroleum Hydrocarbons-gasoline extended range

NFA No Further Action

NPL National Priority List

PCB Polychlorinated Biphenyls

RCRA Resource Conservation and Recovery Act

SI Site Investigation

TEC TEC, Inc.

USEPA United States Environmental Protection Agency

UST Underground Storage Tank

VCP Voluntary Cleanup Program

1.0 INTRODUCTION

KTA Associates, Inc. (KTA) has prepared this Cleanup Action Report (CAR) for the Chehalis Power Plant transformer oil spill which occurred on January 20, 2011. The Chehalis Power Plant (Chehalis Power) is owned and operated by PacifiCorp Energy at 1813 Bishop Road in Chehalis. As established in Section 200 of Chapter 340 of Title 173 of the Washington Administrative Code (WAC 173-340-200), the "Site" is defined by the full lateral and vertical extent of contamination that resulted from the transformer explosion and fire. The incident released an estimated 2,000 gallons of non-PCB mineral oil to the ground and to fire suppression water. Based on the information gathered to date, the Site appears to be limited to near-surface petroleum-contaminated soil and gravel near the transformer and in the stormwater collection system. The Site was remediated within weeks of the oil spill.

This CAR documents (1) the oil spill incident, (2) the remedial excavation and removal of contaminated soil from the Site, (3) site investigation, and, (4) disposition of wastewater from cleanup activities.

1.1 PURPOSE

The purpose of this CAR is to satisfy the specific requirements of the Washington State Model Toxics Control Act (MTCA), in accordance with WAC 173-340-400 and 173-340-410, to obtain a determination of No Further Action from the Washington State Department of Ecology (Ecology) through Ecology's Voluntary Cleanup Program.

1.2 SITE LOCATION AND DESCRIPTION

PacifiCorp Energy owns and operates a natural gas-fired combined cycle power plant, which produces 520-megawatts of electricity. The Site is located entirely within the property boundaries of the power plant as shown in Map A-1 in Appendix A. The location of the power plant is in the vicinity map, Map A-2 in Appendix A.

1.2.1 Site

Chehalis Power is located at 1813 Bishop Road, Chehalis, Lewis County, in the Chehalis River Valley. The plant completed construction and began operation in 2003. The facility is 20 acres of level graded property. The power plant is a large industrial facility including two combustion turbines, electrical transformers, heat recovery steam generators, air emissions control equipment, exhaust gas stacks, air-cooled steam condenser, water treatment equipment, operations and maintenance building. The facility also includes several tanks primarily used for water; two 1.7 million gallon fuel oil storage tanks in a lined earthen containment are empty and have not been used since the initial startup of the facility. The tanks are now cleaned and closed. The layout and drainage system for the facility are shown in Maps A-3 and A-4.

The electrical transformers at the power plant use mineral oil as a dielectric fluid; the transformers are guaranteed Non-PCB, as is standard for transformers manufactured after the 1970s. The mineral oil in GSU#1 was tested after the failure to confirm no PCBs were present. The lab analysis report in the **PacifiCorp Energy Chehalis Power Plant Transformer GSU#1 Oil Spill Status Report**, included in Appendix C determined the PCB level is non-detectable for all Aroclors.

The facility is staffed 24 hours per day, 7 days per week and operating as needed for electrical generation demand. The plant is fenced and secured with automatic systems.

Stormwater collected from the facility is directed by stormwater ditches and underground pipes to a retention pond. Stormwater is discharged from the pond to a waterway to nearby drainage under an Ecology Industrial Stormwater General NPDES Permit.

As shown in Map A-1, the Site includes surface water, soil and groundwater affected by the transformer oil spill. The information gathered after the spill indicates that the release did not affect any property outside the power plant. The areas affected by the spill are:

- Soil and gravel surrounding the failed transformer
- Surface water, soil and gravel in stormwater collection ditches
- Groundwater near the failed transformer
- Stormwater pond surface water and soil/gravel on the pond banks

1.2.2 Adjoining Properties

The property adjoining the Site is the power plant owned by PacifiCorp Energy, the areas affected by the oil spill were confined to the power plant facility. The properties outside the power plant boundaries are typical of the area.

The Chehalis River Valley is considered a rural area, with approximately 7,000 residents living in and around the town. The plant is located 3 miles south of town and consists mostly of farms, small pockets of light industrial areas, and a few housing subdivisions. The power plant and commercial businesses in the area are located in the Chehalis Industrial Park developed by the Port of Chehalis. There are several roadways near the plant, the closest being Bishop Road. Interstate 5 is 0.25 miles southwest of the facility and Jackson Highway is 0.5 miles northeast of the plant.

The electrical substation property adjoining the power plant on the west side is owned by Bonneville Power Administration (BPA) and was constructed for Chehalis Power to transport power generated by the power plant to the BPA high voltage electrical transmission line less than one mile west. The fenced substation is surrounded by Chehalis Power property on three sides.

As shown in Map A-1, the other properties adjoining Chehalis Power include the following:

- East of the facility is an open agricultural field planted with grass owned by Community Partners.
- Southeast of the facility, along Bishop Road is a residence owned by Jerry Holmes.
- South of the facility on Bishop Road is Washington Evergreen Co Op Inc., a commercial transportation business.
- South of the facility, adjacent to the Chehalis Power facility driveway on Bishop Road, is a residence and shop owned by David and Sherry Devore.
- South and east of the facility is a farm, incorporating a residence, garage, shop, barns and several acres of open pasture, owned by William Schmidt.
- West of the facility is property owned by Seamless Attenuating Technologies, Inc. with a light industrial facility and a natural waterway and wetland adjoining the Chehalis Power stormwater waterway.

 Directly north of the facility is a Fred Meyer Store retail distribution transportation warehouse and paved parking lot.

1.3 Site Property Land Use History

Chehalis Power was originally developed by independent power companies who purchased the property in the mid-1990s and began permitting for a power plant. Construction was delayed several years for siting and environmental permitting; construction began in May 2001 and was completed in October 2003. The facility began operation in July 2003. Tractebel had developed and operated the power plant; later the company became part of SUEZ. PacifiCorp Energy purchased the power plant in 2008. PacifiCorp Energy is the electrical power division of PacifiCorp with operations in several states in the western U.S.

Prior to construction, the property was an agricultural field. Map A-5 in Appendix A is an aerial photo from the year 1990. Chehalis Power is located on a relatively level open field. It is probable that the Site has been used for agriculture since the land was settled in the second half of the 19th century.

1.4 Site Future Property Land Use

The power plant is a permanent installation designed for several decades of operation. It is expected that the plant will remain on the property and in operation for the foreseeable future. PacifiCorp Energy plans to continue operating the power plant and does not plan to use the property for other purposes.

1.5 GEOLOGIC AND HYDROGEOLOGIC SETTING

1.5.1 Regional Hydrogeology

The facility is located in the Chehalis River Valley, in the northwest-southeast Newaukum River drainage that flows northwest to the Chehalis River. The elevation of the facility is 245 feet and rises to 300 feet 0.5 mile northeast at the Jackson Highway. Northeast of the highway, the elevation rises to foothills. The lowest elevation of the valley in the area is the Newaukum River at 200 feet, one mile southwest of the facility. The area around the Site is a relatively flat bench of level soils used for agriculture. In general, the surface, and likely groundwater flow, is southwest from the foothills in the northeast to the river at the bottom of the drainage valley to the southwest.

A geotechnical subsurface investigation was conducted by URS Corporation (URS) in 2000 for the construction of the power plant. This **Geotechnical Data Report** is included as Appendix B.

1.5.2 Site Geology

The URS Geotechnical Data Report explains that the surficial geology consists of late glacial sand and gravel deposits from the Hayden Creek Drift. Silt and clay deposits underlie the surface soils to a depth of 100 – 200 feet in the area.

The overall soil-type distribution at the Site consists of a low permeability silt and clay layer underlain by 45 to 50 feet of water-bearing sand and gravel, underlain by a silt and clay aguitard. These soil types are

consistent with regional geologic mapping (Weigle and Foxworthy 1962) and a regional study for the Chehalis Generation Facility (Dames and Moore 1994).

These regional studies classify the upper 50 feet of soil in the area of the site as recent alluvium and glaciofluvial sediments. The aquitard found at approximately 50 feet bgs is widespread and is often described as blue-gray, clayey silt, It is reported to be more than 100 feet thick (Dames and Moore 1994).

1.5.3 Site Hydrology

The power plant facility yard areas are graded level with a layer of gravel in the transformer area. Surface water at the facility flows to stormwater ditches along the roadway encircling the facility which collects and directs stormwater to a retention pond. The pond outfall flows west in a gravel waterway (under an Industrial Stormwater permit) to Berwick Creek. Berwick Creek flows from east to west, under Bishop Road and Interstate 5, to Dillenbaugh Creek, which then flows into the Newaukum River.

The groundwater flow direction beneath the site is assumed to travel south/southwest towards Bishop Road and Berwick Creek. Regional investigations conducted by others (Dames and Moore 1994) have categorized the shallow aquifer in the area as unconfined or semi-confined. However, the shallow aquifer appears to exhibit the characteristics of a confined or semi-confined aquifer, primarily due to the low permeably silt cap immediately above the aquifer.

The field exploration for the URS Geotechnical Data Report was conducted in August 2000. At that time, the groundwater table was found to be 15-20 feet bgs. In a later investigation done in May 2011, the groundwater level was found to be 5-14 feet bgs. At the time of the oil spill incident, January 2011, the groundwater level was about four feet bgs.

2.0 TRANSFORMER OIL RELEASE INCIDENT

2.1 TRANSFORMER FAILURE AND OIL RELEASE

Electrical Transformer GSU#1 failed at 04:15 am on January 20, 2011, with an explosion and fire. An estimated 2,000 gallons of the 11,100 gallons of non-PCB mineral oil in the transformer sprayed onto the transformer containment structure and to the soil outside the containment. The transformer fire suppression system initiated automatically and sprayed water over the transformer. The Fire Department responded and extinguished the fire using water with aqueous fire-fighting foam. The water and foam pooled around the transformer, overflowed the containment and flowed into adjacent stormwater ditches. The water was contaminated with small amounts of mineral oil. Some oily water reached the stormwater pond. However, PacifiCorp personnel had shut-off the discharge flow from the pond so that no oil contaminated water was discharged from the stormwater pond or from the facility property.

2.2 IMMEDIATE SPILL RESPONSE

PacifiCorp Energy completed the verbal spill notifications to the required Federal and State agencies promptly after the incident. Bill Tietzel of Lewis County Public Health and Social Services and Fern Svendson and Kevin Hancock of Ecology SWRO visited the Site in the days after the spill.



Figure 1 – Transformer Oil Spill Cleanup



Figure 2 – Stormwater Pond Cleanup

Cowlitz Clean Sweep (CCS) of Longview, WA was retained for emergency spill response. The contractor arrived the morning of January 20, 2011 as the Fire Department wrapped up their operations. CCS initiated oil spill containment and remained on-site for several weeks for spill cleanup.

2.3 INITIAL SPILL CLEANUP

The initial cleanup efforts focused on removal of oil contaminated water from the stormwater ditches, the stormwater pond and transformer GSU#1 containment structure, as shown in Figure 2. CCS removed oil and contaminated water for disposal in accordance with MTCA standards. While the stormwater pond outfall was shut off, excess water was pumped to a lined containment structure for two large fuel oil tanks in the southwest corner of the facility. Reconstruction of the transformer containment and foundation was necessary to install a replacement transformer. The water table was only four feet bgs so it was necessary to pump out groundwater during the transformer repairs. Oil was collected with absorbents when possible. Excess water was pumped into the empty east fuel oil tank after the containment was filled to a safe capacity. In addition, water in the stormwater pond was pumped to the east fuel oil tank after the water storage in the containment structure was at capacity,

After the initial Fire Department response, Chehalis Power contracted with Cowlitz Clean Sweep (CCS) for spill response and remediation of contaminated soil and gravel. The area around the failed transformer and the stormwater ditches was saturated with water and oil. CCS removed oily water and soil for disposal.

2.4 SOIL AND WATER REMEDIATION

CCS conducted extensive remediation, followed by sampling of the soil and water from the stormwater ditches, stormwater pond and the area around GSU#1. The contaminated soil and gravel in the ditches and pond were removed by CCS and replaced with clean material. It was necessary to excavate the west side of the transformer containment in order to pour concrete for a larger foundation and containment structure for the replacement transformer.

A few weeks after the oil spill, the area around GSU#1 (approximately 70 by 80 feet) which was affected by the mineral oil sprayed during the transformer explosion release was



Figure 3 – Excavating Stormwater Ditches

remediated. The extent of oil contamination was determined with olfactory, visual and PID readings. Contaminated soil was excavated 6" below the groundwater level and removed for disposal; free product oil on the groundwater surface was absorbed and removed. Clean fill was deposited in the excavated area and compacted.

CCS sampled the stormwater ditches, pond banks and around transformer GSU#1 for laboratory analysis to confirm that contaminated soil had been removed. In three locations the mineral oil level exceeded 4,000 mg/kg. Two of the locations, a ditch and pond bank, further excavation and additional confirmation sampling were necessary and completed. The third location was under the transformer foundation/containment extension and was inaccessible (Sample #D8).

Water stored in the tank containment structure and in the east fuel oil tank was eventually disposed as described in Section 5.0 Wastewater Disposal.

CCS prepared a Mineral Oil Release Report describing the response and cleanup activities with detailed information on sampling, lab analysis and waste disposal (included in the **PacifiCorp Energy Chehalis Power Plant Transformer GSU#1 Oil Spill Status Report** - Attachment C).

Soil sampling and analysis demonstrate that the contaminated soil was remediated to below Model Toxics Cleanup Act (MTCA) Method A soil cleanup levels.

2.5 OIL SPILL STATUS REPORT

In early February 2011, PacifiCorp hired the environmental consultant company KTA Associates Inc. (KTA) of Seattle, Washington. KTA was hired to prepare and coordinate oil spill remediation plans. As directed by Ecology and Lewis County Public Health and Social Services personnel visiting the Site after the spill, Chehalis Power and KTA prepared an Oil Spill Status Report.

The PacifiCorp Energy Chehalis Power Plant Transformer GSU#1 Oil Spill Status Report, included in Appendix C, was sent May 2, 2011 to:

- Kevin Hancock, Ecology SWRO Industrial Stormwater Facility Manager
- Bill Teitzel, Code Compliance Supervisor, Lewis County Public Health and Social Services
- Dan Meyer, USEPA Region 10
- Jim LaSpina, Siting Specialist, Energy Facility Site Evaluation Council

The oil spill status report includes lab analysis results for 70 samples of soil and two samples of water. The samples were taken to confirm the success of the soil and water remediation of oil contamination. CCS conducted the sampling and took the samples to Dragon Analytical Laboratory in Olympia for analysis. The sampling locations are shown on Maps A-6, A-7 and A-8 in Appendix A. Table 2 -1 summarizes the CCS sampling effort.

Table 2-1 CCS Cleanup Confirmation Soil Sample Results and Screening Levels

Location Type	Sample ID	Date	TPH-Dx Results	Repeat Cleanup	TPH-Dx MTCA A Screening Level
			(mineral oil)	Sample	(mg/kg)
			(mg/kg)		
Ditch Lines	A1	1/27/2011	ND		NA
Ditch Lines	A2	1/27/2011	ND		NA
Ditch Lines	A3	1/27/2011	ND		NA
Ditch Lines	A4	1/27/2011	ND		NA
Ditch Lines	A5	1/27/2011	ND		NA
Ditch Lines	A6	1/27/2011	ND		NA
Ditch Lines	A7	1/27/2011	ND		NA
Ditch Lines	A8	1/27/2011	ND		NA
Ditch Lines	A9	1/27/2011	ND		NA
Ditch Lines	A10	1/27/2011	ND		NA
Ditch Lines	A11	1/27/2011	ND		NA
Ditch Lines	A12	1/27/2011	ND		NA

Location Type	Sample	Date	TPH-Dx	<u>R</u> epeat	TPH-Dx MTCA A
	ID		Results	Cleanup	Screening Level
			(mineral oil)	Sample	(mg/kg)
Ditch Lines	B1	1/27/2011	(mg/kg) ND		NA
Ditch Lines	B2	1/27/2011	ND ND		NA NA
Ditch Lines	B3	1/27/2011	ND		NA NA
Ditch Lines	B4	1/27/2011	ND		NA NA
Ditch Lines	B5	1/27/2011	ND		NA NA
Ditch Lines	BGravel	1/27/2011	42,222		4,000
Ditch Lines	Bgravel	1/27/2011	ND	R	NA
Ditch Lines	C1	1/27/2011	ND	11	NA NA
Ditch Lines	C2	1/27/2011	ND		NA NA
Ditch Lines	C3	1/27/2011	ND		NA
Ditch Lines	C4	1/27/2011	ND		NA
Ditch Lines	C5	1/27/2011	ND		NA
Stormwater Pond Soil	P1	2/4/2011	ND		NA
Stormwater Pond Soil	P2	2/4/2011	ND		NA
Stormwater Pond Soil	P3	2/4/2011	ND		NA
Stormwater Pond Soil	P4	2/4/2011	282		4,000
Stormwater Pond Soil	P5	2/4/2011	ND		NA
Stormwater Pond Soil	P6	2/4/2011	148		4,000
Stormwater Pond Soil	P7	2/4/2011	2250		4,000
Stormwater Pond Soil	P8	2/4/2011	7100		4,000
Stormwater Pond Soil	P8(b)	2/4/2011	110	R	4,000
Stormwater Pond Soil	P9	2/4/2011	331		4,000
Stormwater Pond Soil	P10	2/4/2011	353		4,000
Stormwater Pond Soil	P11	2/4/2011	171		4,000
Stormwater Pond Soil	P12	2/4/2011	118		4,000
Soil Under GSU#1 Containment	#1	1/28/2011	217		4,000
Soil Under GSU#1 Containment	#2	1/28/2011	ND		NA
Soil Under GSU#1 Containment	#3	1/28/2011	ND		NA
Soil Under GSU#1 Containment	#4	1/28/2011	ND		NA
Soil Under GSU#1 Containment	#5	1/28/2011	ND		NA
Soil Under GSU#1 Containment	#6	1/28/2011	ND		NA
Soil under GSU#1 Containment Extension	D1	2/5/2011	261		4,000
Soil under GSU#1 Contnmt Extension	D2	2/5/2011	123		4,000
Soil under GSU#1 Contnmt Extension	D3	2/5/2011	252		4,000
Soil under GSU#1 Contnmt Extension	D4	2/5/2011	516		4,000
Soil under GSU#1 Contnmt Extension	D5	2/5/2011	182		4,000
Soil under GSU#1 Contnmt Extension	D6	2/5/2011	196		4,000
Soil under GSU#1 Contnmt Extension	D7	2/5/2011	579		4,000
Soil under GSU#1 Contnmt Extension	D8	2/5/2011	28,100		4,000
Soil under GSU#1 Contnmt Extension	D9	2/5/2011	1170		4,000
Soil under GSU#1 Contnmt Extension	D10	2/5/2011	2000		4,000
Soil around GSU#1	G1	2/22/2011	ND		NA

Location Type	Sample ID	Date	TPH-Dx Results (mineral oil)	Repeat Cleanup Sample	TPH-Dx MTCA A Screening Level (mg/kg)
			(mg/kg)		
Soil around GSU#1	G2	2/22/2011	ND		NA
Soil around GSU#1	G3	2/22/2011	ND		NA
Soil around GSU#1	G4	2/22/2011	ND		NA
Soil around GSU#1	G5	2/22/2011	ND		NA
Soil around GSU#1	G6	2/22/2011	ND		NA
Soil around GSU#1	G7	2/22/2011	123		4,000
Soil around GSU#1	G8	2/22/2011	142		4,000
Soil around GSU#1	G9	2/22/2011	ND		NA
Soil around GSU#1	G10	2/22/2011	440		4,000
Soil around GSU#1	G11	2/22/2011	ND		NA
Soil around GSU#1	G12	2/22/2011	ND		NA
Soil around GSU#1	G13	2/22/2011	258		4,000
Soil around GSU#1	G14	2/22/2011	ND		NA
Soil around GSU#1	G15	2/22/2011	845		4,000
Soil around GSU#1	G16	2/22/2011	260		NA
Soil around GSU#1	G17	2/22/2011	1143		4,000
Soil around GSU#1	G18	2/22/2011	ND		NA

ND = not detected, NA = not applicable, mg/kg = milligrams perkilogram, Bold = detected value above MTCA screening level

CCS Cleanup Confirmation Water Sample Results and Screening Levels

Location Type	Sample ID	Date	TPH-Dx Results (ug/L)	TPH-Dx MTCA A Screening Level (ug/L)
Pond Water	PW1	1/26/2011	ND	NA
East Fuel Oil Storage Tank	TW2	2/2/2011	ND	NA

ND = not detected, NA = not applicable, μ g/l = micrograms per liter

3.0 SITE INVESTIGATION

3.1 SITE INVESTIGATION PLAN AND GOALS

Within a few weeks after the oil spill GSU#1, most contaminated soil and surface water had been cleaned up and remediated. The extent of groundwater contamination was unknown. A thin layer of oil was found, shortly after the incident, on the shallow groundwater near the transformer containment structure. With large volumes of fire-fighting water and subsequent rainfall, the mineral oil migrated quickly through the soil and gravel to the surface of the groundwater about four feet bgs. The oil on the surface of the groundwater was removed during the soil remediation around GSU#1 in February, along with all identified contaminated soil. However, there was potential that residual groundwater contamination remained. The groundwater in this area flows from northeast to southwest following the general elevation gradient from the foothills to the northeast towards the Newaukum River one mile southwest of the Chehalis Power Plant. Surface stream flow and the URS Geotechnical Data Report (in Appendix B) from construction of the facility in the year 2000 support this conclusion on the groundwater flow direction.

Based on the possibility that a small plume of oil exists in the groundwater within the plant boundaries, Chehalis Power planned a groundwater investigation led by KTA to determine the extent of any groundwater plume. The information developed during the cleanup by CCS indicated that the extent of sub-surface contamination on the Site was limited to a small area near transformer GSU#1.

TEC Inc. (TEC) was contracted by PacifiCorp Energy to conduct a Site Investigation (SI) to assess possible impacts resulting from a mineral oil spill that occurred at the facility. The primary objective of the SI was to:

- Determine if groundwater has been impacted from the mineral oil spill
- · Determine if surface water in the stormwater pond has been impacted from the mineral oil spill
- Determine if water held in large above ground storage tank exceed any regulatory levels.

3.2 ESTABLISHMENT OF CLEANUP STANDARDS FOR THE SITE

The Site is within the power plant property boundaries. Chehalis Power plans to continue use of the Site and surrounding property for the power plant operations in the foreseeable future. There are no plans to change usage or sell the facility containing the Site.

Although site-specific cleanup standards can be developed for industrial properties, Chehalis Power and CCS decided to cleanup all contaminated soil and water to Model Toxics Cleanup Act (MTCA) Method A screening levels.

KTA reviewed the appropriate cleanup levels when planning the site investigation and determined that Model Toxics Cleanup Act (MTCA) Method A cleanup levels are appropriate for the Site. Soil and water samples from remediated areas were tested for NWTPH-Dx and NWTPH-Gx as described in Section 2.0. The only hazardous substance detected was mineral oil. Therefore, cleanup levels for mineral oil from MTCA in WAC 173-340-900 are appropriate.

MTCA A Soil cleanup levels of 4,000 mg/kg for mineral oil in WAC 173-340-900 Table 740-1

MTCA A Groundwater cleanup levels of 500 µg/l for mineral oil in WAC 173-340-900 Table 740 2

The point of compliance for the remedial action is at the point of release, Transformer GSU#1, for soil and groundwater. Therefore, by complying with the cleanup standards at the transformer, there would be no future restrictions for Site use, even though Chehalis Power does not have other uses planned.

3.3 INVESTIGATION PROCESS

3.3.1 Investigation Scope of Work

The field investigation was conducted on May 23 -24, 2011 by TEC. To meet the objectives explained in Section 3.1, the scope of work for the SI consisted of the following field activities:

- Groundwater Investigation Conduct collection and analysis of groundwater samples
 from six locations using a Geoprobe® direct push drill (DPT). Sample results used to
 determine if groundwater has been impacted from the mineral oil spill.
- Above Ground Storage Tank Water Samples Conduct collection and analysis of
 water from varying depths within the above ground storage tank. Sample results may be
 used to determine the proper disposal methods of water being held within the tank.
- Pond Surface Water Samples Conduct collection and analysis of surface water samples from two locations within the pond structure. Sample results will be used to determine if surface water has been impacted from mineral oil contamination.
- Scope Modification It was determined in the field that surface soil samples would be
 collected from three areas located downgradient of the transformer spill. During the
 drilling process, surface soil material (i.e., gravel) was collected from locations GW-4,
 GW-5 and GW-6 and placed into a stainless steel bowl with potable water. A
 medium sheen was noted from the material collected at GW-4, but no other sheens were
 noted coming off the material collected at GW-6.

The detailed Scope of Work and sample locations for the TEC SI are shown in Figure 3-1 in the **TEC Site Investigation Report** in Appendix D.

3.3.2 Investigation Procedures

Temporary monitoring wells were installed in the shallow water bearing zone within the six boreholes. The temporary wells were used in lieu of drive point sampling devices due to the very low yielding water bearing zone noted during drilling activities. Temporary monitoring wells were screened from 5 feet to 15 feet bgs. Four temporary monitoring wells were set downgradient of the transformer; one set up gradient; and one set directly across from the transformer. Temporary monitoring wells were



Figure 4 – Geoprobe drilling for Well GW-4 near Transformer

installed at both sites using a track mounted direct-push GeoProbe® rig. Low-flow sampling techniques were attempted due to the very low yielding water bearing zone. Samples were collected after each well ran dry several times. The lithology from the boring locations was continuously logged during drilling. Information collected on the lithology logs included borehole location, drilling information, information such as logging intervals, recovery; and sample description information.

TEC personnel collected two surface water grab samples from the stormwater pond located onsite. The first sample was collected from the northern bank area and the second was collected from the outfall.

Surface soil samples were collected in an area that showed visible mineral oil in soil collected from the gravel/clay soil interface at Well GW-4 shown in Figure 4. Soil samples were collected at three locations (SG-1, SG-2 and SG-3) at or near GW-4.

3.4 SITE INVESTIGATION RESULTS

The environmental samples were analyzed by ALS Columbia Analytical Services of Kelso, Washington. Sample analysis showed that NWTPH-Dx was detected at locations SW1 (360 ug/L) for surface water in the pond, GW-4 (1100 ug/L) for groundwater near the transformer GSU#1, and SG-1 (160 mg/kg) for soil near the transformer GSU#1. The sample locations are shown in Maps A-6 and A-9 in Appendix A. Detailed information for the investigation and results are included in the **TEC Site Investigation Report** in Appendix D.

3.4.1 Groundwater

TPH-Dx was detected at location GW-4 (1100 ug/L). Concentrations of TPH-Dx exceeded the Model Toxics Control Act (MTCA) Method A cleanup level for groundwater at only one location (GW-4), closest to transformer GSU#1, within the area of the Site where soil had been excavated and replaced. No other locations showed evidence of oil sheen during drilling or groundwater sampling. Table 3-1 shows the results and screening levels for groundwater samples.

Table 3-1 Groundwater Sample Results and Screening Levels

Location Type	Sample ID	Depth To water (feet bgs)	TPH-Dx Results (ug/L)	TPH-Dx MTCA A Screening Level (ug/L)
GW Sample	GW1-052411	13.56	ND	NA
GW Sample	GW2-052411	10.58	ND	NA
GW Sample	GW3-052411	13.37	ND	NA
GW Sample	GW4-052411	13.60	1100	500
GW Sample	GW5-052411	5.38	ND	NA
GW Sample	GW6-052411	13.80	ND	NA

ND = not detected, NA = not applicable, µg/l = micrograms per liter, Bold = detected value above MTCA screening level

3.4.2 Surface Water

TPH-Dx was detected at location SW1 (360 ug/L). No applicable surface water discharge limits or water quality standards exist for sample SW1, but comparison to the groundwater cleanup standards demonstrates the levels are within MTCA Method A standards which are protective for groundwater human consumption, therefore, protective for surface water as well. Table 3-2 shows the results and screening levels for surface water samples.

Table 3-2 Surface Water Sample Results and Screening Levels

Location Type	Sample ID	TPH-Dx Results (ug/L)	TPH-Dx MTCA A Screening Level (ug/L)
Surface Water 1 – near	SW1-052411	360	500
Surface Water 2 – at outfall	SW1-052411	ND	NA

ND = not detected, NA = not applicable, mg/kg = milligrams per kilogram

3.4.3 Soil

TPH-Dx was detected at location SG-1 (160 mg/kg), adjacent to the area of the Site where soil had been excavated and replaced. None of the soil samples collected as part of the Site Investigation exceeded the MTCA A soil cleanup standard. Table 3-3 shows the results and screening levels for soil samples.

Table 3-3 Soil Sample Results and Screening Levels

Location Type	Sample ID	Depth (inches bgs)	TPH-Dx Results (mg/kg)	TPH-Dx MTCA A Screening Level (mg/kg)
Soil	SG1-052511	~18	160	4,000
Soil	SG2-052511	~26	ND	NA
Soil	SG3-052511	~20	ND	NA

ND = not detected, NA = not applicable, mg/kg = milligrams per kilogram

3.4 WASTEWATER DISPOSAL

As part of the cleanup, a large quantity of wastewater was generated from firefighting operations and from stormwater. Oil contaminated water from the Transformer GSU#1 area, stormwater ditches, and stormwater pond was removed by CCS for disposal.

Uncontaminated excess stormwater was pumped to the containment for two 1.7 million fuel oil tanks in the southwest area of the facility as shown in Figure 6. The water in the tank containment was sampled and found non-detectable for oil; the water discharged to the stormwater pond as approved by the Ecology Industrial Stormwater Program.

Potentially contaminated stormwater was pumped from the stormwater pond and the transformer GSU#1 area into the empty east fuel oil tank. The water level in the tank, about 26%, contained an oil layer, from a combination residual fuel oil on the tank bottom and mineral oil from the cleanup. As



Figure 6 – Water from Stormwater Pond Pumped to Storage Tank Containment Structure

described in Section 3.2.1, testing conducted by TEC as part of the SI determined the oil layer was 0.5 inches thick. Water below oil layer had low levels of mineral oil per NWTPH-Dx, and no NWTPH-Gx. Water was disposed by the Ecology approved plan to discharge uncontaminated water and collect the oil layer and upper water layer for disposal.

Wastewater disposal activities are described in **Wastewater Disposal Report** in Appendix E.

3.5 SITE INVESTIGATION CONCLUSIONS

Site investigation in May 2011 showed no soil, surface water or groundwater samples over MTCA A cleanup levels, except one groundwater sample (1100 μ g/l) near the transformer. Soil samples in that location showed evidence of mineral oil under MTCA A levels. Groundwater impacts appear to be localized within 50 feet of Transformer GSU#1 and within the area sprayed with mineral oil when the transformer exploded in January 2011.

In addition, the groundwater level had receded significantly to 10 - 14 feet bgs from the wintertime level of 4 feet bgs during the spill incident. One location, closest to the building and underground utilities, had higher groundwater level of 5 feet bgs.

4.0 REMEDIAL ACTION EVALUATION

4.1 SITE CLEANUP ALTERNATIVES

After the transformer oil spill occurred and initial response and containment were completed in late January 2011, Chehalis Power directed CCS to remove contaminated soil, surface water and groundwater. The other alternative at the time would have been to wait for a Site investigation to define the extent of contamination before planning the remedial action; however, prompt replacement of the transformer was necessary for power plant operation. After the transformer replacement was completed and the power plant operation restored, Chehalis Power, with CCS and KTA, decided to remediate the remaining mineral oil contaminated soil by excavation vertically and laterally at the Site.

Following the completion of this effort, based on the sampling results, Chehalis Power determined that no further action was necessary and therefore further alternatives were not considered.

4.2 EVALUATION OF COMPLETED REMEDIAL ACTION

The oil contaminated surface water in the stormwater ditches and stormwater pond had been removed for disposal; the ditch and pond banks were remediated by removing contaminated soil/gravel and replacing the soil/gravel.

Around Transformer GSU#1, oil contamination of the Site was more extensive from the oil sprayed during the transformer explosion; the contaminated soil/gravel was removed and replaced; in addition, oil was removed from the surface of the groundwater and a large volume of groundwater was removed during repair and expansion of the transformer foundation and containment.

The approach to confirmation sampling for the transformer area, stormwater ditches and pond banks was to sample the soil systematically in contaminated areas. CCS conducted extensive sampling in locations shown in Map A-6 in Appendix A.

From the map, it can be noted that confirmation sampling was not conducted for the ditches south of the transformer on the east side of the roadway connecting to the culvert under the roadway to the stormwater pond. These ditches were remediated; however, the oil contamination had been controlled with absorbent pads during the cleanup and no oil sheen was detected in the southern ditches or the pond after remediation. Pond sampling six days after the ditch remediation, conducted by CCS, verified no mineral oil was flowing into the pond

In three locations for the confirmation sampling, the mineral oil level exceeded 4,000 mg/kg. For two of the locations, a ditch and pond bank, further excavation and additional confirmation that the spots were clean was completed. One known hot spot identified in the confirmation sampling in early February is located beneath the new transformer foundation/containment. It is therefore inaccessible for further remediation. Sample D8 showed 28,100 mg/kg mineral oil. The sample location was 20 inches bgs and is now covered by concrete. The hot spot is small and localized; the samples at locations 4 feet away showed NWTPH-Dx levels less than half the MTCA A level of 4,000 mg/kg.

After the remediation and CCS confirmation sampling of the Site was completed, Chehalis Power and KTA planned the Site Investigation to be conducted by TEC. The approach was to focus on determining

the residual groundwater impacts by sampling up gradient and down gradient from the transformer. The TEC sampling locations are shown on Map A-6 in Appendix A.

Site investigation in May 2011 showed no soil, surface water, or groundwater samples over MTCA A cleanup levels, except one (GW-4, 1100 μ g/l) near transformer within the Site area directly affected by the spray of oil during the explosion. Therefore, the groundwater impacts were localized, within 40 feet of the transformer, and the mineral oil level in the groundwater was moderately low (double the MTCA A level of 500 μ g/l).

4.3 NEED FOR ADDITIONAL REMEDIAL ACTION

The confirmation sampling by CCS and the Site Investigation by TEC demonstrated that the remedial action for the transformer mineral oil spill was successful. The database of over 80 environmental samples showed the contamination was completely remediated in: (1) the soil directly adjacent to the new transformer concrete containment structure, (2) the soil and surface water in the ditches which drained mineral oil and fire suppression water away from the transformer mineral oil spill and (3) the soil and surface water located in the stormwater pond. Of the over 80 soil, surface water and groundwater samples obtained, two samples exceeded MTCA Method A levels following remediation. These two locations are discussed as follows:

- One soil sample of ten, directly beneath the new transformer concrete containment structure, exceeded the MTCA Method A level for soil (D8 28,100 mk/kg). The sample was obtained prior to the placement of the containment structure and the sample results were received following the placement of the containment structure. This timing resulted due to an urgent need to replace the transformer so that the plant could resume operation. As stated above, soil directly adjacent to the containment structure was removed resulting in no exceedences of MTCA Method A levels for soil. Based on this finding and the limited potential for the mineral oil beneath the containment structure to migrate to groundwater and then down gradient to the stormwater pond, resulting in the exceedence of MTCA Method A levels for groundwater, no further remedial action is recommended for the remaining mineral oil contamination beneath containment structure.
- One groundwater sample approximately 30 feet directly down gradient from the transformer which exploded and caught fire exceeded the MTCA Method A level for groundwater (GW-4 – 1100 µg/l). No other groundwater samples, including others near the transformer, exceeded the MTCA A level for groundwater. It is believed that this groundwater contamination (i.e., at the location which exceeded the MTCA Method A level for groundwater) is not actually due to the migration of mineral oil from the soil contamination identified in the previous bullet. Instead, it is believed to be associated with the transformer oil which sprayed from the top of the transformer to the gravel where the groundwater contamination was identified after the transformer fire. The soil and groundwater were removed as part of the remedial activity and thus do not exceed MTCA Method A cleanup levels for soil. No groundwater with mineral oil contamination was identified down gradient from the groundwater sample location which exceeded the MTCA Method A level for groundwater. Based on this finding and the limited potential for the groundwater with mineral oil contamination detected at GW-4 to migrate in groundwater down gradient to the stormwater pond, resulting in the exeedence of MTCA Method A levels for groundwater), no further remedial action is recommended for the contaminated groundwater at GW-4.

Based on: (1) the confirmation that soils, surface water and groundwater do not exceed MTCA Method A levels for soil and groundwater (with the exception of the two samples identified in the previous bullets) and the limited potential for the mineral oil contamination identified in the previous two bullets to exceed MTCA Method A levels for groundwater prior to reaching the stormwater pond and property boundary, no further remediation actions are recommended.

If additional sampling were determined to be necessary, it would be best performed in the groundwater between the location of GW-4 (where mineral oil groundwater contamination exceeded the MTCA Method A level) and GW-6 where no mineral oil groundwater contamination was detected. However, for the reasons stated above, this additional groundwater sampling is not recommended.

4.4 TERRESTRIAL ECOLOGICAL EVALUATION

Under MTCA, a terrestrial ecological evaluation is necessary for releases of hazardous substances. However, the Site may be excluded from further evaluation, if the Site meets the criteria in WAC 173-340-7491. The Chehalis Power Site qualifies for the exclusion because all the soil contamination has been remediated, except for one small location underneath a new concrete foundation/containment structure for the replacement transformer. In addition, the facility is covered with a graded gravel surface over the industrial areas. The applicable exclusion is Barriers to Exposure; WAC 173-340-7491(1)(b), "All contaminated soil, is or will be covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination."

5.0 CONCLUSIONS

As demonstrated in this Cleanup Action Report, Chehalis Power acted quickly to clean up the oil spill, which contaminated an extended area due to firefighting water used for the transformer explosion and fire. Chehalis Power then decided to remediate all the soil and groundwater contaminated by the oil spraying from the transformer explosion in a 70 ft. by 80 ft. area. Soil, surface water and ground water were remediated after the spill incident. CCS completed confirmation sampling and TEC conducted follow-up sampling to evaluate post remediation conditions. Soil and oily water in the AST were removed and disposed of in accordance with MTCA. Excess water from the stormwater system and groundwater were removed and stored in a tank which was sampled and disposed of via Ecology guidance.

The CCS and TEC confirmation sampling indicated that no further action was necessary beyond the initial responses taken by CCS. Therefore, Chehalis Power recommends that No Further Action opinion be granted to the Site through the Voluntary Cleanup Program.

6.0 REFERENCES

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Weigle, J.M. and B.L. Foxworthy 1962. *Geology and Groundwater Resources of Western Central Lewis County, Washington.* Water Supply Bulletin No. 17. State of Washington Department of Conservation, District of Water Resources.

APPENDIX A MAPS AND DIAGRAMS



Map A - 1
Chehalis Power Plant
Transformer GSU#1 Oil Spill
Facility and Site Location Map

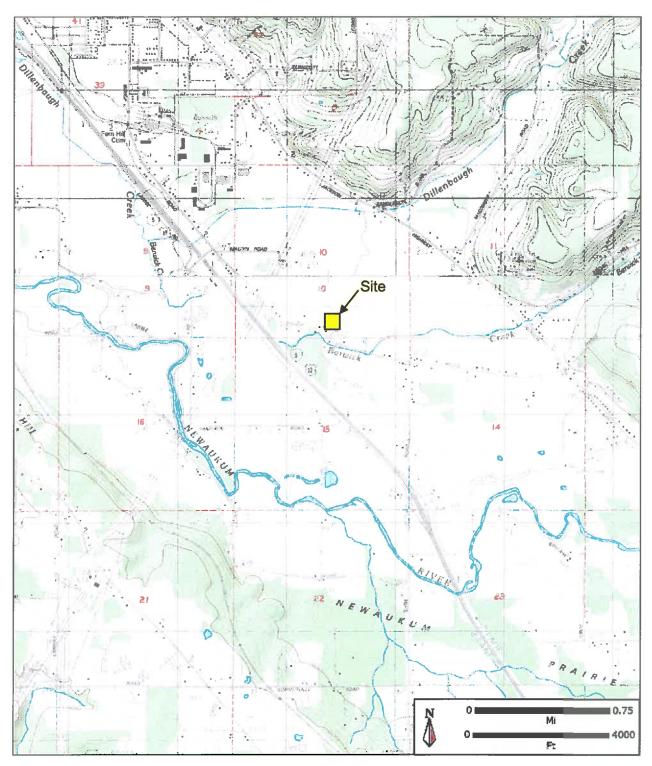
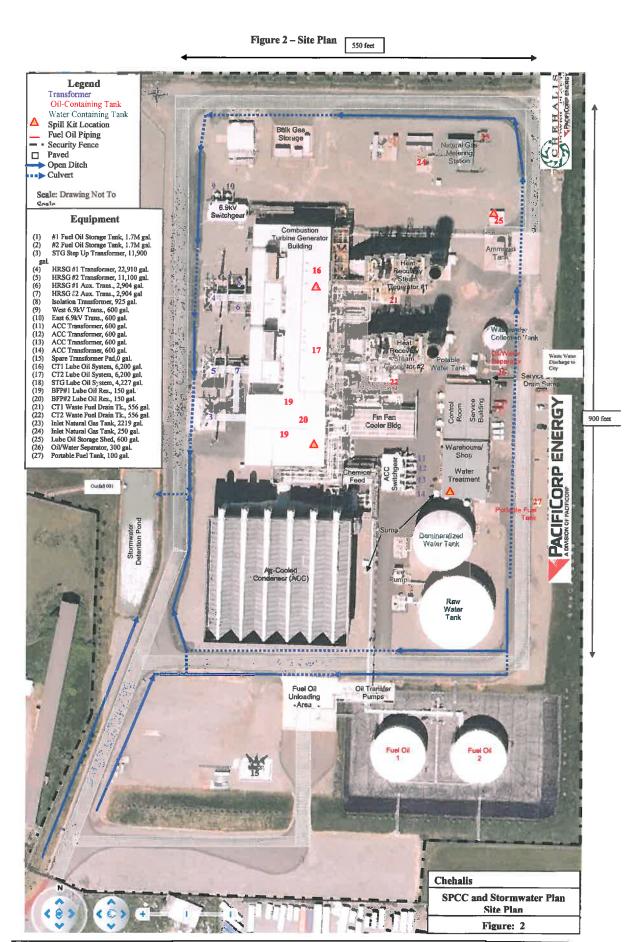


Figure 1 – Vicinity Map

Map A - 2 Vicinity Map



Map A - 3 SPCC and Stormwater Plan Site Plan

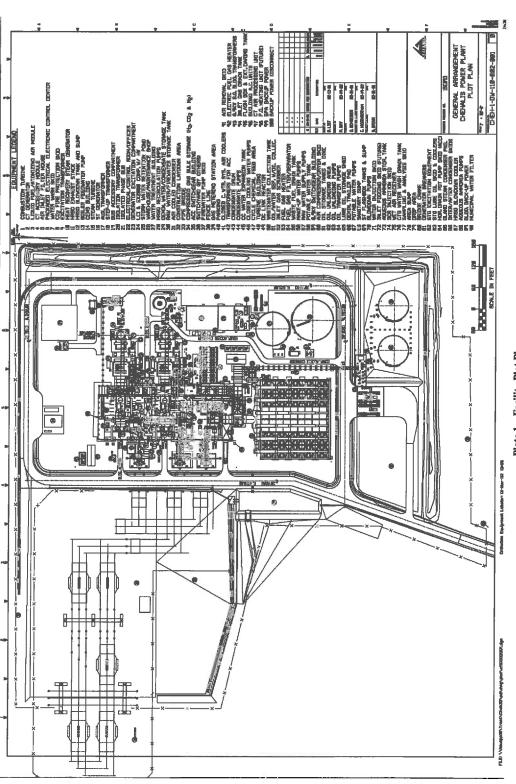


Plate 1 – Facility Plot Plan

11 Drinkel head o

Map A - 4 Chehalis Power Facility Plot Plan

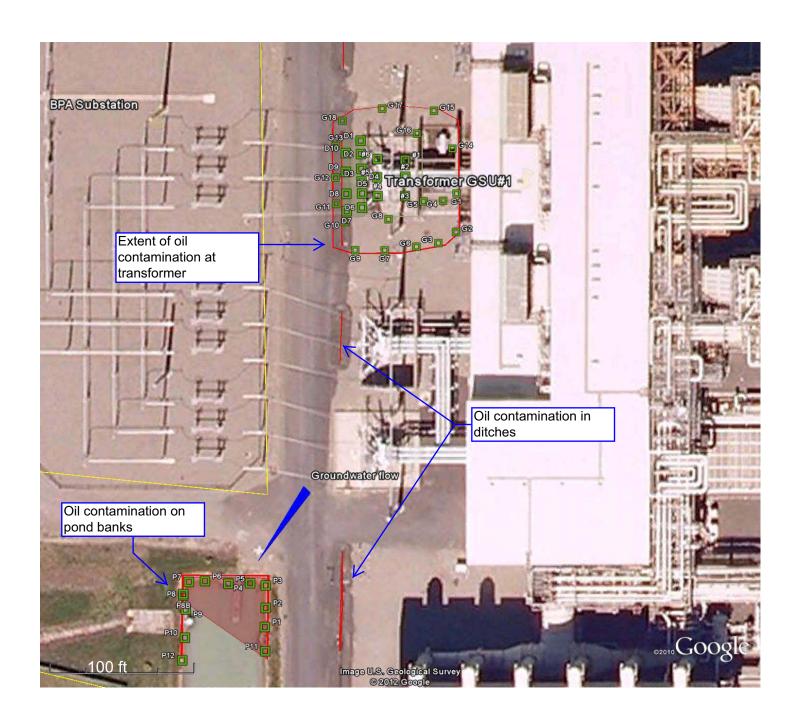


Map A - 5
Site Location - Chehalis Power
Historical Aerial Photo 1990

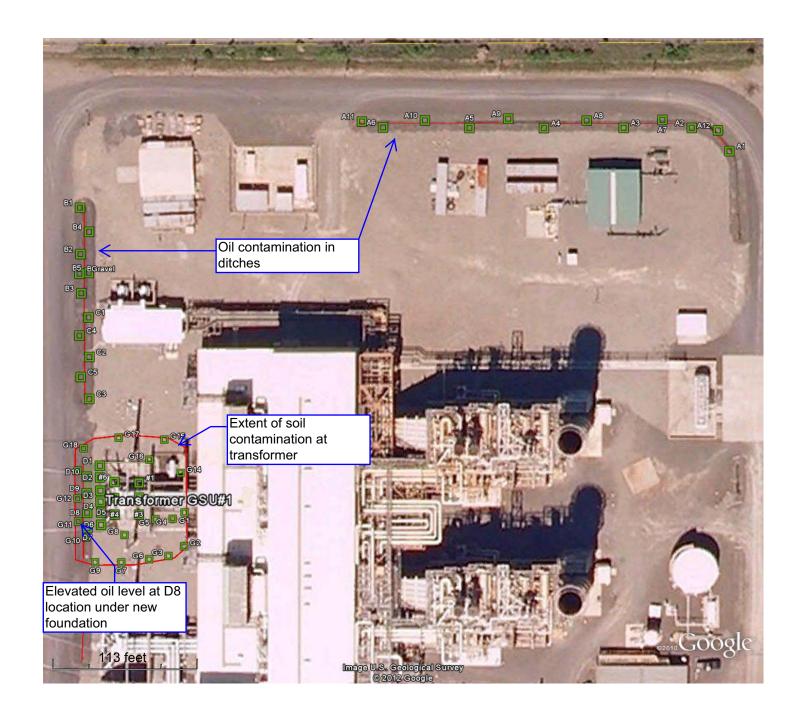


- CCS soil samples
- CCS water samples
- TEC groundwater samples
- TEC soil samples
- ▲ TEC water samples

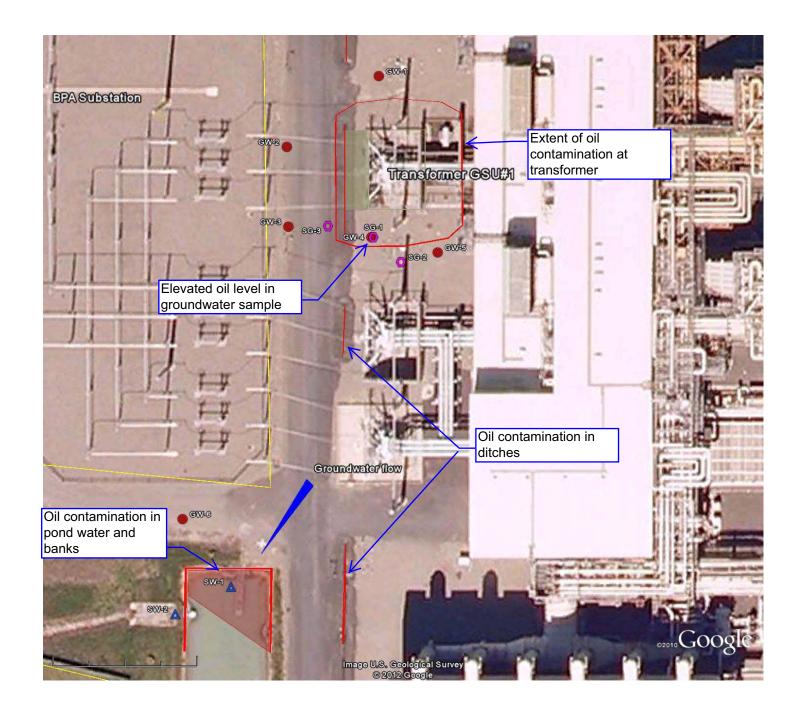
Map A - 6
Site Map Extent of Site Contamination
CCS & TEC Sampling Locations



Map A - 7
CCS Soil Sampling - South
Confirmation Sampling
Locations after Cleanup



Map A - 8
CCS Soil Sampling - North
Confirmation Sampling after Cleanup



Map A - 9
TEC Sampling Locations
Site Investigation

APPENDIX B GEOTECHNICAL DATA REPORT URS CORPORATION



GEOTECHNICAL DATA REPORT SUBSURFACE INVESTIGATION PROPOSED CHEHALIS GENERATION FACILITY LEWIS COUNTY, WASHINGTON

For

CHEHALIS GENERATION LIMITED PARTNERSHIP URS JOB NO. 27379-002-189 September 13, 2000



September 13, 2000

David L. Seitzinger, P.E. Chehalis Generation Limited Partnership c/o Tractebel Power Inc. 1177 West Loop South, Suite 900 Houston, TX 77027-9083

Geotechnical Data Report
Subsurface Investigation
Proposed Chehalis Generation Facility
Lewis County, Washington
URS Job No. 27379-002-189

Dear Mr. Seitzinger

We submit herewith our geotechnical data report for the subsurface investigation recently completed at the Chehalis Generation Facility site located at Chehalis Industrial Park in Lewis County, Washington. The original scope of work included the drilling and sampling of three borings, plus laboratory testing. The original scope was subsequently modified to include a total of eight borings at the site. The geotechnical report provides factual data for the geotechnical analysis to be completed by others.

We appreciate the opportunity to provide geotechnical services on this important project. We trust that the information present is sufficient to meet your immediate needs. Should you require further assistance, please contact us.

Respectfully submitted,

URS CORPORATION

Calum J. Buchan, P.Eng. (B.C.)

Project Engineer

W. Martin McCabe, Ph.D., P.E. Senior Geotechnical Engineer

W. M. McCale

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EXPIRES: 2/28/0

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APPENDICES

Appendix A – Field Explorations Appendix B – Laboratory Testing

Figure 3 – Idealized Soil Profile A-A' Figure 4 – Idealized Soil Profile B-B'

1.0 INTRODUCTION

We present in this report the results of the geotechnical subsurface investigation completed at the Chehalis Generation Facility site located in Lewis County, Washington. A project vicinity map is attached as Figure 1. The geotechnical information obtained during this study is required for the design of the proposed power plant. The purpose of the geotechnical investigation is to establish the soil and groundwater conditions at the site, to conduct laboratory testing as directed by Parsons and to prepare a geotechnical report summarizing the factual data obtained during the study. Geotechnical recommendations for the design and construction of the proposed facility are not included in the scope of services.

2.0 SCOPE OF WORK

The original scope of work included the advancement and sampling of three borings to a depth of 50 feet at the site. Subsequently, we were directed to expand the scope to include a total of eight borings drilled to the same depth. The specific details with respect to the subsurface investigation are provided below:

- 1. Advance eight hollow stem auger borings to a depth of 50 feet with a track-mounted drilling rig
- Sample the borings at 3-foot intervals in the upper 15 feet and 5-foot intervals below this depth in accordance with ASTM D 1586
- Obtain relatively undisturbed samples from fine grained soils in accordance with ASTM D
 1587
- 4. Describe the soils in accordance with ASTM D 2488 and complete pocket penetrometer tests on suitable fine grained soil samples
- 5. Perform field resistivity tests (ASTM G 57) at a pin spacing of 5 feet and 10 feet near borings B-101, B-102 and B-103
- 6. Perform laboratory testing as directed by Parsons

The locations of the borings are indicated on Parsons Drawing No. CHEH-1-SK-110-701-001. The locations have been transposed from this drawing to the attached Topographic Site Plan (Figure 2). The analysis of the data and development of foundation recommendations for the project will be completed by Parsons.

Parsons engineering personnel requested that we return to the site to measure the groundwater table position, as groundwater levels obtained during drilling may be unreliable.

3.0 SITE CONDITIONS

3.1 SURFACE CONDITIONS

The currently undeveloped site is accessible from Bishop Road to the south. The site is predominantly flatlying and vegetated with tall grass. Site observations suggest that it is possible that some previous limited site grading has occurred at the subject property. The extent of previous site grading likely only impacted the upper few feet of soil.

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3.2 GEOLOGIC CONDITIONS

The USGS map entitled "Geologic Map of the Centralia Quadrangle, Washington," dated 1987, was reviewed to establish the surficial geology at the site. This map indicates the surficial geologic unit to consist of the pre-Fraser Glaciation sand and gravel recessional outwash deposits (Hayden Creek Drift). Previous hydrogeologic and geotechnical investigations completed in the site vicinity by Dames & Moore indicate that silt and clay deposits with minor sand layering are present directly beneath the Hayden Creek Drift. Currently available information suggests that the silt and clay unit is 100 to 200 feet thick and is underlain by older coarse-grained alluvial deposits.

3.3 SOIL CONDITIONS

The soil conditions are similar at each of the 8 boring locations. They are also similar to the soils at other nearby properties evaluated by Dames & Moore. The boring logs are provided as Figures A-1 to A-8 in Appendix A (Field Explorations). Idealized Soil Profiles showing our interpretation of the subsurface conditions are indicated on Figures 3 and 4, respectively. The laboratory test results are summarized in Appendix B. A generalized discussion of the subsurface conditions is also provided in the following paragraphs.

Silty Clay

Silty clay was encountered within about five feet of the surface at all borings except borings B-101 and B-103. Standard Penetration Test (SPT) raw N-values in the silty clay were in the range of 6 to 20 blows per foot, suggesting a medium stiff to very stiff soil consistency. However, the SPT N-values may have been influenced by the presence of some gravel within this soil unit. Hydrometer analysis testing at B-102 and B-105 indicates the silty clay to have a clay content in the range of 42 to 62 percent (percent by weight finer than 0.002 mm).

Silty Sand

Silty sand with some gravel was encountered at the surface at borings B-101 and B-103 and was encountered directly beneath the silty clay at the majority of the other borings. A grain size analysis was completed on the sample of this material obtained at a depth of 5 feet at boring B-107. The results of this test are provided on Figure B-3, Appendix B. The silty sand had SPT N-values in the range of 10 to 30 blows per foot, suggesting medium dense conditions. However, the presence of gravel in the soil may act to increase the blow counts during SPT testing. Where encountered, the silty sand extended to depths on the order of 10 feet below the ground surface

Sandy Gravel

Sandy gravel was encountered beneath the silty sand material. Grain size analyses of combined samples from this material obtained from borings B-105 and B-107 are shown on Figure B-2 and B-3. We caution that the gravel portion of the grain size distribution curves may be misleading, as some of the observed gravel sized material in the samples consisted of angular fragments of larger particles fractured by the drilling and sampling process. The sandy gravel is estimated to be dense to very dense based on the drilling conditions. The high gravel content in the soil likely makes the SPT N-values unreliable. A more reliable

estimate of the gravel relative density may be obtained by Becker Penetration Testing (BPT). With the exception of borings B-102 and B-104, the drilling rig encountered refusal in possible cobbly material. The sandy gravel extended to depths of 43 feet and 50.5 feet in borings B-102 and B-104, respectively.

Silt

A micaceous sandy silt to clayey silt was encountered directly beneath the dense sandy gravel at borings B-102 and B-104. The silt was judged to be of low plasticity. Borings B-102 and B-104 were terminated in the silt at a depth of 51.5 feet. SPT N-values ranged from 13 to 23 blows per foot, suggesting that the silt is very stiff.

3.4 GROUNDWATER CONDITIONS

Groundwater was encountered at a depth of 15 to 20 feet during drilling. Groundwater measurements obtained during drilling are often not representative of the true groundwater table position. Groundwater monitoring wells were installed in borings B-101 and B-108 in order to establish the stabilized water level at those locations. Subsequent monitoring completed on September 1, 2000 indicates the groundwater table to be at an approximate depth of 8 feet. The actual groundwater measurements are indicated on boring logs.

4.0 FIELD RESISTIVITY TEST RESULTS

Field resistivity testing was completed at a pin spacing of 5 and 10 feet near borings B-101, B-102 and B-103. This testing was conducted in accordance with ASTM G 57. The results of the field resistivity testing are summarized in Table 1.

TABLE 1 MEASURED SOIL RESISTANCE

Boring No.	Pin Spacing (feet)	Measured Resistance (Ω)
B-101	5	5.0
B-101	10	3.4
B-102	5	5.7
B-102	10	3.5
B-103	5	5.0
B-103	10	3.1

5.0 LAB TESTING

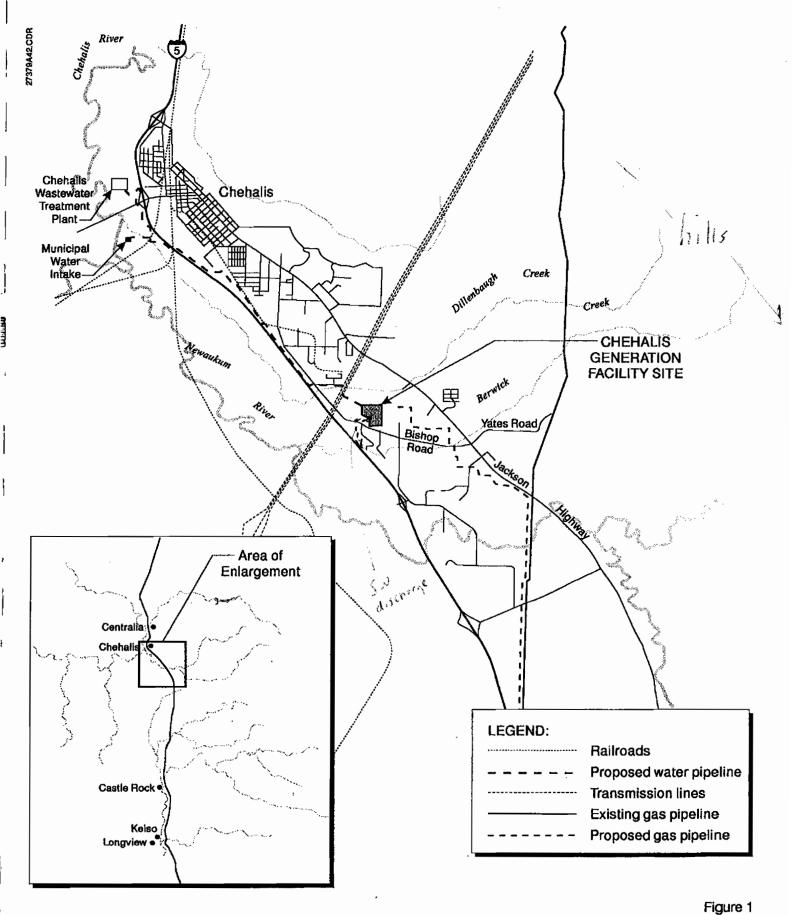
A relatively undisturbed sample of the sandy silt was collected at a depth of 50 feet at boring B-10. This sample was subject to consolidation, direct shear and index testing, the results of which are summarized in Appendix B.

Select disturbed soil samples from borings B-102, B-105 and B-107 were tested for moisture content, density, specific gravity, and grain size distribution laboratory tests. The test results for the disturbed soil samples are also provided in Appendix B.

6.0 CLOSURE

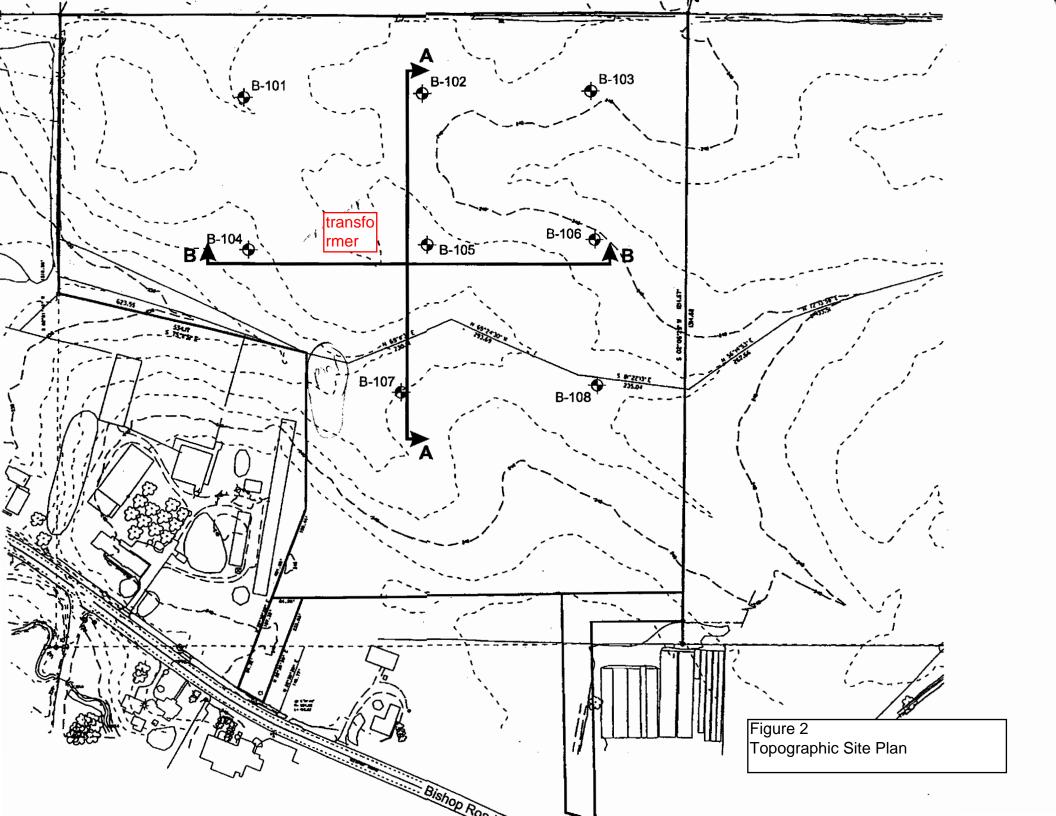
The recommendations and descriptions presented in this report are based on soil conditions disclosed by the field exploration conducted at the site in 2000 and on information obtained by us during previous geotechnical investigations. The existing subsurface information referred to herein does not constitute a direct or implied warranty that the soil conditions between boring locations can be directly interpolated or extrapolated, or that subsurface conditions and soil variations different from those disclosed by the borings will not be revealed. If, during construction, subsurface conditions different from those described herein are observed, such conditions should be reviewed by URS and the recommendations given herein revised as necessary.

FIGURES



Job No. 27379-002-189

PROJECT VICINITY



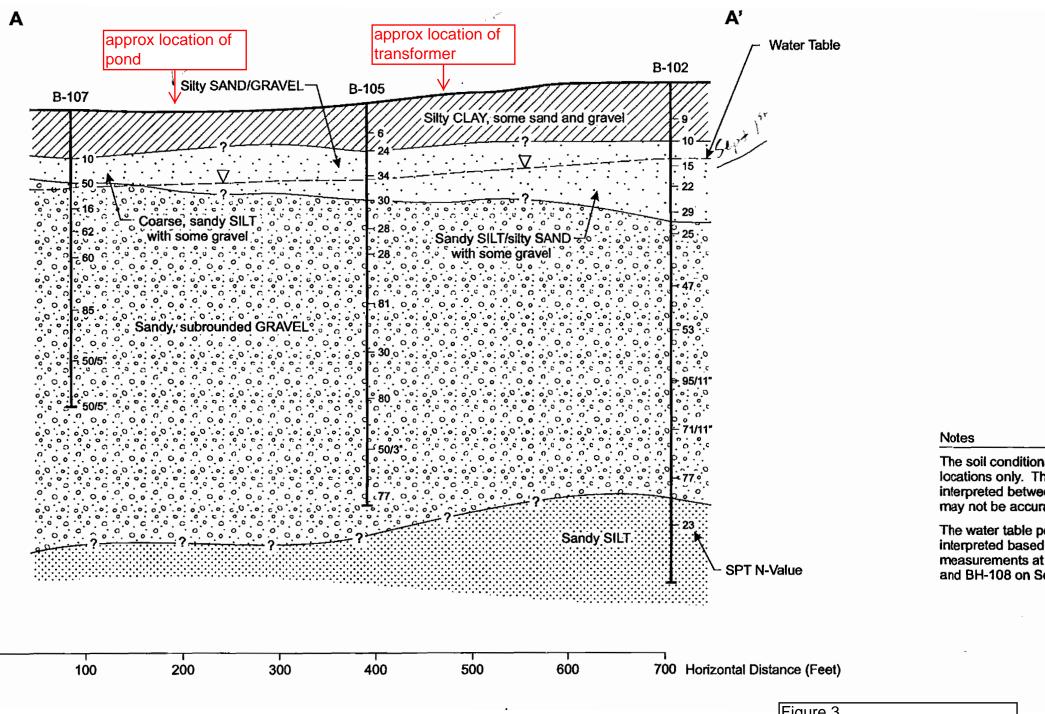
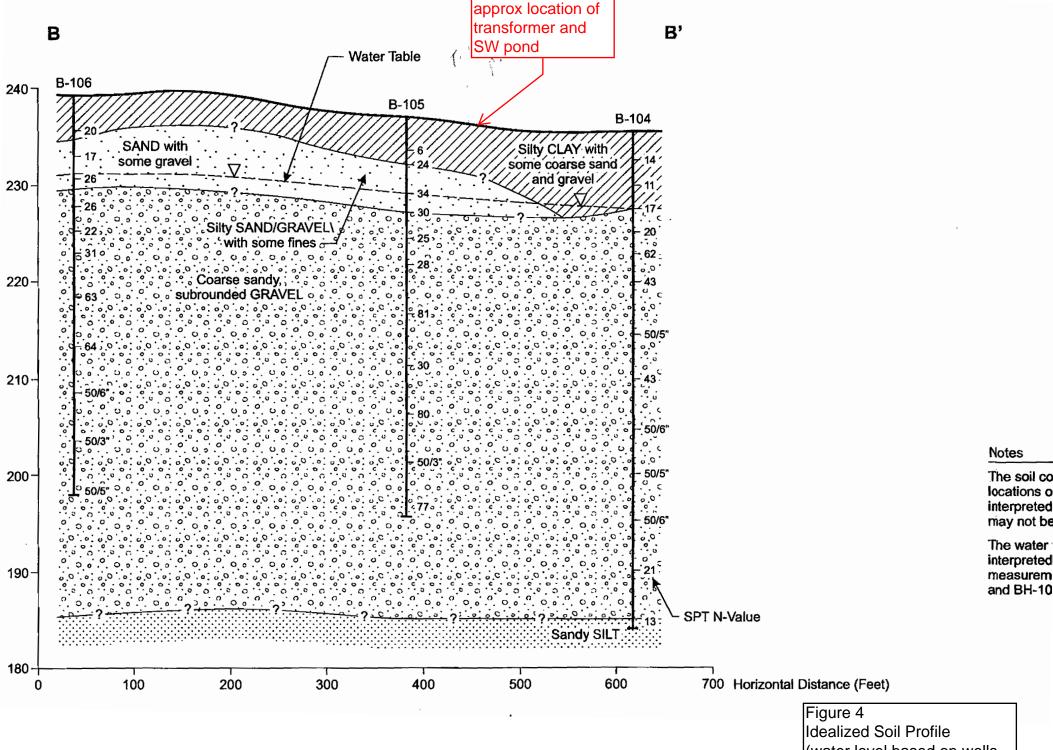


Figure 3 Idealized Soil Profile



(water level based on wells measured on Sept 1st, 2000)

APPENDIX A

FIELD EXPLORATIONS

APPENDIX A

FIELD EXPLORATIONS

A.1 DRILLING INVESTIGATION

The subsurface soil and groundwater conditions at the site were investigated on August 21 and 22, 2000, by drilling eight exploratory borings (B-101 to B-108) to depths ranging from 28.5 to 51.5 feet at the locations shown on Figure 2. The borings were drilled by Gregory Drilling using track mounted hollow stem auger equipment. The locations of the borings were estimated using a hip-chain and compass prior to drilling. The elevations of the borings were estimated from a topographic site plan.

We originally proposed to drill all of the borings to a depth of 50 feet. However, very dense drilling conditions, including possible cobbles and boulders, prevented the advancement of the majority of the borings to the originally proposed drilling depth.

The field evaluation was performed under the direction of a staff Geotechnical Engineer from our Seattle office. The engineer classified the materials encountered, prepared logs of each boring and obtain samples of the various strata for visual examination and laboratory testing. Graphical presentations of the soils penetrated by the borings are presented on the Logs of Borings (Figures A-1 to A-8). The soils have been classified in general accordance with the Unified Soil Classification System described on Figure A-9.

Standard Penetration testing (ASTM D 1586) was completed at 3-foot intervals within 15 feet of the ground surface. The sampling interval was modified to 5 feet below this depth. Gregory Drilling's rigs utilize an automatic trip hammer to drive the split spool sampler. Due to the high efficiency of this testing system, the recorded blow counts per foot are less than the actual Standard Penetration Test N-value corrected for energy loss effects. Although we do not have calibration records for this particular rig, it is our understanding that the hammer energy ratio for this system is approximately 90 percent.

We attempted to obtain relatively undisturbed soil samples from the encountered fine-grained soils using Dames & Moore Type U Sampler, which is illustrated on Figure A-9. The sampler was advanced using a hammer weighing 140 pounds and having a free fall of 30 inches. The blow counts recorded during the Dames & Moore sampling are not shown on the logs. The fine-grained soils at the site are known to be too stiff to obtain undisturbed samples in accordance with ASTM D 1587.

Two-inch-diameter monitoring wells were installed in borings B-101 and B-108. The details with respect to the position of the monitoring wells are provided on the boring logs. The groundwater levels in the monitoring wells were measured on September 1, 2000.

A.2 FIELD RESISTIVITY TESTING

Field resistivity tests were performed on August 23, 2000 at borings B-101, B-102 and B-103 using the 4-point Wenner method at electrode spacings of 5 and 10 feet. The resistivity testing was completed in conformance with ASTM G 57 by a staff Geotechnical Engineer from our Seattle office.

MONITORING WELL NO. B-101

PROJECT: Chehalis Generation Facility PROJECT NO: 27379-002-189

PROJECT LOCATION: Chehalis, WA
CLIENT NAME: Tractebel

DATE STARTED: August 21, 2000

DATE COMPLETED: August 21, 2000 DRILLING CONTRACTOR: Gregory Drilling DRILLER: Chad Gregory

DRILLING METHOD: Hollow Stem Auger SAMPLING METHOD: SPT, 140lb autohammer, 30" drop

WATER LEVEL: ¥7,75 ft

ELEVATION: 236+/- ft

TOTAL DEPTH: 41.00 ft WEATHER Sunny

FIELD ENGINEER: PSC CHECKED BY: CJB

SAMPLER DRIVEN (In)	FINES CONTENT (%)	DRY DENSITY (pd)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE TYPE	ELEVATION (ft.)	DEPTH (ft.)	SOSU	GRAPHIC SYMBOL	SAMPLE TYPE KEY: Relatively undisturbed sample Disturbed sample Sample attempt with no recovery SPT split spoon sample DESCRIPTION	WELL CONSTRU
_						236.0	0-	SM		Mottled light brown and yellowish red silty SAND, with some	ELEVATION
18				4/5/6 6/7/10		231.0	5-		4	gravel. (moist to dry)(weathered)(medium dense)	
18				9/13/17 11/15/20		226.0	10-			becomes dense	
18				16/20/20 11/25/16		-221.0 -	15-	GW/ GM		Brown and yellowish red, silty, medium to coarse sandy, subrounded GRAVEL with occasional cobbles. (moist to wet)(dense-very dense)	
18			1	6/27/50		-216.0	20-			becomes brown	+216.00
18	1			16/26/17		211.0	25-		. Q.		+206.00
11				17/50+		 -206.0 -	30-				+206.00
9				30/50+		201.0	35				
6				50/6"		196.0	40-			Borehole terminated at 41 feet below ground surface (bgs) on 8/21/2000 due to drilling refusal. Groundwater was encountered at 14 feet bgs at the time of our Investigation. Borehole backfilled with bentonite.	
									:	2-in. piezometer installed to 30 ft. bgs	
						9/1/00				<u> </u>	

WELL SYMBOL KEY:



MONITORING WELL B-101 Well screen FIGURE A-1

Concrete plug

Sheet 1 of 1

LOG OF BORING NO. B-102

PROJECT: Chehalis Generation Facility

PROJECT NO: 27379-002-189 PROJECT LOCATION: Chehalis, WA

CLIENT NAME: Tractebel DATE STARTED: August 21, 2000

DATE COMPLETED: August 21, 2000 DRILLING CONTRACTOR: Gregory Drilling

DRILLER: Chad Gregory DRILLING METHOD: Hollow Stem Auger

SAMPLING METHOD: SPT. 140lb autohammer, 30" drop

WATER LEVEL: ¥8.00 ft

ELEVATION: 239 ft

TOTAL DEPTH: 51.50 ft WEATHER: Sunny

FIELD ENGINEER: PSC CHECKED BY: CJB

SAMPLER DRIVEN (in)	FINES CONTENT (%)	DRY DENSITY (pd)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE	ELEVATION (ft.)	DEPTH (ft.)	nscs	GRAPHIC SYMBOL	SAMPLE TYPE KEY: Relatively undisturbed sample Disturbed sample Sample attempt with no recovery SPT split spoon sample DESCRIPTION	REMARK
						-239 _	0-	CL		Mottled brown and yellowish red silty CLAY, some sand and	
18	83	83	43	3/3/6	4	-] _=			subangular gravel. (moist)(stiff)	
18		-		3/4/6		234	5-	SM		Mottled brown to yellowish red, sandy SILT/slity SAND with some	
18			21	3/6/9		ţ	¥.	O.V.	4	subangular gravel.	
18			21	8/9/13		-229 -	10-			(moist) (stiff to med dense)	
18				13/16/13		E					
18	16	-	14	8/12/13		224	15-	GW/ GM		Mottled brown to yellowish red, medium to coarse sandy, subrounded GRAVEL with some sift and occasional cobbles.	
18	15		14	18/25/22		219	20-		0	(moist)(medium dense to very dense)	•
18	16		14	13/24/28		214	25				
17				1/45/50		209	30			·	
17				4/21/50		- 204	35			becomes brown	
18				10/41/3E		199	40				
18		83	47	8/9/14		_ -194 -	45	ML		Greenish gray micaceous sandy SILT, non-low plastic. (very stiff)	
18	69	87	34			- - -189	50			Pocket Penetrometer = 2.5 tsf	
			ζ.							Borehole terminated at 51.5 feet below ground surface (bgs) on 8/21/2000. Groundwater was encountered at 19 feet bgs at the time of our investigation. Borehole backfilled with bentonite.	
OTE	S:			ŧ		<u> </u>					
		R	C							LOG OF BOR	ING B-102

PROJECT: Chehalis Generation Facility

PROJECT NO: 27379-002-189 PROJECT LOCATION: Chehalis, WA

CLIENT NAME: Tractebel

DATE STARTED: August 21, 2000 DATE COMPLETED: August 21, 2000

DRILLING CONTRACTOR: Gregory Drilling

DRILLER: Chad Gregory

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL: ¥8.00 ft

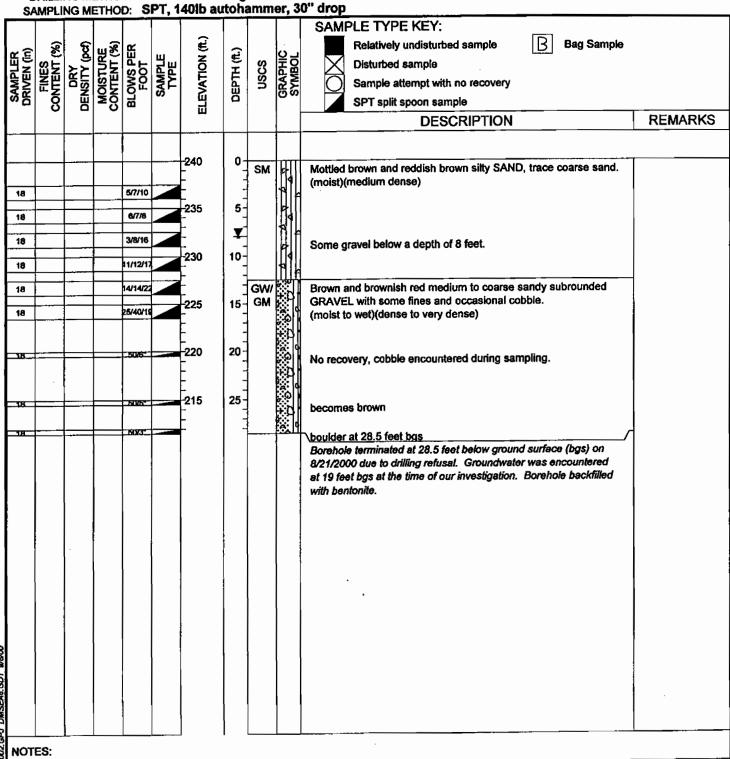
ELEVATION: 239.5 ft TOTAL DEPTH: 28.50 ft

WEATHER: Sunny

LOG OF BORING B-103

FIELD ENGINEER: PSC

CHECKED BY: CJB



PROJECT: Chehalis Generation Facility

PROJECT NO: 27379-002-189
PROJECT LOCATION: Chehalis, WA

CLIENT NAME: Tractebel

DATE STARTED: August 22, 2000
DATE COMPLETED: August 22, 200

DRILLING CONTRACTOR: Gregory Drilling
DRILLER: Chad Gregory

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL: ¥8.00 ft

ELEVATION: 235.5 ft

TOTAL DEPTH: 51.50 ft
WEATHER: Sunny

FIELD ENGINEER: PSC CHECKED BY: CJB

SAMPLING METHOD: SPT, 140lb autohammer, 30" drop SAMPLE TYPE KEY: FINES CONTENT (%) DRY DENSITY (pcf) MOISTURE CONTENT (%) ELEVATION (ft.) BLOWS PER FOOT Relatively undisturbed sample **Bag Sample** DEPTH (ft.) SAMPLE USCS Disturbed sample Sample attempt with no recovery SPT split spoon sample DESCRIPTION REMARKS -236 CL. Brown and yellowish red silty CLAY with some medium to coarse sand and subangular gravel 18 5/5/9 (damp) (stiff) -231 5-18 4/6/5 3/7/10 GW/ Brown and yellowish red silty, medium to coarse sandy, -226 10 GM subrounded GRAVEL with occasional cobbles 5/10/10 (damp) (med. dense to very dense) 18 8/35/27 -221 15-18 2/18/2 20--216 18 becomes brown and gray 50/5 -211 25-18 12/18/25 -206 30becomes brown, gray, and brownish yellow 201 35 11 25 50/5 196 40 191 9/7/14 18 186 50 18 4/6/7 ML Above grades into greenish gray sandy SILT (non-low plastic) (damp) (stiff) SM Borehole terminated at 51.5 feet below ground surface (bgs) on 8/22/2000. Groundwater was encountered at 20 ft bgs during the time of our investigation. Borehole backfilled with bentonite. NOTES:

URS

LOG OF BORING B-104

PROJECT: Chehalis Generation Facility

PROJECT NO: 27379-002-189
PROJECT LOCATION: Chehalis, WA

CLIENT NAME: Tractebel
DATE STARTED: August 22, 2000
DATE COMPLETED: August 22, 2000
DRILLING CONTRACTOR: Gregory Drilling
DRILLER: Chad Gregory

DRILLER: Chad Gregory
DRILLING METHOD: Hollow Stem Auger

WATER LEVEL: ¥8.00 ft

ELEVATION: 237 ft TOTAL DEPTH: 41.50 ft

WEATHER: Sunny FIELD ENGINEER: PSC CHECKED BY: CJB

SA	AMPLI	NG M	ETHO	D: S	PT, 1	40lb au	ıtoha	amm	er, 3	0" drop
										SAMPLE TYPE KEY:
<u>ہ</u> ۔	જ્રિ	ਓ	ш&	ıκ		ELEVATION (ft.)				Relatively undisturbed sample Bag Sample
	SiF	<u>ع</u> ≺≺	2 2 5	ဋ	띯씨	8	\ E	S	돌蹈	Disturbed sample
SAMPLER DRIVEN (in)	FINES CONTENT (%)	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	BLOWS PER FOOT	SAMPLE	\ \{	DEPTH (ft.)	nscs	GRAPHIC SYMBOL	Sample attempt with no recovery
정품	ğ	Ñ	₹Š	띪	Q,	<u>F</u>			യഗ	SPT split spoon sample
1	"	_ <u>.</u>	ľ	_		ш				DESCRIPTION REMARKS
<u> </u>			_						 	
						237	0-			
	[-	CL		Light brown to brown silty CLAY with trace coarse sand (stiff)
18	93		31	2/3/3		Ė	=			(aur)
18				14/13/11		232	5_	SM/	Ш	Brown and yellowish red, silty, medium to coarse sandy,
						}-	<u></u>	GM		subrounded GRAVEL with occasional cobble.
18			13	5/8/26		007	1 -			(moist-wet) (med dense to very dense)
18			13	10/15/15		-227 -	10-			
18				15/14/21		_	-			
						- -222	15-		191	
18				12/14/14		-	=			
1						-	=			
18				18/31/50		217	20-		19114	
						է	-			
						- 212	25~		\ \ \ \ \	
18			14	8/16/14		F212	25			
						F			10	
<u></u>			44			207	30		AL.	
17			14	8/50/504		F			N a	
1						Ļ]		l all	
9				45		202	35-			becomes brown and reddish brown
				50/3"		_	:		IIII k	
			L			197	40-			
18	16		14	27/25/50		-131	"-"			Possible boulder
				ļ						Borehole terminated at 41.5 feet below ground surface (bgs) on
										8/22/2000 due to drilling refusal. Groundwater was encountered
										at 20 feet bgs during the time of our investigation. Borenole backfilled with bentonite.
3										
GPJ DMSEAGGD WAND										
3		ļ								
5										
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<u> </u>						J	1			

NOTES:

TIRS

LOG OF BORING B-105

PROJECT: Chehalis Generation Facility

PROJECT NO: 27379-002-189 PROJECT LOCATION: Chehalis, WA

CLIENT NAME: Tractebel DATE STARTED: August 21, 2000

DATE COMPLETED: August 21, 2000 DRILLING CONTRACTOR: Gregory Drilling
DRILLER: Chad Gregory
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: SPT. 140ib autoham

WATER LEVEL: ¥8.00 ft

ELEVATION: 239 ft TOTAL DEPTH: 41.00 ft

WEATHER: Sunny

FIELD ENGINEER: PSC CHECKED BY: CJB

SAMPLER DRIVEN (in)		DENSITY (pcf)			(J .	DEPTH (ft.)	SOSN	GRAPHIC SYMBOL	SAMPLE TYPE KEY: Relatively undisturbed sample Disturbed sample Sample attempt with no recovery SPT split spoon sample DESCRIPTION	REMAR
18 18 18 18 18 18 18 18 18 18 18 18 18 1				4/9/11 9/11/6 4/10/16 8/11/15 10/20/12 8/11/20 14/31/32 50/5 45 50/6	-239 	10- 10- 20- 30- 35-	ML SM GW/ GM		Mottled light brown and yellowish red silty CLAY, with some medium sand and trace subangular gravel. (moist)(very stiff) Mottled brown and yellowish red silty medium to coarse SAND, with some angular gravel. (moist)(medium dense) Brown and brownish red, silty, medium to coarse sandy, subrounded GRAVEL with occasional cobble. (moist)(medium dense to very dense) becomes yellowish brown and gray becomes gray becomes gray Poor recovery Poor recovery Poor recovery Borehole terminated at 41 feet below ground surface (bgs) on 8/21/2000 due to drilling refusal. Groundwater was encountered at 19 feet bgs at the time of our Investigation, Borehole backfilled with bentonite.	
NOTE	is:	R	S						LOG OF BORIN	

PROJECT: Chehalis Generation Facility

PROJECT NO: 27379-002-189 PROJECT LOCATION: Chehalis, WA
CLIENT NAME: Tractebel

DATE STARTED: August 22, 2000 DATE COMPLETED: August 22, 2000

DRILLING CONTRACTOR: Gregory Drilling DRILLER: Chad Gregory

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL: ¥8.00 ft

ELEVATION: 236 ft TOTAL DEPTH: 30.50 ft WEATHER: Sunny

FIELD ENGINEER: PSC

CHECKED BY: CJB

S	AMPLI	NG MI	ETHO	D: S	PT, 1	40lb at	utoha	amm	er, 3	0" drop	
SAMPLER DRIVEN (in)						ELEVATION (ft.)	DEPTH (ft.)		GRAPHIC SYMBOL	SAMPLE TYPE KEY: Relatively undisturbed sample Disturbed sample Sample attempt with no recovery SPT split spoon sample	MARKS
18					×	236	0-	ML/ CL		Mottled yellowish red, brown, and gray silty CLAY with some sand and gravel	
18	37		28	4/3/7 6/16/34 8/9/7		231 226	5- <u>¥</u> . 10-	SM GW/ GM		Brown, light brown, and yellowish red, medium to coarse sandy <u>SILT with some subrounded gravel (moist-wet) (stiff)</u> Brown and yellowish red, silty, sandy, well graded subrounded GRAVEL with some cobbles. (moist) (medium to very dense)	
18	12		10	6/12/50 11/27/33 25/37/48		221 - - -216	15-				
11	12		10	30 50/5*		-211	25				
PJ DMSEAE.GDT 9/800						206	30-			Rock at shoe Borehole terminated at 30.5 feet below ground surface (bgs) on 8/22/2000 due to drilling refusal. Groundwater was encountered at 15 feet bgs during the time of our investigation. Borehole backfilled with bentonite.	

NOTES:

LOG OF BORING B-107

MONITORING WELL NO. B-108

PROJECT: Chehalis Generation Facility

PROJECT NO: 27379-002-189 PROJECT LOCATION: Chehalis, WA

CLIENT NAME: Tractebel DATE STARTED: August 22, 2000 DATE COMPLETED: August 22, 2000

DRILLING CONTRACTOR: Gregory Drilling DRILLER: Chad Gregory

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL: ¥7.90 ft

ELEVATION: 237.5+/- ft

TOTAL DEPTH: 30.00 ft WEATHER Sunny FIELD ENGINEER: PSC

CHECKED BY: CJB

S	MPLI	NG M	ETHO	D: S	PT, 1	40lb au	ıtoha	amm	er, 3	0" drop
SAMPLER DRIVEN (in)	FINES CONTENT (%)		MOISTURE CONTENT (%)	BLOWS PER FOOT		ELEVATION (ft.)	DEPTH (ft.)	SOSO	GRAPHIC SYMBOL	SAMPLE TYPE KEY: Relatively undisturbed sample Relatively undisturbed sample
18 18 18 18 18 18				4/4/7 4/10/12 20/23/33 22/33/20 13/15/11 9/11/20 20/35/32 25 50/5"	0.	237.5 -232.5 -227.5 -217.5 -212.5 -207.5	10-	GM/ SM		Mottled brownish yellow and gray silty CLAY with trace sand and angular gravel (stiff-very stiff) Brown-brownish yellow, and yellowish red, sandy, subrounded GRAVEL with some fines and occasional cobble. (moist to wet) (dense to very dense) No recovery, rock at shoe No recovery in 3 attempts. Borehole terminated at 30.5 feet below ground surface (bgs) on 8/22/2000 due to drilling refusal. Groundwater was encountered at 15 feet bgs during the time of our investigation. Borehole backfilled with bentonite. 2-in. piezometer installed to 30 ft. bgs
GPJ DMSEA6.GDT 9/8/00										

NOTES: Water level checked 9/1/00







Bentonite grout Bentonite plug

MONITORING WELL B-108 Well screen Concrete plug

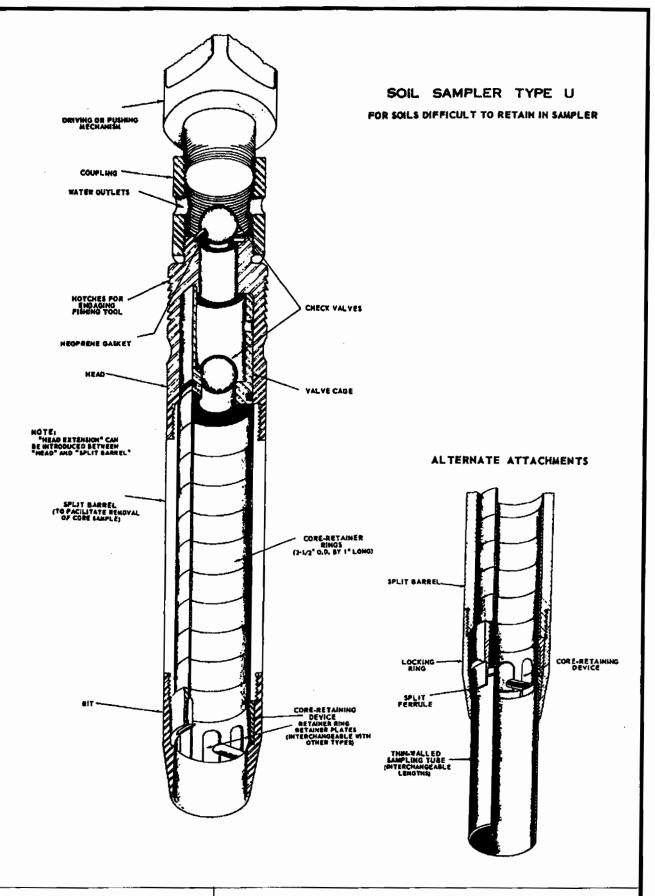
_			Sym	bols	Typical
	Major Divisions		Graph	Letter	Descriptions
	Gravel and	Clean Gravels	, a c	GW	Well-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines
	Gravelly Soils	(little or no fines)		GP	Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines
Coarse Grained Soils	More than 50% of Coarse Fraction	Gravels with Fines (appreciable amount of		GM	Silty Gravels, Gravel-Sand-Silt Mixtures
	Retained in No. 4 Sieve	(appreciable amount of fines)		GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	Sand	Clean Sand		sw	Well-Graded Sands, Gravelly Sands, Little or no Fines
More than 50% of Material is Larger than No. 200 Sieve Size	and Sandy Soils	(little or no fines)		SP	Poorly Graded Sands, Gravelly Sands, Little or no Fines
	More than 50% of Coarse Fraction	Sands with Fines (appreciable amount of		SM	Silty Sands, Sand-Clay Mixtures
	Passing through No. 4 Sleve	fines)		sc	Clayey Sands, Sand-Clay Mixtures
				ML	Inorganic Silts and very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
Fine grained Soils	Silts and Clays	Liquid Limit Less than 50%		CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
·				OL	Organic Silts and Organic Silty Clays of Low Plasticity
More than 50% of Material is Smaller				МН	Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soils
than No. 200 Sieve Size	Silts and Clays	Liquid Limit Greater than 50%		СН	Inorganic Clays of High Plasticity, Fat Clays
				ОН	Organic Clays of Medium to High Plasticity, Organic Silts
	Highly Organic Solls			PT	Peat, Humus, Swamp Soils with High Organic Contents

Note: Dual Symbols are used to indicate borderline soil classifications

Project: Chehalis Generation Facility

Client: Tractebel Location: Chehalis, WA Number: 27379-002-189





URS

Dames & Moore

SOIL SAMPLER TYPE U - FOR SOILS DIFFICULT TO RETAIN IN SAMPLER

Project: Chehalis Generation Facility

Client: Tractebel Location: Chehalis, WA Number: 27379-002-189

APPENDIX B

LABORATORY TESTING

APPENDIX B

LABORATORY TESTING

The laboratory testing program was developed based on verbal discussions with Yogesh Shah, P.E. of Parsons. The laboratory testing program included the following tests on select samples obtained from borings B-102, B-105 and B-107:

- 1. Moisture contents
- 2. Density determination
- 3. Specific gravity
- 4. Consolidation (B-102, 51 feet)
- 5. Direct shear (B-102, 51 feet)
- 6. Sieve analysis and hydrometer

The results of the laboratory testing completed on borings B-102, B-105 and B-107 are summarized on Tables B-1, B-2 and B-3, respectively.

It was originally proposed that we complete Unconfined Compressive Strength testing on the relatively undisturbed sample obtained at a depth of 51 feet at boring B-102. However, this test was substituted by Direct Shear testing after review of the sample indicated a relatively high sand content and low to non plasticity of the soil.

We caution that the sieve analysis tests may not truly represent the distribution of larger gravel and cobble size particles present in the soil. Angular fragments of larger gravel or cobbles were observed in many of the samples.

TABLE B-1 SUMMARY OF LABORATORY TEST RESULTS

PROJECT : CHEHALIS GENERATION FACILITY

SAMPI	2.5	Combined	Combined	25.0	30.0	35.0	
	(ft)	4.0	7.5-11.5	15.0-21.5	26.5	31.5	36.5
	% PASSING SIEVE ¾"	100	86.9	80.4	83.9	71.7	30.3
	3/8"	100	71.4	58.9	65.4		
	# 4	100	57.3	49.2	55.5		
GRAIN SIZE	# 10	100	48.4	39.5	46.6		
ANALYSIS	# 40	93.0	37.9	25.0	29.3		,
	#100	86.0	30.8	18.1	19.9		
	#200	83.0	27.3	15.1	16.2		
IIVDDAMETED	0.074 mm	83.0	N/A	N/A	N/A		· • · · · · · · · · · · · · · · · · · ·
HYDROMETER	ANALYSIS 0.005 mm			N/A	N/A		
ANALISIS	40.3	N/A	N/A	N/A			
Soil Classification (AS	TM)	CL	SM/GM	GW/GM	GW/GM		
Specific Gravity, Gs							2.46
Natural Moisture Conte	ent, %	31	21	14	14		
Wet Unit Weight, δ (g/	cm ³)	109					
Dry Unit Weight, δ (g/c	cm³)	83					
Natural Void Ratio, eo				-		_	
CONCOLIDATION	Preconsolidation						
CONSOLIDATION TEST	Pressure, pc (psf)						
1631	Compression Index, Cc						
DIRECT SHEAR C (psf)							
TEST • •							
tan φ					* **		
REMARKS:							

TABLE B-1 SUMMARY OF LABORATORY TEST RESULTS (continued)

PROJECT : CHEHALIS GENERATION FACILITY

SAMPI	LE DEPTH	40.0	45.0	50.0			1
	(ft)	41.5	46.5	51.5			
	% PASSING SIEVE ¾"			100		,	
	3/8"			100			
GRAIN SIZE	# 4			100		_	
ANALYSIS	# 10			100	,		
ANALISIS	# 40			100			
	#100			95.0			
	#200			69.0			
TIMPOMETED	0.074 mm			69.0			
HYDROMETER ANALYSIS	0.005 mm			9.3			
ANALISIS			3.9				
Soil Classification (AS	TM)		CL	ML			
Specific Gravity, Gs			2.67	2.65			
Natural Moisture Conte	ent, %		47 -	34			
Wet Unit Weight, δ (g/e	cm³)		120	116			
Dry Unit Weight, δ (g/c	em³)		83	87			
Natural Void Ratio, eo	·						
CONCOY ID A CTON	Preconsolidation			7500			
CONSOLIDATION	Pressure, pc (psf)						
IESI	Compression Index, Cc			0.044			
DIDECT SHEAD C (psf)				636			
DIRECT SHEAR	ф			34°			
TEST tan φ				0.67			
REMARKS:							

TABLE B-2 SUMMARY OF LABORATORY TEST RESULTS

PROJECT : CHEHALIS GENERATION FACILITY

Color	SAMPI	LE DEPTH	2.5	5.0	Combined	15.0	20.0	Combined
3/8" 100 56.5 55 # 4 100 48.3 42 # 10 100 41.1 31 # 40 99.0 24.1 20 # 100 96.0 18.5 15 # 200 93.0 16.5 13 HYDROMETER ANALYSIS 0.074 mm 0.005 mm 69.5 Soil Classification (ASTM) CL SM/GM GW/GM GW/GM GW/GM Specific Gravity, Gs 2.74 Natural Moisture Content, % 31 13 14 Wet Unit Weight, δ (g/cm³) Natural Void Ratio, e₀ CONSOLIDATION TEST Preconsolidation Pressure, pc (psf) Compression Index, Cc DIRECT SHEAR			4.0	6.5	7.5-11.5	16.5	21.5	25.0-31.5
# 4		% PASSING SIEVE ¾"	100		77.5			71.4
H 10		3/8"	100		56.5			55.9
# 10	CDAIN SIZE	# 4	100		48.3			42.5
#40 99.0 24.1 20 #100 96.0 18.5 15 #200 93.0 16.5 13 HYDROMETER ANALYSIS 0.074 mm 0.005 mm 0.005 mm 0.001 mm 0		# 10	100		41.1			31.8
#200 93.0 16.5 13 HYDROMETER ANALYSIS 0.074 mm 69.5 0.005 mm 69.5 0.001 mm 57.6 Soil Classification (ASTM) CL SM/GM GW/GM GW/GM GW/GM GW/GM Specific Gravity, Gs 2.74 Natural Moisture Content, % 31 13 13 14 Wet Unit Weight, δ (g/cm³) 13 14 Dry Unit Weight, δ (g/cm³) 14 Preconsolidation Pressure, pc (psf) Compression Index, Cc C DIRECT SHEAR TEST	AUALISIS	# 40	99.0		24.1			20.8
HYDROMETER ANALYSIS		#100	96.0		18.5	_		15.5
Natural Void Ratio, e ₀ Compression Index, Cc Compression Index, Compression Index, Compression Index, Compression Ind		#200	93.0		16.5			13.2
ANALYSIS 0.005 mm 69.5	UVDDAMETED	0.074 mm						
0.001 mm 57.6		0.005 mm	69.5					
Specific Gravity, Gs 2.74	ANALISIS	0.001 mm	57.6					
Natural Moisture Content, % 31 13 14 Wet Unit Weight, δ (g/cm³) 10 14 15 14 15	Soil Classification (AS	TM)	CL	SM/GM	GW/GM	GW/GM	GW/GM	GW/GM
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Specific Gravity, Gs						2.74	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Natural Moisture Conte	ent, %	31		13			14
Natural Void Ratio, e₀ CONSOLIDATION TEST Preconsolidation Pressure, pc (psf) Compression Index, Cc C (psf) DIRECT SHEAR TEST Φ tan φ Image: Compression Index (psf)	Wet Unit Weight, δ (g/	cm ³)						
Natural Void Ratio, e₀ CONSOLIDATION TEST Preconsolidation Pressure, pc (psf) Compression Index, Cc C (psf) DIRECT SHEAR TEST Φ tan φ Image: Compression Index (psf)	Dry Unit Weight, δ (g/c	cm³)		-		_		
CONSOLIDATION TEST Pressure, pc (psf) Compression Index, Cc C (psf) DIRECT SHEAR TEST φ tan φ C (psf)								
TEST	CONTROL ID ATTON	Preconsolidation				*** * ******* * * *		
Compression Index, Cc		Pressure, pc (psf)						
TEST \$\frac{\phi}{\tan \phi}\$								
TEST \$\frac{\phi}{\tan \phi}\$	DIDECT SHEAD C (psf)							
tan ф		. ф						
REMARKS:	TEST	tan ф			-		-	
	REMARKS:							

TABLE B-2 SUMMARY OF LABORATORY TEST RESULTS (continued)

PROJECT : CHEHALIS GENERATION FACILITY

SAMPI	LE DEPTH	35.0	40.0			
	(ft)		41.5		 	
	% PASSING SIEVE ¾"		87.0			
	3/8"		68.0			,
GRAIN SIZE	# 4		58.0			
ANALYSIS	# 10		52.0			
ANALISIS	# 40		32.0			
	#100		19.0		 -	
·	#200		16.0			
HYDROMETER	0.074 mm					
ANALYSIS	0.005 mm		4.9			
		2.3				
Soil Classification (AS'	TM)	GW/GM	GW/GM			
Specific Gravity, Gs						
Natural Moisture Conte			14			
Wet Unit Weight, δ (g/c						
Dry Unit Weight, δ (g/c	cm³)					
Natural Void Ratio, e ₀						
CONSOLIDATION	Preconsolidation			_		
TEST	Pressure, pc (psf)					
Compression Index, Cc						
DIRECT SHEAR C (psf)						
TEST \$\frac{\phi}{\phi}\$						
	tan ф					
REMARKS:	REMARKS:					

TABLE B-3 SUMMARY OF LABORATORY TEST RESULTS

 $\begin{array}{c} \textbf{PROJECT} & : \quad \underline{\textbf{CHEHALIS GENERATION FACILITY}} \\ \textbf{BORING NO.} & : \quad \underline{\textbf{B-107}} \end{array}$

CAMDI	2.5	5.0	10.0	12.5	15.0	20.0	
SAME	LE DEPTH (ft)	4.0	6.5	11.5	14.0	16.5	26.5
	% PASSING SIEVE ¾"	7.0	92.0	11.5	17.0	10.5	92.0
	3/8"		83.0	 		1	83.0
GRAIN SIZE	# 4		75.0	<u> </u>			75.0
ANALYSIS	# 10		72.0	<u> </u>			72.3
	# 40		49.7				49.8
	#100		38.9		,		39.0
	#200		36.7				36.5
HYDROMETER	0.074 mm		9.5				
	ANALVSIS U.005 mm			,			10.0
ANALISIS	0.001 mm						4.8
Soil Classification (AS	TM)	CL	SM	GW/GM	GW/GM	GW/GM	GW/GM
Specific Gravity, Gs					2.68		
Natural Moisture Conte	ent, %		28				10
Wet Unit Weight, δ (g/	cm³)					,	
Dry Unit Weight, δ (g/c	cm ³)						
Natural Void Ratio, eo							
CONCOL ID ATION	Preconsolidation						
CONSOLIDATION	Pressure, pc (psf)						
Compression Index, Cc					•		
DIRECT SHEAD C (psf)			******				
DIRECT SHEAR	ф						
TEST tan φ							
REMARKS:							

APPENDIX C

PACIFICORP ENERGY CHEHALIS POWER PLANT TRANSFORMER GSU#1 OIL SPILL STATUS REPORT





April 29, 2011

Mr. Kevin Hancock Washington Department of Ecology Southwest Regional Office P.O. Box 47775 Olympia, WA, 98504-7775

RE: PacifiCorp Energy Chehalis Power Plant Transformer GSU#1 Oil Spill Status Report

On January 20, 2011, Generation Step Up Transformer #1 (GSU#1) experienced an explosive failure and subsequent fire which resulted in a release of mineral oil around the transformer and also impacting the stormwater system. PacifiCorp Energy completed the verbal spill notifications to the required Federal and State agencies promptly after the incident. You visited our facility after the spill to assist with the initial cleanup and to advise us of the regulatory requirements. As you requested and as required by the regulations, we are providing this status report on the results of the cleanup efforts, initial investigation and plans for further investigation and remediation of the oil spill.

Spill Incident

The transformer GSU#1 failed at 04:15 on January 20, 2011, and an estimated 250 gallons of the 11,100 gallons of mineral oil in the transformer sprayed on to the transformer containment structure and on to the soil outside the containment. The transformer fire suppression system initiated automatically and sprayed water over the transformer. The Fire Department responded and extinguished the fire using water aqueous fire-fighting foam. The water and foam pooled around the transformer and flowed into the adjacent stormwater ditches. The water was contaminated with small amounts of mineral oil, and some oily water reached the stormwater pond. However, PacifiCorp personnel had shut-off the discharge flow from the pond so that no oil contaminated water was discharged from the stormwater pond or from the facility site.

The location of GSU#1 at the Chehalis Power Plant and the extent of the oil spill are shown in Figure 1 Facility Diagram and Figure 2 Drainage Diagram in Attachment A.

Initial Spill Response

Cowlitz Clean Sweep (CCS) of Longview, Washington was retained for emergency spill response. The contractor arrived the morning of January 20th as the Fire Department wrapped up their operations. CCS initiated oil spill containment and remained on-site for several weeks for spill cleanup. The Mineral Oil Release Report, prepared by CCS and included as Attachment B, describes the response and cleanup activities with detailed information on sampling, lab analysis and waste disposal.

The initial cleanup efforts focused on removal of oil contaminated water from the stormwater ditches, the stormwater pond and the GSU#1 containment structure. CCS removed oil from surface waters, and then excess water was pumped to the lined containment structure for two large diesel tanks in the southwest corner of the facility. Reconstruction of the transformer containment and foundation was necessary to install a replacement transformer. The water table is only four feet below ground, and it was necessary to pump out groundwater during the transformer repairs. Excess water was pumped into the empty east diesel tank after the containment was filled to a safe capacity.

In early February 2011, PacifiCorp hired KTA Associates Inc. (KTA), Seattle, Washington, environmental consultants to prepare and coordinate oil spill remediation plans.

Soil Remediation

As described in the report in Attachment B, CCS conducted extensive sampling and analysis of soil and water samples from the stormwater ditches, stormwater pond and the area around GSU#1. The contaminated soil and gravel in the ditches and pond were removed and replaced with clean material. One month after the oil spill, the area around GSU#1, approximately 70 by 80 feet which was affected by the transformer oil release, was remediated. Contaminated soil was excavated below the groundwater level and removed for disposal, free product oil on the groundwater surface was absorbed and removed. Clean fill was deposited in the excavated area. Soil sampling and analysis demonstrate that the contaminated soil was remediated to below Model Toxics Cleanup Act (MTCA) Method A soil cleanup levels of 4,000 mg/kg for mineral oil in WAC 173-340-900 Table 740-1.

Surface Water Impacts

As described above, oil was contained and removed from the water in the facility's stormwater system; no contaminated stormwater was released from the facility. Excess water stored in the diesel tanks' containment was tested and determined to have no detectable oil; therefore, as approved by Ecology, the water was discharged through the stormwater system.

Approximately 450,000 gallons of water collected in late January and early February during dewatering operations for the transformer containment and foundation repair is currently stored in the east diesel tank. The water may have low levels of detectable oil contamination on the water surface. The water in the tank will be sampled to characterize any oil contamination, and a plan developed for Ecology approval, to discharge water with non-detectable residual mineral oil or diesel.

Groundwater Investigation

Shortly after the oil spill from GSU#1, a thin layer of oil was discovered on the shallow groundwater in an excavation several feet from the transformer containment structure. With the large volumes of fire-fighting water and subsequent rainfall, the mineral oil migrated quickly through the gravelly soil to the surface of the groundwater about four feet below the ground. The oil on the surface of the groundwater was removed during the soil remediation around

GSU#1 in February; however, it is probable that residual groundwater contamination remains. The groundwater in this area flows from northeast to southwest following the general elevation gradient from the hills to the northeast towards the Newaukum River one mile southwest of the Chehalis Power Plant. The Plant is located east of Interstate 5 on a bench of the Newaukum River valley. Surface stream flow and a geotechnical report from construction of the facility in the year 2000 support this conclusion on the groundwater flow direction.

It is possible that a small plume of oil exists on the groundwater within the Plant boundaries. PacifiCorp is planning a groundwater investigation led by KTA to determine the extent of any groundwater plume. Several soil borings will be completed using a Direct Push Technology drill rig. The borings will be located downgradient from the transformer and groundwater samples will be analyzed for mineral oil with NWTPH-Dx. The groundwater investigation is anticipated to be completed by June 30, 2011.

Groundwater Remediation

Based on the results of the groundwater investigation, PacifiCorp and KTA will determine the extent of groundwater contamination. If the cleanup actions completed earlier this year have reduced soil and groundwater contamination to acceptable levels, additional groundwater remediation may not be necessary. All investigation and clean up efforts would be documented in a Cleanup Action Plan (CAP) and a request for No Further Action for both soil and groundwater impacts submitted to Ecology for approval.

If contamination does exist above acceptable levels, KTA anticipates developing a plan to clean up any groundwater contamination to below MTCA Method A groundwater cleanup levels of 500 ug/liter for mineral oil in WAC 173-340-900 Table 720-1.

If necessary, PacifiCorp plans to go out for bids for a contractor to conduct the remediation efforts. The contractor would prepare a CAP to be submitted to Ecology for approval. After the CAP is approved, PacifiCorp and the contractor would proceed with the remediation. Once the cleanup goals are achieved and a project report is completed, a request for No Further Action for both soil and groundwater impacts will be submitted to Ecology.

We are confident that most of the contamination caused by the oil spill from GSU#1 has been cleaned up and the efforts to remediate residual oil contamination, if necessary, will be successful.

If you have questions or need additional information, please contact Patrick Sanchez or myself at 360-748-1300.

ll P7545/

Sincerely,

Mark A. Miller Plant Manager

Attachments

cc: Bill Teitzel

w/enclosure

Code Compliance Supervisor

Lewis County Public Health and Social Services

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Dan Meyer

w/enclosure

USEPA Region 10 Mailstop OAQ107 1200 6th Avenue Seattle, WA 98101

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Siting Specialist

Energy Facility Site Evaluation Council

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P.O. Box 43172

Olympia, WA 98504-1372

Lenora Westbrook - KTA Associates, Inc. w/o enclosure

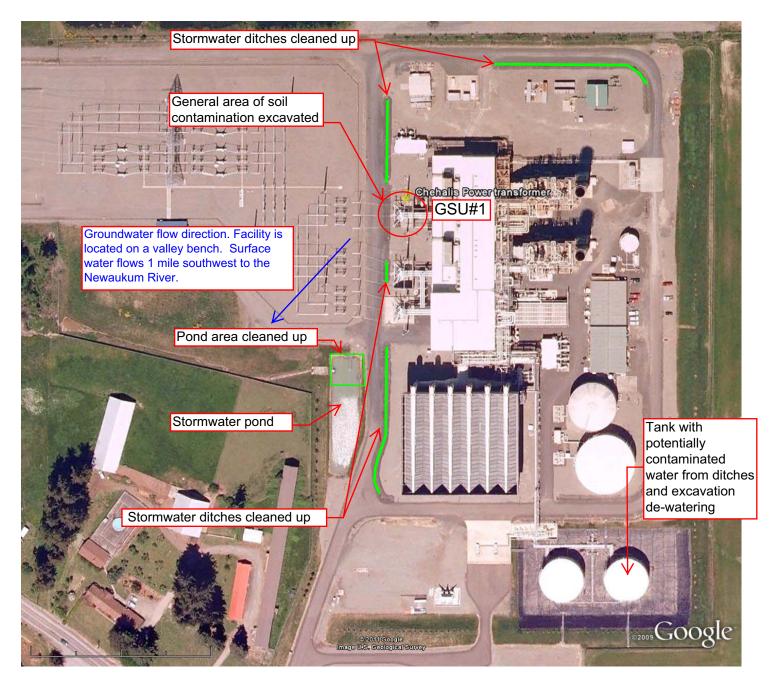


Figure 1 Chehalis Power Plant Transformer Oil Spill

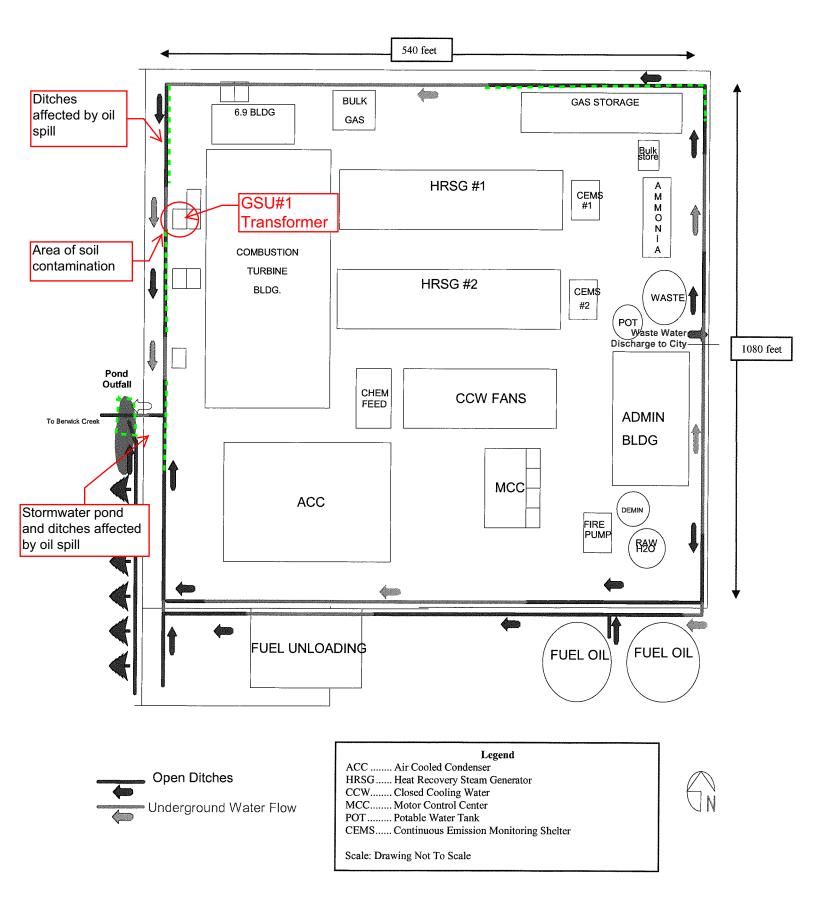


Figure 2 - Drainage Diagram



Chehalis Power Pacific Corp. Energy Mineral Oil Release

1813 Bishop Rd. (GSU #1) Chehalis, Washington

January 20th, 2011

Prepared by:

Randy Legler, Emergency Response CCS - A Division of PNE Corp. 55 International Way Longview, WA 98632

Attachments Included:

1. Attachment A: Site Maps, Sampling Locations

2. Attachment B: Laboratory Results

3. Attachment C: Manifests

4. Photo CD

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SPRINGFIELD OPERATIONS

2260 Three Lakes Road SE Albany, OR 97322 Phone (541) 917-6696 Fax (541) 917-1082



March 16, 2011

Mr. T. Patrick Sanchez **Environmental Analyst** Chehalis Power Pacific Corp Energy 1813 Bishop Rd. Chehalis, WA

Spill Cleanup Report Mineral Oil Release Chehalis, Washington CCS Project # 9311021

Mr. Sanchez.

Pacific Corp. contracted CCS, a division of PNE Corp., to respond to and mitigate a release of mineral oil at the Chehalis power plant. CCS performed these services on January 20th 2011 – current date.

Background

GSU #1 experienced a failure and caught fire Thursday morning, January 20th. During fire fighting operations the containment around GSU #1 was filled beyond capacity causing the leaking oil to flow over the top. As a result of extinguishing efforts, the Fire Department had utilized fire fighting foam applied to the area. The oil saturated the surrounding fill rock/soil and flowed into a near-by storm water drainage ditch. The oil migrated down the drainage ditch system to the storm water pond. The operators on shift at the plant shut down the outfall from the pond, thereby containing all the oil to the storm water pond and trenches limiting any further contamination. Fire extinguishing efforts and the deluge system added a significant volume of water to the storm water retention pond which upon arrival was approximately 12"-16" from the top of the overflow spillway. Due to wind conditions at the time, oil impact to the pond was primarily to the northern portion extending around the outfall structure.

Initial Response

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CCS dispatched a Response Manager, two operators with an 80 bbl vacuum truck and roll off bin truck, 2 Foreman, 2 Technicians, and a safety officer from Longview at 0615.

Upon CCS's arrival, the fire department was wrapping up their operations. The Response manager directed crews to isolate the oil in the pond to the north side where all the sites drainage ditches enter into the pond. Containment boom was deployed along with absorbents. An oil skimmer was setup with an 80 bbl vacuum truck to remove free oil from the pond surface. CCS utilized a 2" water pump to push the oil within the containment boom towards the skimmer. After the pond was isolated and the south side was cleaned, a pump system was setup to transfer potentially contaminated water from the pond to the fuel tank containment until analysis could be completed. This was done to prevent the pond from over flowing as capacity was needed in case the fire deluge was again needed for the transformer.

The second crew started oil removal from all contaminated ditches to the south. west and north of GSU#1. An oil skimmer was deployed on the ditch lines and pond to recover oil in to an 80 barrel vacuum truck, for future disposal. A 20 cubic yard roll off box was delivered to contain oil contaminated solids and debris recovered during cleanup efforts. Isolation of the ditch lines and pond were completed along with precautionary containment procedures pending further clean up. The Response Manager met with Pacific Corp. personnel to discuss further recovery and clean up procedures.

Spill Cleanup and Site Restoration

Fill rock and soil Clean up:

The first area of soil clean up was the contaminated storm water ditches. The ditches were excavated down to the clay soil. During the excavation of the contaminated soil from ditch line "b", a pocket of contaminated soil was found around an underline ground cable. Crews were instructed by Pacific Corp to halt excavation out into the road. CCS took a sample labeled "B Gravel" upon the reception of the analytical results it was determined that further excavation of the area was necessary. CCS worked with Pacific Corp to return to expand the excavation of the area. CCS returned and removed the remainder of the contaminated soil and took sample "B gravel (13A)" CCS controlled the extent of the excavation using visual indicators, odors, and Photo Ionization Detector (PID) readings. All excavated contaminated fill rock and soil was loaded into dump trucks and taken to the Weyerhaeuser transfer station (MRF) located in Longview, WA for subsequent disposal at the Weyerhaeuser Headquarters

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ABERDEEN **OPERATIONS**

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SPRINGFIELD OPERATIONS

Albany, OR 97322 Phone (541) 917-6696 Fax (541) 917-1082



Landfill. After completion of clean up and receipt of satisfactory confirmation analysis, ditches were re-lined with gravel to prevent sediment loss and water quality issues. The next areas of soil clean up focused around the storm water pond. Excavation involved removing surface soils visually impacted by the oil, approximate depth of removal was 6"-8" on average. One area of the pond that was excavated to a lower extent due to a small tree had to be re-excavated because confirmation sample came back higher then the allowable level. All soil removed from the banks was loaded into dump trucks and taken to the MRF for disposal. Again CCS controlled the extent of the excavation using visual and odor indicators. Sampling was done following the same protocol for the ditches.

The final excavation was done around GSU#1 containment. Crews removed contaminated soil using olfactory, visual & PID readings to control the extent of excavation. Soils were removed to approximately 6" below the static ground water level. Absorbents were deployed in the excavated area to remove free product. After all free product had been removed; the area was backfilled and compacted to the required 95% compaction. An independent testing firm was contracted to perform nuclear density compaction testing.

Liquid clean up:

A number of different measures were used in liquid waste cleanup. The first area being ditches around the storm water pond and the GSU#1 containment. Vacuum trucks, oil skimmers and absorbents were mainly used for removal of product from these locations. CCS collected a sample of the recovered oil for analysis as required by the destined disposal facility. This analysis was completed on a rush basis and the results indicated no PCB's present. Impacted water from the area around GSU#1 was collected and pumped to the on-site diesel fuel storage tank to assist in the dewatering effort for construction activities around GSU#1. In areas of exposed water table, crews deployed absorbents to recover free phase oil.

CCS removed 845.51 tons of rock and soil and 8.869 gallons from the affected areas. CCS backfilled the excavations with 92.42 tons of 2"-4" quarry spalls to help achieve required compaction and 461.84 tons of 1 1/4" of rock.

Sampling and Laboratory Analyses

CCS collected 72 confirmation soil samples to verify the cleanup of affected soils. Dragon Laboratories in Olympia, WA, analyzed the 72 soil samples for NWTPH-Dx. CCS collected samples from the areas most likely to contain residual

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contamination. CCS collected 2 water samples from the site, and 1 sample of the mineral oil to verify PCB content.

Sample locations are shown on the site maps.

Confirmation Sample results:

Ditch Lines:

DICH LINES.		
<u>Sample</u>	Mineral Oil	<u>Units</u>
A1	ND	mg/Kg
A2	ND	mg/Kg
A3	ND	mg/Kg
A4	ND	mg/Kg
A5	ND	mg/Kg
A6	ND	mg/Kg
A7	ND	mg/Kg
A8	ND	mg/Kg
A9	ND	mg/Kg
A10	ND	mg/Kg
A11	ND	mg/Kg
A12	ND	mg/Kg
B1	ND	mg/Kg
B2	ND	mg/Kg
B3	ND	mg/Kg
B4	ND	mg/Kg
B5	ND	mg/Kg
BGravel	42,222	mg/Kg
BGravel (13a		mg/Kg
C1	ND	mg/Kg
C2	ND	mg/Kg
C3	ND	mg/Kg
C4	ND	mg/Kg
C5	ND	mg/Kg

Under GSU #1 Containment:

217	mg/Kg
ND	mg/Kg
	ND ND ND ND

Storm Water Pond Soil:

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Soil around GSU#1

Son an	<u> </u>	
G1	ND	mg/Kg
G2	ND	mg/Kg
G3	ND	mg/Kg
G4	ND	mg/Kg
G5	ND	mg/Kg
G6	ND	mg/Kg
G7	123	mg/Kg
G8	142	mg/Kg
G9	ND	mg/Kg
G10	440	mg/Kg
G11	ND	mg/Kg
G12	ND	mg/Kg
G13	258	mg/Kg
G14	ND	mg/Kg
G15	845	mg/Kg
G16	260	mg/Kg
G17	1143	mg/Kg
G18	ND	mg/Kg

Under GSU #1 Containment extension:

D1	261	mg/Kg
D2	123	mg/Kg
D3	252	mg/Kg
D4	516	mg/Kg
D5	182	mg/Kg
D6	196	mg/Kg
D7	579	mg/Kg
D8	28,100	mg/Kg
D9	1170	mg/Kg
D10	2000	mg/Kg

Water Samples:

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CCB# 78140 COWLICS 971L0



24-Hour Emergency Response 1-888-423-6316

Pond Water

ND

mg/Kg

East Diesel Fuel Storage Tank

All confirmation results for locations tested, except what was left in place under containment extension, are below the MTCA cleanup standard of 4,000 mg/Kg for mineral oil in soil as advised by the Washington Department of Ecology.

Disposal

Soil:

CCS transported 845.51 tons of soil and solid debris under Manifest #9311021 to the Weyerhaeuser MRF in Longview, Washington for disposal as a nonhazardous waste.

Liauid:

CCS transported 8869 gallons of emulsified oil and water under Manifest #9311021 to the ORRCO in Portland, Oregon for disposal as a non-hazardous waste. Copies of the manifest and disposal ticket are included with this report.

Photos:

Site photos are included in the enclosed package.

If you have any questions or concerns please feel free to contact me here at the office (888) 423-6316 or on my cell phone (360) 957-2639. Thank you for the opportunity to provide services to you. Should you need additional assistance. please do not hesitate to contact me.

Sincerely.

CCS – A Division of PNE Corp.

Randy Legler

Emergency Response

CCS

Justin Piper, CHMM ER Department Manager

CCS

Cc: Agencies

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REPORT OF INPLACE DENSITIES BY NUCLEAR METHOD

CLIENT	`: <u>C</u>	CS-PNE Corp	DA	TE:		<u>February</u>	23, 2011			
ATTN:		r. Justin Piper	PRO	OJECT N.	AME:	Chehalis	Power Plan	ıt		
ADDRE	SS: <u>55</u>	International Way	PRO PRO	OJECT LO	OCATION:	1813 Bis	hop Rd, Ch	ehal	is WA.	
	Lo	ongview, WA. 98632	MT	C PROJE	CT #:	11S015				
			PEI	RMIT#:						
WORK	/ LOCAT	ION: Density testing on transform	ner installation backfill	subgrade		*				
		ansformer Pad			_					·
		INP	LACE DENSITY TEST RE	SULTS (AS	TM D-6938)			- - - - -		
TEST #	MODE / DEPTH	LOCATION OF T	TEST	ELEV.	WET DENSITY	DRY DENSITY	MOIST %	*	COMP %	REQ'D %
1	6"	12' S, 30' E of SW corner of MTP			146.0	139.4	4.7	1	97.8	95
2	6"	20' N, 48' E of NW corner of MT.	· · · · · · · · · · · · · · · · · · ·	\\	143.8	135.8	5.9	1	95.2	95
3	6"	15' N, 6' E of SSE corner of MTP			143.0	135.4	5.6	1	95.0	95
4	6"	21' E, 10' N of NW corner of MT.		.,	145.3	140.0	3.8	1	98.2	
5	6"	9' S, 21' E of SE corner of MTP	•		143.8	136.8	5.1	1	95.9	95 95
6	6"	9' S, 9' W of SE corner of MTP			144.0	136.4	5.5		95.6	95
7	6"	24' N, 6' E of SE corner of MTP	· · · · · · · · · · · · · · · · · · ·		144.4	137.7	4.8	1	96.6	95
				···	177.7	137.7	7.0	<u> </u>	70.0	93
٠.	-									
						. :			<u> </u>	
TF	ST MET	HOD: ASTM D-608/ AASI	HTO T-99 🛛 ASTM	I D-1557	/ A A SUTO	Т 190			<u>. </u>	
	MPLE #:		ell graded gravel with				R VALUE :	-	142.6 @ 6	5%
*2 SAN	MPLE#:	DESCRIPTION:	<u> </u>	·····			R VALUE :		112.0 @ 0	.570
	MPLE#:	DESCRIPTION:				PROCTO	R VALUE :			
*4 SAN	MPLE #:	DESCRIPTION:	<u> </u>			PROCTO	R VALUE :			
GAUG	E STANI	DARD: MS- 722 DS-435	EQUIPM	ŒNT ID	& S/N (as a	pplicable):	3440/221	52		
	Native S	Soils:	Soils consistent w	ith Proc	tor:		Yes 🖂		No []
	Importe	d Fills: 🛛	Soils found to be:	firm and	stable; aı	nd to the				
	_	_	best of our knowle		-		Yes 🔀		No []
			Contractor notifie	d of resu	ılts:		Yes 🖂		No [7
		TC on site as requested. Contractor	placed (2) 1-2' lifts of	material	and compac	ted them to	a firm and		ielding cor	ndition
with a si	ngle drun	roller and plate compacter. Note:	Could not verify comp	liance wit	h plans as r	o plans we	re on site at	tim	e of testing	<u>z. </u>
										
REPOR?	TED BY:	R. Amell, Field Inspector		REV)	EWED BY	': M. Gord	ion. WABC) La!	b Manager	
		original: justinp@pnecorp.com	cc: randyl@							
		cc:	cc:	priceorp.c	0111		c:			
			***************************************	· · ·						

All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval. © 2008 - 2010 Materials Testing & Consulting, Inc. All rights reserved.

Report #D 15107

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Sieve Report

Project:	Chehalis	Power Plar	t Date F	Received:	17-Feb-11	AS	STM D-248	7 Unified Soils Classifica	tion System	
Project #:	11S015		Sam	pled By:	SBO / TB	G/	W, Well-grad	led Gravel with Sand, Cru	shed	
Client:	CCS-PN	E Corp	Date	e Tested:	22-Feb-11		mple Color:	·		
	Martin S	•		ested By:		Gr	•		1	* CCDEDITED
Sample#:					, -	٠.	CSBC			ACCREDITED withcuts v: 1366 61, 1366 62 4, 1366
Danie, Press	11 0,0					D ₍₅₎ = 0.303 mr		% Gravel = 77.8%		irvature, C _C = 2.18
	Specificat	ions				$D_{(10)} = 1.296$ mr		% Sand = 19.5%		formity, $C_{11} = 12.01$
	No Specs					$D_{(30)} = 6.630$ mr		% Silt & Clay = 2.6%		ess Modulus = 6.25
	-	ets Specs ?				$D_{(50)} = 12.771 \text{ mr}$		Fracture % = n/a		Liquid Limit = n/a
	Dampie Me	ca specs .						Moisture % = 2.0%		•
										Plastic Limit = n/a
						$D_{(90)} = 22.839$ mr	n	Sand Equivalent= n/a	Pla	sticity Index = n/a
- W/16.		28 427.4	in William	38686-0	an Labor M	ASTM C-136, ASTM	D-4318			
			Interpolate							
			Cumulative	,			(Grain Size Distributi	on	
	Size	Percent	Percent	Specs	Specs	8 55	5 6 6 7 8		58 45 g	
US	Metric	Passing	Passing	Max	Min	100% ***********************************	n the part of the state of the	1 2 2 2 2 2 E	事事。 事事。 事事等 第二章 5000 1000 1000 1000 1000 1000 1000 100	₸ 100.0%
6.00"	150.00		100%	100.0%	0.0%	ļ	1			1
4.00"	100.00		100%	100.0%	0.0%	2001	1			1
3.00"	75.00		100%	100.0%	0.0%	90% +	1			90.0%
2.50"	63.00		100%	100.0%	0.0%	ļ.	1			1
2.00"	50.00		100%	100.0%	0.0%	80% -	1			1 80.0%
1.75"	45.00		100%	100.0%	0.0%	-	1			1
1.50"	37.50		100%	100.0%	0.0%	700/	ļ			1
1.25"	31.50	100%	100%	100.0%	0.0%	70% -	ı			70.0%
1.00"	25.00	100%	100%	100.0%	0.0%	-	1			1
7/8"	22.40		88%	100.0%	0.0%	60%	i			± 60.0%
3/4"	19.00	72%	72%	100.0%	0.0%		1			
5/8"	16.00	40	62%	100.0%	0.0%	Passing	1			90.0% Passing
1/2"	12.50	49%	49%	100.0%	0.0%	Si 50% -	,			50.0%
3/8"	9.50	42%	42%	100.0%	0.0%	%	\			1 %
1/4"	6.30	2004	29%	100.0%	0.0%	40%	į			40.0%
#4	4.75	22%	22%	100.0%	0.0%	-	1			1
#8	2.360	120/	14%	100.0%	0.0%	200/	/			1
#10 #16	2.000	13%	13%	100.0%	0.0%	30% +		\		30.0%
#16 #20	1.180 0.850	8%	10%	100.0%	0.0%	F		\		1
#20 #30	0.830	870	8% 7%	100.0%	0.0% 0.0%	20% 🖡		1		1 20.0%
#30 #40	0.600	6%	/% 6%	100.0%	0.0%	F		<i>\</i>		1
#40 #50	0.423	076	5%	100.0%	0.0%	10%		***		10.0%
#30 #60	0.300	5%	5% 5%	100.0%	0.0%	1076		*****		1 10.0%
#80	0.230	5% 4%	3% 4%	100.0%	0.0%	-				1
#80 #100	0.150	4% 4%	4%	100.0%	0.0%	0% 			100- 000 · · · ·	
#100 _ #140	0.130	470	3%	100.0%	0.0%	100.00	10.00	1.00	0.10	0.01
#170	0.100		3%	100.0%	0.0%			Particle Size (mm)		
#170	0.090	2.6%	2.6%	100.0%	0.0%			. 2. 3.5.5 5.25 (11111)		
#200	0.075	2.076	2.070	100.070	0.076	+ Sieve Sizes		Specs — Min Specs	Sieve Ro	sults
Copyriuh	t Spears Envine	rine & Technical:	 Services PS, 1996-	98				• • •		
		_			Control de la Soule Maria	ourselves all supports and coloring		property of clients, and authorization for pu	delication reserve	nclusions or extracts from or re-

reports is reserved pending or		sports are summitted as the committed in property of criteries, and anaborization for particularly of statements, contributions of extracts from or regard.
Comments:		
Reviewed by:	mp & S	
	Mark Gordon	- •
	WABO Supervising Laboratory Manager, Olympia Branch	

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Proctor Report

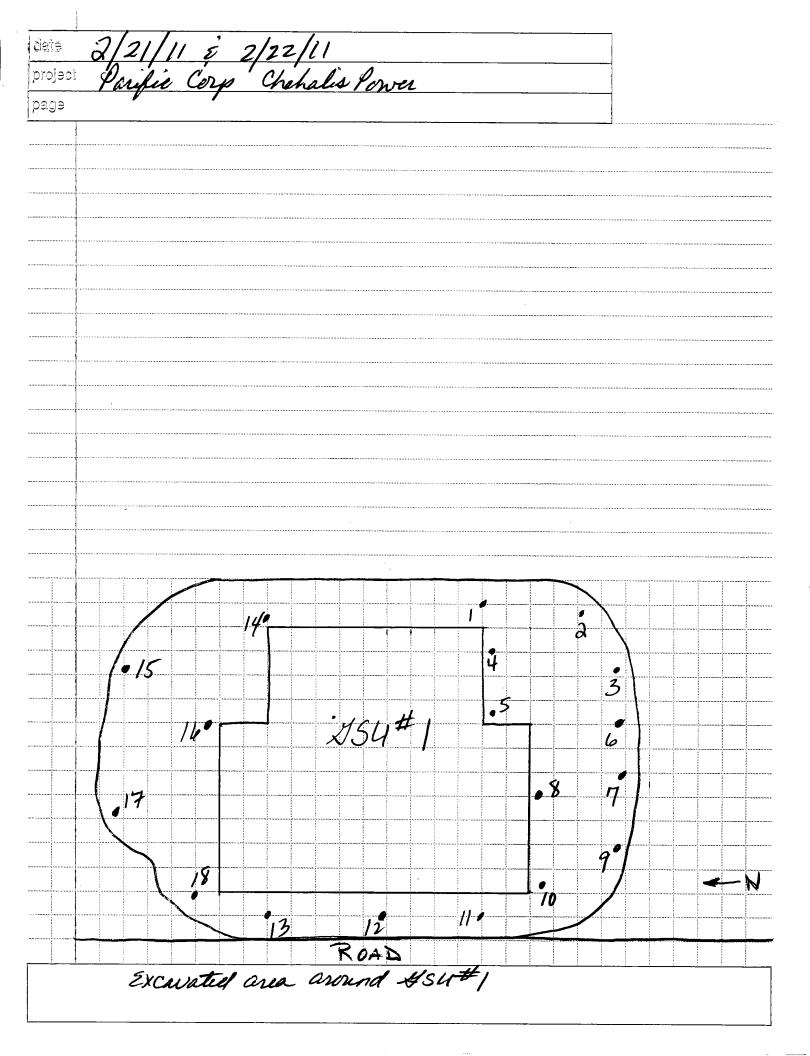
Project: Chehalis Pov		ate Received:				•	n, ASTM D-2487			ASTM C-	136	
Project #: 11S015		Sampled By:				vel with Sand	, Crushed	Sieve	Size	Percent	Specific	ations
Client: CCS-PNE C		Date Tested:		Sample (Color			US	mm	Passing	Max	Min
Source: Martin S &	3 Pit	Tested By:	Troy B	Grey				6.00"	150.0		100.0 %	0.0 %
Sample#: 11-090					CSBC			4.00"	100.0		100.0 %	0.0 %
	Sample Prepared		X		Manual:			3.00"	75.0		100.0 %	0.0 %
		Dry:			Mechanical:	X		2.50"	63.0		100.0 %	0.0 %
	Test Standard	: ASTM D698:		A	ASHTO T 99:		Method	2.00"	50.0		100.0 %	0.0 %
		ASTM D 1557:	X	A	SHTO T 180:		C	1.75"	45.0		100.0 %	0.0 %
Assumed Sp. Gr.	Point	Percent	Dry			orrected Proc		1.50"	37.5		100.0 %	0.0 %
2.70	Number	Moisture	Density			Density	Optimum Moist.	1.25"	31.5	100 %	100.0 %	0.0 %
	1	5.7 %	128.1		134.7	lbs/ft ³	8.8 %	1.00"	25.0	100 %	100.0 %	0.0 %
	2	7.3 %	131.7					7/8"	22.4		100.0 %	0.0 %
	3	8.7 %	135.9		Value w/	Oversize Cor	rection Applied	3/4"	19.0	72 %	100.0 %	0.0 %
	4	10.6 %	132.2			Density	Optimum Moist.	5/8"	16.0		100.0 %	0.0 %
ACCREDITED					142.6	lbs/ft ³	6.5%	1/2"	12.5	49 %	100.0 %	0.0 %
Providing 0: 1,386.01, 7300.02 & 5306.33								3/8"	9.5	42 %	100.0 %	0.0 %
								1/4"	6.3		100.0 %	0.0 %
		Moisture l	Density Rel	ationship			Zero Air Voids	#4	4.750	22 %	100.0 %	0.0 %
138.0 T			*				Zero mit voids	#8	2.36		100.0 %	0.0 %
136.0				21.2				#10	2	13 %	100.0 %	0.0 %
ţ.								#16	1.18		100.0 %	0.0 %
134.0 132.0 130.0					-			#20	0.85	8 %	100,0 %	0.0 %
,,,,,					7.00	A		#30	0.6		100.0 %	0.0 %
. 1320 T		•				***********	_	#40	0.425	6 %	100.0 %	0.0 %
130.0 ‡						`		#50	0.3		100.0 %	0.0 %
							11.	#60	0.25	5 %	100.0 %	0.0 %
128.0							2.57	#80	0.18	4 %	100.0 %	0.0 %
126.0					· · · · · · · · · · · · · · · · · · ·			#100	0.15	4 %	100.0 %	0.0 %
5% 6%	7%	8*	% **	9%	10%	11	% 12%	#140	0.106		100.0 %	0.0 %
		Po	ercent Moistur	re				#170	0.09		100.0 %	0.0 %
			•	Data Points	Zero A	vir Voids Curve	Curve Fit	#200	0.075	2.6 %	100.0 %	0.0 %
				***	· · ·			Specs:		Mo	eets Specs?	
								No Spec	S			
	8, Misc. Oversize					Oversize Mat'l	: 28%					
% Retained		Optimum	(% Retained	Corrected	Optimum		11	Gravel:		D(10):	
3/4" Siev		Moisture		3/4" Sieve	Density	Moisture		II	% Sand:		D ₍₃₀₎ :	
5%		8.4%		20%	140.3	7.2%		% Si	lt&Clay:			15.572
10%		8.0%		25%	141.8	6.7%				2.18	LL:	
15%	138.9	7.6%		30%	143.3	6.3%			-	12.01	PL:	n/a
										6.25	PI:	
Convrigh	Spears Engineering	& Technical Service	es PS. 1996-98					II Fra	cture %:	n/a	Sand Eq.:	n/a

Comments:

Reviewed by:

WABO Supervising Laboratory Manager, Olympia Branch

Mark Gordon



Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory

55 International Way Longview, WA 98632

Sampled By: Randy Legler

DAL Project No.: 110224-01

Project Name: Pacific Corp Project No.: 9311021 P.O. No.: 9311021

Date Collected: 02/22/2011; 1000 Date Received: 02/24/2011; 1154

Report Date: 3/3/2011 Temperature Received (°C): n/a

Preparation Method: US EPA 3550C Analytical Method: NWTPH-Dx

Date Prepared: 3/1/2011 Date Analyzed: 3/2/2011

Analyst: JH

Data Reviewed By:

Units: mg/kg Matrix: Soil

Reporting Limits: Standard Injection Volume: 3 uL Instrument ID: Shimadzu GC-14A

Section 21 to the section of the sec	CAS		Method							9 9				
Sample Identification	No.	MR	Blank	G 1	G 2	G 3	G 4	G 5	9 S	DUP	G 7	G 8	6 9	G 10
Kerosine	84742-81-0	10	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu
Diesel Fuel #2	68334-30-5	10	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu
Fuel Oil #6 (Bunker C)	68553-00-4	100	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu
Mineral Oil	64742-47-8	100	pu	pu	pu	pu	pu	pu	pu	pu	123	142	pu	440
Motor Oil	64742-47-8	100	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu	pu
Percent Solids (%)			n/a	94.7	93.7	94.5	6.96	94.8	90.4	90.4	94.2	92.4	96.4	91.5
Dilution Factor			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Data Flags														

	CAS				G 14				
Sample Identification	No.	Z Z	G 13	G 14	DUP	G 15	G 16	G 17	G 18
Kerosine	84742-81-0	10	pu						
Diesel Fuel #2	68334-30-5	10	pu	pu	pu	pu	pu	pu	р
Fuel Oil #6 (Bunker C)	68553-00-4	100	pu						
Mineral Oil	64742-47-8	100	258	pu	pu	845	260	1143	ы
Motor Oil	64742-47-8	100	pu	pu	pu	pu	pu	pu	ы
Percent Solids (%)			8.96	92.0	92.0	94.0	91.8	88.9	92.6
Dilution Factor			1.0	1.0	1.0	1.0	1.0	1.0	1.0
Data Flags									



DAL Project No.: 110224-01

DRAGON ANALYTICAL LABORATORY 530 A1 Ronlee Ln, Olympia, WA 98502 (360) 866-0543

Hazardous Waste. Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory

Project Name: Pacific Corp

Project No.: 9311021

DIESEL and OIL QUALITY CONTROL RESULTS

SURROGATE RECOVERY

		Method							99				
Surrogate	Limits (%)	Blank	G 1	G 2	63	G 4	G 5	9 9	DUP	67	68	69	G 10
2-FBP	50-150	145	6.77	123	77.2	123	74.6	104	99.0	122	105	90.2	98.9
				G 14									
Surrogate	Limits (%)	G 13	G 14	DUP	G 15	G 16	G 17	G 18					
2-FBP	50-150	6.86	111	106	110	117	116	117					

LABORATORY CONTROL SAMPLE AND MATRIX SPIKE

QC Batch ID: 110209-Fuels

	MS/MSD	MS/MSD MS/MSD Sample	Sample	MS	MS	MSD	MSD	MS/MSD		CS	SOT	SOT	TCS
	Limits	Level	Conc.	Recovery	Percent	Recovery	Percent	RPD		Limits	Level	Recovery	Percent
Analyte	(%)	(mg/kg)	(mg/kg) (mg/kg) (mg/kg)	(mg/kg)	Recovery	(mg/kg)	Recovery	Limits	RPD	(%)	(mg/kg)	(mg/kg)	Recovery
Mineral Oil	65-135	1000	pu	824	82.4%	810	81.0%	≥ 15%	0.84	65-135	1000	886	88.6%
WA-DOE-Laboratory Certification No.: C890	ication No.: C	890											

"nd" indicates the analyte was not detected at or above the listed Method Reporting Limit.

"n/a" indicates not applicable

Sample results based on dry weight.

Comments and Explanations: None.

Job Number: 1030418

Pyxis Laboraturies 12423 NE Whitaker Way Fortland, OR 97230 303-254-1794

Job Number: 1030418 Report Date: 03/25/2011 Purchase Order: 9311021

Project Name:

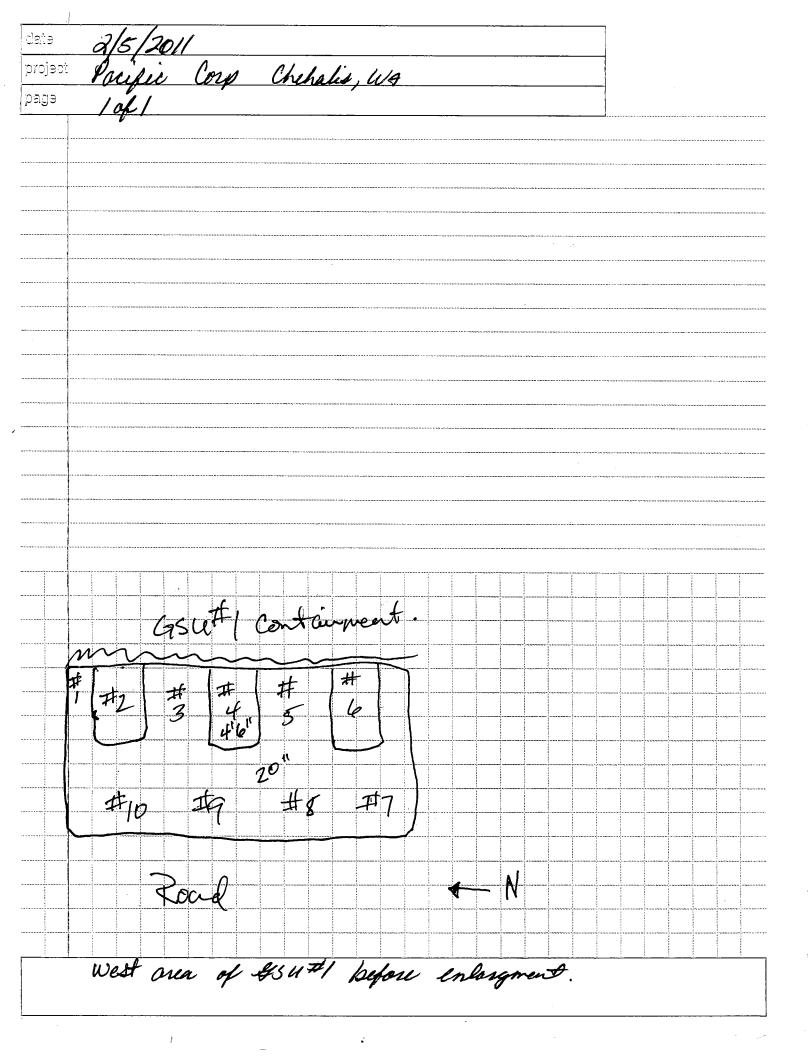
Project No:

Pacific Corp/Chehalis Power

All are Mi	nerai oii									
			S	ample Re	esults					
8B		Collected: 03	/02/1	l 12:00 P	M	By: R.	Legler		Matrix:	Other
Analyte	Result	Units	MRL	Dilution	Batch	Start / Extract	Analyzed	Analyst	Method	Notes
Diesel	110	mg/Kg	12	1	7936-1	2 ^{03/04/11} 18:00	03/07/11 13:39	CMK	NW TPH-Dx	AÇ
Hydrocarbons heavier than C24	ND	mg/Kg	25	1	7936-1	03/04/11	03/07/11 13:39	CMK.	NW TPH-Dx	
11		Collected: 03	/02/1	1 12:05 P	M	By: R.	Legler		Matrix:	Other
Analyte	Result	Units	MRL	Dilution	Batch	Start / Extract	Analyzed	Analyst	Method	Notes
Diesel '	ND	mg/Kg	12	1	7936-1	303/04/11 18:00	03/07/11 13:40	CMK	NW TPH-Dx	
Hydrocarbons heavier than C24	ND	mg/Kg	25	1	7936-1	3 ^{03/04/11} 18:00	03/07/11 13:40	CMK	NW TPH-Dx	
12		Collected: 03	3/02/1	1 12:10 F	PM	By: R.	Legler		Matrix:	Other
Analyte	Result									
/		Units	MRL	Dilution	Batch	Start / Extract	Analyzed	Analyst	Method	Notes
Diesel	200	mg/Kg		Dil ution 1	7936-1	Extract 1403/04/11	03/07/11 13;41	Analyst CMK	Method NW TPH-Dx	Notes AC
Diesel Hydrocarbony heavier than C24	200 ND		12		7936-1	Extract 03/04/11	03/07/11	·		
/		mg/Kg	12 24	1	7936-1 7936-1	Extract 1403/04/11 18:00 1403/04/11 18:00	03/07/11 13:41 03/07/11	CMK	NW TPH-Dx	AC
Hydrocarbons heavier than C24		mg/Kg mg/Kg	12 24	1 1 1 12:15 F	7936-1 7936-1 PM Batch	Extract 14 ^{03/04/11} 18:00 14 ^{03/04/11} 18:00 By: R. Start /	03/07/11 13:41 03/07/11 13:41	CMK	NW TPH-Dx	AC
Hydrocarbons heavier than C24	ND	mg/Kg mg/Kg Collected: 03	12 24 3/02/1 MRL	1 1 1 12:15 F	7936-1 7936-1 PM Batch	Extract 03/04/11 14/18:00 14/03/04/11 18:00 By: R. Start /	03/07/11 13:41 03/07/11 13:41 Legler	CMK.	NW TPH-Dx NW TPH-Dx Matrix:	AC Other

Laboratory Quality Control Results

•	AZMIOUI .	tooil Atmin on	THE PERSON	45				
NW TPH-Dx		• - •						
QC - Extraction Blank					Ba	tch ID	7936-	-2
Analyte	Result	Expected	Units	% Recovery	Limite	RPD	Limit	Notes
Diesel	ND	NĎ	mg/Kg					
Hydrocarbons heavier than C24	ND	ND	mg/Kg					
o-Terphenyl (Surr.)				97	50-150			
QC - Laboratory Control Samp	ole - Standard: S	S1010995			Ba	tch ID	: 7936-	-3
Analyte	Result	Expected	Units	% Recovery	Limits	RFD	Limit	Notes
Diesel	47	50	mg/Kg	94	50-150			
Hydrocarbons heavier than C24	33	5 0	mg/Kg	66	50-150			
o-Terphenyl (Surr.)			***	108	50-150		-	
QC - Sample Duplicate - Sampl	le it em #: 4				Ba	tch ID	: 793 <i>6</i> -	-10
Analyte	Result	Expected	Units	% Recovery	Limits	RPD	Limit	Notes
Diesel	22	25	mg/Kg			12	5 0	
Hydrocarbons heavier than C24	ND	0	mg/Kg			200	5 0	
o-Terphenyl (Surr.)			,	107	-			
QC - Sample Duplicate - Sample	le item #: 13				Ba	tch ID	: 7936-	-16





DRAGON ANALYTICAL LABORATORY

530 A1 Ronlee Ln, Olympia, WA 98502 (360) 866-0543

Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory

Project Name: Pacific Corp 9311021 Project No.:

Date Collected: 02/05/2011; 1600 P.O. No.: 9311021

Date Received: 02/07/2011; 1502

Report Date: 2/11/2011

Temperature Received (°C): n/a

Data Reviewed By:

Preparation Method: US EPA 3550C Analytical Method: NWTPH-Dx Date Prepared: 1/31/2011 Date Analyzed: 2/3/2011 Analyst: JH

DAL Project No.: 110207-02

Longview, WA 98632 55 International Way

Sampled By: Randy

Units: mg/kg Matrix: Soil Reporting Limits: Standard Injection Volume: 3 ul.

Instrument ID: Shimadzu GC-14A

	CAS		Method		D 1									
Sample Identification	No.	MR	Blank	01	DOP	D 2	D 3	D 4	D 5	9 Q	D 7	D 8	6 Q	D 10
Kerosine	84742-81-0	10	ри	pu	pu	ъ	딛	pu	pu	pu	pu	pu	pu	pu
Diesel Fuel #2	68334-30-5	10	pu	pu	pu	ы	рu	ы	pu	ы	пд	pu	ы	pu
Fuel Oil #6 (Bunker C)	68553-00-4	100	ы	pu	pu	힏	pu	pu	pu	힏	pu	pu	ы	pu
Mineral Oil	64742-47-8	100	ы	261	260	123	252	516	182	196	579	28,100	1170	2000
Motor Oil	64742-47-8	100	ы	pu	pu	ы	pu	ри	pu	þ	pu	pu	pu	pu
Percent Solids (%)			n/a	81.4	81.4	81.9	76.9	66.7	79.2	75.1	94.9	93.8	6.98	85.7
Dilution Factor			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	10.0	1.0	1.0
Data Flags										÷				

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Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory



Longview, WA 98632 55 International Way

Sampled By: Roy Shawgo

DAL Project No.: 110128-05

Project Name: Pacific Corp Project No.: 9311021

Date Collected: 1/28/2011; 1100 P.O. No.: 9311021

Date Received: 1/28/2011; 1538

Report Date: 2/9/2011

Temperature Received (°C): n/a

Preparation Method: US EPA 3550C

Analytical Method: NWTPH-Dx Date Prepared: 1/31/2011

Date Analyzed: 2/3/2011 Analyst: JH

Data Reviewed By:

Units: mg/kg Matrix: Soil

Reporting Limits: Standard Injection Volume: 3 uL

Instrument ID: Shimadzu GC-14A

Sample Identification	CAS No.	MRL	Method Blank	ž	#2	#3	#	45	#5 DUP	9#
Kerosine	84742-81-0	10	DG.	Ę	ы	믿	ы	ы	pu	р
Diesel Fuel #2	68334-30-5	10	힏	Ę	힏	ы	pu	2	힏	펕
Fuel Oil #6 (Bunker C)	68553-00-4	100	밑	þ	힏	ы	덜	힏	ы	힏
Mineral Oil	64742-47-8	100	DG DG	217	힏	멸	힏	힏	ы	힏
Motor Oil	64742-47-8	100	שַ	5	pu	pu	pu	pu	pu	pu
Percent Solids (%)			n/a	75.9	9.08	63.6	78.1	78.8	78.8	77.4
Dilution Factor			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Data Flags										

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AL	L. Ani	SAM BA	PLES O OF F	COLLECT PREVIOUS	ED AT	T WA	ATER L CONTAI	INE MINA	†TION		
2"											

	. 11		Δ1/2	0.62				`			
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N	A!	A6	910 ,	99 A	8 A) }	A12		30	,	
2	2"						AI		30	,	
316	A!!						AI		30)	
310	A! BY						A)		9(,,	
310	A!! BY B3						AI		30		
BIO BIO	135						AI		30		
BIO BIO	B5 C1						A)		36		
BIO BIO	B5 C1						A		30		
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BIO BIO	B5 C1						AI		30		
BIO BIO	B5 C1						A				

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Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory

55 International Way

Longview, WA 98632

Sampled By: RSP

DAL Project No.: 110127-09

Preparation Method: US EPA 3550C Analytical Method: NWTPH-Dx Date Prepared: 1/28/2011 Date Analyzed: 1/28/2011

Analyst: JH Data Reviewed By: \mathcal{K}

Project Name: Pacific Corps Project No.: 9311021

P.O. No.: 9311021

Date Collected: 1/27/2011; unknown Date Received: 1/27/2011; 1800

Temperature Received (°C): 11

Report Date: 1/28/2011

Units: mg/kg Matrix: Soil

Reporting Limits: Standard Injection Volume: 3 uL

Instrument ID: Shimadzu GC-14A

Lab Data File: n/a

Sample Identification CAS No. MRL	CAS No.	MRL	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8	A-9	A-9 DUP	A-10
Kerosine	84742-81-0 10	10	pu	힏	힏	2	힏	힏	<u>g</u>	рı	pu	pu	pu
Diesel Fuel #2	68334-30-5	. 10	ы	ā	힏	됟	ы	힏	2	힏	힏	힏	пд
Fuel Oil #6 (Bunker C)	68553-00-4	100	Б	힏	힏	ы	힏	힏	pu	힏	힏	ы	р
Mineral Oil	64742-47-8	100	힏	5	힏	멑	Þ	힏	힏	힏	뎔	힏	멑
Motor Oil	64742-47-8	100	Б	힏	ы	ы	nd	ы	ы	ы	ы	pu	ы
Percent Solids (%)			71.0	74.4	74.8	81.0	85.9	74.7	80.5	78.4	78.0	9.77	82.1
Dilution Factor			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Data Flags													

Sample Identification	CAS No.	Š.	MRL	A-11	A-12
Kerosine	8474	84742-81-0	10	밑	P
Diesel Fuel #2	6833	68334-30-5	5	멑	2
Fuel Oil #6 (Bunker C)	68553	68553-00-4	100	臣	돧
Mineral Oil	6474	64742-47-8	100	힏	힏
Motor Oil	6474	64742-47-8	100	힏	힏
Percent Solids (%)				75.5	74.9
Dilution Factor				1.0	1.0
Data Flags					



Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory



55 International Way

Longview, WA 98632

Sampled By: RSP

DAL Project No.: 110127-09

Project Name: Pacific Corps P.O. No.: 9311021 Project No.: 9311021

Date Collected: 1/27/2011; unknown

Date Received: 1/27/2011; 1800

Temperature Received (°C): 11

Report Date: 1/28/2011

Reporting Limits: Standard Units: mg/kg Matrix: Soil

Instrument ID: Shimadzu GC-14A Injection Volume: 3 uL

Lab Data File: n/a

Analyst: JH

Preparation Method: US EPA 3550C Analytical Method: NWTPH-Dx Date Prepared: 1/28/2011 Date Analyzed: 1/28/2011

Data Reviewed By: $\pmb{\ell}$

Sample Identification	CAS	CAS No. MRL	MRL	Method Blank	<u>?</u>	C-1 DUP	C-2	င်ပ	C-4	C-5
Kerosine	8474	84742-81-0	10	ы	ы	pu	pu	힏	pu	pu
Diesel Fuel #2	6833	68334-30-5	9	nd	<u>g</u>	ы	밑	힏	힏	ы
Fuel Oil #6 (Bunker C)	6855;	68553-00-4	100	멀	힏	pu	ы	힏	ы	Ы
Mineral Oil	6474;	64742-47-8	100	ы	Б	ы	힏	힏	pu	힏
Motor Oil	6474;	64742-47-8	100	둳	ē	힏	힏	됟	둳	둳
Percent Solids (%)				n/a	79.2	79.5	94.3	93.2	84.0	83.1
Dilution Factor				1.0	1:0	1.0	1.0	1:0	1.0	1.0
Data Flags										
Sample Identification	CAS	CAS No. MRL	MRL	B-1	B-2	B-3	B-4	B-5	B-5 DUP	B-5 DUP B-Gravel
Kerosine	8474	84742-81-0 10	1	2	7	2	50	2	2	2

Sample Identification	CAS	No. MRL	MRL	B-1	B-2	B-3	B-4	B-5	B-5 DUP	B-Gravel
Kerosine	84742-81-0	-81-0	10	힏	힏	힏	5	믿	ри	pu
Diesel Fuel #2	68334-30-5	-30-5	9	5	g	g	nd	ם	pu	42,222
Fuel Oil #6 (Bunker C)	68553-00-4	-00-4	100	힏	힏	덛	덜	덛	Б	pu
Mineral Oil	64742	64742-47-8	100	힏	덛	돧	ы	힏	힏	ы
Motor Oil	64742	54742-47-8	100	밀	힏	힏	힏	멑	ы	P
Percent Solids (%)				76.2	77.0	79.7	8.77	74.9	74.2	40.5
Dilution Factor				1.0	1.0	1.0	1.0	1.0	10.0	10.0
Data Flags							İ			



DAL Project No.: 110127-09

DRAGON ANALYTICAL LABORATORY 530 A1 Ronlee Ln, Olympia, WA 98502 (360) 866-0543

Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory

Project Name: Pacific Corps

Project No.: 9311021



DIESEL & OIL

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

128	112	61.3	72.9	108	66.2	58.6	56.2	85.8	72.5	59.3	50-150	2-FBP
A-11	A-10	A-9	A-8	A-7	A-6	A-5	A-4	A-3	A-2	A-1	Limits (%)	Surrogate
										`		
105	97.6	107	100	85.3	101	74.2	101	78.2	96.7	115	50-150	2-FBP
B-5	B-4	B-3	B-2	B-1	C-5	C-4	C-3	C-5	C-1	Blank	Limits (%)	Surrogate
										Method		

B-Gravel 8

LABORATORY CONTROL SAMPLE AND MATRIX SPIKE

63.8

109

50-150

2-FBP

					פר	GO DAICH ID. 110120-01-rueis	120-01-rue	2	
	MS/MSD	MS/MSD	Sample	MS	MS	MSD	MSD	MS/MSD	
	Limits	Level	Conc.	Recovery	Percent	Recovery	Percent	RPD	
Analyte	(%)	(mg/kg)	(mg/kg)	(mg/kg)	Recovery	(mg/kg)	Recovery	Limits	RPD
Diesel Fuel #2	65-135	500	pu	453	%9.06	387	77.5%	< 15%	7.79
	LCS #1	LCS #1	LCS #1	LCS #1		TCS #5	TCS #5	CS #5	TCS #5
	Limits	Level	Recovery	Percent		Limits	Level	Recovery	Percent
Analyte	(%)	(mg/kg)	(mg/kg)	Recovery		(%)	(mg/kg)	(mg/kg)	Recovery
Diesel Fuel #2	65-135	200	409	81.8%		65-135	200	409	81.8%

WA-DOE-Laboratory Certification No.: C890

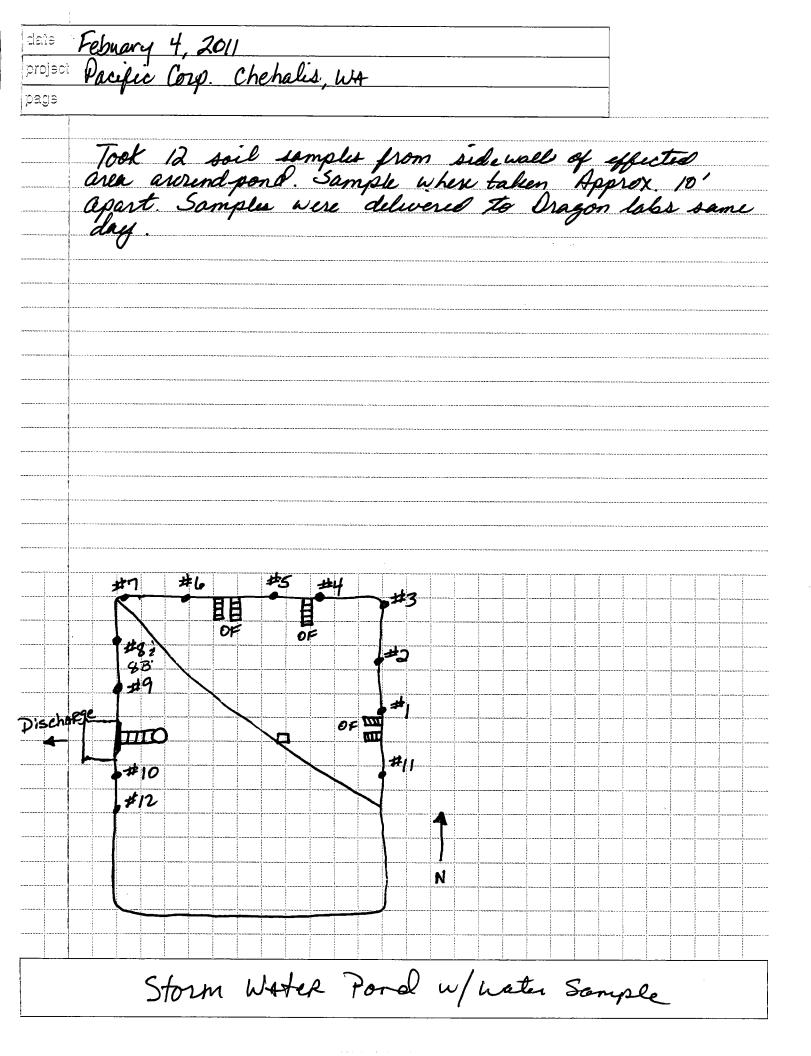
"nd" indicates the analyte was not detected at or above the listed Method Reporting Limit.

"n/a" indicates not applicable

"DO" indicates the surrogate was Diluted Out.

Sample results based on dry weight.

Comments and Explanations: None.





Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory

Project Name: Pacific Corp Project No.: 9311021

Date Collected: 02/04/2011; 1300 P.O. No.: 9311021

Date Received: 02/04/2011; 1455

Report Date: 2/10/2011 Temperature Received (°C): n/a

Preparation Method: US EPA 3550C Analytical Method: NWTPH-Dx

DAL Project No.: 110204-02

Longview, WA 98632 55 International Way

Sampled By: Randy

Date Prepared: 1/31/2011 Date Analyzed: 2/3/2011

Analyst: JH

Data Reviewed By:

DIESEL & OIL ANALYTICAL RESULTS

Instrument ID: Shimadzu GC-14A

Reporting Limits: Standard

Injection Volume: 3 uL

Units: mg/kg Matrix: Soil

	CAS	١	Method	Pond #6	Pond	Pond	Pond	Pond						
Sample Identification	No.	¥ ¥	Blank	¥	#5	#3	#	9#	9#	DUP	2#	8#	6#	#10
Kerosine	84742-81-0	10	ы	pu	밀	pu	ри	pu	рu	pu	pu	pu	pu	pu
Diesel Fuel #2	68334-30-5	9	pu	pu	pu	nd	pu	pu	멸	pu	ы	pu	밀	ы
Fuel Oil #6 (Bunker C)	68553-00-4	100	pu	pu	pu	pu	ы	ы	ъ	pu	nd	nd	pu	덛
Mineral Oil	64742-47-8	100	ы	pu	pu	pu	282	ы	148	146	2250	7100	331	353
Motor Oil	64742-47-8	100	둳	pu	pu	pu	pu	pu						
Percent Solids (%)			n/a	76.1	73.3	75.2	73.4	75.5	71.3	71.3	74.0	73.7	74.1	71.0
Dilution Factor			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Data Flags														

	CAS	idiy	Pond	Pond	Pond #12
sample Identification	No	Z Z Z	#11	#12	DUP
Kerosine	84742-81-0	10	pu	рu	pu
Diesel Fuel #2	68334-30-5	10	pu	힏	pu
Fuel Oil #6 (Bunker C)	68553-00-4	100	pu	힏	ри
Mineral Oil	64742-47-8	100	171	124	118
Motor Oil	64742-47-8	100	ы	ы	pu
Percent Solids (%)			74.8	6.97	76.9
Dilution Factor			1.0	1.0	1.0
Data Flags					





Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory

Project Name: Pac Power Project No.: 9311021

Date Collected: 1/26/2011; 1650 P.O. No.: 9311021

Date Received: 1/26/2011; 1745

Temperature Received (°C): 13

Report Date: 1/27/2011

Preparation Method: US EPA 3510C Analytical Method: NWTPH-Dx

DAL Project No.: 110126-09

Longview, WA 98632 55 International Way

Sampled By: RSP

Date Prepared: 1/27/2011 Date Analyzed: 1/27/2011

Data Reviewed By: RIA Analyst: JH

Units: mg/L Matrix: Waste Water

Reporting Limits: Standard

Injection Volume: 2 uL Instrument ID: Shimadzu GC-14A

ANALYTICAL RESULTS

					4
	CAS		Method		Pond
Sample Identification	No.	MIKL	Blank	Pond	Duplicate
Diesel Fuel #2	68334-30-5 10.0	10.0	ри	pu	pu
Dilution Factor Data Flags				1.0	1.0



Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory



55 International Way

Longview, WA 98632

Sampled By: Unknown

DAL Project No.: 110126-08

Project Name: Pac Corp P.O. No.: 9311021 Project No.: None

Date Collected: 1/26/2011; 1410 Date Received: 1/26/2011; 1410

Temperature Received (°C): 1/14/1900 Report Date: 1/27/2011

Preparation Method: US EPA 3580A

Analytical Method: US EPA 8082B Date Prepared: 1/26/2011 Date Analyzed: 1/26/2011 Analyst: TM

Data Reviewed By: A

Matrix: Oil

Reporting Limits: Standard Injection Volume: 2 uL

Instrument ID: Agilent 9074 Lab Data File: 11012601

	0,0		9	Method	Power Line
Sample Identification CAS No.	CAS	ė.	Z Z Z	Blank	Vault
PCB Aroclor 1016	12674-11-2	1-2	0.50	pu	ри
PCB Aroclor 1221	1104-28-2	8-2	0.50	힏	멑
PCB Aroclor 1232	11141-16-5	6-5	0.50	덛	힏
PCB Aroclor 1242	53469-21-9	ا -	0.50	덛	Ы
PCB Aroclor 1248	12672-29-6	9-6	0.50	덜	ы
PCB Aroclor 1254	11097-69-1	1-6	0.50	힏	힏
PCB Aroclor 1260	11096-82-5	12-5	0.50	힏	힏
Dilution Factor					100
Data Flace					

Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory



Longview, WA 98632 55 International Way

Sampled By: Roy Shawgo

DAL Project No.: 110202-11

Project No.: 9311021 P.O. No.: 9311021

Project Name: Pacific Corps

Date Collected: 02/02/2011; 1330 Date Received: 02/02/2011; 1530

Temperature Received (°C): 12

Report Date: 2/3/2011

Matrix: Waste Water Units: mg/L

Reporting Limits: Standard Injection Volume: 2 uL

Instrument ID: Shimadzu GC-14A

Analytical Method: NMTPH-Dx Date Prepared: 2/3/2011 Date Analyzed: 2/3/2011 Analyst: JH Data Reviewed By:

Preparation Method: US EPA 3510C

ANALYTICAL RESULTS

e ita i ita e i	CAS	Q.	Method	East	East Tank
sample Identification	Š.	NIN NIN NIN	Blank	Tank	DUP
Kerosine	84742-81-0 0.25	0.25	pu	ы	pu
Diesel Fuel #2	68334-30-5	0.25	ы	멸	pu
Fuel Oil #6 (Bunker C)	68553-00-4	0.50	힏	힏	힏
Mineral Oil	64742-47-8	0.50	ы	힏	pu
Motor Oil	64742-47-8	0.50	pu	힏	pu
Concentration Factor				17.5	17.5
Data Flags					

1	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number			gency Response Phone 688-423-6216	4. Waste Track	aing Number		
	5. Generator's Name and Mailir	ng Address	(31 / · · · · · · · · · · · · · · · · · ·	Generato	or's Site Address (if different	than mailing address)	<u></u>	<u>:</u>	
	Constant Phone N. C.	12.3 E.S. - 79.8 S.A.S. 10.00	1600	I					
	Generator's Phone: 6. Transporter 1 Company Nam					U.S. EPA ID Num	nhar		
		NON DE PIVE DORF					#000014944 #00001		
	7. Transporter 2 Company Nam	ne .				U.S. EPA ID Num			
	8. Designated Facility Name an	d Site Address DER CO ACTO NO DE	tin 1861			U.S. EPA ID Num	nber		
П	Facility's Phone:	ANTERIA DE	- 9731C						
	9. Waste Shipping Name				10. Containers No. Type		2. Unit /t./Vol.		
GENERATOR -		Part Read Level				2740	6		
NEA	2	<u> Sel Sed vic</u>						*	
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	3.	-	*.			 			
	4.	and the second s	± 1					V	
	13. Special Handling Instruction	s and Additional Information				LL			
	14. GENERATOR'S/OFFEROR marked and labeled/placard	I'S CERTIFICATION: I hereby declare ed, and are in all respects in proper co	that the contents of this copy	signment are fully and g to applicable interna	accurately described above titional and national governm	by the proper shipping ental regulations.		d, packaged	l,
$ \downarrow $	Generator's/Offeror's Printed/Ty		$N_{\rm col}$	Signature		60	Month	,	Year
V	15. International Shipments				Lay JA	<u> يا </u>		171	17
INT'L	Transporter Signature (for expor	Import to U.S.	LJE	oport from U.S.	Port of entry/exit: Date leaving U.S.:				
-	16. Transporter Acknowledgmer	nt of Receipt of Materials			Date leaving U.S				
PHO	Transporter 1 Printed/Typed Na	me		Signature			Month	Day	Year
ŠP	Transporter 2 Printed/Typed Na.	me		Cincip				<u> 17 </u>	
TRANSPORTER		AIIV		Signature			Month I	Day I I	Year
	17. Discrepancy								
	17a. Discrepancy Indication Spa	Quantity	Туре		Residue	Partial Rejection	on .	Full Rejection	on
HLITY -	17b. Alternate Facility (or Gener	ator)		Manif	est Reference Number:	U.S. EPA ID Num	ber		
Ā	Facility's Phone:								
ATED	17c. Signature of Alternate Facil	ity (or Generator)		[*			Month	Day	Year
- DESIGNATED FACILITY									
	18. Designated Facility Owner or	r Operator: Certification of receipt of m	aterials covered by the mani	fest except as noted in	ı Item 17a	<u></u>	·		
↓	Printed/Typed Name	MARCARA	< 2.0%	Signature	Line		Month	Day	Year
		INNERRO			<u> </u>			7	3

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A	NON-HAZARDOUS	Generator ID Number	2. F	age 1 of 3. E	nergency Resp	onse Phone	4. Waste T	racking Nun	nber	
Ш	WASTE MANIFEST	06306		'	388⊸	423-6316		93110	121-23	
	5. Generator's Name and Maili	ng Address		Gene			than mailing addr	ess)		
		Paof Com Energ 1513 Bishep RS Chehalls, WA L 360-746-1300	ac CS.A.	1		V		,		
Ш	Generator's Phone:									
	6. Transporter 1 Company Nar	ne CCB A Division of PA	E Corp				U.S. EPA ID	Number	in/AH06061	4344
	7. Transporter 2 Company Nar	ne					U.S. EPA ID	Number		
Ш	8. Designated Facility Name ar	nd Site Address					U.S. EPA ID	Number		
		ଅନ୍ୟରେ Ind 4150 N Sutt Portiana, ଠା	e Ro ad F 97217 USA					Number	ORDS3037	7537
Н	Facility's Phone:	<u>%</u>	38- 36 7-88 9 4				, l			
П	9. Waste Shipping Nam	e and Description			10. C	ontainers	11. Total	12. Unit		•
П					No.	Туре	Quantity	Wt./Vol.		
GENERATOR -		gulated by DOT eral oil contaminated water	s).		1	- Parents	2/03	Ę.		
買	2.	and and area many and descriptions.	<u>,</u>					ļ		
<u> </u>										
	3.				ļ <u> </u>			 -		
	4.					-				
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ıl	13. Special Handling Instruction									
	Approvati	CCS Job/PC# 93:	1021 Trucks -	.s						
			*	A.						
			·							
										<
	14. GENERATOR'S/OFFEROR	R'S CERTIFICATION: I hereby declare the	at the contents of this consi	gnment are fully	and accurately	described abov	e by the proper sh	ipping name.	and are classified	packaged.
	marked and labeled/placarded	, and are in all respects in proper condition	n for transport according to	applicable inter	national and na	tional governme	ntal regulations.	,,,		, pastagoa,
	Generator's/Offeror's Printed/T	7 9 9 9	<u> </u>	Signature	W.		1 60		Month	Day Year
٧	X Sandy	Wallace			code	يه کمر کر مست	L'Enu		131	7 14
٦.	15. International Shipments	Import to U.S.			63		Mary Later Comment		a.c.	/l_^
INT'L	Transporter Signature (for expo		ш ех	oort from U.S.	·	of entry/exit: leaving U.S.:	,		-	
В	16. Transporter Acknowledgme				Date	leaving U.S		<u> </u>		
里	Transporter 1 Printed/Typed Na			Signature					Month	Day Year
TRANSPORTER	1	- 13 T		1/4/200		1.1				204
NSF	Transporter 2 Printed/Typed No	MARRIN	 	Simothy	Carle San	The state of the s	Markey		3	1 11
RA	Transporter 2 milited/Typed N	ame		Signature					Month	Day Year
F					-			. <u> </u>		
A:	17. Discrepancy			<u> </u>		4				<u> </u>
1	17a. Discrepancy Indication Sp	Quantity	Туре		Residue		Partial Re	jection	Fu	II Rejection
		· .		N	lanifest Referen	ce Number:				<u> </u>
≱	17b. Alternate Facility (or Gene	erator)					U.S. EPA ID	Number		44.00
믕										1.75
Æ	Facility's Phone:	<u> </u>								
VATED	17c. Signature of Alternate Fac	ility (or Generator)		.					Month	Day Year
DESIGNATED FACILITY								-	<u> </u>	
٥	,									
	18 Designated Facility Owner	or Operator: Certification of receipt of ma	terials covered by the many	act avant as =	ted in them 17-					
	Printed/Typed Name	or operator, certification of receipt of ma	terials covered by the mann						Month	Day Vasa
¥)COLD	Lulle-II-		Signature	2	Walle			Month	Day Year
	/	17			/					

169-BLC-O 5 11977 (Rev. 9/09)

TRANSPORTER

		4 Canaratar ID Number	2 Page	I a Emai	Pagnan	BL	4 Manta		4		
A	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number CESQG	^{2. Fage}	1 of 3. Eme		se Phone 2 3-6316	4. Waste	Tracking Nu	_		
ı	5. Generator's Name and Mailir			General		ss (if different th	an mailing add		021 -2(o		
	Generator's Phone:	Pacif Corp Energ 1813 Bishop Ro Chehalls, WA 360-748-1300	ad	General	ors site Addre	ss (ii dinerent ui		·			
	6. Transporter 1 Company Nam	CCS activ	ision of prie	Cor	ρ		U.S. EPA ID		001494	14	
	7. Transporter 2 Company Nam	ne	. ,				U.S. EPA ID) Number			
	8. Designated Facility Name an	3434 South	user Landfill n Silver Lake Road k, WA 98611 USA				U.S. EPA ID) Number	08-SW078		
1	Facility's Phone:		360-274-5107								
	9. Waste Shipping Name	e and Description			10. Cor No.	ntainers Type	11. Total Quantity	12. Unit Wt./Vol.			
GENERATOR -	1. Material Not Re (Non PCB mine	guiated by DOT rai oil contaminated soils	and debris)		* 4	DYBM	80	P		~ ·	
- GENE	2.										
	3.										
	4.										
	13. Special Handling Instruction	ne and Additional Information	 -					<u></u>			
	Approva##	CCS Job/PO# 93	111021 Truck# <i>365</i>								
	14. GENERATOR'S/OFFEROR	'S CERTIFICATION: I hereby declare	that the contents of this consignn	nent are fully ar	nd accurately d	escribed above	by the proper s	hipping name	e, and are classifie	d, package	ed,
	marked and labeled/placarded, Generator's/Offeror's Printed/Ty	and are in all respects in proper condi	tion for transport according to app		ional and natio	nal government	al regulations.				-
¥	1 Sandra 1	Wallace		Signature	end	ia L	Val	lace	Month 3	Day 23	Year //
INT'L	15. International Shipments Transporter Signature (for expo	Import to U.S.	Export	from U.S.		entry/exit: aving U.S.:					
Ë	16. Transporter Acknowledgme				1						
TRANSPORTER	Transporter 1 Printed/Typed Na	Japo		Signature	16				Month ゴ	Day アシ	Year
TRAN	Transported 2 Printed/Typed Na	ame		Signature	-				Month	Day	Year
Ā	17. Discrepancy			**	· · · · · · · · · · · · · · · · · · ·						-
	17a. Discrepancy Indication Sp.	ace Quantity	Туре	Mar	Residue	a Mumbar	Partial R	ejection	□ F	uli Rejection	on
LITY .	17b. Alternate Facility (or Gene	rator)	· · ·	Mar	ifest Reference	e Number:	U.S. EPA IC) Number			
ACI	Facility's Phone:						1				
ATED F	17c. Signature of Alternate Fac	ility (or Generator)	_ .						Month	Day	Year
DESIGNATED FACILITY				<u> </u>							
B											
	18. Designated Facility Owner of	or Operator: Certification of receipt of r	naterials covered by the manifest	except as note	d in Item 17a						
	Printed/Typed Name			Signature					Month	Day	Year
1										- 1	

1	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number CESQG		2. Page 1 of 3. I		nse Phone 23-6316	4. Waste 1	Fracking Nu 9311 (mber 021 - 25	
ı	5. Generator's Name and Mailin			Ger	nerator's Site Addr	ess (if different	than mailing add	ress)		-
	Generator's Phone:	Pacif Corp Ene 1813 Bishop F Chehalis, WA 360-748-1300	Road U.S.A.	<u> </u>						
	6. Transporter 1 Company Nan	5 adivision	OF PNE	Corp.			U.S. EPA ID	4000	014940	4
	7. Transporter 2 Company Nan	ne	· ·				U.S. EPA ID	Number		•
	8. Designated Facility Name ar	3434 Sou	euser Landfill th Silver Lake Ros ock, WA 98611 U				U.S. EPA ID	Number	08-SW078	
	Facility's Phone:		360-274-5107							
		a and Description			10. Co	ntainers	11. Total	12. Unit		
	9. Waste Shipping Nam	e and Description	. 		No.	Туре	Quantity	Wt./Vol.		
GENERATOR		guiated by DOT Ak eral oil contaminated eoil	Borbent Max	erial	10	BA	3 00	P		
- GEN	2.									
	3.	 	 .			_				
	4.					-				
		<u>.</u>								
ļ	13. Special Handling Instruction		1311021 Truck#	<i>2</i> -7 0			•			
	, pp. 412		o i i o c i i don	138						
		<u> </u>								. •
	14. GENERATOR'S/OFFEROR	R'S CERTIFICATION: I hereby declar , and are in all respects in proper con	re that the contents of this	consignment are fu	ly and accurately o	described abov	e by the proper sl	hipping name	e, and are classified,	packaged,
	Generator's/Offeror's Printed/I		- Identification to the state of the state o	Signatu		onal governmen	ntai regulations.		Month	Day Year
*/		ICH ARDS			IK	17				6 11
INT'L	15. International Shipments Transporter Signature (for expo	import to U.S.		Export from U.S.		f entry/exit: eaving U.S.:				
ER	16. Transporter Acknowledgme					,				
PORT	Transporter Printed/Typed No.	ame awy)		Signate	My					Day Year
TRANSPORTER	Transporter Printed/Typed Na	ame		Signatu	re /		·		Month	Day Year
À	17. Discrepancy									<u> </u>
	17a. Discrepancy Indication Sp	Quantity	Туре		Residue		Partial Re	ejection	Ful	I Rejection
ILITY -	17b. Alternate Facility (or Gene	erator)			Manifest Reference	ce Number:	U.S. EPA ID	Number -		
Ą	Facility's Phone:									
DESIGNATED FACILITY	17c. Signature of Alternate Fac	cility (or Generator)	-				.		Month I	Day Year
ESIGN										
<u>م</u> ا										
	Printed/Typed Name	or Operator: Certification of receipt of		nanifest except as Signatu					Month	Day Year
\forall	KIT	RASMUSSI	-/	Jigilatu 	XIS	Kan	29 . 4. /		I Z	//_ //

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\mathbf{A}	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number つどうなら	2. Page 1 of	3. Eme	rgency Respons		4. Waste Tr	_			
ı				Conorol		3-83 6	on mailing addr	93110)23		
	5. Generator's Name and Mailii Generator's Phone:	ng Address Pacid Corp Energy 1813 Stathop Road Chahalls, WA U.S 360-743-1300	А.	General	or's Site Addres	is (if different th	an mailing addre	ess)			
	6. Transporter 1 Company Nan				,		U.S. EPA ID	Number			
	7. Transporter 2 Company Nan	ne		-			U.S. EPA ID	Number			
	8. Designated Facility Name ar	3434 South Sil	Landfill ver Lake Road VA 38611 USA	<u></u> %			U.S. EPA ID	Number	0 6-SVQ78	3	
	Facility's Phone:		274-5107								
ł					10. Cont	tainers	11. Total	12. Unit	-,		
	9. Waste Shipping Nam	e and Description	····	ja ja	No.	Туре	Quantity	Wt./Vol.			
GENERATOR	(Non PCB mine	guisted by DOT iral oil contaminated doils and	i deoris)		1 .	07		i			
GEN	2.	and the				1 6					
	3.			• • • • • • • • • • • • • • • • • • • •							·
	4.										
	marked and labeled/placarded	R'S CERTIFICATION: I hereby declare that to , and are in all respects in proper condition for	or transport according to applicat	le interna	nd accurately de	escribed above I	by the proper sh al regulations.	ipping name	e, and are classifi	ed, packaç	ged,
¥		2/ac/3haw	si	gnature	WEL	<u> </u>			Month /	Day ∂ ∖	Year
INT'L	15. International Shipments Transporter Signature (for expense)	Import to U.S.	Export from	U.S.		entry/exit: wing U.S.:			_		
æ	16. Transporter Acknowledgme	ent of Receipt of Materials									
TRANSPORTER	Transporter 1 Printed/Typed N Transporter 2 Printed/Typed N			gnature	N. J. M.	Lite		-	Month / Month	Day Day	Year Year
TRA	Transporter 2 Transcurryped 14	unic		griature	W.				įvioni()	Day	real
A	17. Discrepancy										
	17a. Discrepancy Indication Sp	oace Quantity	Туре	Mai	Residue	Number:	Partial Re	jection		Full Rejec	tion
ACILITY	17b. Alternate Facility (or Gene Facility's Phone:	erator)	Ari		÷		U.S. EPA ID	Number			
DESIGNATED FACILITY	17c. Signature of Alternate Fac	cility (or Generator)				-			Month	Day	Year
— DESI			44							· ·	
		or Operator: Certification of receipt of materi	als covered by the manifest exce	pt as note	d in Item-17a						
V	Printed/Typed Name	RASMUISSEN	Si /	gnature	K	5 X	and me	ر بدر ک	Month	Day	Year

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number つどうこう	2	. Page 1 of 3. E		onse Phone 23-6316	4. Waste T	racking Nun			
5. Generator's Name and Mailin	Facif Corp Energy 1819 Bishop Ros Criehalis, WA - U	d	Ger	erator's Site Add	ress (if different	than mailing addre	ess)			
Generator's Phone: 6. Transporter 1 Company Nam	360-748-1300				·	U.S. EPA ID	Number			
7. Transporter 2 Company Nam	ne		4 5⁻	-		U.S. EPA ID	Number			
8. Designated Facility Name an	- 3434 South Cashe Rock	Her Landfill Silver Lake Road , WA 98611 US				U.S. EPA ID	Number	08-5//078	3	
Facility's Phone:		50-274-5107								
9. Waste Shipping Name	e and Description			10. Co	ontainers Type	11. Total Quantity	12. Unit Wt./Vol.			
Materia: Not Re Oden POS mine	gulated by DOT ration contaminated soils a	nd debris)		1	דמ	33.67	49 t			
2.										
3.						_				
4.										
4. GENERATOR'S/OFFEROR	'S CERTIFICATION: I hereby declare th	at the contents of this cor	nsignment are full	y and accurately	described above	e by the proper shi	pping name	and are classifi	ed packar	
narked and labeled/placarded, ienerator's/Offeror's Printed/Ty	and are in all respects in proper condition	n for transport according	to applicable inte Signatur	national and nati	ional governmer	ntal regulations.				
5. International Shipments	1 Bradshaw		<u> 14</u>	M/ 2		Manager .		Month	Day 25	1
ransporter Signature (for expo	Import to U.S.	L E	xport from U.S.		f entry/exit: eaving U.S.:					
6. Transporter Acknowledgme				Date	eaving U.S					_
ransporter 1 Printed/Typed Na	me		Signatur	e Ti	ing and the second seco			Month	Day	
ransporter 2 Printed/Typed Na	me		Signatur)				Month	Day	
7. Discrepancy 7a. Discrepancy Indication Spa	Quantity	Туре		Residue		Partial Rej	ection		Full Rejec	tion
7b. Alternate Facility (or General	rator)			Manifest Reference	ce Number:	U.S. EPA ID I	Number			
acility's Phone: 7c. Signature of Alternate Faci	lity (or Generator)							Month	Day	-
3. Designated Facility Owner of	r Operator: Certification of receipt of ma	terials covered by the ma	nifest except as n	oted in Item 17a			_			_
rinted/Typed Name	F RISMUSS		Signatur			,		Month	Day	_

A	NON-HAZARDOUS	1. Generator ID Number	·	2. Page 1 of 3. Em			4. Waste 1	Fracking Number		
	WASTE MANIFEST	CESOS				23-8316			1 160	
	5. Generator's Name and Mailir	Pacif Corp Ener 181 3 Bish op R Chehalis, WA	() 教育	Genera	itor's Site Addi	ress (if different t	han mailing add	ress)		
	Generator's Phone: 6. Transporter 1 Company Nam	360-748-1300 ne	•	.			U.S. EPA ID) Number		
	7. Transporter 2 Company Nam	ne at a Tille	ung				U.S. EPA ID) Number		
	Designated Facility Name an	d Site Address					U.S. EPA ID	Number		·····
	o. Boolgrated Facility Harris all	3434 Sout	user Landfill h Silver Laka Ros ok, VVA 986 11 Us						16-SWC78	
Ш	Facility's Phone:		360-274-5107							
	9. Waste Shipping Name	e and Description			10. Co	ontainers Type	11. Total Quantity	12. Unit Wt./Vol.		
GENERATOR -	1. Material Not Re (Non PCB mins	gulated by DOT rail oil contaminated soils	and debris)		1	DT	30	Tapon 1		
- GENE	2.									
	3.						1			
	4.									*
	13. Special Handling Instructio	ons and Additional Information CCS_lob/FC#3	311021 Truck#	25		<u> </u>				
	14 CENEDATOD'S/OFFEDOS	R'S CERTIFICATION: I hereby declar	a that the contents of this	oppoint are fully	and accurately	departies depart	by the proper	hinning name o	and are electified as	ekogod
	marked and labeled/placarded	and are in all respects in proper con-	dition for transport according	ng to applicable intern	ational and nat	tional governmen	ntal regulations.	inpping name, a	na are diadomed, par	skagea,
Н	Generator's/Offeror's Printed/T	yped Name		Signature	- D	_			Month Da	
*	T, Patrici	- Ender			11	•			01 7	6 Sall
INT.F	15. International Shipments Transporter Signature (for expo	import to U.S.		Export from U.S.		of entry/exit:	H 78 12 15	e on the second of the second	daya madaanaa in gaybaahaa ay samb	Contraction of the street
Œ	16. Transporter Acknowledgme	ent of Receipt of Materials				_				
PORTE	Transporter 1 Printed/Typed N	ame		Signature		<u> </u>	·		Month Da	y Year
TRANSPORTER	Transporter 2 Printed/Typed N	ame		Signature					Month Da	y Year
$\overline{}$	17. Discrepancy									
	17a. Discrepancy Indication Sp	Quantity	Туре		Residue	ion Number	Partial R	ejection	Full Re	ejection
FACILITY -	17b. Alternate Facility (or Gene	erator)			annest neterer	ice Number.	U.S. EPA II) Number		
FAC	Facility's Phone:									
AATED	17c. Signature of Alternate Fac	cility (or Generator)		1			<u>'</u>		Month Da	y Year
- DESIGNATED				ı						
	D : 10 10 20	or Operator: Certification of receipt of	•	manifest except as no Signature	red in Item 17a	1	· · · · · · · · · · · · · · · · · · ·		Month Da	ıy Year
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Å	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	'	2. Page 1 of 3.	Emergency Respo	nse Phone 23-0316	4. Waste	Fracking Nui	mber 021		
	5. Generator's Name and Maili Generator's Phone:	ng Address Pacif Corp Ener 1913 Bishop P Chehalls, W/A 360-748-1300	oad .	, G	enerator's Site Addi	ress (if different	than mailing add	ress)			
	6. Transporter 1 Company Nar	Large.		<u> </u>			U.S. EPA ID) Number			
	7. Transporter 2 Company Nar				· · · · · · · · · · · · · · · · · · ·		U.S. EPA ID) Number			
	8. Designated Facility Name ar	3434 Sout	user Landfill h Silver Lake Roa ik, WA 98611 US				U.S. EPA ID) Number	08-SW078	ı	
	Facility's Phone:		360-274-5107	2 :~			1				
	9. Waste Shipping Nam	e and Description			10. Co	ontainers	11. Total	12. Unit			
	1	o and Description			No.	Туре	Quantity	Wt./Vol.			
GENERATOR	Material Mot Re (Non PCB owne	guiated by DOT rail oil contaminated soils	and debris)		पै	DT	30	Ť			
E GEN	2.										
	3.										
	4.										
	13. Special Handling Instruction	1.1.1111						<u></u>			
	Approvals	9: \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\						<u></u>			
	marked and labeled/placarded	R'S CERTIFICATION: I hereby declare , and are in all respects in proper cond	that the contents of this c lition for transport accordin	onsignment are t ng to applicable in	ully and accurately ternational and nat	described above ional governmen	e by the proper s ntal regulations.	hipping name	e, and are classifi	ed, packag	jed,
<u> </u>		yped Name		Signa	ture	-			Month /	Day	Year
Į Į	15. International Shipments Transporter Signature (for exp	Import to U.S.		Export from U.S		of entry/exit; leaving U.S.:		** .	4 - L		Carlo Sa
Ī	16. Transporter Acknowledgme Transporter 1 Printed/Typed N			Signa	huro				Month	Day	Vaar
5	Transported 11 linted Typed IV	anc		Signa	ar i si .				Month	Day	Year
TRANSPORTER	Transporter 2 Printed/Typed N	ame		Signa	ture				Month	Day	Year
Å	17. Discrepancy 17a. Discrepancy Indication Sp	pace 🗆									
		LLI Quantity	∟ Туре		Residue Manifest Referen	ce Number:	Partial R	ejection	Ļ	Full Reject	tion
7	17b. Alternate Facility (or Gene	erator)					U.S. EPA II) Number			
Ĭ	Facility's Phone:										
NAIEL	17c. Signature of Alternate Fac	cility (or Generator)							Month	Day	Year
DESIGNATED FACILITY						-					
	18. Designated Facility Owner	or Operator: Certification of receipt of	materials covered by the n	nanifest except a	s noted in Item 17a						
	Drietad/Timed Name	7 £152455		Signa	ture				Month	Day	Year
٧	K C.	ヒーメイションベスニージ	- 7-2-7	l	13.15	18 July 2 July 2	محمل بالأواجاري		-1.7	15%	1/2

<u> </u>	NON-HAZARDOUS WASTE MANIFEST 1. Generator ID Number	2. Page 1 of	3. Emergency Respon	se Phone 23-6316	4. Waste T	racking Numb	per	
lŀ			Generator's Site Addre		an mailing addr			-
	5. Generator's Name and Mailing Address Pacificorp Energy 1813 Bishop Road Chenalis, VVA U.S.A. 260-748-1300	1	Generator's Site Audie	SS (II ulleterk u	18N Mailing auch	3SS)		
	6. Transporter 1 Company Name				U.S. EPA ID	Number		1
	7. Transporter 2 Company Name	IVEROL			U.S. EPA ID	Number		1
		·			U.S. EPA ID	Number		_
	8. Designated Facility Name and Site Address 3434 South Silver La Castle Rock, WA 95	ake Road 9611 USA			U.S. EFA ID	Muniber ,	97.0VVD-96	
П	Facility's Phone: 360-274-5	3107						
П	Waste Shipping Name and Description		l	ntainers	11. Total	12. Unit		
	1.		No.	Туре	Quantity	Wt./Vol.		
GENERATOR	Material Not Regulated by DOT (Flor FCS mineral oil contaminated soils and debri	is)	1	DT	28	i i		
- GENI	2.							
	3.			-				
	4.	· · · · · · · · · · · · · · · · · · ·			-			
	*							
1	Special Handling Instructions and Additional Information					<u></u>	7	
	_ ^	فقد الداد			*			
	Approvat# CCS Job/PO# 9311021 T	KICHT						I
							,	
	14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the conte	ents of this consignment a	are fully and accurately	described above	by the proper s	hipping name,	and are classified, packaged,	
1	marked and labeled/placarded, and are in all respects in proper condition for transp	port according to applicabl	ole international and nati	onal governme)	Ital regulations.			_
¥	Generator's/Offeror's Printed/Typed Name	Sig	gnature		<i>j</i>		Month Day Yea	
INT		Export from		f entry/exit:			<u>.</u>	
_			Date le	eaving U.S.:				\dashv
TER	16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name	qi	ignature			_	Month Day Ye	ar
POR	Transporter 11 minor types reality.							
TRANSPORTER	Transporter 2 Printed/Typed Name	Siç	ignature				Month Day Yea	ar
_	17. Discrepancy							
1	17a Discrepancy Indication Space	Туре	Residue	· · · · · · · · · · · · · · · · · · ·	Partial R	ejection	Full Rejection	٦
				aa Niverba		•	•	
	17b. Alternate Facility (or Generator)		Manifest Referen	ce Number:	U.S. EPA II) Number		_
뜮								
Ĕ	Facility's Phone:					_	Month Day V	_
DESIGNATED FACILITY	17c. Signature of Alternate Facility (or Generator)						Month Day Ye	ar
SIGN								
	18. Designated Facility Owner or Operator: Certification of receipt of materials cover	ered by the manifest exec	ept as noted in Item 17a					_
			ignature				Month Day Ye	ear
l¥	Printed/Typed Name	;	- J.		San de Ver	(1/127/	/

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$ \mathbf{A} $	NON-HAZARDOUS	1. Generator ID Number		2. Page 1 of 3. E			4. Waste T		· · · · · · · · · · · · · · · · · · ·	10	
П	WASTE MANIFEST	02506	<u> </u>			423-8318		9311	<u> 121</u>	-/ See-	
	5. Generator's Name and Mailir			Gen	erator's Site Ad	dress (if different	than mailing addr	ess)			
Ш		Pacif Com Ener 1813 Bishop R	្នាំង។								
Н		Chenalis, V/A	Ū.Š.A.						•		
	Generator's Phone:	360-748-1300-									
	6. Transporter 1 Company Nan	ne - AAAATI •	- North				U.S. EPA ID	Number	area and the same of the same		
	T. C./V	MARTIN	must be								
	7. Transporter 2 Company Nam	ne			•		U.S. EPA ID	Number			
											
1.	8. Designated Facility Name an	ः स्वर्षा । विव	user Landfill				U.S. EPA ID	Number	08-SVV078	Į.	
			h Silver Lake Roa						An-And a Stife		
			ok, WA. 98611 U	3A			1				
	Facility's Phone:		360-274-5107		·						
	9. Waste Shipping Name	e and Description				Containers	11. Total	12. Unit			
	, , , , , , , , , , , , , , , , , , , ,				No.	Туре	Quantity	Wt./Vol.	•		
	i i. Material Sot Re	gulated by DOT			4	br	~ C	egec			
ATC	Man PCB mine	ral oil contaminated solls	and debries		'	, L.		1			
ÆΒ			2002000								
GENERATOR	2.										
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		·									
	3.										
П	4.							1			
Н											
Ш	13. Special Handling Instruction										
Ш	Approvain	CCG Job/PO# 9	311021 Truck#								
Ш									÷ .,		
Н											
П											
Н	14 OFNEDATODIO/OFFEDO	DIO OFFICIOATION LIVE IN LIVE	0.10.					 			
П	marked and labeled/placarded	R'S CERTIFICATION: I hereby declare I, and are in all respects in proper cond	i that the contents of this (lition for transport accordi	consignment are full ng to applicable inte	y and accurate: rnational and n	ly described abov ational governme	e by the proper sr ntal regulations.	npping nam	a, and are classifi	за, раскад	ea,
	Generator's/Offeror's Printed/T	yped Name	· · · · · · · · · · · · · · · · · · ·	Signatur		<u> </u>			Month	Day	Year
\	T. Ladrey	k Sauchan		T	" CA				101	27	301
ب	15. International Shipments		· · · · · · · · · · · · · · · · · · ·	1							-
INT	Transporter Signature (for expo	Import to U.S.	L	Export from U.S.		of entry/exit:					
\vdash	16. Transporter Acknowledgme				Date	e leaving U.S.:					
TRANSPORTER	Transporter 1 Printed/Typed N	-		Signatui	e /				Month	Day	Year
Ĭά		rii Gazi		1		111			'	1 20 I	17
SSI	Transporter 2 Printed/Typed N	<u>ov = 1 on</u> ame		Signatui	'A				Month	Day	Year
Æ											l
<u> </u>	17. Discrepancy										
1	17a. Discrepancy Indication Sp	200									
	Tra. Discrepancy indication op	Quantity	L Туре		Residue		Partial Re	ejection	لــا	Full Rejecti	tion
	17h Alternate Facility (or Con-	orotor)			Manifest Refere	ence Number:	ILC FOATO	. Ni. saab a s			
FACILITY	17b. Alternate Facility (or Gene	rator)					U.S. EPA ID	Number			
ॗ							1				
12	Facility's Phone:				-						
E	17c. Signature of Alternate Fac	cility (or Generator)		1					Month	Day	Year
Ϋ́						_					
DESIGNATED											
ä			\								
		or Operator: Certification of receipt of	materials covered by the	manifest except as i	noted in Item 17	7a <u> </u>					
	Printed/Typed Name	Z RASMUSS	 ر سیر	Signatu	e 7	- January		1	Month	Day	Year
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<u></u>	NON-HAZARDOUS	1. Generator ID Number CESQS	2.	Page 1 of 3. E	mergency Respo	onse Phone	4. Waste 1	racking Nun	nber)21 ~ 5	·-	
П	WASTE MANIFEST										
	Generator's Name and Mailin Generator's Phone: Transporter 1 Company Name	Psoff Corp Ener 1813 Bishoo Ri Chehalis, VVA 360-746-1300	ia C	Ger	erator's Site Add	ress (if different	than mailing add		_		
	o. Hansporter i Company Nan	ie .					U.S. EPA ID	Number			
	7. Transporter 2 Company Nam	ne					U.S. EPA ID	Number			
	8. Designated Facility Name an	3434 Souti Castle Roo	Jser Landfill n Silver Lake Road ok, VVA (38611 USA				U.S. EPA ID	Number	08-SW078		
	Facility's Phone:		350-274-5107	<u> </u>							
	9. Waste Shipping Name	e and Description				ontainers	11. Total	12. Unit			
	1.				No.	Туре	Quantity	Wt./Vol.			
GENERATOR	Marcettal Not Re Gion PCB mina	gulated by DOT rai oil contaminated solls	and depuis)		+	DT	20	sans.			
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	3.										
	4.	·	<u></u>								
П	13. Special Handling Instruction	1.4.179									
	きのでこった。 14. GENERATOR'S/OFFEROR		that the contents of this con-	signment are ful	ly and accurately	described above	e by the proper si	hipping name	, and are classifie	ed, packag	ed,
П	Generator's/Offeror's Printed/T			Signatu					Month	Day	Year
¥	R To POTTE	ic Sanchez			T. 1000	1-			101	29	2011
INT'L	15. International Shipments Transporter Signature (for expo		Пв	oport from U.S.		of entry/exit: leaving U.S.:					
ᄪ	16. Transporter Acknowledgme Transporter 1 Printed/Typed Na		- AST - 1	Signatu	70				Month	Day	Year
TRANSPORTER	Andy E	flukson		0	-d	D.	-+		/	24	11
TRAN	Transporter 2 Printed/Typed Na	ame .		Signatu	re				Month	Day	. Year
A	17. Discrepancy		·								
	17a. Discrepancy Indication Sp	ace Quantity	Туре		Residue Manifest Referen	nce Number:	Partial R	ejection		Full Rejecti	ion
ΉĽΠΥ	17b. Alternate Facility (or Gene	erator)					U.S. EPA ID) Number			
ΡĀ	Facility's Phone:										,
DESIGNATED FACILITY	17c. Signature of Alternate Fac	ility (or Generator)				•			Month	Day	Year
ESIGN						•				<u> </u>	
<u> </u>											
П	18. Designated Facility Owner	or Operator: Certification of receipt of r	naterials covered by the mar	ifest except as	noted in Item 17a	1					
	Printed/Typed Name			Signatu	re				Month	Day	Year
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	1	- + + 10% kf l		1-5-4-6	T				=						
	WASTE MANIFEST	Generator ID Number つきらなる		2. Page 1 of			23-8316			nber 121 - 3					
	5. Generator's Name and Mailing Add	ldress ទីឧញ្ញាំ ៉ូលក្ខា ដែក ទ ក្ស	¥.∵		Genera'	tor's Site Addres	s (if different	than mailing add	ress)						
		i 1813 Sishop Roa	ad												
		Chehalls, WA U 360-748-1300	J.S.A.								-				
	Generator's Phone:	799114811999]					1						
	6. Transporter 1 Company Name							U.S. EPA ID	Number	_					
	<u></u>	 													
	7. Transporter 2 Company Name		- 					U.S. EPA ID	Number		_				
	A B. C. of P. 90. No														
	8. Designated Facility Name and Site	U.S. EPA ID	Number	98-8VV079	<u>—</u> Қ										
	8. Designated Facility Name and Site Address Vieyerhaeuser Landfill 3434 South Silver Lake Road Castle Rock, WA 98611 USA														
				JSA								1			
	Facility's Phone:	5	360-274-6107								110				
$\ \ $	9. Waste Shipping Name and	Description				10. Cont	tainers	11. Total	12. Unit			_ /			
	0. 11doid 0ppg	Description			'	No.	Туре	Quantity	Wt./Vol.		1. 				
<u>.</u>	Naterial Not Regula	المراول ومعز بعضوه				<u>,</u>	מד		apr.		F.,				
2	Mon 200 millers	amo by LiCi of contaminated soils a	and dahrisi		,	, ,	الساا	30			;	1			
E		of CO. Ten SAN TERRET CHICKNESS AND CONTRACT OF THE CONTRACT O	Billia salassesses		'						13				
GENERATOR	2.						1	1.	1			-			
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	13. Special Handling Instructions and	nd Additional Information				<u> </u>									
	⇒poravai#	QQ\$ Job/PQ# 931	11021 Truck#					,				2.3			
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	14. GENERATOR'S/OFFEROR'S CE marked and labeled/placarded, and a	ERTIFICATION: I hereby declare the	hat the contents of this	s consignment a	are fully a	nd accurately de	escribed above	e by the proper s	hipping name,	, and are classifing	ed, package	ed,			
	Generator's/Offeror's Printed/Typed N		on for transport accord			tional anu-mation	nal governmen	Atal regulations.		Month	Dav	Voor			
1	1 = 62 + 1 = 12			ا	ignature	AL	1.1				,	Year			
<u>.</u>	15. International Shipments	_			-4	<u> </u>	1100-				24	2011.			
INT'L	, i	Import to U.S.	L	Export from	U.S.		entry/exit:								
	Transporter Signature (for exports on					Date lea	aving U.S.:								
띮	16. Transporter Acknowledgment of F	Receipt of Materials								· · · · · ·					
TRANSPORTER	Transporter 1 Printed/Typed Name	V (1 9ú	ignature	1		ar ()		Month	Day	Year			
SP	And Ear	· Color Stewar						<u></u>				11			
AN	Transporter 2 Printed/Typed Name			Sıç	ignature					Month	Day	Year			
۲															
	17. Discrepancy														
1	17a. Discrepancy Indication Space	Quantity	Type		Γ	Residue		Partial Re	leiection		Full Rejection	tion			
11	1	,	_						Sjourier.		l un reg.	٠ <u>٠</u>			
11		-			Ma	anifest Reference	a Number:								
<u></u>	17b. Alternate Facility (or Generator))						U.S. EPA ΙΓ	U.S. EPA ID Number						
DESIGNATED FACILITY	1											ľ			
ΡĀ	Facility's Phone:														
8	17c. Signature of Alternate Facility (o	or Generator)								Month	Day	Year			
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	10 Designated Espility Owner or Or	Cadillantion of receipt of re					· · · · · · · · · · · · · · · · · · ·	·				\longrightarrow			
$\ \cdot\ $	18. Designated Facility Owner or Ope Printed/Typed Name	erator: Certification of receipt of the	aterials covered by the			d in Item 1/a				Month	Dov	Voor			
1	Printed/Typed Name	OZ RA SMUCE	/ /	ا ا	ignature	A S	and y	angares L		Month	Day	Year I			
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↑	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1	of 3. Emer	gency Respons	se Phone	4. Waste T	racking Nur	mber		-	
	5. Generator's Name and Mailing Address											
	6. Transporter 1 Company Name						U.S. EPA ID	Number		A. Carl		
:	7. Transporter 2 Company Nam	ne				*	U.S. EPA ID	Number				
	8. Designated Facility Name ar	vasyamaau 3134 South Caste Rock	sar Landhii Silvar Lako Road , W.A. 98511 USA		_		U.S. EPA ID		G&SWITE			
	Facility's Phone:	3,9	60-274-5107				<u> </u>					
	9. Waste Shipping Nam	e and Description			10. Cont	Type	11. Total Quantity	12. Unit Wt./Vol.				
GENERALOR	1. Mare PCB mine	guissed by DOT nai oli contaminated solle s	ind sorbents)		i	ST	30 ;	42		-		
115	2.											
	3.											
	4.											
	marked and labeled/placare	R'S CERTIFICATION: I hereby declare to ded, and are in all respects in proper cor	hat the contents of this consignmendition for transport according to ap	nt are fully an	d accurately de	escribed abou	re by the proper s mental regulation	nipping name	e, and are classific	ed, packag	ed,	
	Generator's/Offeror's Printed/T	yped Name— Hmw	Pagewarer 17th	Signature	Judy Lo	1	-		Month	Day	Year ∑o ({	
INI'L	15. International Shipments Transporter Signature (for expense)	Import to U.S.	Export fro	om U.S.		entry/exit:						
ב	16. Transporter Acknowledgment of Receipt of Materials											
HANSFORIER	Transporter 1 Printed/Typed N	ame		Signature) 	A	y a mark		Month	Day	Year	
יובר יובר	Transporter 2 Printed/Typed N		·	Signature					Month	Day	Year	
	17. Discrepancy											
	17a. Discrepancy Indication Sp	ace Quantity	Туре	Man	Residue	Number:	Partial Re	ejection		Full Reject	ion	
FACILITY	17b. Alternate Facility (or Gene Facility's Phone:	erator)					U.S. EPA ID	Number				
DESIGNALED	17c. Signature of Alternate Fac	ility (or Generator)							Month	Day	Year	
DESI							1					
		or Operator: Certification of receipt of ma			l in Item 17a	· · · · · · · · · · · · · · · · · · ·						
 	Printed/Typed Name	7 RH5000 55	ا کیسر	Signature	ار المراجع المراجع الأربي المراجع	ومساحقتي	e Santa da	, t , t	Month [Day	Year	

<u> </u>	NON-HAZARDOUS	Generator ID Number	2. Page 1 of	3. Emergency Respor	se Phone	4. Waste	Tracking Numl	ber				
1	WASTE MANIFEST	WASTE MANIFEST CESCO		888-423-6316			9311021 - 63					
5. Generator's Name and Mailing Address Generator's Site Address (if different than mailing address)												
	Pour වලදා සිපල පුළ 1819 සිමණය Proad											
		Chehalla, YVA U.S.A.										
	Generator's Phone:	360 740-1900	/									
	6. Transporter 1 Company Nan	пе	to Tracke			U.S. EPA ID	U.S. EPA ID Number					
	7. Transporter 2 Company Name U.S. EPA ID Number											
I	U.S. EFA ID Nulliber											
	8. Designated Facility Name ar											
	,	i	18-SW073									
		34 34 South Silve Casta Rock, WA										
	Facility's Phone:		14-5107									
	9. Waste Shipping Nam	ne and Description		10. Co	ntainers	11. Total	12. Unit					
		·		No.	Туре	Quantity	Wt./Vol.					
5	1. Simborius bice in in	guisted by DOT			D.	30	57		•			
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GENERATOR	2.	TO THE THE TOTAL OF THE STATE O	612.61.16g ⁷		_		+					
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ı	13. Special Handling Instruction		ye may a year			•						
	Approvativ	000 306 PC# 301	1921 Yould 25									
	44.0511545010101010101010101010101010101010			-			· · · · · · · · · · · · · · · · · · ·					
	marked and labeled/placard	R'S CERTIFICATION: I hereby declare that the ded, and are in all respects in proper condition for	contents of this consignment ar or transport according to applica	e fully and accurately o able international and n	fescribed abov ational govern	ve by the proper somental regulation	shipping name, is.	and are classified, packaged	i.			
ŀ	Generator's/Offeror's Printed/T	yped Name		nature			· · · · · · · · · · · · · · · · · · ·	Month Day	Year			
*	Sandy U-	Jallace	6	A via	W	Allece		12/2/1	11			
INT'L	15. International Shipments	Import to U.S.	Export from U	V	entry/exit:							
_	Transporter Signature (for expo		·		aving U.S.:							
띮	16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Signature Month Day Year											
e E	(2)	ski i i i i i i i i i i i i i i i i i i	nature	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	A CONTRACTOR OF THE PARTY OF TH		Month Day	Year				
NSP	Transporter 2 Printed/Typed No	lame .	Sign	nature	20 4 _2				/ / Year			
TRANSPORTER	, rising one 2 miles types to			idiui e				Month Day	rear			
<u>.</u>	17. Discrepancy		<u> </u>									
▮	17a. Discrepancy Indication Sp	pace Down										
		L Quantity	Туре	Residue		L Partial R	ejection	Full Rejection	n			
Ι,	Manifest Reference Number:											
≧	7b. Alternate Facility (or Generator) U.S. EPA ID Number											
CIL												
Ψ	Facility's Phone:							· · · · · · · · · · · · · · · · · · ·				
ΥĒ	17c. Signature of Alternate Fac	cility (or Generator)	ı					Month Day	Year			
DESIGNATED FACILITY					 -							
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ا ا			The state of the s									
	18. Designated Facility Owner	or Operator: Certification of receipt of materials	covered by the manifest except	as noted in Item 175								
	Printed/Typed Name			nature				Month Day	Year			
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NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number		2. Page 1 of	3. Emergency Respo	nse Phone	4. Waste	Tracking Nu	mber		
Generator's Name and Mailin Generator's Phone:	Pacif Coro Emery 1813 Blahop Ro Chanalle, V/A 380-748-1900	79 19d J.S.A		Generator's Site Add	ress (if differen	t than mailing add	lress)			
6. Transporter 1 Company Name				et e		U.S. EPA II	U.S. EPA ID Number			•
7. Transporter 2 Company Nam	· · · · ·	U.S. EPA ID Number								
8. Designated Facility Name an	3431 3000	iser Landilli I Silve Lake Ros K. IVIA 38611 IV				U.S. EPA II) Number	06-Sv:07		
Facility's Phone:		360-274-5137				_				
9. Waste Shipping Name	e and Description				ontainers	11. Total	12. Unit			
1.				No.	Туре	Quantity	Wt./Vol.			 -
	gulated by DC/T rail oil contaminated soils	and soments;		i	37	37	C.			
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4.						-	<u> </u>			
13. Special Handling Instruction	-									
marked and labeled/placard	'S CERTIFICATION: I hereby declare ed, and are in all respects in proper co	that the contents of this andition for transport accounts	consignment a	re fully and accurately able international and i	described abor	ve by the proper s	hipping name	e, and are classi	fied, packa	ged,
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15. International Shipments Transporter Signature (for exporter)	Import to U.S.		Export from L	J.S. Port of	entry/exit:		<u>,>.</u>	<u> </u>	21	
16. Transporter Acknowledgmer										
Transporter 1 Printed/Typed Na	7) /	وسرو	Sigı تَعَوَيَهِ	nature	بسسه بر ماه بسر			Month	. 1	Year
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17. Discrepancy						,	- · · · · ·			
17a. Discrepancy Indication Spa	Quantity	Туре		Residue		Partial Re	ejection		Full Rejec	tion
17b. Alternate Facility (or Gener	ator)			Manifest Reference	e Number:	U.S. EPA ID	Number	·		
Facility's Phone:		<u> </u>								
17c. Signature of Alternate Facil	ity (or Generator)							Month	Day	Year
									•	
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Litem 17a										
Printed/Typed Name				nature				Month	Day	Year
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NON-HAZARDOUS 1. Generator ID Number	2. Page 1 of 3. I	Emergency Respor	nse Phone	4. Waste T	racking Nu	mber 323 — 60 /	
5. Generator's Name and Mailing Address	Gai	nerator's Site Addre		than mailing addr			
Generator's Phone:		nerator's Site Addri	ess (II ainerent	than mailing addr	ess)		
6. Transporter 1 Company Name CCS A 한테함 이 한 위해를 다	<u>्र</u>			U.S. EPA ID	Number	V/AH3000013	KA
7. Transporter 2 Company Name				U.S. EPA ID	Number		
8. Designated Facility Name and Site Address				U.S. EPA ID	Number	38-59//373	
Facility's Phone: 380-31	14-5107						
Waste Shipping Name and Description		10. Co	ntainers	11. Total	12. Unit		
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14. GENERATOR'S/OFFEROR'S CERTIFICATION: hereby declare that the	contents of this consignment are fu	lly and accurately o	described abov	e by the proper sh	nipping name	e, and are classified, p	packaged,
marked and labeled/placarded, and are in all respects in proper condition for Generator's/Offeror's Printed/Typed Name			national govern	mental regulations	S		
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15. International Shipments Import to U.S. Transporter Signature (for exports only):	Export from U.S.	You a more of the	in i		900		
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	5. G	enerator's Name and Maili	· •		Gener	ator's Site Addre	ss (if different	t than mailing addr	ress)			
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			Chahalle 1974	740 1134								
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ŀ	Facil	ility's Phone:		360-274-5197								
		9. Waste Shipping Nam	e and Description			10. Con	tainers	11. Total	12. Unit			
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<u></u>	NON-HAZARDOUS 1. Generator ID Number WASTE MANIFEST 05506	2.	Page 1 of 3. Eme		nse Phone	4. Waste Ti	acking Nu	mber		
	5. Generator's Name and Mailing Address		Genera			than mailing addre				
	Pacif Corp Energy 1815 Bishop Ro Chehalle, VVA Generator's Phone: 350-148-1300	iad J.S.A.								
	6. Transporter 1 Company Name	ME-Com	1-0/66			U.S. EPA ID		NAH0900	14844	
	7. Transporter 2 Company Name	·	<u> </u>			U.S. EPA ID				
	The second secon	isar Landhi I Shor Lake Moad K, VVA 9861 i LISA				U.S. EPA ID	Number	08-SIM078)	:
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	13. Special Handling Instructions and Additional Information									
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	14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare	that the contents of this cons	signment are fully a	nd accurately	described above	by the proper sh	ipping name	e, and are classif	ied, packa	ged,
	marked and labeled/placarded, and are in all respects in proper c Generator's/Offeror's Printed/Typed Name	ondition for transport according	g to applicable inte	mational and r	national governi	nental regulations		Month	4	Year
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INT'L	15. International Shipments Import to U.S. Transporter Signature (for exports only):	□ Ex	port from U.S.		entry/exit:					•
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TRAN	Transporter 2 Printed/Typed Name		Signature					Month	Day	Year
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	18. Designated Facility Owner or Operator: Certification of receipt of Printed/Typed Name	naterials covered by the man	fest except as note Signature					Month	Day	Year
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A	NON-HAZARDOUS	1. Generator ID Number		2. Page 1 of	3. Emergend	y Respons	se Phone	4. Waste T	racking Nu	mber		
	WASTE MANIFEST	୦୯୭ଦ୍ର		<u>"</u>			3-6318		93110	121 TS	~~ <u>_</u>	
Н	5. Generator's Name and Maili	•			Generator's	Site Addres	ss (if different	than mailing addr	ress)			
		Pacif Com Snr 1819 Bishop I	ergy Road									
H	Generator's Phone:	Chehalla, VV-	J.S.A.	1								
	6. Transporter 1 Company Nan	160×746-1300 ne Kan Mar		Carried .				U.S. EPA ID	Number			_
		CC3 A Division of		-				1		+ \ -\-\-00!	加州纳河	
	7. Transporter 2 Company Nan	ne						U.S. EPA ID	Number			
	9 Designated Easility Name or	od Cite Address	_ 					<u> </u>				
	Designated Facility Name ar	Vitarianta	euser Landfill ith Silver Latin Ros	الما				U.S. EPA ID	Number	08-SM0	78.	
			ock, WA 90811 U								-	
	Facility's Phone:		360-271 3467		<u>,</u>							
-	9. Waste Shipping Name	e and Description				10. Con		11. Total	12. Unit			
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5. Generator's Name and Mailin Generator's Phone:	ng Address Pacif Cond Energy 1810 Enthop Res Chanalis, V.A. U 180-748-1300	r Ac	Generator's Site Add	ress (if different t	han mailing addr	ress)			,
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8. Designated Facility Name and	34 34 50006 1	ser Landto Silver Lake Road LVVA 98511 USA			U.S. EPA ID	Number	08- \$VV97	3	
Facility's Phone:	39	50-274-3107							
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	18. Designated Facility Owner of	or Operator: Certification of receipt of materi	als covered by the manifest except	as noted in Item 17a						
	Printed/Typed Name			nature				Month	Day	Year
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	5. Generator's Name and Mailir	RESOG ng Address Pacific Co.	2	Generator's Site Address (if	different their mailing	/) / / C	101-0	<u> </u>	
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H	5. Generator's Name and Maili	ng Address	<u> </u>	Generato	r's Site Addres:	s (if different t	han mailing addre	iss)			
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A	NON-HAZARDOUS	1. Generator ID Number	2. Page 1 c	of 3. Emergency Respo	nse Phone	4. Waste T	racking Nu	mber		
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	5. Generator's Name and Mailin	1913 Bi Chehali	orp Ensrgy shop Road' s, MA	Generator's Site Add	ress (if different t	han mailing addr	ess)			
	Generator's Phone: 3 5 6. 6. Transporter 1 Company Name	ne		<u> </u>		U.S. EPA ID	Number			-
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	8. Designated Facility Name an	्र इ.	everhasuser : 434 S Silver: astle Rock, '	laks Road		U.S. EPA ID	Number			
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	9. Waste Shipping Name	e and Description		10. C	ontainers Type	11. Total Quantity	12. Unit Wt_/Vol.			
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∦	NON-HAZARDOUS	1. Generator ID Number	2		3. Emergency Response			racking Nur			
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		or Operator: Certification of receipt of n	naterials covered by the ma	nifest except a	as noted in Item 17a						
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A	NON-HAZARDOUS	1. Generator ID Number	2. Page 1 of 1	3. Emergency Response			racking Nur			
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$\overline{\mathbf{A}}$	NON-HAZARDOUS	IANIFEST CESQS 1 838 423 5316 9311021 - C4 Name and Mailing Address Pacificarp Energy Generator's Site Address (if different than mailing address)									
[WASTE MANIFEST		,	338	423	5316	9311	921 -	-04		
	5. Generator's Name and Mail	ng Address Pacificoro	Ineray	Generator	's Site Address	(if different ti	nan mailing addre	ess)			
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			c, MA 93611	∵ -			•				
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	14. GENERATOR'S/OFFEROR'S	CERTIFICATION: I hereby declare that	the contents of this cons	signment are fully ar	nd accurately de	scribed above	by the proper s	hipping name	e. and are classifi	ed. packa	ned.
	marked and labeled/placarded	and are in all respects in proper conditi	on for transport according	g to applicable inter	national and na	tional governm	ental regulation	S			31
	Generator's/Offeror's Printed/Type			Signature	<i>y</i> *		عاركتم أورانس		Month	Day	Year
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INT'L	15. International Shipments	Import to U.S.	Ex	port from U.S.	Port of e	entry/exit:				*	
Z	Transporter Signature (for exports					ving U.S.:					
띪	16. Transporter Acknowledgment										
TRANSPORTER	Transporter 1 Printed/Typed Name			Signature					Month	Day	Year
읎		A. Car			20	1, 1/4					
Ä	Transporter 2 Printed/Typed Name)		Signature				•	Month	Day	Year
표										1	
A	17. Discrepancy								<u> </u>	1*	
IT.	17a. Discrepancy Indication Space		Туре	Г	7						*
Н		L Quantity	ш туре	<u> </u>	☐ Residue		Partial Re	ejection		Full Reject	ction
Ш				Man	ifest Reference	Number:		<	-		≺
≥	17b. Alternate Facility (or Generate	or)		771001		Trainiou.	U.S. EPA ID	Number	-		
ΙΞ̈́										-	
FAC	Facility's Phone:						1				
DESIGNATED FACILITY	17c. Signature of Alternate Facility	(or Generator)	······			<u> </u>			Month	Day	Year
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ĕ			 	1					<u></u>	L .	
DES				And the second				·			
٦											
Ш	18 Designated Facility Owner or C	Operator: Certification of receipt of mater	ale covered by the	fact except co pot-	l in Item 17s			· · · · · · · · · · · · · · · · · · ·		~ ·	
	Printed/Typed Name 77	position. Commodition of receipt of frater	as covered by the man	Signature			<u></u>	J 15 152	Month	Dev	territion.
ΙJ	KIZ	RASMUSSO	<u>-</u> (_)	- I signature	12 7	ار بسرت شده از بسرت شده به	"	** .*	IVIOIIII	Day I -∸	^~~Year I ∕∢

A	NON-HAZARDOUS 1. Generator ID Number WASTE MANIFEST ここの 1. Generator ID Number	2. Page 1 of	3. Emergency Respor		1		
1				23-6316		93110	21
	5. Generator's Name and Mailing Address Pacifi Corp Energy 1819 Bishop Road Chehalis, IVA U.S.A.		Generator's Site Addre	ess (it ditterent t	nan mailing addr	ess)	
	Generator's Phone: 360-748-1300				**************************************		
	6. Transporter 1 Company Name				U.S. EPA ID	Number	149 <i>411</i>
	7. Transporter 2 Company Name				U.S. EPA ID		, , , ,
	8. Designated Facility Name and Site Address Weyerhaeuser Candill 3434 South Silver Lake Castle Facility VA 986	9 208 0			U.S. EPA ID		08-SW678
Ш	Facility's Phone: 360-274-510	75					
		<u>-</u>	10. Co	ntainers	11. Total	12. Unit	
П	Waste Shipping Name and Description		No.	Туре	Quantity	Wt./Vol.	
П	1.		110.	1,700		 	
GENERATOR	Material hot Regulated by DOT (Non FOE mineral on conteminated soils and debris)		4	DT	E	7	
GEN	2.		ı				
. •	Par I						
	3.						
	4.						
							•
	13. Special Handling Instructions and Additional Information	,			<i>1</i> =		
	Approvate CCS Job/PO# 9511821 Tyuk	Chat 159/1-	75-			ЭX 🔽	RRIGHML
	Note: contejes absorbent			4,12			
	14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents	of this consignment a	re fully and accurately	described above	by the proper sh	nipping name,	and are classified, packaged,
	marked and labeled/placarded, and are in all respects in proper condition for transport a Generator's/Offeror's Printed/Typed Name			onai governmen	ai regulations.		Marth Davi Vana
Ţ		519	nature	المراكم وكالمتحاضية	127		Month Day Year
V	Jan to Entra Charles		4000	51. K	والمياسانيان		2 13 M
INT′L	15. International Shipments Import to U.S. Transporter Signature (for exports only):	Export from U		entry/exit: eaving U.S.:			
Œ	16. Transporter Acknowledgment of Receipt of Materials			- January Circuit			
RTE	Transporter 1 Printed/Typed Name	Sig	nature				Month Day Year
PO	Donton To Sword Co.	19	13212 1	رستان متاسره مرسکیست			102 03 11
TRANSPORTER	Transporter 2 Printed/Typed Name	Sig	nature		,		Month Day Year
A	17. Discrepancy						
	17a. Discrepancy Indication Space Quantity Tyl	ре	Residue		Partial Re	ejection	Full Rejection
_	17b. Alternate Facility (or Generator)		Manifest Reference	e Number:	II C EDA ID	Number	
Ë	To Automate Facility (of Generatory				U.S. EPA ID	Number	:
FAC	Facility's Phone:						
DESIGNATED FACILITY	17c. Signature of Alternate Facility (or Generator)			Sal	1		Month Day Year
SIGN,							
- DE				i			
	Designated Facility Owner or Operator: Certification of receipt of materials covered	by the manifest excer	ot as noted in litem 17a				
			inature			7	Month Day Year
٧	Printed/Typed Name ROZ RASKIU SSEN	1	XVE.	HACE -	E LUZZ	<i>(</i>	Month Day Year

-75 T	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID N	lumber 5333		2. Page 1 of	3. Emerç	gency Response	e Phone	4. Waste 7	Tracking Nur	mber		
	Generator's Name and Mailin	ිෂය: (31 රිර්ණ	of Corp Boargy 113 Bishop Rosp ensis, Wall LLS 0-746-1200	a Burker See	1	Generato	or's Site Address	s (if different th	an mailing addr	ress)			
	enerator's Phone: Transporter 1 Company Nam	ame .	Division of PINE	ž Corp					U.S. EPA ID) Number	VARHOÜÜ	Line in the	
7. T	Transporter 2 Company Nam	me							U.S. EPA ID) Number	-		
8. C	Designated Facility Name an	nd Site Address		er Landill Sover Lake Ros Wax agent Lu					U.S. EPA ID	Number	9 5 -949	i i i i i i i i i i i i i i i i i i i	
Fa	acility's Phone:			0-114-5:07	•				1				,
				<u>*************************************</u>			10. Conta	tainers	11. Total	12. Unit			—
$\ \ _{\underline{\ }}$	9. Waste Shipping Name	e and Description				r	No.	Туре	Quantity	Wt./Vol.			,
GENERATOR -		gualed by Dr erol of contain	OT Sinated soils and	idi soroants)		ŧ	·	OM .		4 -			
1	2.												
	3.	·						2 224					
	4.			3 (c) 31 	tyren i		ari 273	16 6					
13.	3. Special Handling Instruction			was a way were	*-			_					
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_		OFFICATIO		of this		· H. or	Antic pla	·			ماء	-1.0	!
14.	 GENERATOR'S/OFFEROF marked and labeled/placard 	A'S CERTIFICATION rded, and are in all r	N: I hereby declare una- respects in proper condi	at the contents of this lition for transport acc	consignment at cording to applic	re fully and cable interr	d accurately des national and nat	scribed above	by the proper so mental regulation	hipping name	e, and are class	.sified, packag	jed,
	enerator's/Offeror's Printed/T	Typed Name		tion		anature	J-2 1 1	//	Cities	.	Mon	nth Day	Year
↓		1 6421)5					200 h	بر تر. <u>کند</u>				·	11
닐	5. International Shipments ransporter Signature (for expo	Import to	.o U.S.		Export from U	J.S.		entry/exit:					
	6. Transporter Acknowledgme	nent of Receipt of Mat	aterials						·				-
TRANSPORTER Ltar	ransporter 1 Printed/Typed Na	211	المانع الطوراتين أيمثث المانون	.1 %	Sig	gnature		- Andrews	of the same		Mon	•	Year
Tra	ransporter 2 Printed/Typed Na				Sig	gnature	· V p Ca. c	<u>1 </u>	<u> </u>	7100 100 100 1	Mon		Year
	7. Discrepancy												
乔 ├ ──	7a. Discrepancy Indication Sp	Space Quant	ıtity	Туре		Man	Residue	Number:	Partial Re	ejection	Ε	Full Reject	tion
170	7b. Alternate Facility (or Gene	erator)						TWINNE	U.S. EPA ID	Number			
₹ _{Far}	acility's Phone:												
	7c. Signature of Alternate Fac	cility (or Generator)							1		Mon	nth Day	Year
DESIG										5			
							· :				· · · · ·		
_	B. Designated Facility Owner or inted/Typed Name						in Item 17a				Mo	Dov	Vaar
↓ '	neur rypeu reame	T Buc	W400		Jigi I	gnature	Sant Control	All the second			Mont I	nth Day	Year

1	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number ら色いころ	2. Page 1 of		23-6315			mber	Ź/	-
	5. Generator's Name and Mailii	ng Address Pach Comp Energy 1910 Blahop Rio Oneralis, VVA - G 380-749-1300	(16 3.4.	Generator's Site Add	iress (if different t	nan mailing add	ress)			
	Generator's Phone: 6. Transporter 1 Company Nan			<u> </u>		U.S. EPA ID		17. AH 00 0	"narada	
	7. Transporter 2 Company Nan		100 100 100 pm			U.S. EPA ID				
	8. Designated Facility Name ar	Weyerhaeus 3434 Saum	ser Landilli Silver Lato Poad , yva. 98611 USA			U.S. EPA ID	Number	06-34/07		·
	Facility's Phone:	36	60-274-5107							
	9. Waste Shipping Nam	e and Description		10. C	ontainers	11. Total	12. Unit			
	5. Waste Shipping Nam	e and Description		No.	Type	Quantity	Wt./Vol.			
GENERATOR -	1. Maisrai Nat Fle (Non PCB rains	guisted by OOT rel of contaminated some a	md sorbenta)	i	CBA		7.			
E GEN	2.									
	3.									
	4.									
	13. Special Handling Instruction	ns and Additional Information	2 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
	14. GENERATOR'S/OFFEROR	R'S CERTIFICATION: I hereby declare t ded, and are in all respects in proper cor	hat the contents of this consignment a	re fully and accurately	described above	by the proper s	hipping name	e, and are class	ified, packa	ged,
	Generator's/Offeror's Printed/T			nature		ona regulation	<u></u>	Mon	h Day	Year [구입4
NT'L	15. International Shipments Transporter Signature (for expo	Import to U.S.	Export from (of entry/exit:		THE POLICE SHE SHE			1.04
Œ.	16. Transporter Acknowledgme	ent of Receipt of Materials			Touring Oron					F
TRANSPORTER	Transporter 1 Printed/Typed Na Transporter 2 Printed/Typed Na	MARAGAR	, and		and the state of	eller and an armone		Mont	22	Year
TRA	Transporter 2 Printed/Typed Na	ame		gnature				Mon 	h Day	Year
A	17. Discrepancy 17a. Discrepancy Indication Sp	pace Quantity	Туре	Residue	-	Partial Re	ejection		Full Rejec	otion -
֡֝֡֝֝֡֓֜֜֝֓֓֓֓֓֓֜֜֜֜֜֓֓֓֓֓֜֜֜֜֓֓֡֓֜֜֜֓֓֡֓֡֓֡֡֡֜֜֡֓֡֓֡֡֡֡֡֡	17b. Alternate Facility (or Gene	erator)		Manifest Referen	nce Number:	U.S. EPA ID	Number			
DESIGNALED FACILITY	Facility's Phone: 17c. Signature of Alternate Fac	cility (or Generator)	·				- .	Mont	h Day	Year
IGNA										<u> </u>
ظ ا								.,1.1.	*.	
		or Operator: Certification of receipt of ma			l					
	Printed/Typed Name	RASAULSSE	Sig	nature	XX.	i strantisti in ili	1	Mont L⊋	h Day	Year

A	NON-HAZARDOUS WASTE MANIFEST 1. Generator ID Number	2. Page 1	of 3. Emergency	Response Phone	4. Waste T	racking Nun			-
 	Generator's Name and Mailing Address			e Address (if different	than mailing addr		· · · · · · · · · · · · · · · · · · ·		_
	Pacif Com Energy 1813 Sishna Poat Ohahars, 사사 - 보호 Generator's Phone: 360-748 1303			e Address (ii dilleretii		ess)		-	
	6. Transporter 1 Company Name ころさん On/Islan of Phil	E Zorp			U.S. EPA ID		702H00001	1.94d	-
	7. Transporter 2 Company Name				U.S. EPA ID	Number	 ·		
	ුය ණ්ම සිරකය	er Landfli Rver Jake 2003 WA 90611 USA			U.S. EPA ID		08-25/MO78		
┞	Facility's Phone:	0.004.600					 -		
	9. Waste Shipping Name and Description			10. Containers No. Type	11. Total Quantity	12. Unit Wt./Vol.			
GENERAIOR	1. Material Not Regulated by DOT (Not ROS mineral oil contaminated sons ar	nd scrosnia)	4	CM	30	de.			
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	3.						· .		
	4. 13. Special Handling Instructions and Additional Information						- <u></u>		
L	14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare the marked and labeled/placarded, and are in all respects in proper cond Generator's/Offeror's Printed/Typed_Name 14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare the marked and labeled/placarded, and are in all respects in proper cond.	lition for transport according to app	t are fully and accu licable international	rately described aboval and national govern	e by the proper sh mental regulations	nipping name	e, and are classifie	ed, packaç Day	ed,
1	T. Patrick Jancher	ĺ	1./0<				J 2-	7.7	11
Ξ	15. International Shipments Import to U.S. Transporter Signature (for exports only): 16. Transporter Acknowledgment of Receipt of Materials	Export from		Port of entry/exit: Date leaving U.S.;					
SPORE	Transporter 1 Printed/Typed Name	· · · · · · · · · · · · · · · · · · ·	Signature	water the			Month 2	Day 22	Year
֓֞֝֝֟֝֝֟֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	Transporter 2 Printed/Typed Name		Signature				Month	Day	Year
T	17. Discrepancy							L	
	17a. Discrepancy Indication Space Quantity	Туре	Resi	idue eference Number:	Partial Re	ejection		Full Reject	ion
	17b. Alternate Facility (or Generator) Facility's Phone:				U.S. EPA ID	Number			
1	17c. Signature of Alternate Facility (or Generator)		i	· <u>-</u> -			Month	Davi	Vaca
	110. Organistic of Attendate Fability (of Generality)	<u> </u>					Month	Day	Year
DESIGNALED FACILITY									
ΙL	18. Designated Facility Owner or Operator: Certification of receipt of materials of the control	arials covered by the manifest exc	ept as noted in Iter	n 17a	`				
	Printed/Typed Name 2 145/14/55/74	<u> </u>	Signature	13 3	e En state angle an		Month	Day	Year

A	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of 3. Er	nergency Response Phor		Tracking Numbe		
H	5. Generator's Name and Maili						· .	
		Fact Core Energy 1313 Bishoc Road Chehells, yvA - U.S. 350-748-1300		rator's Site Address (if di	nerent man maning acc	iress)		
	Generator's Phone: 6. Transporter 1 Company Nan	ne .			U.S. EPA II) Number	A) HIDTOLLINGS	i de la composition della composition della comp
	7. Transporter 2 Company Nan	ne	<u> </u>		U.S. EPA II) Number		
	8. Designated Facility Name ar	3454 South Si			U.S. EPA II		% \$ \^Q7E	
	Facility's Phone:		VA 98611/USA 274-8100		[
	9. Waste Shipping Nam			10. Containers	11. Total ype Quantity	12. Unit Wt./Vol.		
GENERATOR -	1. Material Set Fa (Nea FCS mins	guiated by DOT ret to contaminated solls and	switerits)	o e e e e e e e e e e e e e e e e e e e	30	ŗ		a. T
- GENE	2.							
	3.							-
	4.				-			•
	14. GENERATOR'S/OFFEROR	R'S CERTIFICATION: I hereby declare that ded, and are in all respects in proper condition	the contents of this consignment are fully on for transport according to applicable in	and accurately describe	d above by the proper spoyermental regulation	shipping name, ar	nd are classified, packa	ged,
↓	Generator's/Offeror's Printed/T	yped Name	Signature	MASSI	rde la	J -	Month Day	Year
INT'L	 International Shipments Transporter Signature (for exporter) 		Export from U.S.	Port of entry/ex Date leaving U				
TRANSPORTER	16. Transporter Acknowledgme Transporter 1 Printed/Typed N	<u>`</u>	Signature	1 ce de la company	har	· · · ·	Month Day	Year
THAN	Transporter 2 Printed/Typed No	âme	Signature	K			Month Day	Year
1	17. Discrepancy 17a. Discrepancy Indication Sp	oace Quantity	Птуре	Residue	Partial F	ejection	Full Rejec	tion
CILITY	17b. Alternate Facility (or Gene	erator)	N	lanifest Reference Numb	er: U.S. EPA II	O Number	<u>. </u>	-
DESIGNATED FACILITY	Facility's Phone: 17c. Signature of Alternate Fac	sility (or Generator)		:			Month Day	Year
- DESIG								
	18. Designated Facility Owner Printed/Typed Name	or Operator: Certification of receipt of materi	als covered by the manifest except as no				Month Day	Year

			Li i ago i oi oi ciii	ergency Respo	nse Phone	4. Waste 1	Fracking Nu ∰ 111	mber 21		
5. Generator's Name and Mailin			Gener	ator's Site Addr	ess (if different	than mailing add	ress)			
Generator's Phone:	Gasaf Corp Ener 1815 Breton Ra Chahare, MA 200-246-1300	(2) (連) (1) (3) (4)	1							
6. Transporter 1 Company Nam		ME Corp				U.S. EPA ID	Number		a 577. 1	
. Transporter 2 Company Nam						U.S. EPA ID	Number			
3. Designated Facility Name an	Weyerhael 5434 South	user Landfill 1 Siber Lako Ros 26 Java - 236 1 f Us				U.S. EPA ID	Number	<u> </u>	<u> </u>	
Facility's Phone:		386-273-5:01	•							
9. Waste Shipping Name				10. Co	ntainers	11. Total	12. Unit			
1.	and Description		· · ·	No.	Туре	Quantity	Wt./Vol.			
fliaterial Not Reg	guiated by DOT relialisantaminated exils	and corpents)		**************************************	260 y 1200 y		, z.			
2.					_					
3.								N		
J.	,	·						•		
4.			· · · · · · · · · · · · · · · · · · ·				+			
4. GENERATOR'S/OFFEROR	'S CERTIFICATION: I hereby declare	e that the contents of this condition for transport according	consignment are fully a	and accurately	described above	by the proper s	nipping name	e, and are classif	ied, packa	ged,
marked and labeled/placard	ed, and are in all respects in proper c	e that the contents of this o	consignment are fully a prding to applicable into Signature_	emational and r	described above	by the proper si nental regulation	hipping names.	e, and are classif Month	·	ged,
marked and labeled/placard	led, and are in all respects in proper c	e that the contents of this condition for transport acco	ording to applicable into	emational and r	described above national governm	by the proper s ental regulation	hipping name s.	Month	·	Y
marked and labeled/placard/ senerators/Offeror's Printed/Ty 5. International Shipments ransporter Signature (for expo	ed, and are in all respects in proper corped Name. Import to U.S. rts only):	e that the contents of this of condition for transport acco	ording to applicable into	Port of	described above national government of the control	by the proper sinental regulations	nipping name s.	Month	Day	Y
marked and labeled/placard/ Senerator's/Offeror's Printed/Ty 5. International Shipments ransporter Signature (for exported) 6. Transporter Acknowledgmen	ed, and are in all respects in proper coped Name. Import to U.S. rts only): nt of Receipt of Materials	e that the contents of this condition for transport acco	ording to applicable into	Port of	entry/exit:	by the proper si ental regulation	nipping name	Month 2, 44	Day	Y
marked and labeled/placard/ ienerators/Offeror's Printed/Ty 5. International Shipments ransporter Signature (for exportant Signature) 6. Transporter Acknowledgmer ransporter 1 Printed/Typed Na	ed, and are in all respects in proper coped Name. Import to U.S. rts only): nt of Receipt of Materials rine.	e that the contents of this condition for transport acco	ording to applicable into	Port of	entry/exit:	by the proper, si	nipping name s.	Month	Day	Y
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marked and labeled/placardi enerator's/Offeror's Printed/Ty 5. International Shipments ransporter Signature (for exports) 6. Transporter Acknowledgment ransporter 1 Printed/Typed Na ransporter 2 Printed/Typed Na 7. Discrepancy	ed, and are in all respects in proper coped Name. Import to U.S. rts only): nt of Receipt of Materials rme.	e that the contents of this condition for transport acco	Signature Signature Signature Signature	Port of Date le	entry/exit:	by the proper si	s.	Month Month	Day	Y
Senerator s/Offeror's Printed/Ty 5. International Shipments Transporter Signature (for exported for the seneration of	ed, and are in all respects in proper comped Name. Import to U.S. rts only): Int of Receipt of Materials Imperiate Quantity	ondition for transport acco	Signature Signature Signature Signature	Port of Date le	entry/exit:	nental regulations	s. Djection	Month Month	Day Day Day	Y
marked and labeled/placardical senerators/Offeror's Printed/Ty 5. International Shipments Transporter Signature (for export 6. Transporter Acknowledgmer Transporter 1 Printed/Typed Na Transporter 2 Printed/Typed Na 7. Discrepancy 7a. Discrepancy Indication Spa	ed, and are in all respects in proper comped Name. Import to U.S. rts only): Int of Receipt of Materials Imperiate Quantity	ondition for transport acco	Signature Signature Signature Signature	Port of Date le	entry/exit:	nental regulations	s. Djection	Month Month	Day Day Day	Y
marked and labeled/placardical files and labeled/placardical files and labeled/placardical files and labeled/placardical files and labeled/specifical files and l	ed, and are in all respects in proper coped Name. Import to U.S. rts only): nt of Receipt of Materials rme Quantity rator)	ondition for transport acco	Signature Signature Signature Signature	Port of Date le	entry/exit:	nental regulations	s. Djection	Month Month	Day Day Day	Y
marked and labeled/placardi ienesetor's/Offeror's Printed/Ty 5. International Shipments ransporter Signature (for export 6. Transporter Acknowledgment ransporter 1 Printed/Typed Na ransporter 2 Printed/Typed Na 7. Discrepancy 7a. Discrepancy Indication Spa 7b. Alternate Facility (or General	ed, and are in all respects in proper coped Name. Import to U.S. rts only): nt of Receipt of Materials rme Quantity rator)	ondition for transport acco	Signature Signature Signature Signature	Port of Date le	entry/exit:	nental regulations	s. Djection	Month Month	Day Day Full Reject	Y
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NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number で無分のは	2. Page	1	353-423-6	B316			mber 121-/5	v.	
5. Generator's Name and Maili Generator's Phone:	ing Address Pacif Com Ener Pacif Ellahop R Chehalls //A DERTAS 1900	1080 1080 1380	Generator's	Site Address (if	different th	nan mailing addi	ress)			
6. Transporter 1 Company Nar	пе	office -				U.S. EPA ID) Number	· Andrew Michigan	্ৰা ক ্ত	
7. Transporter 2 Company Nam	ne					U.S. EPA ID) Number			
8. Designated Facility Name ar	Saste Po	auser Landfil In Stverijake Road ok, 432-28611 USA				U.S. EPA ID	Number	38 ≈3(0,57)	ý)	
Facility's Phone:		750-274-8187						<u></u>		
9. Waste Shipping Nam	e and Description			10. Containe No.	ers Type	11. Total Quantity	12. Unit Wt./Vol.			
f. Naterial Not Re (Non RCD mine	guisted by DOT and all comprinated sold	s aud sovemets)	ē.	, ME.	10		Ž.			
2.										
3.									<u> </u>	
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marked and labeled/placard Generator's/Offeror's Printed/T	R'S CERTIFICATION: I hereby declar ded, and are in all respects in proper of yped Name	re that the contents of this consigni condition for transport according to	ment are fully and an applicable internation	ocurately descrit	bed above al governm	by the proper si ental regulation	hipping name s.	e, and are classif		ged, Year
15. International Shipments	- Sancher		Signature /	EST					Day	
Transporter Signature (for expo		Ll Export	from U.S.	Port of entry/ Date leaving						
16. Transporter Acknowledgme Transporter 1 Printed/Typed N			21					Month		*****
Alt of B	<u> 144 (K.)</u>		Signature	<u> </u>	17			Month	[24]	Year
Transporter 2 Printed/Typed N	ime		Signature	<u></u>				Month	Day	Year
17. Discrepancy 17a. Discrepancy Indication Sp	pace	——————————————————————————————————————								
	L_J Quantity	Type		esidue Reference Num	nher:	Partial Re	∌jection	L	Full Rejecti	on
17b. Alternate Facility (or Gene	rator)			1000.	100	U.S. EPA ID	Number			
Facility's Phone:	· .									
17c. Signature of Alternate Fac	ility (or Generator)							Month	Day	Year
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18. Designated Facility Owner	or Operator: Certification of receipt of	materials covered by the manifest	except as noted in	tem 17a						
18. Designated Facility Owner Printed/Typed Name	or Operator: Certification of receipt of		except as noted in Signature		3.27			Month	Day	Yea

A	WASTE MANIFEST CASOO	2. Page 1 of 3.		onse Phone	4. Waste T	racking Nu			
	5. Generator's Name and Mailing Address	Ge	nerator's Site Add	dress (if different t	han mailing addi	ress)			
	Pacif Octo Energy 1915 Siahod Poati Chenalls, WA U.S.A. Generator's Phone: 360-746-1300				-	· 			
	6. Transporter 1 Company Name රූපීම ඒ වෘත්තාන් වැඩසි මටහු				U.S. EPA ID	Number	A 4H0000	39 4 4	
	7. Transporter 2 Company Name				U.S. EPA ID	Number			
	8. Designated Facility Name and Site Address Neyernaeubor Landfili 3434 South Siver Lake Ros Castle Rock, VIA 33311 US				U.S. EPA ID	Number	38- <i>5</i> 9-6078		
	Facility's Phone: 360-273-5107				<u> </u>	· · · · · · ·			
	Waste Shipping Name and Description		10. C	Containers Type	11. Total Quantity	12. Unit Wt./Vol.			
GENERATOR -	1. Material Not Requisited by DOT (Non-206 choice) in contaminated solic and servents). (Non-206 choice)		ż	СМ		7			
NEN GEN	2.				-				
	3.								
	4.							<u> </u>	
	Apper প্রায় (তিও Jnn) শিক এটা বিশ্ব শিক্ত শিক এটা বিশ্ব শিক্ত শ	consignment are fo	illy and accurately international and	/ described above	by the proper si	nipping name	e, and are classifi	ed, packaç	ged,
V	Generator's/Offeror's Printed/Typed Name	Signati	re 🕢	M			Month	Day	Year
INT'L	International Shipments Import to U.S. Transporter Signature (for exports only): 16. Transporter_Acknowledgment of Receipt of Materials	Export from U.S.		of entry/exit: leaving U.S.:					
TRANSPORTER	Transporter 1. Printed/Typed Name	Signati		_11/a			Month	Day	Year
TRAN	Transporter 2 Printed/Typed Name	Signati	re				Month	Day	Year
A	17. Discrepancy	<u>-</u>							
	17a. Discrepancy Indication Space Quantity Type		Residue Manifest Referer	nce Number:	Partial Re	ejection		Full Reject	tion
-ACILITY	17b. Alternate Facility (or Generator) Facility's Phone:				U.S. EPA ID	Number			
DESIGNATED FACILITY	17c. Signature of Alternate Facility (or Generator)		- :-				Month	Day	Year
- DESI					1				
	18. Designated Facility Owner or Operator. Certification of receipt of materials covered by the m Printed/Typed Name	nanifest except as Signatu					Month	Day	Year

A	NON-HAZARDOUS WASTE MANIFEST 1. Generator ID Number	2. Page 1 of 3. En	nergency Respons			racking Numbe			
	5. Generator's Name and Mailing Address	Gene	rator's Site Addres	ss (if different th			40-02		
	Generator's Phone:								
П	Generator's Phone: 6. Transporter 1 Company Name 7. Transporter 2 Company Name	detalling	-		U.S. EPA ID	Number		_	
Н,	SOS-PONSION OF ME-BARA	<u>U</u>				MHOUDET	15.22°		
	7. Transporter 2 Company Name				U.S. EPA ID	Number			
	8. Designated Facility Name and Site Address				U.S. EPA ID	Number	-		
	Facility's Phone:				1				
		-	10. Con	tainers	11. Total	12. Unit			
	Waste Shipping Name and Description		No.	Туре	Quantity	Wt./Vol.			
GENERATOR -	1. New Esquisted by Dot mater I MON TOB INVESTED ON CONTAINING	cted soil)	1	737	30	7			
- GENE	2.								
	3.								
	4.							er Version	
	GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this marked and labeled/placarded, and are in all respects in proper condition for transport actions.	is consignment are fully cording to applicable into	and accurately de	scribed above to	by the proper shi	pping name, and			i,
	Generator's/Offeror's Printed/Typed Name	Signature	7/				Month	Day	Year
٧	Dave Broner		YYV	$A \supseteq$	·		12	22	201
INT'L	15. International Shipments Import to U.S. Transporter Signature (for exports only):	Export from U.S.	Port of e	entry/exit: uving U.S.:					
凹	16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name	Signature			/ 		Month	Day	Year
P	7920 V EACHES		9	أشكر عممه		g/	•<		/ /
TRANSPORTER	Transporter 2 Printed/Typed Name	Signature	- EAN	· · · · · · · · · · · · · · · · · · ·			Month	Day	Year
$ \mathbf{A} $	17. Discrepancy								
	17a. Discrepancy Indication Space Quantity Type		Residue	Number:	Partial Re	jection		Full Rejection	on
DESIGNATED FACILITY	17b. Alternate Facility (or Generator) Facility's Phone:				U.S. EPA ID	Number			
	17c. Signature of Alternate Facility (or Generator)						Month	Day	Year
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ĕ	18 Designator Earlity Owner or Operator Cortification of receive of materials and the	manifest asset							
	18. Designated Facility Owner or Operator. Certification of receipt of materials covered by the Printed/Typed Name	manifest except as note Signature	od in Item 17a				Marak	D	V
	ASZ RASZUSSZV	Signature	K/4 9	LN 20.	Street 1		Month	Day	Year

^	NON-HAZARDOUS WASTE MANIFEST 1. Generator ID Number	2. Page 1 of	3. Emergency Respo	nse Phone	4. Waste T	racking Nu	mber		
	5. Generator's Name and Mailing Address Pacif Con Energy 1810 Bishop Road Criehasia, VVA J.S.A. 350-748-1300		Generator's Site Addi	ress (if different t	han mailing addr	ress)			
	6. Transporter 1 Company Name රීගීම එ. ධ්රේණය ඒ PNE එකෙ	L			U.S. EPA ID	Number	WAHDERD	14940	
	7. Transporter 2 Company Name	· · · · · · · · · · · · · · · · · · ·			U.S. EPA ID	Number			
, ,	8. Designated Facility Name and Site Address Very enhancement of the Police Rock (NA 98511 U				U.S. EPA ID	Number	98-SV\QT\$;	
	Facility's Phone: 350-174-5107								
	9. Waste Shipping Name and Description		10. Co	ontainers Type	11. Total Quantity	12. Unit Wt./Vol.		-	
GENERATOR -	1. Material Not Frequisted by DCPT (Not PCB mineral oil contaminated soils and acrosoits) (Not PCB mineral oil contaminated soils and acrosoits)		4	The Root		E.			
GENE	2.								
	3.							··	
	4.								
	GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this marked and labeled/placarded, and are in all respects in proper condition for transport according to the contents of the	s consignment ar	re fully and accurately	described above	by the proper shental regulations	nipping name	e, and are classifi	ed, packag	jed,
	Generator's/Offeror's Printed/Typed Name		nature	adoria governin			Month	Day	Year
*	LEET Sury		-	وسيني			2	**** ****	11
INT'L	15. International Shipments Import to U.S. Transporter Signature (for exports only):	Export from L		f entry/exit: eaving U.S.:			·		
띮	16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name	0':-							
ő	M TINEKTA	oigi 	nature	المستوشور			Month ! '	Day 7 7	Year
TRANSPORTER	Transporter 2 Printed/Typed Name	Sig	nature	377 45 <u> </u>			Month	Day	Year
·	17. Discrepancy								
	17a. Discrepancy Indication Space - Quantity Type		Residue Manifest Reference	ce Number:	Partial Re	jection		Full Reject	ion
DESIGNATED FACILITY	17b. Alternate Facility (or Generator)				U.S. EPA ID	Number		-	
	Facility's Phone: 17c. Signature of Alternate Facility (or Generator)				_l		Manth	Dev	Vaca
GNATE							Month	Day	Year
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	18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the				`				
\downarrow	Printed/Typed Name	Sign	nature	7/	Larie 61	. s./	Month	Day	Year

<u> </u>	NON-HAZARDOUS	1. Generator ID Number	2.	Page 1 of 3. Eme	rgency Resp	onse Phone	4. Waste T	racking Nu	mber		
1	WASTE MANIFEST	0E9@P		†	38K-4	23-6318		93171	(Z)		
	5. Generator's Name and Maili Generator's Phone:	ing Address Pacifi Comp Energing 1813 Elethop Ro Chehails, WA 360-745-1365	18A	I	tor's Site Add	dress (if different t	han mailing addr	ress)			
	6. Transporter 1 Company Nan		NE-Core	- 100-1	i.		U.S. EPA ID	Number	MARTUGO	· A WAL	
	7. Transporter 2 Company Nan					· · · · · · · · · · · · · · · · · · ·	U.S. EPA ID	Number			
	8. Designated Facility Name an	ି (ଶ୍ୱରମ କଥା ଓୟନ ଓଡ଼ ୍ମ	ser Landilli Silver Lake Proest k, V/A 3251 USA		·		U.S. EPA ID	Number	03 -3-4077	4	
l	Facility's Phone:		160-274-4307								
	9. Waste Shipping Nam	e and Description			10. C	Containers Type	11. Total Quantity	12. Unit Wt./Vol.			
GENERATOR -	1. Material Not Per (Non PCB mina	gulated by DOT and of contaminated collection	and Someons		Ť	CH CH	80				
- GEN										* - * - * - * - * - * - * - * - * - * -	
-	3.										
	13. Special Handling Instruction										
	marked and labeled/placard	R'S CERTIFICATION: I hereby declare ded, and are in all respects in proper co	本 2章 (1952) 「The south	signment are fully a	nd accurately	described above national governm	by the proper shental regulations	nipping name	e, and are classi	īed, packaļ	ged,
	Generator's/Offeror's Printed/T			Signature I		1	· ·		Month	Day	Year
NI'L		Import to U.S.	Пь	port from U.S.		of entry/exit:	·				
떒	16. Transporter Acknowledgme										
TRANSPORTER	Transporter 1 Printed/Typed Na	ame		Signature	三任安告				Month	Day [2, 2)	Year
TRAN	Transporter 2 Printed/Typed Na	ame		Signature					Month	Day	Year
Ā	17. Discrepancy									J	
	17a. Discrepancy Indication Sp	Quantity	Туре	Mar	Residue	nce Number:	Partial Re	jection		Full Rejec	tion
FACILITY	17b. Alternate Facility (or Gene Facility's Phone:	erator)					U.S. EPA ID	Number			
DESIGNATED FACILITY	17c. Signature of Alternate Fac	ility (or Generator)							Month	Day	Year
DESI											
		or Operator: Certification of receipt of m		·	d in Item 17a	-					
1	Printed/Typed Name	Z RASMUSSE		Signature		and the second	in-e	/	Month 	Day 	Year

Ā	NON-HAZARDOUS	1. Generator ID Number	2	Page 1 of 3. E				racking Num			
H	WASTE MANIFEST	୍ରଞ୍ଜୟ ବର୍ଷ				Garage 16			<u> 11 – 72 </u>		
;	5. Generator's Name and Mailir	Proof Corp Energy (819 Bishop Poac Chahalla, WA U.S.	م 4	Gene	rator's Site Addre	ess (if different th	nan mailing addr	ess)			
	Generator's Phone: 6. Transporter 1 Company Nam	260-746-1200			· · · · · · · · · · · · · · · · · · ·						
	o. Hansporter i company Nam	CESALWESS-SPARES	- -369-				U.S. EPA ID		원소 , (355명).		
	7. Transporter 2 Company Nam		!				U.S. EPA ID				
	8. Designated Facility Name an	d Site Address VVeyorfiaeuser 2434 South St. Castle Rook 3					U.S. EPA ID		j e ževižus		
l I·	Facility's Phone:	360-	274-5167					<u></u>			
Ш	9. Waste Shipping Name	e and Description				ntainers	11. Total	12. Unit			
H	<u> </u>		**.		No.	Туре	Quantity	Wt./Vol.	<u> </u>		
GENERATOR		guisted by DOT rail oil contargulated soils and	Zorbenta)		d F	-Çêxi,		cen.			
GE)	2.							-			
	3.										
	4.									· .	
	13. Special Handling Instruction				<u> </u>						
	14. GENERATOR'S/OFFEROR	I'S CERTIFICATION: I hereby declare that it led, and are in all respects in proper conditio	ne contents of this co	nsignment are fully	and accurately of ternational and in	described above	by the proper shental regulations	ipping name,	and are classifie	d, packag	ed,
	Generator's/Offeror's Printed/Ty			Signature	1.52	* / ·			Month	Day	Year
Υ.	15. International Shipments	<u> </u>		ئرئ	Carrier .	<u> </u>	111,71		- خ		7 1
3 INT'L	Transporter Signature (for expo			Export from U.S.		entry/exit: eaving U.S.:		· · · · ·	<u> </u>		·
RTE	Transporter 1 Printed/Typed Na	ime		Signature	19 35 s	and y			Month	Day	Year
SPO	Jan Justin				1 41 DW 20 b	- 1975 - 1976 			2	Z-	
TRANSPORTER	Transporter 2 Printed/Typed Na	me		Signature					Month	Day	Year
Å	17. Discrepancy										
	17a. Discrepancy Indication Spa	ace Quantity	Туре	٨	Residue anifest Referenc	e Number	Partial Re	ection	□ F	Full Rejecti	ion
DESIGNATED FACILITY	17b. Alternate Facility (or General	rator)	· · · · · · · · · · · · · · · · · · ·		<u>winost Helefell</u>	o radinosi.	U.S. EPA ID	Number			
DF	Facility's Phone: 17c. Signature of Alternate Faci	lity (or Generator)							,	- D.	
GNATE	176. Signature of Alternate Faci	inty (of Generator)						·	Month	Day	Year
— DESI					Alexander Alexander			•.			
	18. Designated Facility Owner of	or Operator: Certification of receipt of materia	ils covered by the ma	nifest except as no	ted in Item 17a						
	Printed/Typed Name	7 ZASMUSICA	<i>y</i>	Signature	7 - 2	المستكون		y'	Month	Day	Year

Ā	NON-HAZARDOUS	1. Generator ID Number	2. Page 1 of	3. Emergency Response Pho		. Waste Tracking	
1	WASTE MANIFEST	<u>(2369</u>		888-423-68		931102	1-24
	5. Generator's Name and Mailir	_		Generator's Site Address (if di	fferent than ma	ailing address)	
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	1377.	3 B UASY / 6 +	الله الله الله الله الله الله الله الله				
	Generator's Phone:			•	•••	D EDAID :	
	6. Transporter 1 Company Nam				U.: I	S. EPA ID Number	
	7. Transporter 2 Company Nam	NO OFFICE DORF				S. EPA ID Number	100 (4 9 44
	7. Hansporter 2 Company Nam	IC			U.:	o. EFA ID NUMDER	
	Designated Facility Name an	d Site Address				S. EPA ID Number	· -
	o. Dosignated Lacility Name all	e to real constant			·	C. EL Y ID MANINGE	
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l	1		· · · · · · · · · · · · · · · · · · ·	10. Containers	1	. Total 12. Ur	nit l
	9. Waste Shipping Name	e and Description			'	uantity Wt./Ve	
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П	13. Special Handling Instruction			ره جنب			**:
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		R'S CERTIFICATION: I hereby declare the ded, and are in all respects in proper cond					me, and are classified, packaged,
	Generator's/Offeror's Printed/T		• • • • • • • • • • • • • • • • • • • •	nature		guidiono.	Month Day Year
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ب	15. International Shipments		_	•			James 2 3
INT	Transporter Signature (for expo	Import to U.S.	Export from U	J.S. Port of entry/e Date leaving U			•
				Date loaving t			
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ANS	Transporter 2 Printed/Typed Na	ame	Sig	nature			Month Day Year
Œ							
A	17. Discrepancy						
T	17a. Discrepancy Indication Sp	ace Quantity	Туре	Residue		Partial Rejection	Full Rejection
			— ·/r-				
		: .		Manifest Reference Numb			
Ĕ	17b. Alternate Facility (or Gene	erator)			U.	S. EPA ID Number	
텋					1		
7 F	Facility's Phone:	::::::::::::::::::::::::::::::::::::::					W-0 5 V
E	17c. Signature of Alternate Fac	curry (or Generator)	I				Month Day Year
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DESIGNATED FACILITY							
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	19 Decignated Family O	or Onombon Codification of	haring account by the second second	no noted in New 47-			Sept.
П	Printed/Typed Name	or Operator: Certification of receipt of ma	Sir	as noted in Item 1/a	-		Month Day Year
		" Risner 557.	31,	proceedity			

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A	NON-HAZARDOUS	1. Generator ID Number		2. Page 1 of 3	. Emergency Respons		4. Waste Ti			(()	
	WASTE MANIFEST	ୃଞ୍ଜେପ୍ତ				3-6316		93110	121	1 <u> </u>	
П	5. Generator's Name and Mailin			G	enerator's Site Addres	s (if different t	nan mailing addre	ess)			
Ш		Pacif Corp Ener 1913 Bishop P	777 Navri								
		Chenalis, WA 366-748-1300	U.S.A.	í							
	Generator's Phone:										
	6. Transporter 1 Company Nam	ne L AAAATLA	- A 12 1	e C.			U.S. EPA ID	Number			
	ナビル	MARTIN	THUCKEN				1				
П	7. Transporter 2 Company Nam	ne					U.S. EPA ID	Number			
П	8. Designated Facility Name an	4 S T L M C L C C C C C C C C C C C C C C C C	user Landfill				U.S. EPA ID	Number	08-SW078		
			n Silver Lake Ro			-	.*		ME-54465		
			ik, WA 38611 U	S.A.							
	Facility's Phone:		360-274-5107			····		,			
П	9. Waste Shipping Name	e and Description			10. Cont	tainers	11. Total	12. Unit			
					No.	Туре	Quantity	Wt./Vol.			_
	1.	on the fact of the control of the co			.i.	DT	00	c.ps			
Ş	Material Not Rep	gunded by U.J.; Irai oil contaminated solis	and dehelet		,	اتنا	- X	,			
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1	13. Special Handling Instruction	ons and Additional Information				- '					
	Approval#	CCS Jeb/P0# 3	911021 Truck#								
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	marked and labeled/placarded.	R'S CERTIFICATION: I hereby declare , and are in all respects in proper cond	that the contents of this lition for transport accord	consignment are i ing to applicable it	fully and accurately de nternational and natior	escribed above nal governmen	by the proper sh tal regulations.	ipping name	, and are classifie	d, package	ed,
П	Generator's/Offeror's Printed/Ty		·	Signa					Month	Day	Year
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,r -	15. International Shipments		Г							+ +	
INT'L	Transporter Signature (for expo	Import to U.S.	L	☐ Export from U.S		entry/exit: ving U.S.:					
	16. Transporter Acknowledgme				Date lea	wing U.S.:					
TRANSPORTER	Transporter 1 Printed/Typed Na	· .	····	Signa	ture				Month	Day	Year
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SN	Transporter 2 Printed/Typed Na	ame		Signa					Month	Day	Year
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<u>.</u>	17. Discrepancy										
1	17a. Discrepancy Indication Sp	ace									
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					Monifest Defense	Mumber					
-	17b. Alternate Facility (or Gene	erator)			Manifest Reference	inumper:	U.S. EPA ID	Number			
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DESIGNATED FACILITY	Facility's Phone:						1				
Į Q:	17c. Signature of Alternate Fac	sility (or Generator)							Month	Day	Year
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	18 Decignated Eacility Owner	or Operator: Cortification of receipt of	materials sovered by the	manifest system	e notad in Res. 47-						
		or Operator: Certification of receipt of	<u>·</u>			-/-) -			Month	Day	Vaar
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A	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2	. Page 1 of	3. Emergency Respo	nse Phone 23-6316	4. Waste Tr	acking Numb	AD 445.00
Н	5. Generator's Name and Maili	ing Address			Generator's Site Addr		an mailing addre		· 01
	Generator's Phone:	Pacif Corp Energiated Pacif Corp Energiated Pacif Corp Energiated Pacific Paci	ad	1	Generalor S Site Addr	ess (ii dinerent ii	an mailing addre	;ss)	
П	6. Transporter 1 Company Nar	me					U.S. EPA ID	Number	·····
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	7. Transporter 2 Company Nar	me					U.S. EPA ID	Number	
	8. Designated Facility Name ar	3434 South Castle Roc	iser Landfill I Silver Lake Road Ik, WA 38511 US/ 860-274-51 0 7			-	U.S. EPA ID	Number ੍ਰੋ	%-SVV078
	Facility's Phone: .		101 G-11 Had 101					,	
	9. Waste Shipping Nam	ne and Description			10. Co No.	ontainers Type	11. Total Quantity	12. Unit Wt./Vol.	·
GENERATOR -	1. Materiai Not Re (Non PCB mini	egulated by DOT eral oil contaminated soils	and debris)		a series	סד	28	7	
— GEN	2.								
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	Aກິລາວບາວໄດ້ 14. GENERATOR'S/OFFERO marked and labeled/placarded	CCS Job/PC# 93		ensignment a	re fully and accurately	described above	by the proper sh	ipping name, a	and are classified, packaged,
\bigvee	Generator's/Offeror's Printed/1		<u> </u>		nature X		7		Month Day Year
<u> </u>	15. International Shipments	Import to U.S.	Π,	Export from I	IIS Port o	f entry/exit:			
INL	Transporter Signature (for exp	•		Export from		eaving U.S.:			
EВ	16. Transporter Acknowledgm	ent of Receipt of Materials							
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Ā	17. Discrepancy			•					
	17a. Discrepancy Indication S	pace Quantity	Туре		Residue		Partial Re	jection	Full Rejection
 	17b. Alternate Facility (or Gen	erator)			Manifest Referen	ce Number:	U.S. EPA ID	Number	
CILIT	, , , , , , , , , , , , , , , , , , , ,	<i>,</i>							
FA	Facility's Phone:								
DESIGNATED FACILITY	17c. Signature of Alternate Fa	cility (or Generator)							Month Day Year
ESIGN							•		
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	18. Designated Facility Owner	r or Operator: Certification of receipt of r	naterials covered by the ma	anifest excer	ot as noted in Item 17a	,	·		
			<u></u>		nature	<u> </u>	7		Month Day Year
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A	NON-HAZARDOUS	Generator ID Number		2. Page 1 of 3. En	ergency Resp	onse Phone	4. Waste 1	Fracking Nu	mber		
lΤ	WASTE MANIFEST	CESGG		1	888~	423-6318		93111	021 -60		
	5. Generator's Name and Maili	ng Address		Gene		dress (if different t	than mailing add				
	Generator's Phone:	Pacif Corp Ene 1813 Sishop R Chehalls, V/A 360-748-1300	U.S.A.	1			·	·			
	6. Transporter 1 Company Nar	ne Atin Truck	in l				U.S. EPA ID	Number			
	7. Transporter 2 Company Nar	ne					U.S. EPA ID	Number			
	8. Designated Facility Name an	3434 Sou	ouser Landfill th Silver Lake Roa ck, VVA 98611 US				U.S. EPA II) Number	96-SW678		
	Facility's Phone:		360-274-5107								
lÌ	9. Waste Shipping Nam	e and Description			10. C	Containers	11. Total Quantity	12. Unit Wt./Vol.			
H	1				IVU.	Туре	Quantity	**1.7 * 01.			
GENERATOR	Mahimai Not Re (Non PCB mine	gulated by DOT eral oil contaminated soil:	s and debris)		بقم	DT	30	7			
I GEN	2.										
	3.										
	4.										×
	13. Special Handling Instruction	ons and Additional Information									· · · · · ·
	Approval	ons and Additional Information # COS Job/Pの# 9	ISTIOOT Truck#	25			٠				
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Ш	14. GENERATOR'S/OFFEROI	R'S CERTIFICATION: I hereby declar I, and are in all respects in proper con	e that the contents of this o	onsignment are fully	and accurately	y described above	e by the proper s	hipping name	e, and are classifie	d, packaç	ged,
Ш	Generator's/Offeror's Printed/T	Vned Name	ulion for transport accordin	Signature		ulonai governinei	nai regulations.		Month	Day	Year
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Υ.	15. International Shipments		_		į r				OI		
INT'L		Import to U.S.	L	Export from U.S.		of entry/exit:					· Parlowner
	Transporter Signature (for exp				Date	leaving U.S.:					
8	16. Transporter Acknowledgme				Control Control						
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TRANSPORTER	Transporter 2 Printed/Typed N			Signature					Month	Day	Year
<u> </u>	17. Discrepancy									L	L
	17a. Discrepancy Indication Sp	pace Quantity	Туре		Residue	nca Number	Partial R	ejection		Full Rejec	tion
_	17b. Alternate Facility (or Gen	erator)		N	lanifest Refere	nce municer.	U.S. EPA II	O Number			
FACILI	Facility's Phone:						1				
G	17c. Signature of Alternate Fac	cility (or Generator)							Month	Day	Year
NAT				<u> </u>						<u> </u>	
- DESIGNATED FACILITY							-				
		or Operator: Certification of receipt o	f materials covered by the r	nanifest except as n	oted in Item, 17a	a					
 ↓	Printed/Typed Name	Z PASMUSSI	EN	Signature 	Klos	16.60	- مرار رینان ع		Month I	Day	Year

lack	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number		2. Page 1 of	3. Emergency Respo	nse Phone 23-8316	4. Waste 1	racking Numb 93110	er T		
	5. Generator's Name and Maili	ing Address			Generator's Site Add	ress (if different	than mailing add	ress)			
	·	Pacif Corp Shere 1813 Bishop Ro	ad								
		Chehalis, WA I									
	Generator's Phone:	360-749-1300									
	6. Transporter 1 Company Nar		*				U.S. EPA ID	Number			
	571; A1C	to Toute	<u> </u>				110 501 10				
1	7. Transporter 2 Company Nar	ne	\cup				U.S. EPA ID) Number			
Н	8. Designated Facility Name ar	nd Site Address : E Casa as also as a	in a committee				U.S. EPA ID) Number			
	o. Designated Fashing Name at	5 - 1 May 7 (MILL) (MILMAN)	i se r Lendfil I Silver Lake Ro	ad				, indiliber	18-5W 078		
			11138E AW.								
	Facility's Phone:		360-274-5107	-							
					10. Co	ontainers	11. Total	12. Unit			
11	9. Waste Shipping Nam	ne and Description			No.	Туре	Quantity	Wt./Vol.			
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	13. Special Handling Instruction	ons and Additional Information					,				
	A.いのでも少数は	# CC9_lob/P C# 99	H1001 Truck#	25							
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	14. GENERATOR'S/OFFERO	R'S CERTIFICATION: I hereby declare	that the contents of this	consignment a	re fully and accurately	described above	by the proper s	hipping name.	and are classified.	package	d.
	marked and labeled/placarded	l, and are in all respects in proper cond		ding to applicabl	le international and nat						
IJ	Generator's/Offeror's Printed/T	Typed Name		Sig	nature		1		Month	Day	Year
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INT'L	15. International Shipments	Import to U.S.		Export from	N.	of entry/exit:	•		* * * * * * * * *		of the case
_	Transporter Signature (for exp				Date	leaving U.S.:					
TRANSPORTER	16. Transporter Acknowledgm Transporter 1 Printed/Typed N			Sir	gnature				Month	Day	Year
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ISN	Transporter 2 Printed/Typed N			Sic	gnature	810112-22-			Month	Day	Year
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A	17. Discrepancy			<u> </u>							
1	17a. Discrepancy Indication Sp	pace Quantity	Туре		Residue		Partial R	ejection	☐ Ful	l Rejectio	
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					Manifest Referen	ce Number:					
Ĕ	17b. Alternate Facility (or Gen	erator)					U.S. EPA II) Number			
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DESIGNATED FACILITY	Facility's Phone:	-1124/									.,
ΊĒ	17c. Signature of Alternate Fa	cility (or Generator)		1					Month	Day 1	Year
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ESI											
	18 Designated Facility Owner	or Operator: Certification of receipt of i	naterials covered by the	manifect evec	nt as noted in Itom 17s						
	D. 1. 100 111				gnature	7			Month	Day	Year
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NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number		2. Page 1 of	3. Emerg	ency Respons	nse Phone	4. Waste T	Tracking Num	mber		
5. Generator's Name and Maili	ing Address Pacif Corp Gos 1019 Statup F Chehalia, VVA 969-748-1900	~ිබේර		Generator	's Site Addres	ss (if different t	than mailing addr	ess)			
Generator's Phone: 6. Transporter 1 Company Nar							U.S. EPA ID	Number			
7. Transporter 2 Company Na	ne	•					U.S. EPA ID	Number			
8. Designated Facility Name a	ઉપાય કેલ્લ	eusor Landfili Jth Silver Lake Ro ock, VIA 98611 U					U.S. EPA ID	Number	06-SVVQT3	}	
Facility's Phone:		360-274-5107								2	_
9. Waste Shipping Nam	ne and Description				10. Con		11. Total	12. Unit			
	· 				No.	Туре	Quantity	Wt./Vol.	<u> </u>	- i	
	agulated by DOT eral off contaminated solls	s and dapns)		1		CT	30	orgo-		1	9
2.		<u></u>								#	
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13. Special Handling Instructi	ions and Additional Information # つのも Jeb/Pの# 9	3811021 Truck#				1 1000					٠ - حر
14 GENERATOR'S/OFFERO	PR'S CERTIFICATION: I hereby declar	re that the contents of this	- consignment a	ra fully an	d accurately (Secribed abov	hy the propers	hinning nam	ond are classifi	od nacka	
marked and labeled/placarded	d, and are in all respects in proper con	ndition for transport accord	ding to applicable	le internatio	onal and natio	nal governme	ntal regulations.		, and are size		,eu,
Generator's/Offeror's Printed/1	Typed Name		Sig	gnature	777	77			Month	Day	Year
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15. International Shipments Transporter Signature (for exp 16. Transporter Acknowledgm			Export from U	J.S.	Port of	entry/exit:eaving U.S.:					
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Transporter 2 Printed/Typed N	Congress the University		Sig	gnature			C. Mary Mary		Month		Year
17. Discrepancy										-	·
17a. Discrepancy Indication S	pace Quantity	Туре		Mani	Residue	oo Numher:	Partial Re	ejection		Full Reject	tion
17b. Alternate Facility (or Gen	erator)				Bat i tere.) Numer	U.S. EPA ID	Number			
17b. Alternate Facility (or Gen Facility's Phone: 17c. Signature of Alternate Fa	cility (or Generator)								Month	Day	Year
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18. Designated Facility Owner	r or Operator: Certification of receipt or	of materials covered by the	manifest excer	t as noted	in Item 17a						
Printed/Typed Name	POT RA SLAVO		Sig	gnature بن	يع ليسبه	ر برسسینون در برسسینون	* *		Month	Day	Year

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		ION-HAZARDOUS	Generator ID Number	2. Page 1 o	of 3. Eme	rgency Respons	se Phone	4. Waste 1	Tracking Nu		. 3		
[N	VASTE MANIFEST	CESQG			888-47	23-6313		9311	021 T	4		
	5. Ge	enerator's Name and Maili	ng Address		General			han mailing add	ress)				
		· .	Pacif Corp Energy 1313 Bishop Road Chehells, WA U.S.A. 360-748-1300		1		`	Ţ	•				
Ш		erator's Phone: ansporter 1 Company Nar						U.S. EPA ID	Mumbar				
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	7. Tr	ansporter 2 Company Nar	ne			· N.		U.S. EPA ID) Number				
l I .		,											
) 	8. De	esignated Facility Name at	3434 South Silver La	ke Road		.**	e de e	U.S. EPA II) Number	03-5%	¥078		
П			Castle Rock, WA 98					1	~				
Н	Facil	lity's Phone:	360-274-5	10/									
Н	ľ	9. Waste Shipping Nam	e and Description			10. Cor	ntainers	11. Total	12. Unit				
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Ш	13.	Special Handling Instruction	ons and Additional Information				<u> </u>			<u> </u>			
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Н	mark	ked and labeled/placarded	, and are in all respects in proper condition for transpo	ort according to applica	able interna	tional and natio	nal governmer	ital regulations.	inpping nam	c, and are	Oldoonio	u, packa	you,
	Gene	erator's/Offeror's Printed/T	yped Name		Signature	///	$\overline{//}$				Month	Day	Year
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1	15. I	nternational Shipments	П				7,7 - 0				,		12.7
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Ā	17. [Discrepancy	-										
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DESIGNATED FACILITY			· · · · · · · · · · · · · · · · · · ·										
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П	18. [Designated Facility Owner	or Operator: Certification of receipt of materials covered	ed by the manifest exc	cept as note	ed in Item 17a							
	Print	ted/Typed Name	PASMUSSEA!		Signature		,				Month	Day	Year
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^	NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number CÆS∰	2. Page 1 of	3. Eme	rgency Response	Phone	4. Waste T	racking Nur	mber	
	5. Generator's Name and Mail			Genera	tor's Site Address	(if different t	han mailing addr	ess)	* * * * * * * * * * * * * * * * * * *	
	Occasional Discussion	Pacif Ocro Energy 1813 Bishop Road Chenella, WA U.S.A. 360-748-1300	I							
	Generator's Phone: 6. Transporter 1 Company Nar						U.S. EPA ID	Number		
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	7. Transporter 2 Company Nat	me	· · · · · · · · · · · · · · · · · · ·				U.S. EPA ID	Number		
	8. Designated Facility Name a	nd Site Address V/eyerhaguser La 3434 South Silver	andfill Lake Rosd				U.S. EPA ID	Number	03-S///C75	
	· ` .	Castle Rock, WA								
	Facility's Phone:		4-5107				1		-,.	
					10. Conta	ainers	11. Total	12. Unit		
	9. Waste Shipping Nam	ne and Description			No.	Туре	Quantity	Wt./Vol.		
GENERATOR -	1. Material Not Re (Non PCB min	agulated by DOT eral oil conterminated soils and di	abris)		~		20	*** - -	٠.	
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	40. Cassial Handling Instruct	Consend Additional Information							<u></u>	
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	14. GENERATOR'S/OFFERO marked and labeled/placarder	R'S CERTIFICATION: I hereby declare that the c d, and are in all respects in proper condition for tra	ontents of this consignment are	re fully a e interna	nd accurately des tional and nations	scribed above al governmen	by the proper stated that the base is by the proper stated in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base is by the base in the base in the base in the base is by the base in the bas	nipping name	e, and are classified,	packaged,
	Generator's/Offeror's Printed/1	Typed Name		natura	0	_			Month	Day Year
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1.	15. International Shipments	Import to U.S.	Export from U		Port of er					- • .
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	16. Transporter Acknowledgm	ent of Receipt of Materials								
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AN	Transporter 2 Printed/Typed N	Name	Sig	nature		-			Month	Day Year
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	17a. Discrepancy Indication S	pace Quantity	Туре		Residue		Partial Re	eiection	· □ Fu	Il Rejection
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Ĕ	17b. Alternate Facility (or Gen	erator)					U.S. EPA ID	Number		
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D F/	Facility's Phone:	- III - (- O)	· · · · · · · · · · · · · · · · · · ·			•	<u> </u>			
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		r or Operator: Certification of receipt of materials of			ed in Item 17a				1.0	Day V
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A	NON-HAZARDOUS	1. Generator ID Number ිසිරුම		2. Page 1 of		y Response F 1 38-4 23-		4. Waste Tra	acking Num 93170			
	WASTE MANIFEST 5. Generator's Name and Maili	1		L				an mailing addre		12.1		
	3. Generator S Name and Main	Pacif Corp Energy 1819 Bishop Roa		·a.	Generators	nie Audiess (ii dillelelli li	ian maning addre	55)			
		1819 Bishop Roa	ਰੇ 									
	Generator's Phone:	Chehalis, VVA U. 360-748-1300	> .~.	1								
	6. Transporter 1 Company Nan				• •			U.S. EPA ID N	Number			
	7. Transporter 2 Company Nan	ne		•				U.S. EPA ID N	Number			
	8. Designated Facility Name ar	7 4 13 7 491 1 10 10 10 10 10	er Landfill					U.S. EPA ID N	Number	58-SVV078		
		3434 South (Sitver Lake Roi				•	. 5		OB-DARKELD		
			WA 38611 U	SA.				1		. •		
	Facility's Phone:	36	G-274-51G7									
	9. Waste Shipping Nam	e and Description				10. Contair	ners	11. Total	12. Unit			
		·		•		No.	Туре	Quantity	Wt./Vol.			
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GENERATOR	2.		*									
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	13. Special Handling Instruction	ons and Additional Information										
	Hevorage	CCS Jab/PO# 931	1021 Truck#									
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	14. GENERATOR'S/OFFEROI	R'S CERTIFICATION: I hereby declare the	at the contents of this	consignment a	re fully and ac	nurately desc	rihed ahove	hy the proper shi	nning name	and are classifie	nackan	ed
	marked and labeled/placarded	, and are in all respects in proper condition	n for transport accordi	ing to applicable	international	and national	government	al regulations.	pping name	, and are electric	.u, puonag	ou,
	Generator's/Offeror's Printed/I			Sig	nature	21				Month	Day	Year
Y		L brodshaw			119 Kg		<u> </u>			1	15	1)
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	Transporter Signature (for exp			-		Date leavir	g U.S.:					
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APPENDIX D

SITE INVESTIGATION PACIFICORP CHEHALIS PLANT TEC INC.

PACIFICORP CHEHALIS PLANT

Prepared for:

PACIFICORP

Prepared by:

TEC Inc 1450 114th Ave SE, Suite 220 Bellevue, WA 98004



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ABBREVIATIONS AND ACRONYMS

AST above ground storage tank

ASTM American Society for Testing Material

Bgs below ground surface

CAS Columbia Analytical Services

CCS Cowlitz Clean Sweep
CoC chain of custody
DO dissolved oxygen

DOT Department of Transportation

DPT direct push technology

IDW investigation-derived waste

IFP interface probe

mg/kg milligrams per kilograms
MTCA Model Toxics Control Act

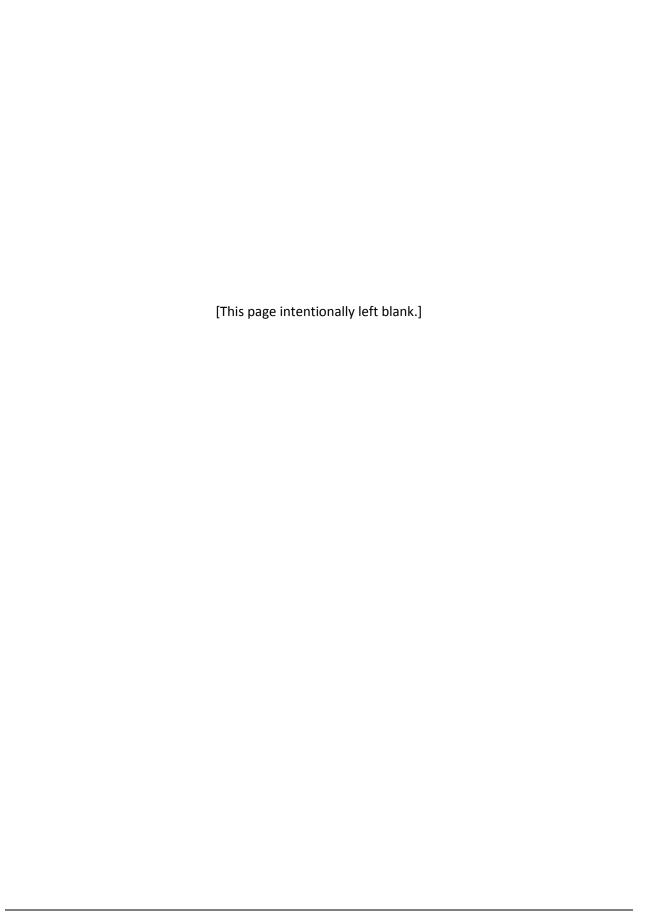
PVC polyvinyl chloride
SI Site Investigation

TEC TEC Inc.

TPH-Dx total petroleum hydrocarbons – diesel extended range
TPH-Gx total petroleum hydrocarbons – gasoline extended range

WAC Washington Administration Code

Ug/L micrograms per liter



1.0 INTRODUCTION

1.1 Purpose

TEC Inc. (TEC) was contracted by PacifiCorp to conduct a Site Investigation (SI) to assess possible impacts resulting from a mineral oil spill that occurred at the Chehalis, Washington facility.

The primary objectives of the SI were to:

- Determine if groundwater has been impacted from the mineral oil spill;
- Determine if water held in large above ground storage tank exceed any regulatory levels;
- Determine if surface water in the stormwater pond has been impacted from the mineral oil spill.

1.2 Original Scope

To meet the above stated objectives, the scope of work for this SI consisted of the following field activities:

Groundwater Investigation

Conduct collection and analysis of groundwater samples from six locations using a Geoprobe® direct push drill (DPT). Sample results will be used to determine if groundwater has been impacted from the mineral oil spill.

Above Ground Storage Tank Water Samples

Conduct collection and analysis of water from varying depths within the above ground storage tank (AST). Sample results may be used to determine the proper disposal methods of water being held within the AST.

Pond Surface Water Samples

Conduct collection and analysis of surface water samples from two locations within the pond structure. Sample results will be used to determine if surface water has been impacted from mineral oil contamination.

1.3 Scope Modification

It was determined in the field that surface soil samples would be collected from three areas located downgradient of the transformer spill. During the drilling process, surface soil material (i.e., gravel) was collected from locations GW-4, GW-5 and GW-6 and placed into a stainless steel bowl with potable water. A medium sheen was noted from the material collected at GW-4, but no other sheens were noted coming off the material collected at GW-5 and GW-6.

1.4 Report Organization

This SI Report has been organized into the following sections:

- Section 1.0 Introduction
- Section 2.0 Site Background
- Section 3.0 Sampling Events
- Section 4.0 Analytical Results
- Section 5.0 References

Discussions of the procedures and methods of the SI, and data collected are presented in the main text of this report. The boring logs and groundwater forms are presented in Appendices A and B.

2.0 SITE BACKGROUND

2.1 Site Description

PacifiCorp owns and maintains a natural gas-fired combined cycle power plant, which produces 520-megawatts of electricity. The plant is located at 1813 Bishop Road, Chehalis, Washington, in the Chehalis River Valley.

The Chehalis River Valley is considered a rural area, with approximately 7,000 residents living in and around the city. The plant is located 3 miles south of town, which consists mostly of small parks, farms, small pockets of light industrial areas, and a few housing subdivisions.

2.1.1 Geology

The overall soil-type distribution at the site consists of low permeability silt and clay layer underlain by 45 to 50 feet of water-bearing sand and gravel, underlain by a silt and clay aquitard. These soil-types are consistent with regional geologic mapping by Weigle and Foxworthy (1962) and a regional study for the Chehalis Generation Facility (Dames and Moore 1994).

These regional studies classify the upper 50 feet of soil in the area of the site as recent alluvium and glaciofluvial sediments. The aquitard found at approximately 50 feet bgs is widespread, is often described as blue-gray, clayey silt, and is reported to be more than 100 feet thick (Dames and Moore 1994).

2.1.2 Hydrogeology

The groundwater flow direction beneath the site is assumed to travel south/southwest towards Bishop Road and Berwick Creek.

Regional investigations conducted by others (Dames and Moore 1994) have categorized the shallow aquifer in the area as unconfined or semi-confined. However, the shallow aquifer appears to exhibit the characteristics of a confined or semi-confined aquifer, primarily due to the low permeably silt cap immediately above the aquifer.

2.2 Previous Investigation/Cleanup Efforts

Cowlitz Clean Sweep (CCS) completed a site cleanup (CCS 2011) at the PacifiCorp Chehalis Plant during the months of January through March, 2011. CCS removed floating product from the stormwater pond and ditch lines using oil booms, absorbent material, an oil skimmer and vacuum truck. The stormwater ditch lines were cleaned by removing contaminated material down to the clay layer.

CCS sampled affected areas and ditches for analysis to determine the extent of oil contamination; additional soil and water sampling was conducted after cleanup.

The main excavation occurred at or near the transformer that caught fire and subsequently leaked mineral oil to the surrounding areas. Contaminated soil was removed to a depth of six inches below the static groundwater line using olfactory methods (i.e., visual). During the excavation, free product was noted floating on top of the water and absorbent materials were deployed in the excavation area to

remove the product. All excavated materials were loaded onto waiting dump trucks and taken to the Weyerhaeuser transfer station located in Longview, WA for disposal.

Once the excavations had been completed, the area around the transformer was backfilled with clean material and compacted to the required 95% compaction. All ditch lines were relined with clean gravel to prevent sediment loss and water quality issues.

Water collected during excavation activities completed near and around the transformer area was pumped to the on-site diesel AST and the AST containment area.

CCS removed 845.1 tons of rock and soil and 8,869 gallons of water from affected areas during excavation activities. CCS backfilled the excavations with 92.42 tons of 2 inch to 4 inch quarry spalls and 461.84 tons of 1 $\frac{1}{4}$ " rock to help achieve the required 95% compaction standard.

3.0 SAMPLING EVENT

3.1 Groundwater Investigation

Groundwater-related investigative activities including installation and sampling of temporary monitoring wells were conducted as a component of SI activities. Samples were analyzed for mineral oil using total petroleum hydrocarbons – diesel extended range (TPH-Dx) methods.

The specific SI objective pertinent to the groundwater investigation was to:

• Determine if groundwater has been impacted from the mineral oil spill;

Sample locations are shown on Figure 3-1. A description of groundwater related investigation activities at the PacifiCorp Chehalis Plant is provided below.

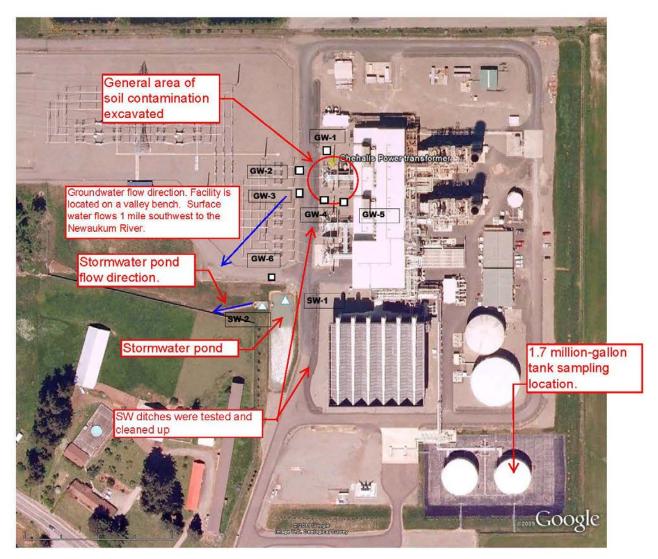


Figure 3-1 Groundwater Sampling Locations

3.1.1 Groundwater Sample Locations

Temporary monitoring wells were installed in the shallow water bearing zone with in the six boreholes as listed in Table 3-1. The temporary wells were used in lieu of drive point sampling devices due to the very low yielding water bearing zone noted during drilling activities. Temporary monitoring wells were screened from 5 feet to 15 feet below ground surface (bgs). Four temporary monitoring wells were set downgradient of the transformer; one set up gradient; and one set directly across from the transformer. The placement of temporary monitoring wells were positioned based on information gained from PacifiCorp personnel who were present during the fire and cleanup process completed by CCS.

3.1.2 Temporary Well Sampling

Temporary monitoring wells were installed at both sites using a track mounted direct-push GeoProbe® rig. Temporary wells consisted of ¾" polyvinyl chloride (PVC) pipe with 10 foot screen lengths and contain 0.010-inch slots (10 slot).

Low-flow sampling techniques were attempted due to the very low yielding water bearing zone, samples were collected after each well ran dry several times. TEC personnel were only able to record water quality readings from a few wells prior to going dry. Water quality readings, if obtained, were recorded of field sheets which are located in Appendix A. A peristaltic pump with dedicated (i.e., disposable) tubing was used to obtain each sample.

Parameter measurements recorded during purging were: conductivity, temperature, pH, dissolved oxygen (DO) and turbidity). Water quality parameters are presented in Table 3-1.

Water quality parameter information collected from each temp well includes purge rate, water level, and cumulative volume of groundwater purged from well at each interval (Appendix A).

DO⁴ Sample ID Depth to Screened Time Temp (°C) Ha Sp. Turbidity³ Cond.2 water interval (feet bgs)¹ (feet bgs)1 GW1-052311 13.56 5-15 1300 12.9 7.35 19.3 327 11.71 5-15 10.02 GW2-052311 10.58 1450 13.1 6.57 19.9 400 10.20 GW3-052311 13.37 5-15 1310 14.2 6.39 25.5 545 GW4-052311 13.60 1415 N/A⁵ N/A⁵ N/A⁵ N/A⁵ N/A⁵ 5-15 GW5-052311 5.38 5-15 1400 13.8 7.63 17.0 342 5.39 GW6-052311 N/A⁵ N/A⁵ N/A⁵ N/A⁵ N/A⁵ 13.8 5-15 1540

Table 3-1 Temporary Monitoring Well Water Quality Readings

Notes:

3.1.3 Well Abandonment Procedures

All wells were properly abandoned in accordance with Washington Administrative Code (WAC 173-160). Temporary monitoring wells were abandoned by first removing the well casing and screen material from

¹ feet (bgs) – below ground surface

² mS/cm – milli seimens/centimeter

³ NTU – nephelometric turbidity units

⁴ mg/L – milligrams per liter

⁵ well ran dry before water quality readings could be collected

the borehole. Dry bentonite chips were poured into the well from the bottom up and hydrating in two foot lifts to within 1 foot (bgs).

3.2 Above Ground Storage Tank Sampling

Storage tank water-related investigative activities including the collection of two water samples from varying depths within the large AST were conducted as part of this SI. Samples were analyzed for mineral oil using TPH-Dx and total petroleum hydrocarbon – gasoline extended range (TPH-Gx) methods.

The specific SI objective pertinent to the groundwater investigation was to:

Determine if water held in large above ground storage tank exceed any regulatory levels;

The large AST sampling location is shown on Figure 3-2. A description of water sampling activities at the PacifiCorp Chehalis Plant is provided below.

3.2.1 AST Sampling Procedures

In order to collect the two individual samples, TEC began by taking measurements of the 1.7 million-gallon AST using an Interface Probe (IFP). A thin product layer (0.05 tenths of a foot), was discovered floating on top of the water located inside the AST. The depth to product, depth to water and total depth were recorded and are provided in Table 3-2.

Depth to Total depth of Upper tank **Lower tank** Depth to water Amount of product (feet tank (feet from sample depth sample depth (feet from top measurable from top of top of flange (feet from top (feet from top of flange plate) product flange plate) plate) of flange plate) of flange plate) 41.03 33.05 33.10 0.05 35.5 38.5

Table 3-2 AST Measurements

To collect a sample without contaminating the sampling pump, a drop tube sampling system was devised to collect the water samples. The drop tube consisted of 2 inch outside diameter threaded well riser pipe and an expandable well plug placed at the end of the bottom riser pipe. Each five foot section of pipe was slowly threaded together and lowered into the AST until the desired depth was reached (i.e., 35 feet below flange plate). Once the drop tube had been lowered into the tank, it was secured using a three foot long 2x6 piece of wood and adjustable wrench. A grundfos pump and IFP were both slowly lowered down the drop tube until the expandable end plug was reached. The plug was knocked out using the weight of the pump, which was than lowered to the desired depth which were two and five feet below the product line, respectively.

Parameter measurements recorded during purging were: conductivity, temperature, pH, DO and turbidity. Water quality parameters are presented in Table 3-3.

Table 3-3 AST Water Quality Readings

Sample ID	Date	Time	Temp (°C)	рН	Sp. Cond. ¹	Turbidity ²	DO ³
TS1-052311	5/23/11	1045	19.7	6.30	17.6	13	5.45
TS2-052311	5/23/11	1115	19.1	6.70	17.0	9	5.11

Notes:

3.3 Surface Water Investigation

Surface water-related investigative activities including the collection of two surface water samples were conducted as a component of SI activities. Samples were analyzed for mineral oil using TPG-Dx methods.

The specific SI objective pertinent to the groundwater investigation was to:

• Determine if surface water in stormwater pond has been impacted from the mineral oil spill.

Sample locations are shown on Figure 3-1. A description of surface water related investigation activities at the PacifiCorp Chehalis Plant is provided below.

3.3.1 Surface Water Sampling

TEC personnel collected two surface water grab samples from the stormwater pond located onsite. The first sample was collected from the northern bank area and the second was collected from the outfall (Figure 3-2 and 3-3). Samples were collected by using a pre-cleaned stainless steel dip cup at each of the two locations. Grab water quality readings were collected and recorded on sample collection sampling forms (Appendix A).





Figure 3-2 Surface Water Sample North End

Figure 3-3 Surface Water Sample at Outfall

Parameter measurements recorded were: conductivity, temperature, pH, DO and turbidity. Water quality parameters are presented in Table 3-4.

¹ mS/cm – milli seimens/centimeter

² NTU – nephelometric turbidity units

³ mg/L – milligrams per liter

Table 3-4 Surface Water Quality Readings

Sample ID	Time	Temp (°C)	рН	Sp. Cond. ¹	Turbidity ²	DO ³
SW1-052311	1426	17.6	8.72	11.8	9	15.74
SW2-052311	1411	16.4	8.87	11.2	13	14.54

Notes:

3.4 Surface Soil Investigation

Surface soil samples were collected on 24 May, 2011 in an area that showed visible mineral oil in soil collected from the gravel/clay soil interface (Figure 3-4 and Figure 3-5). Soil samples were collected at three locations (SG-1, SG-2 and SG-3) which were at or near GW-4. Surface soil samples were collected by removing the road base material (i.e., dense layer of gravel) using a large digging bar and hand shovel until reaching the gravel/clay soil interface at each location. The soil/clay interface was only reached at SG-1; the two other locations could not be reached in a timely manner due to the dense compaction of the gravel material.

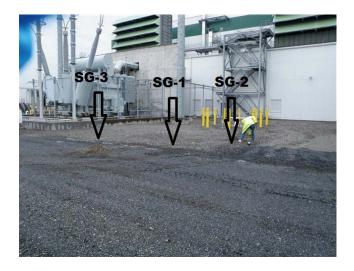


Figure 3-4 Soil Grab Locations

Surface soil samples were collected using pre-cleaned stainless steel bowls and spoons at each location. Material was collected with stainless steel spoons and placed into each stainless steel bowl, so the sample could be homogenized. The material was placed directly into pre-labeled sample jars and set into an awaiting sample cooler. Table 3-5 shows the sampling depths and time for each surface soil sample collected.

Table 3-5 Surface Soil Sampling Depths

Sample ID	Time	Depth (inches BGS ¹)	Material
SG1- 052511	0750	~18	Soil/Clay interface reached. Sample material collected mostly fines/silty material.
SG2- 052511	0920	~26	Soil/Clay interface not reached. Material mostly fines/silt/and small pebbles.
SG3- 052511	0945	~20	Soil/Clay interface not reached. Material mostly fines/silt/and small pebbles

Notes:

¹ mS/cm – milli seimens/centimeter

³ mg/L – milligrams per liter

² NTU – nephelometric turbidity units

¹ – below ground surface

General area of soil contamination excavated halls Power transforme Groundwater flow direction. Facility is located on a valley bench. Surface water flows 1 mile southwest to the Newaukum River. Stormwater pond flow direction. Stormwater pond SW ditches were tested and cleaned up

Figure 3-5 Soil Sample Locations

3.5 Field Methods

The following sections describe the use of additional field equipment as well as sample handling and documentation procedures during the sampling event.

3.5.1 Utility Location

All underground utilities were located and clearly marked by a utility locating subcontractor prior to Geoprobe DPT sampling.

3.5.2 Handling Procedures

After samples were placed in appropriately labeled containers they were immediately transferred to ice filled coolers to keep them out of the direct sunlight and to maintain a temperature of four degrees centigrade. Disposable nitrile gloves were used by personnel collecting and handling the samples and were changed frequently and in between each sample collection to avoid cross contamination.

Chain of Custody (CoC) forms were completed to accompany each cooler from the field to the laboratory. The date, time, sample location, number of containers, and analysis to be performed was recorded on each CoC. Samples were hand delivered by field staff to Columbia Analytical Services of Kelso, WA at conclusion of the sampling event.

3.5.3 Record Keeping

A Field activity log book was used to document the sampling procedures performed by field personnel. More specifically, the logs provided a record of specific sample location and collection information, noted other contractors involved during the field sampling and their role(s), described the major equipment used at each location and provided noteworthy observations, problems, or incidents. Field data sheets were completed for all groundwater sampling components of the study and were stored with the field activity log book. Copies of the field data sheets are included in Appendix A.

3.5.4 Lithology Documentation

The lithology from the boring locations were continuously logged during drilling (Appendix B). Information collected on the lithology logs included borehole location; drilling information; information such as logging intervals, recovery; and sample description information.

Lithologic descriptions of unconsolidated materials encountered in the boreholes were described in accordance with American Society for Testing and Materials (ASTM) D-2488-00 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) (ASTM, 1990). Descriptive information recorded included:

- identification of the predominate particles size and range of particle sizes;
- percent of gravel, sand, fines, or all three;
- description of grading and sorting of coarse particles;
- particle angularity and shape; and
- maximum particle size or dimension. Separate identification of the Unified Soil Classification
 System (USCS) group symbol was also used.

Additional information recorded on the logs included the depth of the water table, caving or sloughing of the borehole, changes in drilling rate, presence of organic materials, and other noteworthy observation or conditions.

3.5.5 Sample Identification and Labeling

Samples collected in the field as part of this project were identified by their media type (i.e., GW, TS, SW and SG) and the corresponding date a sample was collected. Sample identification numbers, including sample media type, location number, media and depths were recorded on field sheets completed for each location or sample.

3.5.6 Instrument Calibration

All field instruments that require a zeroing and/or a user calibration were appropriately calibrated at the start of each day's deployment per the instrument manufacturer's instructions. Calibration checks against standards were performed at the beginning and periodically throughout each field day to verify equipment operation. Calibration data were recorded in the field logbook. All calibration media (i.e., gas, liquid or otherwise) were properly stored and managed per manufacturer's recommendations.

3.5.7 Decontamination Procedures

All non-disposable equipment that was exposed to site soils and then re-used for multiple sample collection was decontaminated after completing a temp well at each location. The decontamination wash consisted of:

- non-phosphate detergent (Alconox) and water wash;
- tap water rinse; and
- de-ionized water rinse.

3.5.8 Summary of Investigation-Derived Waste Characterization

Investigation-derived waste (IDW) generated by this project generally consisted of soil cuttings, groundwater, and decontamination/rinse water. All IDW was containerized in two Department of Transportation (DOT) approved 55-gallon drums, which were segregated by media, and stored in a PacifiCorp approved storage area. All drums were properly labeled with their contents, date, where the waste came from and generation dates. IDW management and disposal will be handled by PacifiCorp.

4.0 ANALYTICAL RESULTS

This section summarizes the results of the SI activities completed at the PacifiCorp Chehalis power plant.

4.1 TPH-GX

There were no detections of TPH-Gx compounds at any of the sample locations.

4.2 TPH-Dx

TPH-Dx was detected at locations SW1 (360 ug/L, TS-2 (440 ug/L, GW-4 (1100 ug/L), and SG-1 (160 mg/kg). Concentrations of TPH-Dx exceeded the Model Toxics Control Act (MTCA) method A cleanup level for groundwater at only one location (GW-4). No applicable surface water discharge limits or water quality standards exist for samples SW1 and TS2, but comparison to the groundwater cleanup standards demonstrates the levels are within MTCA A standards which are protective for groundwater human consumption, therefore protective for surface water as well. None of the soil samples collected as part of the SI exceeded the MTCA A soil cleanup standards.

Table 4-1 shows the results and screening levels for water samples and Table 4-2 shows the screening levels for soil.

Table 4-1 Groundwater/Surface water Sample Results and Screening Levels

Location Type	Sample ID	TPH-Gx Results (ug/L)	TPH-Dx Results (ug/L)	TPH-Gx MTCA A Screening Level (ug/L)	TPH-Dx MTCA A Screening Level (ug/L)
Tank Sample	TS1-052311	ND	ND	NA	NA
Tank Sample	TS2-052311	ND	440	NA	500
GW Sample	GW1-052411	NA	ND	NA	NA
GW Sample	GW2-052411	NA	ND	NA	NA
GW Sample	GW3-052411	NA	ND	NA	NA
GW Sample	GW4-052411	NA	1100	NA	500
GW Sample	GW5-052411	NA	ND	NA	NA
GW Sample	GW6-052411	NA	ND	NA	NA
Surface Water 1	SW1-052411	NA	360	NA	500
Surface Water 2	SW2-052411	NA	ND	NA	NA

Notes:

ND – not detected NA – not applicable

Ug/L – micrograms per liter Bold – detected value above MTCA A screening level

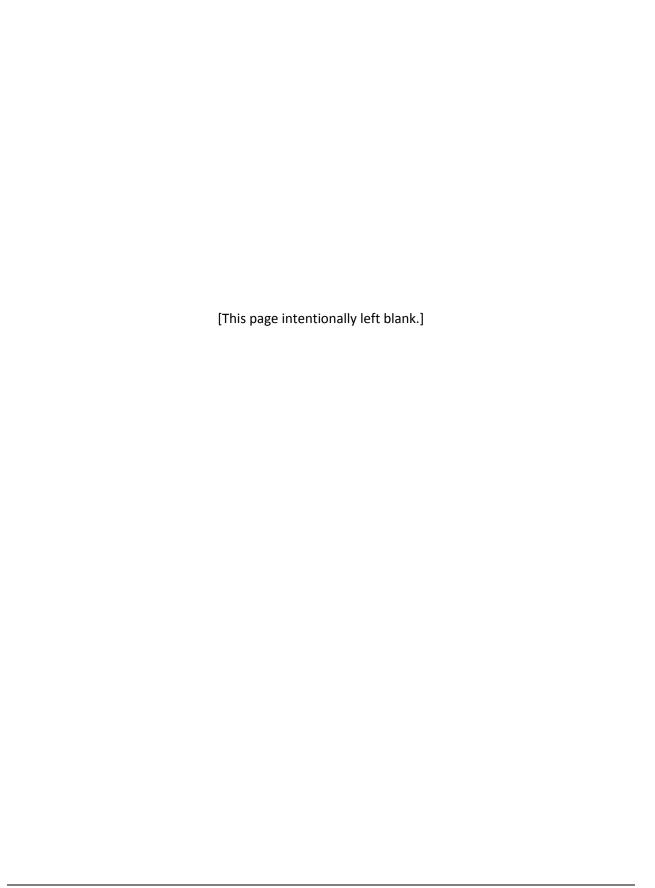
Table 4-2 Soil Sample Results and Screening Levels

Location Type	Sample ID	TPH-Dx Results	TPH-Dx MTCA A
		(mg/kg)	Screening Level (mg/kg)
Soil Grab 1	SG1-052511	160	4,000
Soil Grab 2	SG2-052511	ND	NA
Soil Grab 3	SG3-052511	ND	NA

Notes:

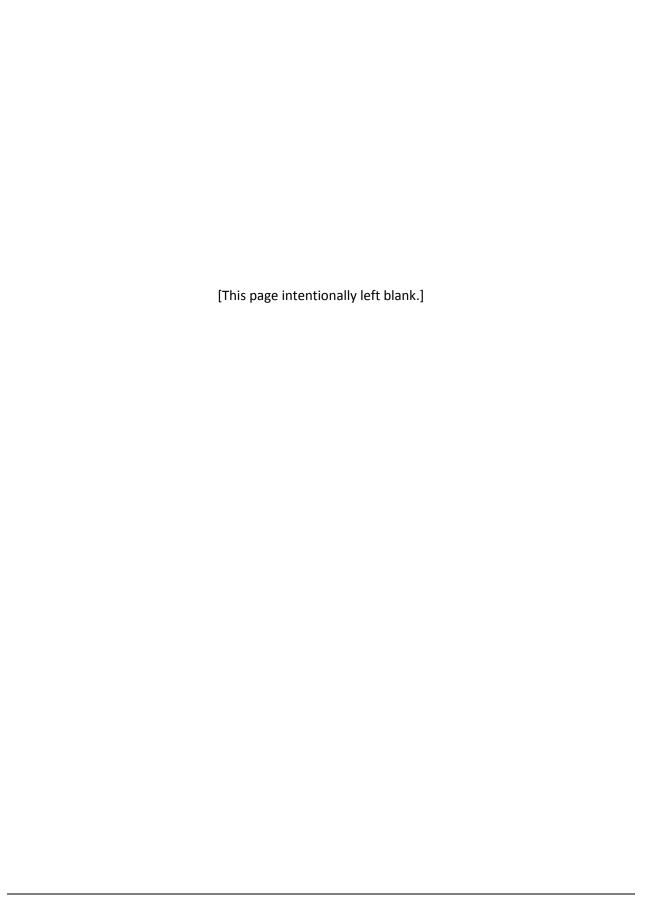
ND – not detected NA – not applicable

Mg/kg – milli-grams per kilogram



5.0 REFERENCES

- Cowlitz Clean Sweep (CCS) 2011. Mineral Oil Split Cleanup Report, Chehalis, Washington.
- Dames and Moore, Inc. 1994. *Groundwater Resources Investigation for Ecology Groundwater Right Application No. G2-29004.* Prepared for Chehalis Power, Inc. Chehalis, Washington. July 7.
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- _____2008. Minimum Standards for Construction and Maintenance of Wells. Washington Administration Code 173-160.
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APPENDIX A WATER QUALITY FIELD SHEETS



LOW FLOW WELL PURGING AND FIELD WATER QUALITY MEASUREMENT FORM

Pacificorp Site Investigation Plant Site Name: Chehulis Power QC Sample: Y (N) Type: ES 5/23/11 Project Name: Date:

TS1-052311

PID Borehole Reading: __

LNAPL: Y X N _ DNAPL: Y _ N X Product Depth

Purge Style: Bladder/Grundfos/Peristaltic Sampler(s) B. Lupert A. Forance

Parameter(s) Types Collected: Tph - Gx / Tph - ひx

Time	Purge Rate	Total Purge	Depth to	Temp.	Hd	Sp. Cond.	Turbidity	ÖQ ,	Comr	Comments	
	(ml/min)	(gal)	Water (ft btoc)	9		(mS/cm)	(NTUS)	(mg/L)			
a common de la com	Stabiliz	Stabilization Requirements	uirements	$(\pm 10\%)$	(±0.2)	(±10%)	(∓10%)	(+ 10%)			
100			33,10						Initial water pumping	level,	pre-
1620	~ 500 ml	35 gue	33.10	20.06	9£ .9	18.45	17	50%			
520(- Sbi me	35,000	33.10	19.9	6,52	18.01	41	Shit			
(030	~500 m	1.83.to	33:10	19,7	77,19	13.82	51	2019			
1035	- soom	775	33.10	19.7	55 9	06.61	81	19.5			
opol	اسا <u>ياتا ك</u>	1727	33.10	19,7	6.32	17.64	13	5.53			
							Er				
-											
			¹Water Le	evel Measur	ements in the	hese boxes	evel Measurements in these boxes must match!				
17 Fous		229	133,10	19.7	6.30	17.6	13	5145		-	1
(ana)		\							١	1	
7.7.							11 - 1 -	١) (1 7	

Additional Comments:

TO of large 1.7 million gallon tank = 41.03' (Talan from top of Flank plats)

* Sample TAKEN - 2' Asiow product line (& Collected from ~ 35.5")

LOW FLOW WELL PURGING AND FIELD WATER QUALITY MEASUREMENT FORM
--

Project Name: Pacificorp Sit Investigation Chelhelis Dower Plant Date: 51651 11 Site Name:

3 QC Sample: Y / Type:_ T52-052311

5 PID Borehole Reading: _ LNAPL: Y __ N __ DNAPL: Y __ N _Y Product Depth_ Purge Style: Bladder/Grundfos/Peristaltic

Sampler(s) Rugert

なーカー Parameter(s) Types Collected: TPhーC× /

	Purge	Total	Depth	Tomp		Sp.	Turbidity		Comments	Ñ
Time	Rate (ml/min)	Purge (gal)	Water (ft btoc)	©	Hd	Cond. (mS/cm)	(NTUs)	(mg/L)		
	Stabiliz	zation Req	Stabilization Requirements	(+ 10%)	(±0.2)	(+ 10%)	(± 10 %)	(+ 10%)		
42			, ∧⇔						Initial water level, pumping	el, pre-
1050	-Sec.	.sque		છે.શ	26.9	t,81	16	54.4		
1055		15 gal		9.61	28.9	13.9	12	6.32		
1100		. Squl		19,4	し・チじ	17.5	OĮ	5.43		
1105		.59cl		1361	74.9	8·t1	6	5.36		
(110		15gh		1 %!	14.9	17.3	4	5.20		
							Ar.			
			¹ Water L	evel Measur	ements in t	hese boxes	¹ Water Level Measurements in these boxes must match!	/	/	
SIII		22.59	1 NA	16'	6,30	17.0	6	5:11		
(ang)		`\								

Additional Comments: Soundle Talkon as Adows product Line (~ 38.5")

Page 1 of LOW FLOW WELL PURGING AND FIELD WATER QUALITY MEASUREMENT FORM

PID Borehole Reading: $^{\mathcal{N}\theta}$ LNAPL: Y __ N __ Product Depth $^{\mathcal{N}\theta}$ Parameter(s) Types Collected: Nutph-DyPacificorp Invostsutur Plant Site Name: Chehalis Power QC Sample: Y (N) Type:_ FD Sw1-052311 Date: 5/23/11Project Name:_

	Comments	
	2	(mg/L)
	Turbidity	(NTUS)
	Sp.	Cond.
		Hd
	Temp	<u>.</u> ©
	Depth	Water
•	Total	Purge (aal)
	Purge	Rate (ml/min)
		Time
	<u> </u>	

						 						<u> </u>	
			pre-										
Comments			Initial water level, pumping	Gras Samply	,								
DO	(mg/L)	(* 10%)		heis!			·					H2.31	
Turbidity	(NTUS)	(* 10 %)		5							evel Measurements in these boxes must match!	6	
Sp.	Cond. (mS/cm)	(* 10%)		8'//							 hese boxes	311	
	ЬН	(± 0.2)		8.72							ements in t	24.8	
Temn	(e) (e) (e) (e) (e) (e) (e) (e) (e) (e)	(+ 10%)		<u>ጎ·ተ</u>							evel Measur	9.£1	
Depth	Water (ft btoc)	Stabilization Requirements	-					-		•	¹Water Le)	
Total	Purge (gal)	ation Red		1								l	
Purge	Rate (ml/min)	Stabiliz		j									
	Time		12hl	42h/								52hl	(and)

Additional Comments:

A Sample toller , U. Enz of Poiss.

LOW FLOW WELL PURGING AND FIELD WATER QUALITY MEASUREMENT FORM

PID Borehole Reading: 사용	LNAPL: Y N DNAPL: Y N Product Depth WA	Purge Style: Bladder/Grundfos/Peristaltic	Sampler(s) Ruger 1- (Ferrero	Parameter(s) Types Collected: ハンゲル・リン
Date:	Project Name: Pない子に Corp	Site Name: Powo Sampling (Chelmins power plant	QC Sample: Y (N) Type: 85	TD 522-052311

			pre-									
nts			level, pr									
Comments				بالمستع								
Ü			Initial water pumping	Colins Samply								
00	(mg/L)	(+ 10%)		14.57		:					14,57	
		+1		立							7	
Turhidity	(NTUs)	(± 10 %)		13						ust match!	13	
	Cond. (mS/cm)) (700 =)		11.2						se boxes n	[1.2	
	<u> </u>	<u> </u>	***************************************				 			in the		
	퓝	(± 0.2)		8.87	······					rements	8.87	
Temn	<u> </u>	(+ 10%)		llery						¹ Water Level Measurements in these boxes must match!	الهبه	
Depth to	Water (ft btoc)	Stabilization Requirements	- 1)						¹ Water L	1	
Total	Purge (gal)	ation Req		-							1	-
Purge	Rate (ml/min)	Stabiliza		1								
	Time		IM.	\						1	141	(ana)

Additional Comments:

Sample Fales at outful /prior to leaving property

ATER QUALITY MEASUREMENT FORM N Y Product Depth Parameter(s) Types Collected: TphーDy Purge Style: Bladder/Grundfos(Peristaltic) LNAPL: Y __ N _K DNAPL: Y __ PID Borehole Reading: Sampler(s) Ruper 1-LOW FLOW WELL PURGING AND FIEL, Boごみ #4 Site Name: Clehulis Power Plant GW1-052211 Project Name: Pacificorp SF QC Sample: Y (N) Type: 85 Date:

g			el, pre-		2/2		3									
Comments			water level,		2), AMO- JIM *	Swar	Style Could the	 								
O	: 		Initial v pumping		* MUTE	of th	2148	Aring					:			
DO	(mg/L)	(+ 10%)		モニ									1		11.71	
Turbidity	(NTUS)	(+ 10 %)		327				****		, , , , , , , , , , , , , , , , , , , ,				¹ Water Level Measurements in these boxes must match!	327	
Sp.	Cond. (mS/cm)	(± 10%)		19,3						2		/	***************************************	hese boxes	19.3	
	E C	(±0.2)		7.35							/			ements in t	7:35	
Temp.	.	(+ 10%)		12.9										evel Measur	621	
Depth to	Water (ft btoc)	Stabilization Requirements	13.56	D8121					/					¹ Water L	1 NAO	
Total	Purge (gal)	ation Red		אייספטר											moes-	
Purge	Rate (ml/min)	Stabiliz		-100 mc												
	ПШе		1300	5151											5251	(aua)

well has by Several Times / well given Time to Achugh & Sumpled

Additional Comments:

LOW FLOW WELL PURGING AND FIEL ATER QUALITY MEASUREMENT FORM

Date: 5/24 (11

Project Name: Pacificorp SI

Ħ / Rering Site Name: Chehulis Power plant

Ŋ

QC Sample: Y (N) Type:

GW2-052311

PID Borehole Reading: ハウ

LNAPL: Y __ N __ DNAPL: Y __ N __ Product Depth_

Purge Style: Bladder/Grundfos/Peristaltic

Sampler(s) Rupert

Parameter(s) Types Collected: Tph - Dy

	Purge	Total	Depth to	Temp	100000	Sp.	Turbidity	OG	Comments	
Time	Rate (ml/min)	Purge (gal)	Water (ft btoc)	. ©	H _d	Cond. (mS/cm)	(NTUS)	(mg/L)		
	Stabiliz	zation Red	Stabilization Requirements	(+ 10%)	(±0.2)	(+ 10%)	(+ 10 %)	(± 10%)		
1305			1 10,58						Initial water level, pumping	-bid
1450	~ 100 m	051~	⊕i∽,	1.8.1	45.7	14.9	don	70.01		
_/		•								
	/								7.7777	
									7.77	
						7			- Transmindred	
									Anna Alexandra	
									To the state of th	
			¹ Water L	evel Measur	rements in t	hese boxes	¹ Water Level Measurements in these boxes must match!			
1450			1	13.1	6.57	19.9	00力	10.02		
(ana))								
Additional Comments: (C)	ments: ()	3	, , , , , , , , , , , , , , , , , , ,		1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		TO CONTRACT OF THE PARTY OF THE	and Long	4.5	

B Q S comple (1) were was purjed by Arilling Contractor/ort 1 was meter on Sit, were Rew Dry after Removing - 15 from well nechword a Little 8 a sample

was obtained.

LOW FLOW WELL PURGING AND FIEL. ATER QUALITY MEASUREMENT FORM PID Borehole Reading: ΛA Boring #3 Site Name: Chehulis Power Plont Project Name: Packfilorp ST Date: 5/24 (11

LNAPL: Y N KDNAPL: Y N'K Product Depth

Purge Style: Bladder/Grundfos/Refristaltic Sampler(s) Rいんとづ

QC Sample: Y (N) Type:

Parameter(s) Types Collected: かいもん ーひ

prebe off their Comments level, well Row Rechmoss. water pumping Initial (mg/L) 10.20 (±10%) 10.20 8 'Water Level Measurements in these boxes must match! Turbidity SAS (NTUS) 245 (*10%)(mS/cm) $(\pm 10\%)$ 24.5 24.5 Sp. Cond. 1435.37 6.37 6:36 (± 0.2) 표 イナー $(\pm 10\%)$ Temp. Stabilization Requirements 6w3-oss34 13:37 113.37 (ft btoc) Water Depth Purge ~ See 31 Total (gal) (ml/min) Purge 一つのかり Rate 1500 Time 7315 1310 (DUP)

Additional Comments:

well how Dot / waited for Rechirch & sampled @ 1500.

LOW FLOW WELL PURGING AND FIELD WATER QUALITY MEASUREMENT FORM

Date: _	Date: 24 May 2011	- 1				PID Bore	PID Borehole Reading: _	45			
Project	Project Name: アセンド・Corp	- 1	INVESTYATION	ation		LNAPL:	NO ≯ N }	APL: Y N	X Produ	act Deptl	
Site Na	Site Name: $6\omega \not \gg \sqrt{\kappa}$	Ч	Gw-4)			Purge St	Purge Style: Bladder/Grundfos(Peristaltia	rundfos(Peris	taltic		
QC San	QC Sample: Y (W) Type: ES	. 1	***************************************			Sampler	Sampler(s) Rupert	***************************************			
	9	1,5230-4cus	2311			Paramet	Parameter(s) Types Collected: ハルヤトンメ	ollected: Nu	O- Hoter	X	
	٠	Total	Depth to	Temp	1	Sp.	Turbidity	OC	ပိ	Comments	S 3
Lime	Rate (ml/min)	Purge (gal)	Water (ft btoc)	©	Hd.	Cond. (mS/cm)	(NTUS)	(mg/L)			
1,	Stabiliz	zation Req	Stabilization Requirements	(+ 10%)	(± 0.2)	(+ 10%)	(±10%)	(+ 10%)			
51/1/			13.60						Initial w pumping	water level,	el, pre
/											
/	/										
	/										
					/						
								/			
			¹Water L	evel Measu	rements in 1	hese boxes	¹Water Level Measurements in these boxes must match!				
			1								
(ana)		200	Tall No.								
Additional Comments:	mments:		1	-			À	0.1	1.20		

Sexuel times. RECEIVED COURT be obtained / west pin AT

Sample to 4550

ATER QUALITY MEASUREMENT FORM

LOW FLOW WELL PURGING AND FIEL.

Date: S[24[1]

Project Name: Pacificorp SI

BOOM #S Site Name: Cheliulis power plant/

QC Sample: Y (N) Type: ES

PID Borehole Reading: ADAPL: Y N Y Product Depth

Purge Style: Bladder/Grundfos/Peristaltto

Sampler(s) Ruger 1-

Parameter(s) Types Collected: てph-Dナ

				-bue-					Ī	Ĭ				-			
	ents			level, p													
	Comments			water	:						:		•				:
й-D4	0			Initial pumping													
llected: Tp	סב	(mg/L)	(+ 10%)		h5'b	13'5	2: Se	<i>አ</i> ሖ'S	5.39						/	5.39	
Parameter(s) Types Collected: Tpハーð⊁	Turbidify	(NTUS)	$(\pm 10\%)$		೧೦၅	JOh	335	380	345		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				nust match!	342	
Paramete	Sp.	Cond. (mS/cm)	(+ 10%)		8.800)	<i>न्हीं</i> नार-	antife E	3577	0.E) 252			RU			¹ Water Level Measurements in these boxes must match!	17.0	
7.777		Ŧ	(±0.2)		7.16	7.63	そかも	75.E	7.63			Di			rements in tl	7.63	
**************************************	Temn	<u></u>	(+ 10%)		13.9	13:8	13.7	13.6	13.8						evel Measu	(3,6	
11 22 50	Depth to	Water (ft btoc)	Stabilization Requirements	1 5.38	Oem								:		¹ Water L	¹ √0,8€	
6250-2WD	Total	Purge (gal)	ation Red		~ Soom	5gu	755m	7 24	-1.25g							~ .25)
	Purge	Rate (ml/min)	Stabiliz		~ 100 mL	~ 100 mt	→ 100 m	~(00 mL	~ Ico m								
A THE THE PROPERTY OF THE PROP	i	Time		140C	1405	0141	5171	1450	1425							1430	(ana)

Additional Comments:

NAM = could not address we white sampling from Temp well

/Sompton @ 1435 >

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Date: Z	y may	2011				PID Bore	PID Borehole Reading: 1016	8) (g		
Project N	ame: \overrightarrow{Paci}	Frond	INVEST	sation		LNAPL:	LNAPL: Y X DNAPL: Y NY Product Depth	APL: Y N	Froduct D	epth
Site Nam	Site Name: Gw Downs (Gen-6)	525 C	(9-c <i>is</i>			Purge St	Purge Style: Bladder/Grundfos/Peristallic	undfos(Perist	allic allic	
QC Samp	QC Sample: Y (N) Type: 85	.ype:	\$			Sampler	Sampler(s) Rupert)	\ •	
		Gwb-0523 H	h 22.5c			Paramet	Parameter(s) Types Collected: ルルがん - ひy	llected: $\overline{\mathcal{N}_{\mathcal{U}}}$	オタータナ	
Time	Purge Rate (ml/min)	Total Purge	Depth to Water (ft btoc)	Temp. ©	Hd	Sp. Cond. (mS/cm)	Turbidity (NTUs)	DO (mg/L)	Comments	nents
	Stabili	zation Red	Stabilization Requirements	(+ 10%)	(±0.2)	(+ 10%)	(+ 10%)	(± 10%)		
(34)			1/3.0						Initial water pumping	level
								-		
			¹ Water L	evel Measu	rements in t	hese boxes	'Water Level Measurements in these boxes must match!			

pre

well have Dry Several Times, could not obtain Revengs

Additional Comments:

(ana)

Scompled & 1550>

APPENDIX B LITHOLOGY BORING LOGS





	TECinc								Page 1 of 1
	ole (Loca			GW-1		1		DDT	
	ation: Paci		, Cheha	alis Faci	lity	Drill Rig Typ	e: Geoprobe 7720DT	Drill Method: DPT	
	n Description		TEO	1		01	a silati	0	la Daillia a Oa
	ning Compar	•	TEC	inc.			ogist:		e Drilling Co.
	oreman: T						urface Elevation:	Datum:	
	g Device: M					Borehole	Diameter (inches): 2.25"	Total Depth (Feet):	15
Date/Tin	ne Drilling St	arted:	5/24	/2011	1	ı	Date/Time Total Depth Reached:	5/24/2011	
Depth		Sa	ampling	1		Lithologic	Lithology Description	on	Remarks: Drilling Problems, Equipment,
(Feet)	%	Sample	Blow	PID	USCS	Code	SOIL TYPE, modifiers/grain size, sor	ting, color, cement/	Water levels, Weather,
	Recovery	Depth	Counts	(ppm)			lithification, moisture content, porosity,	permeability/fracturing	Time
1_							Road base material (0 to 2	foot bgs)	
2									
3	100%	na	na	na	CL				
4							Mottled brown and yellowish red silty clay with trace of	coarse sand, firm, medium plascit	/.
5									
6									
7	4000/				014		Mottled brown and yellowish red, sandy SILT, silty Sa	and, with some angular gravel,	
8	100%	na	na	na	SM		moist, medium dense.	3.1 3.1 ,	
9									
10									
11									
12	100%	na	na	20	GW/GM		Mottled brown to yellowinsh red, medium to coarse s	and, subrounded gravel with some	
13	100 /6	IId	IId	na	GW/GW		silt and occasional cobbles, wet.		T
14_									
15									
16									
18							Boring terminated at 15 feet below ground surface (B	GS) - temporary well set, screene	d
19							from 5 feet BGS to 15 feet BGS.		
20									
21									
22									
23									
24									
25									
					1				1

Notes:



	TEC _{inc} ole (Loca	tion) ID		GW-2					Page 1 of 1
	ation: Pacit					Drill Rig Typ	e: Geoprobe 7720DT	Drill Method: DPT	
	n Description								
Establish	ning Compar	ny:	TEC	Inc.		Geol	ogist:	Drilling Company: Cascade	Drilling Co.
Drilling F	oreman: Ty	yler				Ground S	urface Elevation:	Datum:	
Sampling	g Device: M	acro C	Core w	/ liners		Borehole	Diameter (inches): 2.25"	Total Depth (Feet):	15
Date/Tim	ne Drilling St	arted:	5/24	/2011			Date/Time Total Depth Reached:	5/24/2011	
Donath		Sa	ampling			1 14111 -	Lithology Description	n	Remarks: Drilling
Depth (Feet)	% Recovery	Sample Depth	Blow Counts	PID (ppm)	USCS	Lithologic Code	SOIL TYPE, modifiers/grain size, sor lithification, moisture content, porosity, p	-	Problems, Equipment, Water levels, Weather, Time
12							Road base material (0 to 3	foot bas)	
3	100%	na	na	na	CL			3.,	
4 <u> </u>							Mottled brown and yellowish red silty clay with trace s	and, very stiff, medium plascity.	
6									
7							Mottled brown and yellowish red, sandy SILT, silty Sa	and with some angular graval	
8 <u> </u>	100%	na	na	na	SM		moist, medium dense.	inu, with some angular graver,	
10									
11									
12 13	100%	na	na		GW/GM		Mottled brown to yellowinsh red, medium to coarse sa silt and occasional cobbles, wet.	and, subrounded gravel with some	▼
14							siit aliu occasional commes, wet.		
15									
16									
17							Boring terminated at 15 feet below ground surface (B	GS) - temporary well set, screened	
18							from 5 feet BGS to 15 feet BGS.	, , , , , , , , , , , , , , , , , , , ,	
19 20									
21									
22									
23									
24									
25									

Notes:



	TECinc								Page 1 of 1
—	ole (Loca		-	GW-3		1			
Site Loc	ation: Paci	ficCorp,	Cheha	alis Facil	ity	Drill Rig Typ	be: Geoprobe 7720DT	Drill Method: DPT	
Location	n Description	1:					• •		D :::: 0
	ning Compar	•	TEC	inc.		Geol	ogist:	Drilling Company: Cascade	Drilling Co.
	oreman: T						surface Elevation:	Datum:	
	g Device: M					Borehole	Diameter (inches): 2.25"	Total Depth (Feet):	15
Date/Tin	ne Drilling St	arted:	5/24	/2011	ı	1	Date/Time Total Depth Reached:	5/24/2011	
Depth (Feet)	% Recovery	Sample Depth	Blow Counts	PID (ppm)	USCS	Lithologic Code	Lithology Description SOIL TYPE, modifiers/grain size, so lithification, moisture content, porosity,	rting, color, cement/	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time
1 2 3	60%	na	na	na	CL		Road base material (0 to 3	foot bgs)	
4 5							Mottled brown and yellowish red silty clay with trace of	coarse sand, firm, medium plascity.	
6 7 8 9	100%	na	na	na	SM/GM		Brown and yellowish red, silty,medium coarse sandy, cobbles, medium to meduim dense - moist.	subrounded gravel, with some	
11 12 13 14 15	100%	na	na	na	SM/GM		Brown and yellowish red, silty,medium coarse sandy, occasional cobbles, medium to meduim dense - wet	subrounded gravel, with	¥
16							Boring terminated at 15 feet below ground surface (E from 5 feet BGS to 15 feet BGS.	BGS) - temporary well set, screened	
21 22 23 24 25									

Notes:



D l-	TECinc	('\ ID		GW-4					Page 1 of 1
	ole (Loca ation: Paci					Drill Ria Tv	De: Geoprobe 7720DT	Il Method: DPT	
-	n Description		,		,				
	ning Compar		TEC	Inc.		Geol	ogist:	Orilling Company: Cascade	Drilling Co.
Drilling F	oreman: T	yler					<u> </u>	Datum:	
	g Device: M		Core w	/ liners		Borehole	Diameter (inches): 2.25"	Total Depth (Feet):	15
Date/Tin	ne Drilling St	arted:	5/24	/2011			Date/Time Total Depth Reached:	5/24/2011	
		Sa	ampling				Lithology Description		Remarks: Drilling
Depth (Feet)	% Recovery	Sample Depth	Blow Counts	PID (ppm)	USCS	Lithologic Code	SOIL TYPE, modifiers/grain size, sortin		Problems, Equipment, Water levels, Weather, Time
1	,			,				, ,	
2							Road base material (0 to 3 for	ot bgs)	
3	100%	na	na	na	CL				
4							Mottled brown and yellowish red silty clay with trace coa	arse sand, stiff.	
5									
6									
7							Brown and yellowish red, silty,medium coarse sandy, su	ubrounded gravel, with some	
8	100%	na	na	na	SM/GM		cobbles, medium to meduim dense - moist.	acroamada gravel, mar como	
9									
10									
11 <u> </u>									▼
13	100%	na	na	na	GW/GM		Brown and yellowish red, silty,medium coarse sandy, su	ubrounded gravel, with	<u> </u>
14	10070			110			occasional cobbles, medium to meduim dense - wet		
15									
16									
17	1								
18	1						Boring terminated at 15 feet below ground surface (BGS from 5 feet BGS to 15 feet BGS.	S) - temporary well set, screened	
19									
20									
21									
22									
23									
24									
25									

Notes:



	TEC _{inc}	tion) ID	:	GW-5				Page 1 of 1
	ation: Paci				ity	Drill Rig Typ	De: Geoprobe 7720DT Drill Method: DPT	
Locatio	n Description	n:				-	•	
Establisl	hing Compar	ıy:	TEC	Inc.		Geol	ogist: Drilling Company: Cascade	Drilling Co.
Drilling F	oreman: T	yler				Ground S	turface Elevation: Datum:	
Samplin	g Device: M	acro C	Core w	/ liners		Borehole	Diameter (inches): 2.25" Total Depth (Feet):	15
Date/Tin	ne Drilling St	arted:	5/24	/2011			Date/Time Total Depth Reached: 5/24/2011	
.		Sa	ampling				Lithology Description	Remarks: Drilling
Depth (Feet)	% Recovery	Sample Depth	Blow Counts	PID (ppm)	USCS	Lithologic Code	SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Problems, Equipment, Water levels, Weather, Time
1								
2								
3	80%	na	na	na	na	na	Road base material (0 to 5 foot bgs)	
4								
5								
6								▼
7							Road base material and 2 to 3 inch spalls used for backfill near underground water	
8	70%	na	na	na	na	na	storage tank - very wet at ~6 feet BGS.	
9								
10								
11	ļ					na	Gravel backfill material (wet)	
12	000/							
13	80%	na	na	na		CM//CM	Decree and collection and although the conduction of the conductio	
14	1					GW/GM	Brown and yellowish red, silty, sandy, well graded subrounded gravel with cobbles (wet)	
15	-							
16	ł							
17 18							Boring terminated at 15 feet below ground surface (BGS) - temporary well set, screened	
19	1						from 5 feet BGS to 15 feet BGS.	
20	1							
21								
22	1							
23	1							
24	1							
25								
	<u> </u>					<u> </u>		l .

Notes:



	TECinc								Page 1 of 1
Boreh	ole (Loca	tion) ID	:	GW-6					
Site Loca	ation: Pacit	ficCorp	Cheha	alis Facil	ity	Drill Rig Typ	e: Geoprobe 7720DT	Drill Method: DPT	
Location	n Description	n:				-			
	ning Compar	•	TEC	Inc.		Geol	ogist:	Drilling Company: Cascade	Drilling Co.
	oreman: Ty						urface Elevation:	Datum:	
Sampling	g Device: M	lacro C				Borehole	Diameter (inches): 2.25"	Total Depth (Feet):	15
Date/Tin	ne Drilling St	arted:	5/24	/2011	1		Date/Time Total Depth Reached:	5/24/2011	
Depth (Feet)	% Recovery	Sample Depth	Blow Counts	PID (ppm)	USCS	Lithologic Code	Lithology Descripti SOIL TYPE, modifiers/grain size, so lithification, moisture content, porosity,	orting, color, cement/	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time
12	90%	na	na	20		na	Road base material (0 to 3	ß foot bgs)	
3 4 5	90%	Па	IId	na		SM	Mottled light brown and yellowinsh red silty sand	d, with some gravel, dry, dense.	
6	85%	na	na	na		SM/GM	Brown and yellowish red, silty,medium to coarse occasional cobbles, medium to med		
11 12 13 14 15	85%	na	na	na		GW/GM	Brown and yellowish red, silty,medium coarse sandy occasional cobbles, medium to meduim dense - wet	, subrounded gravel, with	Y
16									
21 22 23 24 25									

Notes:

APPENDIX C ANALYTICAL RESULTS





June 13, 2011

Analytical Report for Service Request No: K1104627

Brian Rupert The Environmental Company, Inc. 1450 114th Ave SE Suite 220 Bellevue, WA 98004

RE: PacifiCorp Investigation

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on May 24, 2011. For your reference, these analyses have been assigned our service request number K1104627.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. 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 3364. You may also contact me via Email at HHolmes@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Project Chemist

HH/ln

Page 1 of <u>371</u>

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 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 as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

 **DOD-QSM 4.1 definition:* Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOO/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- 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 analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- 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 or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

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 as defined by the DOD or NELAC standards.
- 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 value.
- 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.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

 *DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- ${\it F}$ 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.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	_







Case Narrative

Client:

TEC, Inc

Project:

PacifiCorp

Service Request No.:

K1104627

Sample Matrix:

Water

Date Received:

5/24/11

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 IV 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

Ten water samples were received for analysis at Columbia Analytical Services on 5/24/11. 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. A sample of mineral oil was also received to be used as a reference for the sample results.

Diesel Range Organics by EPA Method 8015B

Sample Notes and Discussion:

The chromatographic fingerprint of samples TS2-052311, SW1-052311, and GW4-052411 appeared to be consistent with that of the mineral oil reference standard (PC-Min-052411) provided by the client.

Responses for Diesel and Residual Range Organics in samples TS1-052311, SW2-052311, GW1-052411, GW2-052411, GW3-052411, GW5-052411, and GW6-052411 were less than the Method Reporting Limit (MRL).

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

Gasoline Range Organics by EPA Method 8015B

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

Approved by

Date

6

Chain of Custody



24671

CHAIN OF CUSTODY

SR# KIIO4627

Firm	Printed Name	Firm	Printed Name	e Firm	Printed Name	Frinted Name Firm *
Date/Time	Signature	Date/Time	Aime A		Signature	Signature Ruger + TEC
Received By:	Rece	Relinquished By:	94/11/17/2	Received By	Fe K	Relinquis
		mples (check box if applicable)	Sample Shipment contains USDA regulated soil samples (check box if applicable)		Requested Report Date	
		Cleanus	wwtph-Dy w/silica gal	<u>\$</u>	Standard (10-15 working days) Provide Fax Results	IV. CLP Deliverable Report
			Howard F		24 hr48 hr	III. Data Validation Report (includes all raw data)
st Other(Circle One)	CA WI Northwest Other	*Indicate State Hydrocarbon Procedure: AK	Special Instructions/Comments: *Indicate S	L	Turnaround Requirements	
è Sr Ti Sn V Zn Hg	Mg Mn Mo Ni K Ag Na Se	Cd Co Cr Cu Fe Pb	Dissolved Metals: Al As Sb Ba Be B Ca	Diss		II. Report Dup., MS, MSD as
Sr TI Sn V Zn Hg	Mo Ni K Ag Na Se	Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V	s: Al As Sb Ba Be B Ca		Bill To:	Biank, Surrogate, as
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			4	X X 2	3	"Sw2-052311 5/23/h
			3	4 7 2	32	SWI-052311 St23/11
		-	2	ダメ	5115	752-052311 5/23/11
				5 × ×	1045 W	751-652311 5/23/11
			Remarks	├	Time LabID Matrix	Sample ID Date
				ТРН-	19/1 - 19/1	Sampler Signature
				Dx /	183	Swampert &
				NW	20102	14
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				SGT		TEC INC
					And the second s	Project Manager Branch Ruper
				14	000000000000000000000000000000000000000	
			FF 000.000.7 FFF 000.000.1000 (18		Harries ties ties	Project Name Cacting To
COC#	1 OF 1 O	Page	360 577 7222 800 695 7222 360 676 1068 (fax)		317 South 13th Ave. Kelso, WA 98626 I	Analytical Services 1317 South

Columbia Analytical Services, Inc. Cooler Receipt and Preservation Form

PC # 2

8. Were custody papers properly filled out (ink, signed, etc.)? 9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. 10. Were all sample labels complete (i.e analysis, preservation, etc.)? 11. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA 12. Were appropriate bottles/containers and volumes received for the tests indicated? 13. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below 14. Were VOA vials received without headspace? Indicate in the table below. 15. Was C12/Res negative? Sample ID on Bottle Sample ID on COC Identified by: Time Sample ID on Bottle Time Sample ID Number Initials Time	Received 5/24/11 (
2. Samples were received in: (circle) Cooler Box Envelope Other NA 3. Were custody seals on coolers? NA Y N If yes, how many and where? If present, were custody seals intact? Y N If present, were they signed and dated? Y Cooler Temp Thermometer CoolerCOC Temp C Blank C D ID NA Tracking Number NA Filed I O N/4 Show Tracking Number NA Filed 7. Packing material used. Inserts Buegles Bubble Wrap Gel Packs Wer Leg Sleeves Other_ 8. Were custody papers properly filled out (ink, signed, etc.)? 9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. 10. Were all sample labels complete (i.e analysis, preservation, etc.)? 11. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA Show The Cooler and the properties bottles/containers and volumes received for the tests indicated? 12. Were appropriate bottles/containers and volumes received for the tests indicated? 13. Were the pH-preserved bottles (see SMO GEN SOF) received at the appropriate pH? Indicate in the table below. NA Y Were VOA vials received without headspace? Indicate in the table below. NA Y Sample ID on Bottle Sample ID on COC Identified by: Sample ID on Bottle Sample ID on COC Identified by:	/ /
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Cooler Temp C Blank C 10 NA Tracking Number NA Filed 7. Packing material used. Inserts Baggies Bubble Wrap Gel Packs Wet Tee Sleeves Other 8. Were custody papers properly filled out (ink, signed, etc.)? 9. Did all bottles arrive in good condition (unbroken)? Indicate in the table below. 10. Were all sample labels complete (i.e analysis, preservation, etc.)? 11. Did all sample labels and tags agree with custody papers? Indicate major discrepancies in the table on page 2. NA 12. Were appropriate bottles/containers and volumes received for the tests indicated? 13. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table helow 14. Were VOA vials received without headspace? Indicate in the table below. 15. Was C12/Res negative? 16. Sample ID on Bottle 17. Sample ID on Bottle 18. Sample ID on Bottle 19. Sample ID on Bottle 19. Sample ID on Bottle 19. Reagent Lot Initials 19. Initials 19. Time 19. Reagent Lot Number 19. Initials 19. Time 19. Time 19. Sample ID on Bottle 19. Time 19. Reagent Lot Number 19. Initials 19. Time	
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Sample ID Bottle Count Bottle Type Temp space Broke pH Reagent added Number Initials Time Initials Time	
Sample ID Bottle Type Temp space Broke pH Reagent added Number Initials Time	Sample ID on Bottle
Sample ID Bottle Type Temp space Broke pH Reagent added Number Initials Time	
Sample ID Bottle Type Temp space Broke pH Reagent added Number Initials Time	
	Sample ID
Votes, Discrepancies, & Resolutions: NO MAT NOW S FOR SMN-052311 HARU GW (0-05241/	
Notes, Discrepancies, & Resolutions: W. M. M. M. NOAS FOY SWI-052311 HAVI GW (0-05241/	
Notes, Discrepancies, & Resolutions: NO MAR ALL, NOWS FOR SMN-052311 HARU GW 6-052411	
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Diesel and Residual Range Organics

Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u> Summary Package

Sample and QC Results

Client: Project:

TEC, Inc. - The Environmental Company,In

PacifiCorp Investigation

Service Request:

K1104627

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

		Date	Date
Sample Name	Lab Code	Collected	Received
TS1-052311	K1104627-001	05/23/2011	05/24/2011
TS2-052311	K1104627-002	05/23/2011	05/24/2011
SW1-052311	K1104627-003	05/23/2011	05/24/2011
SW2-052311	K1104627-004	05/23/2011	05/24/2011
GW1-052411	K1104627-005	05/24/2011	05/24/2011
GW2-052411	K1104627-006	05/24/2011	05/24/2011
GW3-052411	K1104627-007	05/24/2011	05/24/2011
GW4-052411	K1104627-008	05/24/2011	05/24/2011
GW5-052411	K1104627-009	05/24/2011	05/24/2011
GW6-052411	K1104627-010	05/24/2011	05/24/2011
TS1-052311	KWG1104910-1	05/23/2011	05/24/2011

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:

1

Date:__

Name[,]

Title:

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

TS1-052311

Lab Code:

K1104627-001

Units: ug/L Basis: NA

Extraction Method:

Method

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO) Residual Range Organics (RRO)	ND U ND U	300 600	1	05/27/11 05/27/11	06/03/11 06/03/11	KWG1104910 KWG1104910	
Residual Ralige Organics (RRO)	ND U	000	1	03/2//11	00/03/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	120	50-150	06/03/11	Acceptable	
n-Triacontane	117	50-150	06/03/11	Acceptable	

Comments:

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Form 1A - Organic 13

Page

1 of 1

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

TS2-052311

Lab Code:

K1104627-002

Units: ug/L Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result O	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	440 Y	270	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	540	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	102	50-150	06/04/11	Acceptable Acceptable
n-Triacontane	103	50-150	06/04/11	

Comments:

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14

Merged

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SW1-052311

Lab Code:

K1104627-003

Units: ug/L Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	360 Y	280	1	05/27/11	06/04/11	KWG1104910	******************
Residual Range Organics (RRO)	ND U	550	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	109	50-150	06/04/11	Acceptable	
n-Triacontane	114	50-150	06/04/11	Acceptable	

Comments:

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Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SW2-052311

Lab Code:

K1104627-004

Units: ug/L

Extraction Method: Method

Basis: NA

Level: Low

Analysis	Method:	NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	300	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	590	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	101	50-150	06/04/11	Acceptable Acceptable
n-Triacontane	106	50-150	06/04/11	

Comments:

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011 **Date Received:** 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name: Lab Code: GW1-052411

Units: ug/L Basis: NA

Extraction Method:

K1104627-005 Method

Analysis Method:

NWTPH-Dx

Level: Low

				Dilution 1	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	Factor	Extracted	Analyzed	Lot	Note
Diesel Range Organics (DRO)	ND	U	570	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND	U	1200	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	100	50-150	06/04/11	Acceptable	
n-Triacontane	103	50-150	06/04/11	Acceptable	

Comments:

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RR129651

SuperSet Reference:

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW2-052411

Lab Code:

K1104627-006

Units: ug/L Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO) Residual Range Organics (RRO)	ND U ND U	400 790	1	05/27/11 05/27/11	06/04/11 06/04/11	KWG1104910 KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	92	50-150	06/04/11	Acceptable	
n-Triacontane	94	50-150	06/04/11	Acceptable	

Comments:

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Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011 **Date Received:** 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW3-052411

Lab Code:

K1104627-007

Units: ug/L Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	290	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	570	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	96	50-150	06/04/11	Acceptable	
n-Triacontane	96	50-150	06/04/11	Acceptable	

Comments:

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Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011 **Date Received:** 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW4-052411

Lab Code:

K1104627-008

Units: ug/L Basis: NA

Extraction Method:

Method

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	1100 Y	280	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	560	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	110	50-150	06/04/11	Acceptable	
n-Triacontane	111	50-150	06/04/11	Acceptable	

Comments:

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Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW5-052411

Lab Code:

K1104627-009

Units: ug/L

Extraction Method:

Method

Basis: NA

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	300	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	590	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	98	50-150	06/04/11	Acceptable	
n-Triacontane	98	50-150	06/04/11	Acceptable	

Comments:

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Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW6-052411

Lab Code:

K1104627-010

Units: ug/L

Extraction Method:

Method

Basis: NA

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	350	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	700	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	85	50-150	06/04/11	Acceptable	
n-Triacontane	84	50-150	06/04/11	Acceptable	

Comments:

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Misc. aqueous li

Service Request: K1104627

Date Collected: NA Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Method Blank

Lab Code:

KWG1104910-4

Units: ug/L

Extraction Method:

Method

Basis: NA

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result O	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	250	1	05/27/11	06/03/11	KWG1104910	11000
Residual Range Organics (RRO)	ND U	500	1	05/27/11	06/03/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	-
erphenyl	90	50-150	06/03/11	Acceptable	
n-Triacontane	90	50-150	06/03/11	Acceptable	

Comments:

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QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Surrogate Recovery Summary Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: Method **Analysis Method:**

NWTPH-Dx

Service Request: K1104627

Units: PERCENT

Level: Low

Lab Code	Sur1	Sur2
K1104627-001	120	117
K1104627-002	102	103
K1104627-003	109	114
K1104627-004	101	106
K1104627-005	100	103
K1104627-006	92	94
K1104627-007	96	96
K1104627-008	110	111
K1104627-009	98	98
K1104627-010	85	84
K1104704-001	86	83
KWG1104910-1	97	94
KWG1104910-2	96	88
KWG1104910-4	90	90
KWG1104910-3	100	103
	K1104627-001 K1104627-002 K1104627-003 K1104627-004 K1104627-005 K1104627-006 K1104627-007 K1104627-008 K1104627-009 K1104627-010 K1104704-001 KWG1104910-1 KWG1104910-2 KWG1104910-4	K1104627-001 120 K1104627-002 102 K1104627-003 109 K1104627-004 101 K1104627-005 100 K1104627-006 92 K1104627-007 96 K1104627-008 110 K1104627-009 98 K1104627-010 85 K1104704-001 86 KWG1104910-1 97 KWG1104910-2 96 KWG1104910-4 90

Surrogate Recovery Control Limits (%)

Surl = o-Terphenyl50-150 Sur2 = n-Triacontane50-150

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 RR129651 SuperSet Reference:

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QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/27/2011 **Date Analyzed:** 06/03/2011

Duplicate Sample Summary
Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

TS1-052311

Lab Code:

K1104627-001

Units: ug/L Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1104910

TS1-052311DUP

Analyte Name	MRL	Sample	KWG1104910-1 Duplicate Sample		Relative Percent	RPD Limit
		Result	Result	Average	Difference	
Diesel Range Organics (DRO)	290	ND	ND	ND	-	30
Residual Range Organics (RRO)	570	ND	ND	ND	-	30

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

Page 1 of 1

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SuperSet Reference: RR129651

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/27/2011

Date Analyzed: 06/03/2011

Duplicate Sample Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Batch QC

Lab Code:

K1104704-001

Units: ug/L

Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1104910

Batch QCDUP KWG1104910-2 Relative Percent Sample **Duplicate Sample RPD** Limit Difference Result Result **Analyte Name** MRL Average Diesel Range Organics (DRO) 250 ND ND ND 30 Residual Range Organics (RRO) 500 ND ND ND 30

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

Page 1 of 1

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RR129651 SuperSet Reference:

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Misc. aqueous li

Service Request: K1104627

Date Extracted: 05/27/2011 **Date Analyzed:** 06/03/2011

Lab Control Spike Summary Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method:

Method

Analysis Method:

NWTPH-Dx

Units: ug/L

Basis: NA

Level: Low

Extraction Lot: KWG1104910

Lab Control Sample KWG1104910-3

Lab Control Spike %Rec Limits %Rec **Analyte Name** Result Expected Diesel Range Organics (DRO) 3100 3200 97 46-140 Residual Range Organics (RRO) 1800 45-159 1600 113

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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RR129651

SuperSet Reference:

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Misc. aqueous li

Service Request: K1104627

Date Extracted: 05/27/2011 **Date Analyzed:** 06/03/2011

Time Analyzed: 20:18

Method Blank Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Method Blank

File ID: J:\GC21\DATA\060211F\0602F066.D

Lab Code:

KWG1104910-4

Instrument ID: GC21

Extraction Method: Method

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1104910

This Method Blank applies to the following analyses:

			Date	Time
Sample Name	Lab Code	File ID	Analyzed	Analyzed
Lab Control Sample	KWG1104910-3	J:\GC21\DATA\060211F\0602F065.D	06/03/11	19:56
TS1-052311	K1104627-001	J:\GC21\DATA\060211F\0602F067.D	06/03/11	20:43
TS1-052311DUP	KWG1104910-1	J:\GC21\DATA\060211F\0602F068.D	06/03/11	21:04
Batch QC	K1104704-001	J:\GC21\DATA\060211F\0602F069.D	06/03/11	21:26
Batch QCDUP	KWG1104910-2	J:\GC21\DATA\060211F\0602F070.D	06/03/11	21:48
TS2-052311	K1104627-002	J:\GC21\DATA\060211F\0602F081.D	06/04/11	01:49
SW1-052311	K1104627-003	J:\GC21\DATA\060211F\0602F082.D	06/04/11	02:11
SW2-052311	K1104627-004	J:\GC21\DATA\060211F\0602F083.D	06/04/11	02:33
GW1-052411	K1104627-005	J:\GC21\DATA\060211F\0602F084.D	06/04/11	02:55
GW2-052411	K1104627-006	J:\GC21\DATA\060211F\0602F085.D	06/04/11	03:17
GW3-052411	K1104627-007	J:\GC21\DATA\060211F\0602F086.D	06/04/11	03:39
GW4-052411	K1104627-008	J:\GC21\DATA\060211F\0602F087.D	06/04/11	04:01
GW5-052411	K1104627-009	J:\GC21\DATA\060211F\0602F088.D	06/04/11	04:23
GW6-052411	K1104627-010	J:\GC21\DATA\060211F\0602F089.D	06/04/11	04:45

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Misc. aqueous li

Service Request: K1104627 **Date Extracted:** 05/27/2011 **Date Analyzed:** 06/03/2011 Time Analyzed: 19:56

Lab Control Sample Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Lab Control Sample

File ID: J:\GC21\DATA\060211F\0602F065.D

Lab Code:

KWG1104910-3

Instrument ID: GC21

Extraction Method: Method

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1104910

This Lab Control Sample applies to the following analyses:

			Date	Time
Sample Name	Lab Code	File ID	Analyzed	Analyzed
Method Blank	KWG1104910-4	J:\GC21\DATA\060211F\0602F066.D	06/03/11	20:18
TS1-052311	K1104627-001	J:\GC21\DATA\060211F\0602F067.D	06/03/11	20:43
TS1-052311DUP	KWG1104910-1	J:\GC21\DATA\060211F\0602F068.D	06/03/11	21:04
Batch QC	K1104704-001	J:\GC21\DATA\060211F\0602F069.D	06/03/11	21:26
Batch QCDUP	KWG1104910-2	J:\GC21\DATA\060211F\0602F070.D	06/03/11	21:48
TS2-052311	K1104627-002	J:\GC21\DATA\060211F\0602F081.D	06/04/11	01:49
SW1-052311	K1104627-003	J:\GC21\DATA\060211F\0602F082.D	06/04/11	02:11
SW2-052311	K1104627-004	J:\GC21\DATA\060211F\0602F083.D	06/04/11	02:33
GW1-052411	K1104627-005	J:\GC21\DATA\060211F\0602F084.D	06/04/11	02:55
GW2-052411	K1104627-006	J:\GC21\DATA\060211F\0602F085.D	06/04/11	03:17
GW3-052411	K1104627-007	J:\GC21\DATA\060211F\0602F086.D	06/04/11	03:39
GW4-052411	K1104627-008	J:\GC21\DATA\060211F\0602F087.D	06/04/11	04:01
GW5-052411	K1104627-009	J:\GC21\DATA\060211F\0602F088.D	06/04/11	04:23
GW6-052411	K1104627-010	J:\GC21\DATA\060211F\0602F089.D	06/04/11	04:45

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Calibration Date: 03/14/2011

Initial Calibration Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: **Instrument ID:**

CAL10358

GC21

Column: ZB-1

Level ID	File ID	Level ID	File ID
	J:\GC21\DATA\031311F\0313F110.D	T	J:\GC21\DATA\031311F\0313F136.D
A		1 .	J. 10C21 WATA 1031311F 10313F 130.D
В	J:\GC21\DATA\031311F\0313F112.D	J	J:\GC21\DATA\031311F\0313F138.D
C	J:\GC21\DATA\031311F\0313F114.D	K	J:\GC21\DATA\031311F\0313F140.D
D	J:\GC21\DATA\031311F\0313F116.D	L	J:\GC21\DATA\031311F\0313F142.D
E	J:\GC21\DATA\031311F\0313F118.D	M	J:\GC21\DATA\031311F\0313F144.D
F	J:\GC21\DATA\031311F\0313F120.D	N	J:\GC21\DATA\031311F\0313F146.D
G	J:\GC21\DATA\031311F\0313F132.D		
Н	J:\GC21\DATA\031311F\0313F134.D		

Analyte Name	Level ID	Amt	RF	Level ID	Amt	RF	Leve ID	l Amt	RF	Leve ID	l Amt	RF	Level ID	Amt	RF
Diesel Range Organics (DRO)							!			1					
				G	20	914	Н	50	923	I	200	981	Ј	500	971
	K	2000	936	L	5000	999	M	20000	902	N	50000	923			1
Residual Range Organics (RRO)				В	50	695	C	200	587	D	500	618	E	2000	559
	F	5000	594	1						t ; ;			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1
				!			!			:			1		
o-Terphenyl				1									:		:
				G	1.0	1260	Н	2.5	1240	I	10	1310	J	25	1250
	K	100	1230	L .	250	1260									1
n-Triacontane				1		, , , , , , , , , , , , , , , , , , , ,				:			1 1		1
				G	1.0	1130	Н	2.5	1090	I	10	1120	J	25	1060
	K	100	1080	L	250	1080				!			1		1 1 1

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

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QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Calibration Date: 03/14/2011

Initial Calibration Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID:

CAL10358

Instrument ID:

GC21

Column: ZB-1

			Calibratio	n Evaluati	ion	
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	3.8		≤ 20
Residual Range Organics (RRO)	MS	AverageRF	% RSD	8.4		≤ 20
o-Terphenyl	SURR	AverageRF	% RSD	2.4		≤ 20
n-Triacontane	SURR	AverageRF	% RSD	2.4		≤ 20

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

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Form 6A - Organic

Page 2 of SuperSet Reference: RR129651

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QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627 Calibration Date: 03/14/2011

Date Analyzed: 03/14/2011

Second Source Calibration Verification Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: **Analysis Method:**

External Standard

NWTPH-Dx

Calibration ID: CAL10358

Units: ppm

File ID:

J:\GC21\DATA\031311F\0313F150.D

J:\GC21\DATA\031311F\0313F152.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	961	2	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	616	1	NA	± 15 %	AverageRF

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

† SPCC Compound

‡ CCC Compound

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SuperSet Reference: RR129651

Page

1 of 1

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104627

Date Analyzed: 06/03/2011

Continuing Calibration Verification Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: Analysis Method:

External Standard

NWTPH-Dx

Calibration Date: 03/14/2011 Calibration ID: CAL10358

Analysis Lot: KWG1105074

Units: ppm

File ID:

J:\GC21\DATA\060211F\0602F058.D

J:\GC21\DATA\060211F\0602F061.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	944	995	5	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	920	611	561	-8	NA	\pm 15 %	AverageRF
o-Terphenyl	50	51	1260	1290	2	NA	\pm 15 %	AverageRF
n-Triacontane	50	47	1090	1020	-7	NA	\pm 15 %	AverageRF

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

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SuperSet Reference:

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104627

Date Analyzed: 06/04/2011

Continuing Calibration Verification Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type:

External Standard

Calibration Date: 03/14/2011

Analysis Method:

NWTPH-Dx

Calibration ID: CAL10358

Units: ppm

Analysis Lot: KWG1105074

File ID:

J:\GC21\DATA\060211F\0602F078.D

J:\GC21\DATA\060211F\0602F079.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	970	944	919	-3	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	621	2	NA	\pm 15 %	AverageRF
o-Terphenyl	50	48	1260	1220	-3	NA	\pm 15 %	AverageRF
n-Triacontane	50	45	1090	994	- 9	NA	\pm 15 %	AverageRF

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

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Form 7 - Organic

Page 1 of 1 SuperSet Reference: RR129651

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104627

Date Analyzed: 06/04/2011

Continuing Calibration Verification Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: Analysis Method:

External Standard

NWTPH-Dx

Calibration Date: 03/14/2011 Calibration ID: CAL10358

Analysis Lot: KWG1105074

Units: ppm

Column ID: ZB-1

File ID:

J:\GC21\DATA\060211F\0602F090.D

J:\GC21\DATA\060211F\0602F091.D

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	957	1	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	615	1	NA	± 15 %	AverageRF
o-Terphenyl	50	51	1260	1270	1	NA	± 15 %	AverageRF
n-Triacontane	50	47	1090	1020	-6	NA	\pm 15 %	AverageRF

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

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Form 7 - Organic

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QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Analysis Run Log Diesel and Residual Range Organics - Silica Gel Treated

Analysis Method:

NWTPH-Dx

Analysis Lot: KWG1105074

Instrument ID: GC21 Column: ZB-1

			Date Analysis	Start		Date Analysis	Finish
File ID	Sample Name	Lab Code	Started	Time	Q	Finished	Time
0602F058.D	Continuing Calibration Verification	KWG1105074-1	6/3/2011	17:10		6/3/2011	17:26
0602F061.D	Continuing Calibration Verification	KWG1105074-1	6/3/2011	18:29		6/3/2011	18:45
0602F062.D	Instrument Blank	KWG1105074-9	6/3/2011	18:51		6/3/2011	19:07
0602F065.D	Lab Control Sample	KWG1104910-3	6/3/2011	19:56		6/3/2011	20:12
0602F066.D	Method Blank	KWG1104910-4	6/3/2011	20:18		6/3/2011	20:34
0602F067.D	TS1-052311	K1104627-001	6/3/2011	20:43		6/3/2011	20:59
0602F068.D	TS1-052311DUP	KWG1104910-1	6/3/2011	21:04		6/3/2011	21:20
0602F069.D	Batch QC	K1104704-001	6/3/2011	21:26		6/3/2011	21:42
0602F070.D	Batch QCDUP	KWG1104910-2	6/3/2011	21:48		6/3/2011	22:04
0602F071.D	ZZZZZZ	ZZZZZZ	6/3/2011	22:10		6/3/2011	22:26
0602F072.D	ZZZZZZ	ZZZZZZ	6/3/2011	22:32		6/3/2011	22:48
0602F073.D	ZZZZZZ	ZZZZZZ	6/3/2011	22:54		6/3/2011	23:10
0602F074.D	ZZZZZZ	ZZZZZZ	6/3/2011	23:16		6/3/2011	23:32
0602F075.D	ZZZZZZ	ZZZZZZ	6/3/2011	23:38		6/3/2011	23:54
0602F078.D	Continuing Calibration Verification	KWG1105074-2	6/4/2011	00:44		6/4/2011	01:00
0602F079.D	Continuing Calibration Verification	KWG1105074-2	6/4/2011	01:06		6/4/2011	01:22
0602F080.D	Instrument Blank	KWG1105074-10	6/4/2011	01:28		6/4/2011	01:44
0602F081.D	TS2-052311	K1104627-002	6/4/2011	01:49		6/4/2011	02:05
0602F082.D	SW1-052311	K1104627-003	6/4/2011	02:11		6/4/2011	02:27
0602F083.D	SW2-052311	K1104627-004	6/4/2011	02:33		6/4/2011	02:49
0602F084.D	GW1-052411	K1104627-005	6/4/2011	02:55		6/4/2011	03:11
0602F085.D	GW2-052411	K1104627-006	6/4/2011	03:17		6/4/2011	03:33
0602F086.D	GW3-052411	K1104627-007	6/4/2011	03:39		6/4/2011	03:55
0602F087.D	GW4-052411	K1104627-008	6/4/2011	04:01		6/4/2011	04:17
0602F088.D	GW5-052411	K1104627-009	6/4/2011	04:23		6/4/2011	04:39
0602F089.D	GW6-052411	K1104627-010	6/4/2011	04:45		6/4/2011	05:01
0602F090.D	Continuing Calibration Verification	KWG1105074-3	6/4/2011	05:07		6/4/2011	05:23
0602F091.D	Continuing Calibration Verification	KWG1105074-3	6/4/2011	05:29		6/4/2011	05:45
0602F093.D	Instrument Blank	KWG1105074-11	6/4/2011	06:12		6/4/2011	06:28
0602F107.D	Continuing Calibration Verification	KWG1105074-4	6/4/2011	11:20		6/4/2011	11:36
0602F108.D	Continuing Calibration Verification	KWG1105074-4	6/4/2011	11:42		6/4/2011	11:58
0602F110.D	Instrument Blank	KWG1105074-12	6/4/2011	12:26		6/4/2011	12:42
0602F111.D	ZZZZZZ	ZZZZZZ	6/4/2011	12:48		6/4/2011	13:04
0602F112.D	ZZZZZZ	ZZZZZZ	6/4/2011	13:10		6/4/2011	13:26

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

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Form 8 - Organic

Page 1 of 3
SuperSet Reference: RR129651

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Analysis Run Log Diesel and Residual Range Organics - Silica Gel Treated

Analysis Method:

NWTPH-Dx

Analysis Lot: KWG1105074

Instrument ID: GC21 Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0602F113.D	ZZZZZZ	ZZZZZZ	6/4/2011	13:31		6/4/2011	13:47
0602F114.D	ZZZZZZ	ZZZZZZ	6/4/2011	13:53		6/4/2011	14:09
0602F115.D	ZZZZZZ	ZZZZZZ	6/4/2011	14:15		6/4/2011	14:31
0602F116.D	ZZZZZZ	ZZZZZZ	6/4/2011	14:36		6/4/2011	14:52
0602F117.D	ZZZZZZ	ZZZZZZ	6/4/2011	14:58		6/4/2011	15:14
0602F118.D	ZZZZZZ	ZZZZZZ	6/4/2011	15:20		6/4/2011	15:36
0602F119.D	ZZZZZZ	ZZZZZZ	6/4/2011	15:41		6/4/2011	15:57
0602F120.D	ZZZZZZ	ZZZZZZ	6/4/2011	16:03		6/4/2011	16:19
0602F121.D	ZZZZZZ	ZZZZZZ	6/4/2011	16:25		6/4/2011	16:41
0602F122.D	ZZZZZZ	ZZZZZZ	6/4/2011	16:47		6/4/2011	17:03
0602F123.D	ZZZZZZ	ZZZZZZ	6/4/2011	17:09		6/4/2011	17:25
0602F126.D	Continuing Calibration Verification	KWG1105074-5	6/4/2011	18:15		6/4/2011	18:31
0602F127.D	Continuing Calibration Verification	KWG1105074-5	6/4/2011	18:37		6/4/2011	18:53
0602F128.D	Instrument Blank	KWG1105074-13	6/4/2011	18:59		6/4/2011	19:15
0602F129.D	ZZZZZZ	ZZZZZZ	6/4/2011	19:20		6/4/2011	19:36
0602F130.D	ZZZZZZ	ZZZZZZ	6/4/2011	19:42		6/4/2011	19:58
0602F131.D	ZZZZZZ	ZZZZZZ	6/4/2011	20:04		6/4/2011	20:20
0602F132.D	ZZZZZZ	ZZZZZZ	6/4/2011	20:26		6/4/2011	20:42
0602F133.D	ZZZZZZ	ZZZZZZ	6/4/2011	20:47		6/4/2011	21:03
0602F134.D	ZZZZZZ	ZZZZZZ	6/4/2011	21:09		6/4/2011	21:25
0602F135.D	ZZZZZZ	ZZZZZZ	6/4/2011	21:31		6/4/2011	21:47
0602F136.D	ZZZZZZ	ZZZZZZ	6/4/2011	21:53		6/4/2011	22:09
0602F137.D	ZZZZZZ	ZZZZZZ	6/4/2011	22:15		6/4/2011	22:31
060 2 F138.D	ZZZZZZ	ZZZZZZ	6/4/2011	22:37		6/4/2011	22:53
0602F141.D	Continuing Calibration Verification	KWG1105074-6	6/4/2011	23:43		6/4/2011	23:59
0602F142.D	Continuing Calibration Verification	KWG1105074-6	6/5/2011	00:05		6/5/2011	00:21
0602F143.D	Instrument Blank	KWG1105074-14	6/5/2011	00:26		6/5/2011	00:42
0602F144.D	ZZZZZZ	ZZZZZZ	6/5/2011	00:48		6/5/2011	01:04
0602F145.D	ZZZZZZ	ZZZZZZ	6/5/2011	01:10		6/5/2011	01:26
0602F146.D	ZZZZZZ	ZZZZZZ	6/5/2011	01:32		6/5/2011	01:48
0602F147.D	ZZZZZZ	ZZZZZZ	6/5/2011	01:54		6/5/2011	02:10
0602F148.D	ZZZZZZ	ZZZZZZ	6/5/2011	02:16		6/5/2011	02:32
0602F149.D	ZZZZZZ	ZZZZZZ	6/5/2011	02:38		6/5/2011	02:54
0602F150.D	ZZZZZZ	ZZZZZZ	6/5/2011	02:59		6/5/2011	03:15

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

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Form 8 - Organic

Page 2 of 3 RR129651

SuperSet Reference:

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Analysis Run Log Diesel and Residual Range Organics - Silica Gel Treated

Analysis Method:

NWTPH-Dx

Analysis Lot: KWG1105074

Instrument ID: GC21 Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0602F151.D	ZZZZZZ	ZZZZZZ	6/5/2011	03:21		6/5/2011	03:37
0602F152.D	ZZZZZZ	ZZZZZZ	6/5/2011	03:43		6/5/2011	03:59
0602F153.D	ZZZZZZ	ZZZZZZ	6/5/2011	04:05		6/5/2011	04:21
0602F157.D	Continuing Calibration Verification	KWG1105074-7	6/5/2011	05:33		6/5/2011	05:49
0602F158.D	Continuing Calibration Verification	KWG1105074-7	6/5/2011	05:55		6/5/2011	06:11
0602F159.D	Instrument Blank	KWG1105074-15	6/5/2011	06:17		6/5/2011	06:33
0602F160.D	ZZZZZZ	ZZZZZZ	6/5/2011	06:38		6/5/2011	06:54
0602F161.D	ZZZZZZ	ZZZZZZ	6/5/2011	07:00		6/5/2011	07:16
0602F165.D	Continuing Calibration Verification	KWG1105074-8	6/5/2011	08:28		6/5/2011	08:44
0602F166.D	Continuing Calibration Verification	KWG1105074-8	6/5/2011	08:50		6/5/2011	09:06
0602F167.D	Instrument Blank	KWG1105074-16	6/5/2011	09:12		6/5/2011	09:28

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

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Form 8 - Organic

Page 3 of 3 SuperSet Reference: RR129651

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627 **Date Extracted:** 05/27/2011

Extraction Prep Log

Extraction Method:

Method

Diesel and Residual Range Organics - Silica Gel Treated

Extraction Lot: KWG1104910

Analysis Method: NWTPH-Dx

Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
TS1-052311	K1104627-001	05/23/11	05/24/11	420mL	1mL	NA	
TS2-052311	K1104627-002	05/23/11	05/24/11	470mL	1mL	NA	
SW1-052311	K1104627-003	05/23/11	05/24/11	460mL	lmL	NA NA	
SW2-052311	K1104627-004	05/23/11	05/24/11	430mL	1mL	NA NA	
GW1-052411	K1104627-005	05/24/11	05/24/11	220mL	1mL	NA	
GW2-052411	K1104627-006	05/24/11	05/24/11	320mL	1mL	NA NA	
GW3-052411	K1104627-007	05/24/11	05/24/11	440mL	1mL	NA NA	
GW4-052411	K1104627-008	05/24/11	05/24/11	450mL	1mL	NA NA	
GW5-052411	K1104627-009	05/24/11	05/24/11	430mL	lmL	NA NA	
GW6-052411	K1104627-010	05/24/11	05/24/11	360mL	1mL	NA NA	
TS1-052311DUP	KWG1104910-1	05/23/11	05/24/11	440mL	1mL		
Batch QCDUP	KWG1104910-2	NA	NA	500mL	1mL	NA NA	
Method Blank	KWG1104910-4	NA	NA	500mL		NA	
Batch QC	K1104704-001	NA	NA	500mL	lmL	NA	
Lab Control Sample	KWG1104910-3	NA	NA	500mL	1mL 1mL	NA NA	

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

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Form 9 - Organic

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Page 1 ′

RR129651

SuperSet Reference:

Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u> Validation Package

Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u> Validation Package

QC Reports

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Surrogate Recovery Summary

Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method:

Method

Units: PERCENT

Analysis Method:

NWTPH-Dx

Level: Low

Sample Name	Lab Code	<u>Sur1</u>	Sur2
TS1-052311	K1104627-001	120	117
TS2-052311	K1104627-002	102	103
SW1-052311	K1104627-003	109	114
SW2-052311	K1104627-004	101	106
GW1-052411	K1104627-005	100	103
GW2-052411	K1104627-006	92	94
GW3-052411	K1104627-007	96	96
GW4-052411	K1104627-008	110	111
GW5-052411	K1104627-009	98	98
GW6-052411	K1104627-010	85	84
Batch QC	K1104704-001	86	83
TS1-052311DUP	KWG1104910-1	97	94
Batch QCDUP	KWG1104910-2	96	88
Method Blank	KWG1104910-4	90	90
Lab Control Sample	KWG1104910-3	100	103

Surrogate Recovery Control Limits (%)

Sur1 =	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 1 of 1

QA/QC Report

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/27/2011

Date 1

Date Analyzed: 06/03/2011

Duplicate Sample Summary
Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

TS1-052311

Lab Code:

K1104627-001

Units: ug/L

Basis: NA

Extraction Method:

Method

Level: Low

Level. Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1104910

		Sample	TS1-052 KWG11 Duplicate	04910-1	Relative Percent	RPD Limit
Analyte Name	MRL	Result	Result	Average	Difference	
Diesel Range Organics (DRO)	290	ND	ND	ND	-	30
Residual Range Organics (RRO)	570	ND	ND	ND	-	30

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

Page 1 of 1

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SuperSet Reference: RR129651

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/27/2011 **Date Analyzed:** 06/03/2011

Duplicate Sample Summary

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Batch QC

Lab Code:

K1104704-001

Units: ug/L Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1104910

	MRL	Sample	Batch (KWG11 Duplicate	04910-2	Relative Percent Difference	RPD Limit
Analyte Name		Result	Result	Average		
Diesel Range Organics (DRO) Residual Range Organics (RRO)	250 500	ND ND	ND ND	ND ND	-	30 30

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

Page 1 of 1 SuperSet Reference: RR129651

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QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Misc. aqueous li

Service Request: K1104627

Date Extracted: 05/27/2011

Date Analyzed: 06/03/2011

Lab Control Spike Summary Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: Method

Analysis Method:

NWTPH-Dx

Units: ug/L

Basis: NA

Level: Low

Extraction Lot: KWG1104910

Lab Control Sample KWG1104910-3

Lab Control Spike %Rec Limits %Rec **Analyte Name** Result **Expected** Diesel Range Organics (DRO) 3100 3200 97 46-140 Residual Range Organics (RRO) 1800 1600 113 45-159

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.

Printed: 06/07/2011 15:34:10

 $u:\Stealth\Crystal.rpt\Form3LCS.rpt$

Form 3C - Organic

Page SuperSet Reference:

45

1 of 1

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Misc. aqueous li

Service Request: K1104627 **Date Extracted:** 05/27/2011 **Date Analyzed:** 06/03/2011

Time Analyzed: 20:18

Method Blank Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Method Blank

File ID: J:\GC21\DATA\060211F\0602F066.D

Lab Code:

KWG1104910-4

Instrument ID: GC21

Extraction Method: Method

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1104910

This Method Blank applies to the following analyses:

		Date	Time
Lab Code	File ID	Analyzed	Analyzed
KWG1104910-3	J:\GC21\DATA\060211F\0602F065.D	06/03/11	19:56
K1104627-001	J:\GC21\DATA\060211F\0602F067.D	06/03/11	20:43
KWG1104910-1	J:\GC21\DATA\060211F\0602F068.D	06/03/11	21:04
K1104704-001	J:\GC21\DATA\060211F\0602F069.D	06/03/11	21:26
KWG1104910-2	J:\GC21\DATA\060211F\0602F070.D	06/03/11	21:48
K1104627-002	J:\GC21\DATA\060211F\0602F081.D	06/04/11	01:49
K1104627-003	J:\GC21\DATA\060211F\0602F082.D	06/04/11	02:11
K1104627-004	J:\GC21\DATA\060211F\0602F083.D	06/04/11	02:33
K1104627-005	J:\GC21\DATA\060211F\0602F084.D	06/04/11	02:55
K1104627-006	J:\GC21\DATA\060211F\0602F085.D	06/04/11	03:17
K1104627-007	J:\GC21\DATA\060211F\0602F086.D	06/04/11	03:39
K1104627-008	J:\GC21\DATA\060211F\0602F087.D	06/04/11	04:01
K1104627-009	J:\GC21\DATA\060211F\0602F088.D	06/04/11	04:23
K1104627-010	J:\GC21\DATA\060211F\0602F089.D	06/04/11	04:45
	KWG1104910-3 K1104627-001 KWG1104910-1 K1104704-001 KWG1104910-2 K1104627-002 K1104627-003 K1104627-004 K1104627-005 K1104627-006 K1104627-007 K1104627-008 K1104627-009	KWG1104910-3 J:\GC21\DATA\060211F\0602F065.D K1104627-001 J:\GC21\DATA\060211F\0602F067.D KWG1104910-1 J:\GC21\DATA\060211F\0602F068.D K1104704-001 J:\GC21\DATA\060211F\0602F069.D KWG1104910-2 J:\GC21\DATA\060211F\0602F070.D K1104627-002 J:\GC21\DATA\060211F\0602F081.D K1104627-003 J:\GC21\DATA\060211F\0602F082.D K1104627-004 J:\GC21\DATA\060211F\0602F083.D K1104627-005 J:\GC21\DATA\060211F\0602F084.D K1104627-006 J:\GC21\DATA\060211F\0602F085.D K1104627-007 J:\GC21\DATA\060211F\0602F086.D K1104627-008 J:\GC21\DATA\060211F\0602F087.D K1104627-009 J:\GC21\DATA\060211F\0602F088.D	Lab Code File ID Analyzed KWG1104910-3 J:\GC21\DATA\060211F\0602F065.D 06/03/11 K1104627-001 J:\GC21\DATA\060211F\0602F067.D 06/03/11 KWG1104910-1 J:\GC21\DATA\060211F\0602F068.D 06/03/11 K1104704-001 J:\GC21\DATA\060211F\0602F069.D 06/03/11 KWG1104910-2 J:\GC21\DATA\060211F\0602F070.D 06/03/11 K1104627-002 J:\GC21\DATA\060211F\0602F081.D 06/04/11 K1104627-003 J:\GC21\DATA\060211F\0602F082.D 06/04/11 K1104627-004 J:\GC21\DATA\060211F\0602F083.D 06/04/11 K1104627-005 J:\GC21\DATA\060211F\0602F084.D 06/04/11 K1104627-006 J:\GC21\DATA\060211F\0602F085.D 06/04/11 K1104627-007 J:\GC21\DATA\060211F\0602F086.D 06/04/11 K1104627-008 J:\GC21\DATA\060211F\0602F087.D 06/04/11 K1104627-009 J:\GC21\DATA\060211F\0602F088.D 06/04/11

QA/QC Report

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Misc. aqueous li

Service Request: K1104627 **Date Extracted:** 05/27/2011 **Date Analyzed:** 06/03/2011

Time Analyzed: 19:56

Lab Control Sample Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Lab Control Sample

File ID: J:\GC21\DATA\060211F\0602F065.D

Lab Code:

KWG1104910-3

Instrument ID: GC21

Extraction Method:

Method

Level: Low

Analysis Method: NWTPH-Dx Extraction Lot: KWG1104910

This Lab Control Sample applies to the following analyses:

			Date	Time
Sample Name	Lab Code	File ID	Analyzed	Analyzed
Method Blank	KWG1104910-4	J:\GC21\DATA\060211F\0602F066.D	06/03/11	20:18
TS1-052311	K1104627-001	J:\GC21\DATA\060211F\0602F067.D	06/03/11	20:43
TS1-052311DUP	KWG1104910-1	J:\GC21\DATA\060211F\0602F068.D	06/03/11	21:04
Batch QC	K1104704-001	J:\GC21\DATA\060211F\0602F069.D	06/03/11	21:26
Batch QCDUP	KWG1104910-2	J:\GC21\DATA\060211F\0602F070.D	06/03/11	21:48
TS2-052311	K1104627-002	J:\GC21\DATA\060211F\0602F081.D	06/04/11	01:49
SW1-052311	K1104627-003	J:\GC21\DATA\060211F\0602F082.D	06/04/11	02:11
SW2-052311	K1104627-004	J:\GC21\DATA\060211F\0602F083.D	06/04/11	02.33
GW1-052411	K1104627-005	J:\GC21\DATA\060211F\0602F084.D	06/04/11	02:55
GW2-052411	K1104627-006	J:\GC21\DATA\060211F\0602F085.D	06/04/11	03:17
GW3-052411	K1104627-007	J:\GC21\DATA\060211F\0602F086.D	06/04/11	03:39
GW4-052411	K1104627-008	J:\GC21\DATA\060211F\0602F087.D	06/04/11	04:01
GW5-052411	K1104627-009	J:\GC21\DATA\060211F\0602F088.D	06/04/11	04:23
GW6-052411	K1104627-010	J:\GC21\DATA\060211F\0602F089.D	06/04/11	04:45

Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u> Validation Package

Raw Data

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011 **Date Received:** 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

TS1-052311

Lab Code:

K1104627-001

Units: ug/L

Extraction Method:

Method

Basis: NA

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	300	1	05/27/11	06/03/11	KWG1104910	
Residual Range Organics (RRO)	ND U	600	1	05/27/11	06/03/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	120	50-150	06/03/11	Acceptable	
n-Triacontane	117	50-150	06/03/11	Acceptable	

Comments:

49

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F067.D

Lab ID:

K1104627-001

RunType: Matrix:

SMPL WATER Date Acquired:

Date Quantitated: Batch ID:

06/03/2011 20:43 06/06/2011 11:11 KWG1105074 NWTPH-Dx

Analysis Method: ListJoinID:

NWTPH-L LJ1365

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	х	· · · · · · · · · · · · · · · · · · ·
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	ÑΑ	Х	
ICAL Analyte Recovery	NA	NA	NA	· X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	X	
MB Surrogate Recovery	NA	NA	NA	Х	
Lab Control Spike	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	Х	
Retention Time	NA	NA	NA	х	
Below Lowest ICAL Level	NA	NA	NA	Х	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review:

Secondary Review:

Printed: 06/06/2011 14:07:54

Quantitation Report

Bottle ID: **Prod Code:**

NWTPH-Dx NW TPH

Tier: **Collect Date:** IV 05/23/2011 Matrix: Receive Date:

Report Group:

WATER 05/24/2011

Analysis Lot:

KWG1105074

Prep Lot:

KWG1104910

K1104627

Analysis Method:

NWTPH-Dx

Prep Method: Prep Date:

Method 05/27/2011

Prep Ref:

1023349

Ouant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Report List ID:

Calibration ID:

CAL10358 LJ1365

Method ID:

MJ227

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

Quant based on Report List

Data File:

J:\GC21\DATA\060211F\0602F067.D

Acqu Date: Run Type:

Lab ID:

06/03/2011 20:43

K1104627-001

SMPL

Quant Date:

06/06/2011 11:11

Instrument:

GC21

Vial:

3

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	75536	60.07	120	50-150 OK	
n-Triacontane	7.66	0.00	64000	58.57	117	50-150 OK	

Target Compounds

Final Conc. Units:

ug/L

		RT		Solution	Final	***************************************	
Parameter Name	RT	Dev	Response	Conc	Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	36402	38.57	92	J	
Residual Range Organics (RRO)	6.58	?	5059	8.28	23	U .	

Prep Amount:

420 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

Printed: 06/06/2011 13:54:45

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable

^{?:} Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F067.D

Vial: 3

 Acq On
 : 03 Jun 2011
 8:43 pm
 Operator: JMSmith

 Sample
 : K1104627-001
 Inst : GC21

Misc :

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:11:21 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T. R	esponse	Conc (Units
System Monitoring Compounds				
System Monitoring Compounds 1) S 4-Bromofluorobenzene) op	-2020E	E1 740	~~~
Chiked Amount FO 000	2.83			
Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000	Recovery	75576	103.486	
Spiked Amount 50.000	5.51	/5536	60.066	ppm
	Recovery	=	120.13%	
3) S Triacontane	7.66_			
Spiked Amount 50.000	Recovery	. =	117.14%	
Target Compounds				
-	2.25	4964	12.888	nnm
	3.07	37986		
6) H C10-C25ex DRO AK102		39313		
7) H C10-C28in DRO 8015		41333		
	3.72	35075		
	3.82	36402		
	4.00	32947		
11) H C23-C32in RRO AZ	6.22	6695		
	6.40		9.928	
13) H C25-C36in RRO NW	6.58	5059		
14) H C25-C36in RRO Motor Oil			8.312	
15) H C29-C36in RRO Stratus	7.36	3040	7.132	ppm
16) H C29-C40in RRO Premier	7.46	4402		

Data File : J:\GC21\DATA\060211F\0602F067.D

Vial: 3 Acq On : 03 Jun 2011 8:43 pm Operator: JMSmith

Sample : K1104627-001 Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

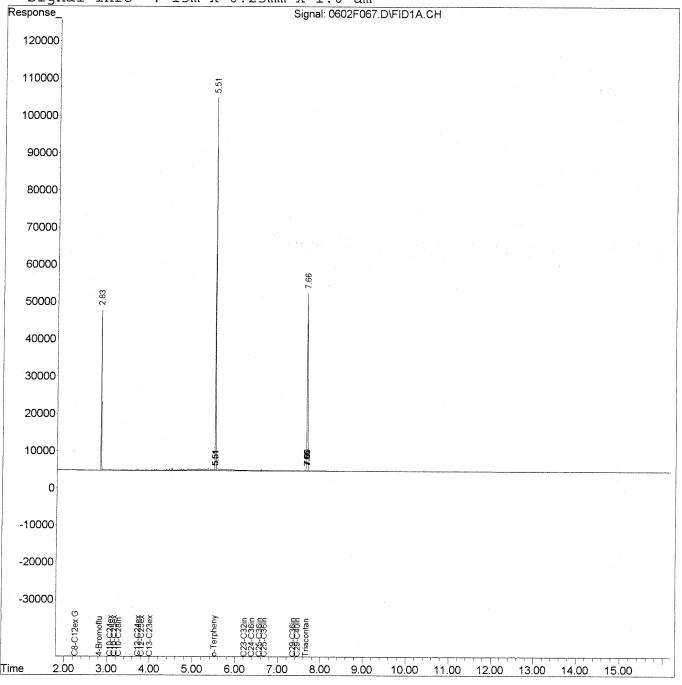
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0602F067.D 031311FSRO.M Mon Jun 06 13:09:37 2011

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

TS2-052311

Lab Code:

K1104627-002

Units: ug/L

Extraction Method:

Method

Basis: NA

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	440 Y	270	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	540	. 1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	102	50-150	06/04/11	Acceptable	
n-Triacontane	103	50-150	06/04/11	Acceptable	

Comments:

Printed: 06/07/2011 15:34:31 $u: \label{lem:limit} u: \label{lem:limit} u: \label{lem:limit} Im \label{lem:limit} Im \label{lem:limit} u: \label{lem:limit} \label{lem:limit} u: \label{lem:limit} \label{lem:limit} u: \label{lem:limit} \label{lem:limit} \label{lem:limit} u: \label{lem:limit} \label{lem:limit} \label{lem:limit} u: \label{lem:limit} \label{lem:limit} \label{lem:limit} \label{lem:limit} u: \label{lem:limit} \label{lem:limit} u: \label{lem:limit} \label{lem:limit} \label{lem:limit} \label{lem:limit} u: \label{lem:limit} \label{$

Exception Report

Data File: J:\GC21\DATA\060211F\0602F081.D

Lab ID: K1104627-002

RunType: SMPL WATER

Date Acquired: Date Quantitated: Batch ID: 06/04/2011 01:49 06/06/2011 11:11 KWG1105074 NWTPH-Dx LJ1365

Analysis Method: ListJoinID:

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	Х	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	Х	
MB Surrogate Recovery	NA	NA	NA	X	
Lab Control Spike	NA	NA	NA	Х	
Surrogates	NA	NA	NA	х	
Analyte Co-elution	NA	NA	NA	х	
Retention Time	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	Х	

Primary Review:

Secondary Review:

Page 1 of 1

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

IV

Matrix:

WATER

Analysis Lot:

KWG1105074

NWTPH-Dx

1023350

Prep Lot:

05/23/2011

Receive Date:

05/24/2011

Analysis Method:

Prep Ref:

KWG1104910

Prep Method: Prep Date:

Collect Date:

Method 05/27/2011 Report Group:

K1104627

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Report List ID:

Calibration ID:

CAL10358

Method ID:

LJ1365 MJ227

Quant based on Report List

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

Data File: Acqu Date:

Lab ID:

J:\GC21\DATA\060211F\0602F081.D

06/04/2011 01:49

SMPL

Run Type: K1104627-002 Quant Date:

06/06/2011 11:11

Instrument:

GC21

Vial:

12

Dilution: Soln Conc. Units:

1.0 ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	64118	50.99	102	50-150 OK	
n-Triacontane	7.66	0.00	56477	51.69	103	50-150 OK	

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	/ Q	Rpt?
Diesel Range Organics (DRO) Residual Range Organics (RRO)	3.82 6.58	?	196637 13807	208.35 22.60	440 48	J	

Prep Amount: Prep Final Vol: 470 mL 1 mL

Dilution: **Unit Factor:** 1.0 1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

Printed:

06/06/2011 13:57:14 u:\Stealth\Crystal.rpt\quant1.rpt

D: Result from dilution m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

1 of 1 Page

Quantitation Report (Not Reviewed)

Vial: 12 Data File : J:\GC21\DATA\060211F\0602F081.D Acq On : 04 Jun 2011 1:49 am Operator: JMSmith

Inst : GC21 : K1104627-002 Sample Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 06 11:11:34 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics | CAL10358 Title

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds				
1) S 4-Bromofluorobenzene	2.83	24165	42.636 ppm	
Spiked Amount 50.000	Reco [*]	very =	85.27%	
2) S o-Terphenyl	5.51	64118	50.987 ppm	
Spiked Amount 50.000	Reco	very =	101.97%	
3) S Triacontane	7.66	56477	51.685 ppm	
Spiked Amount 50.000	Reco	very =	103.37%	
-				
Target Compounds				
4) H C8-C12ex GRO NW	2.25	7638	19.831 ppm	
5) H C10-C24ex DRO Arcadis	3.07	197463		
6) H C10-C25ex DRO AK102	3.17	201904	190.307 ppm	
7) H C10-C28in DRO 8015	3.27	209066	<u> </u>	
8) H C12-C24ex DRO T&R	3.72	192197		
9) H C12-C25ex DRO NW	3.82	196637		
10) H C13-C23ex DRO AZ	4.00	181421		
11) H C23-C32in RRO AZ	6.22	22222	48.521 ppm	
12) H C24-C36in RRO T&R/Arcadis	6.40	18247	28.362 ppm	
13) H C25-C36in RRO NW	6.58	13807	22.604 ppm	
14) H C25-C36in RRO Motor Oil	6.68	13807		
15) H C29-C36in RRO Stratus	7.36	6645	15.590 ppm	
16) H C29-C40in RRO Premier	7.46	9350	15.625 ppm	

Data File : J:\GC21\DATA\060211F\0602F081.D Vial: 12

Acq On : 04 Jun 2011 1:49 am Operator: JMSmith Sample : K1104627-002 Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

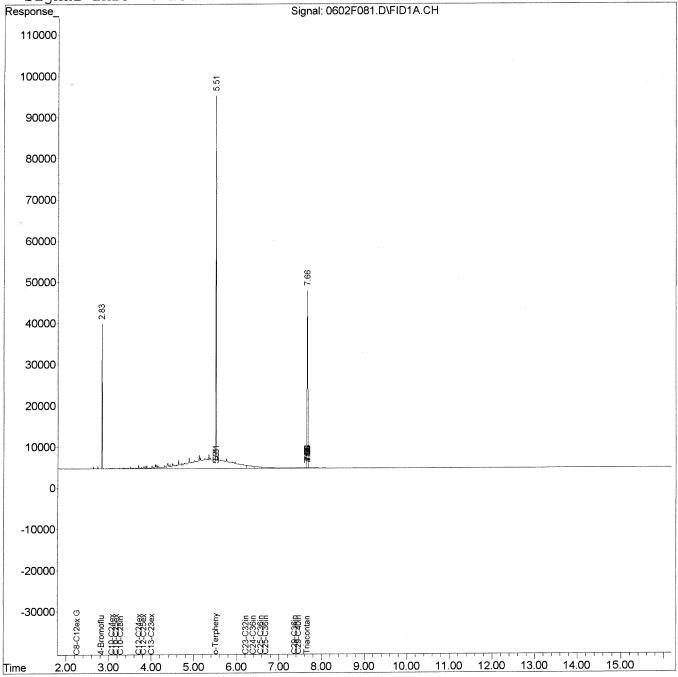
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011 **Date Received:** 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SW1-052311

Lab Code:

K1104627-003

Units: ug/L Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

ate Extraction

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	360 Y	280	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	550	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	109	50-150	06/04/11	Acceptable	
n-Triacontane	114	50-150	06/04/11	Acceptable	

Comments:

Printed: 06/07/2011 15:34:34 u:\Stealth\Crystal.rpt\Form1mNew.rpt

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F082.D

Lab ID:

K1104627-003

RunType: Matrix:

SMPL WATER Date Acquired:
Date Quantitated:

Batch ID:

Analysis Method: ListJoinID: 06/04/2011 02:11 06/06/2011 11:11 KWG1105074

NWTPH-Dx LJ1365

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA.	NA	x	
MB Surrogate Recovery	NA	NA	NA	Х	
Lab Control Spike	NA	NA	NA	х	
Surrogates	NA	NA	NA	х	
Analyte Co-elution	NA	NA	NA	Х	
Retention Time	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA.	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	
Overdiluted Analysis	NA	NA	NA	Х	

Primary Review:

Secondary Review:

Page 1 of 1

Printed: 06/06/2011 14:08:33 u:\Stealth\Crystal.rpt\except2.rpt

Quantitation Report

Bottle ID: **Prod Code:**

NWTPH-Dx NW TPH

Tier:

IV

Matrix:

WATER 05/24/2011

Analysis Lot:

Analysis Method:

KWG1105074

NWTPH-Dx

Prep Lot:

Collect Date:

05/23/2011

KWG1104910 Prep Method:

Prep Ref: 1023351 Method 05/27/2011

Prep Date:

Report Group:

Receive Date:

K1104627

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: Report List ID: CAL10358

Method ID:

LJ1365

MJ227

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

Quant based on Report List

Data File:

Lab ID:

J:\GC21\DATA\060211F\0602F082.D

Acqu Date:

06/04/2011 02:11

Instrument:

GC21

Run Type:

K1104627-003

SMPL

Quant Date:

06/06/2011 11:11

Vial:

Dilution:

13 1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl n-Triacontane	5.51 7.66	0.00	68569 62532	54.53 57.23	109 114	50-150 OK 50-150 OK	

arget Compounds			Final (Conc. Units:	ug/L		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	155999	165.29	360	,	
Residual Range Organics (RRO)	6.58	?	26664	43.65	95	J	

Prep Amount:

460 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

Printed:

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

06/06/2011 13:57:18

Data File : J:\GC21\DATA\060211F\0602F082.D Vial: 13

 Acq On : 04 Jun 2011 2:11 am
 Operator: JMSmith

 Sample : K1104627-003
 Inst : GC21

 Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:11:35 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via: Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds			_	
1) S 4-Bromofluorobenzene	2.83	26351	46.493 ppm	
Spiked Amount 50.000	Recover	y =	92.99%	
2) S o-Terphenyl			54.526 ppm	
Spiked Amount 50.000	Recover	y =	109.05%	
3) S Triacontane	7.66	62532	57.227 ppm	
Spiked Amount 50.000	Recover	у =	114.45%	
Target Compounds				
4) H C8-C12ex GRO NW	2.25		6.138 ppm	
5) H C10-C24ex DRO Arcadis	3.07		140.969 ppm	
6) H C10-C25ex DRO AK102	3.17	157643	148.589 ppm	
7) H C10-C28in DRO 8015	3.27	172805	161.455 ppm	
8) H C12-C24ex DRO T&R	3.72	147288	156.798 ppm	
9) H C12-C25ex DRO NW	3.82	155999	165.289 ppm	
10) H C13-C23ex DRO AZ	4.00	134533	159.171 ppm	
11) H C23-C32in RRO AZ	6.22	43471	94.918 ppm	
12) H C24-C36in RRO T&R/Arcadis	6.40	35375	54.985 ppm	
13) H C25-C36in RRO NW	6.58	26664		
14) H C25-C36in RRO Motor Oil	6.68	26664		
15) H C29-C36in RRO Stratus	7.36	11502		
16) H C29-C40in RRO Premier	7.46	15052	25.154 ppm	

Data File : J:\GC21\DATA\060211F\0602F082.D Vial: 13

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

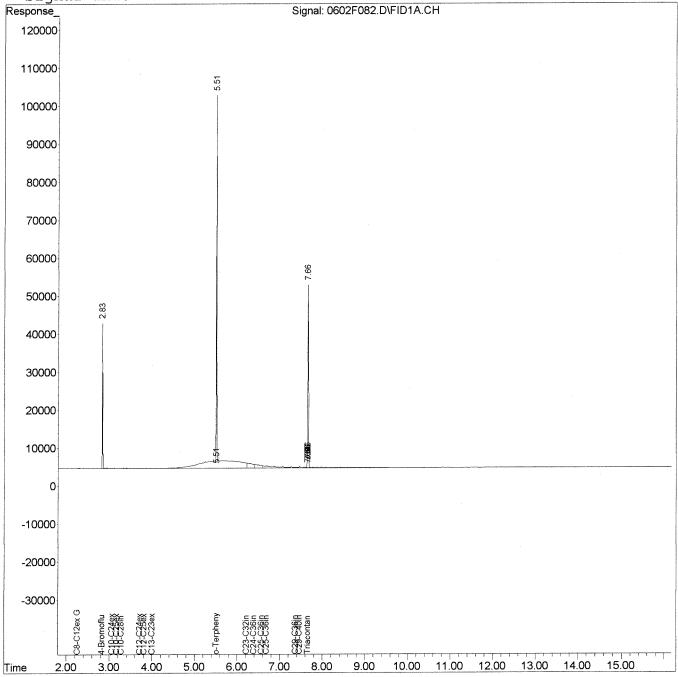
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SW2-052311

Lab Code:

K1104627-004

Units: ug/L

Extraction Method:

Method

Basis: NA

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO) Residual Range Organics (RRO)	ND U ND U	300 590	1 1	05/27/11 05/27/11	06/04/11 06/04/11	KWG1104910 KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	101	50-150	06/04/11	Acceptable	
n-Triacontane	106	50-150	06/04/11	Acceptable	

Comments:

Exception Report

Data File:

Lab ID:

K1104627-004

RunType: Matrix:

SMPL WATER Date Acquired: Date Quantitated: Batch ID:

Batch ID: Analysis Method: ListJoinID: 06/04/2011 02:33 06/06/2011 11:11 KWG1105074 NWTPH-Dx LJ1365

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
Preparation Holding Time	NA	NA	NA	Х	
Pre-Preparation Holding Time	NA	NA	NA	Х	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	X	
MB Surrogate Recovery	NA	NA	NA	х	
Lab Control Spike	NA	NA	NA	X	
Surrogates	NA	NA	NA	х	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	Х	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	x	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review:

Secondary Review:

Page 1 of 1

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

IV

Matrix:

WATER 05/24/2011

Analysis Lot: Analysis Method: KWG1105074

NWTPH-Dx

Prep Lot:

KWG1104910

05/23/2011

Prep Method: Prep Date:

Collect Date:

Method

Prep Ref:

1023352

05/27/2011

Report Group:

Receive Date:

K1104627

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Report List ID:

Calibration ID:

CAL10358

Method ID:

LJ1365

MJ227

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

Quant based on Report List

Data File:

J:\GC21\DATA\060211F\0602F083.D

Acqu Date: Run Type:

06/04/2011 02:33

Quant Date:

06/06/2011 11:11

Instrument:

GC21

Vial: Dilution: 14 1.0

ppm

Lab ID:

SMPL

K1104627-004

Soln Conc. Units:

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	63807	50.74	101	50-150 OK	
n-Triacontane	7.66	0.00	57676	52.78	106	50-150 OK	

rget Compounds			Final (Conc. Units:	ug/L		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	15208	16.11	37	J	
Residual Range Organics (RRO)	6.58	?	10485	17.17	40	J	

Prep Amount:

430 mL

Dilution:

1.0

Prep Final Vol:

 $1 \, \mathrm{mL}$

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

II: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060211F\0602F083.D Vial: 14

 Acq On : 04 Jun 2011 2:33 am
 Operator: JMSmith

 Sample : K1104627-004
 Inst : GC21

 Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:11:36 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

		Compound	R.T.	Response	Conc (Jnits
	Syst	em Monitoring Compounds				
1)	S	4-Bromofluorobenzene	2.83	25517	45.022	ppm
Spi	ked	Amount 50.000	Recove	ery =		
2)	S	o-Terphenyl		63807		ppm
Spi	ked	Amount 50.000	Recove	ery =	101.48%	
3)	S	Triacontane		57676		ppm
Spi	ked	Amount 50.000	Recove	ery =	105.57%	
		et Compounds				
4)	H	C8-C12ex GRO NW	2.25	1794	4.658	
5)	H	C10-C24ex DRO Arcadis	3.07	15636		
6)	H	C10-C25ex DRO AK102	3.17	16653		
7)	H	C10-C28in DRO 8015	3.27	19711		
8)	H	C12-C24ex DRO T&R	3.72	14191		
9)	H	C12-C25ex DRO NW	3.82	15208		
10)	H	C13-C23ex DRO AZ	4.00	12926		
11)	H	C23-C32in RRO AZ	6.22	9010	19.673	ppm
12)	H	C24-C36in RRO T&R/Arcadis	6.40	11502	17.878	ppm
13)	H	C25-C36in RRO NW	6.58	10485	17.166	ppm
14)	H	C25-C36in RRO Motor Oil	6.68	10485	17.227	ppm
15)	H	C29-C36in RRO Stratus	7.36	7428		
16)	Н	C29-C40in RRO Premier	7.46	11530	19.269	ppm

Data File : J:\GC21\DATA\060211F\0602F083.D Vial: 14

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

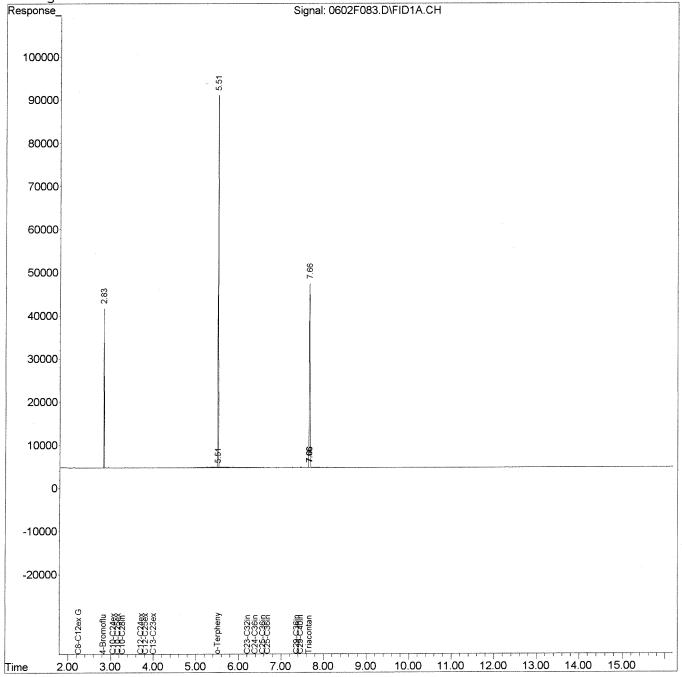
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW1-052411

Lab Code:

K1104627-005

Units: ug/L

Basis: NA

Extraction Method:

Method

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	570	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	1200	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	100	50-150	06/04/11	Acceptable	
n-Triacontane	103	50-150	06/04/11	Acceptable	

Comments:

Exception Report

Data File:

Lab ID:

K1104627-005

RunType: Matrix:

SMPL WATER Date Acquired:
Date Quantitated:

Batch ID:

Analysis Method: ListJoinID: 06/04/2011 02:55 06/06/2011 11:11 KWG1105074 NWTPH-Dx

LJ1365

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	Х	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	X	
MB Surrogate Recovery	NA	NA	NA	х	
Lab Control Spike	NA	NA	NA	х	
Surrogates	NA	NA	NA	х	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	х	
Below Lowest ICAL Level	NA	NA	NA	Х	
Std MRL Unsupported by ICAL	NA	NA	NA	х	
Above Highest ICAL Level	NA	NA	NA	х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review.

Secondary Reviews

Page 1 of 1

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

IV 05/24/2011 Matrix:

Receive Date:

Report Group:

WATER 05/24/2011

Analysis Lot: Analysis Method: KWG1105074

NWTPH-Dx

Prep Lot:

KWG1104910

Prep Method: Prep Date:

Collect Date:

Method

Prep Ref:

1023353

05/27/2011

K1104627

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Report List ID:

Calibration ID:

CAL10358

Method ID:

LJ1365 MJ227

Quant based on Report List

Data File:

MB Ref:

J:\GC21\DATA\060211F\0602F084.D

J:\GC21\DATA\060211F\0602F066.D

Acqu Date:

06/04/2011 02:55

Run Type: Lab ID:

SMPL

K1104627-005

Quant Date:

06/06/2011 11:11

Instrument:

GC21

Vial: Dilution: 15

Soln Conc. Units:

1.0 ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	63140	50.21	100	50-150 OK	
n-Triacontane	7.66	0.00	56305	51.53	103	50-150 OK	

4 Commounds

arget Compounds			Final (Conc. Units:	ug/L		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	6640	7.04	32	J	
Residual Range Organics (RRO)	6.58	?	10630	17.40	79	J	

Prep Amount:

220 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

Printed:

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

06/06/2011 13:57:26

Data File : J:\GC21\DATA\060211F\0602F084.D Vial: 15

Acq On : 04 Jun 2011 2:55 am Sample : K1104627-005 Operator: JMSmith Inst : GC21 Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 06 11:11:37 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358 Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T. Re	sponse	Conc (Jnits
System Monitoring Compounds				
1) S 4-Bromofluorobenzene	2.83	20516	36.198	ppm
Spiked Amount 50.000	Recovery	=	72.40%	
2) S o-Terphenyl	5.51	63140	50.209	ppm
Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000	Recovery	=	100.42%	
3) S Triacontane	7.66	56305	51.528	ppm
Spiked Amount 50.000	Recovery		103.06%	-
Target Compounds				
4) H C8-C12ex GRO NW	2.25	1923	4.993	ppm
5) H C10-C24ex DRO Arcadis			6.959	
6) H C10-C25ex DRO AK102				
7) H C10-C28in DRO 8015				
8) H C12-C24ex DRO T&R			6.294	
	3.82		7.035	
	4.00		6.074	
11) H C23-C32in RRO AZ				
12) H C24-C36in RRO T&R/Arcadis				
13) H C25-C36in RRO NW		10630		
14) H C25-C36in RRO Motor Oil				
15) H C29-C36in RRO Stratus				
16) H C29-C40in RRO Premier		11262		
•				T T

Data File : J:\GC21\DATA\060211F\0602F084.D Vial: 15

IntFile : rteint.p

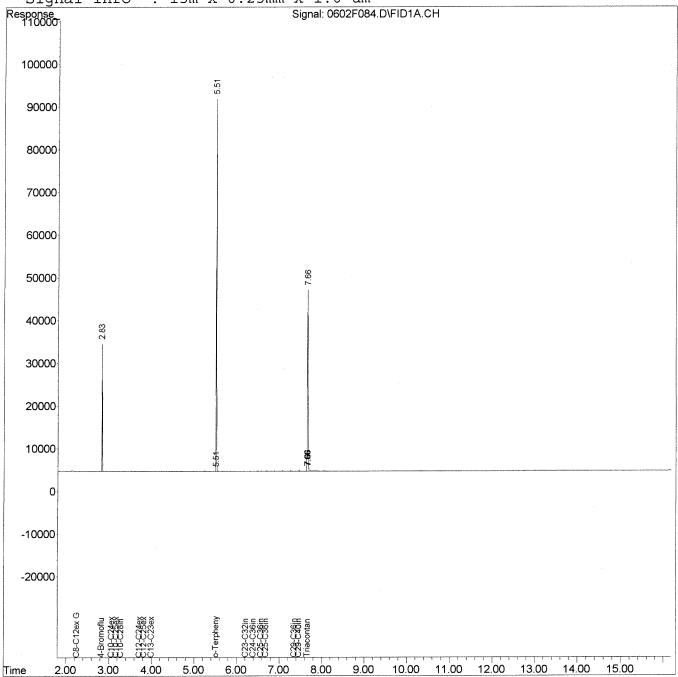
Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW2-052411

Lab Code:

K1104627-006

Units: ug/L

Extraction Method:

Method

Basis: NA

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO) Residual Range Organics (RRO)	ND U ND U	400 790	1 1	05/27/11 05/27/11	06/04/11 06/04/11	KWG1104910 KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	92	50-150	06/04/11	Acceptable
n-Triacontane	94	50-150	06/04/11	Acceptable

Comments:

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F085.D

Lab ID:

K1104627-006

RunType: Matrix:

SMPL WATER Date Acquired:
Date Quantitated:

Batch ID:

Analysis Method: ListJoinID: 06/04/2011 03:17 06/06/2011 11:11 KWG1105074

NWTPH-Dx LJ1365

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	Х	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	Х	
MB Surrogate Recovery	NA	NA	NA	х	
Lab Control Spike	NA	NA	NA	х	
Surrogates	NA	NA	NA	х	
Analyte Co-elution	NA	NA	NA	х	
Retention Time	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA	NA	х	
Std MRL Unsupported by ICAL	NA	NA	NA	х	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review:

Secondary Review:

Printed: 06/06/2011 14:08:42

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

ΙV

Matrix:

Receive Date:

WATER 05/24/2011

KWG1105074

Analysis Lot: **Analysis Method:** NWTPH-Dx Prep Lot:

Collect Date:

05/24/2011

KWG1104910

Prep Ref:

1023354

Prep Method:

Method

Prep Date:

05/27/2011

Report Group:

K1104627

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: Report List ID: CAL10358

Method ID:

LJ1365

MJ227

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

Quant based on Report List

Data File:

Run Type:

Lab ID:

J:\GC21\DATA\060211F\0602F085.D

Acqu Date:

SMPL

K1104627-006

Quant Date: 06/04/2011 03:17

06/06/2011 11:11

Instrument:

GC21

Vial: Dilution: 16

Soln Conc. Units:

1.0 ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	57560	45.77	92	50-150 OK	
n-Triacontane	7.66	0.00	51410	47.05	94	50-150 OK	

Ta

arget Compounds			Final C	Conc. Units:	ug/L		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO) Residual Range Organics (RRO)	3.82 6.58	? ?	21133 20943	22.39 34.29	70 110	J J	

Prep Amount:

320 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

06/06/2011 13:57:30

N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed

d: Compound manually deleted NR: Analyte not reported from this analysis *: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Printed:

Data File : J:\GC21\DATA\060211F\0602F085.D Vial: 16

Acq On : 04 Jun 2011 3:17 am Operator: JMSmith Inst : GC21 : K1104627-006 Sample Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 06 11:11:38 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358 Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T. Re	sponse	Conc Units
System Monitoring Compounds			
1) S 4-Bromofluorobenzene			
Spiked Amount 50.000	Recovery	manus. Manus	71.13%
2) S o-Terphenyl Spiked Amount 50.000	5.51	57560	45.772 ppm
Spiked Amount 50.000	Recovery	entropie entropie	91.54%
3) S Triacontane	7.66	51410	47.048 ppm
Spiked Amount 50.000	Recovery		
-	_		
Target Compounds			
4) H C8-C12ex GRO NW	2.25	2276	5.909 ppm
5) H C10-C24ex DRO Arcadis		21139	20.009 ppm
	3.17	22912	21.596 ppm
7) H C10-C28in DRO 8015	3.27	30842	28.816 ppm
8) H C12-C24ex DRO T&R		19359	20.609 ppm
	3.82	21133	
10) H C13-C23ex DRO AZ	4.00	17435	
11) H C23-C32in RRO AZ		18824	
12) H C24-C36in RRO T&R/Arcadis			35.310 ppm
13) H C25-C36in RRO NW		20943	
14) H C25-C36in RRO Motor Oil			
15) H C29-C36in RRO Stratus			30.533 ppm
16) H C29-C40in RRO Premier		18101	

Data File : J:\GC21\DATA\060211F\0602F085.D

Vial: 16 Operator: JMSmith Acq On : 04 Jun 2011 3:17 am : GC21 Inst Sample : K1104627-006 Multiplr: 1.00

Misc : rteint.p IntFile

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

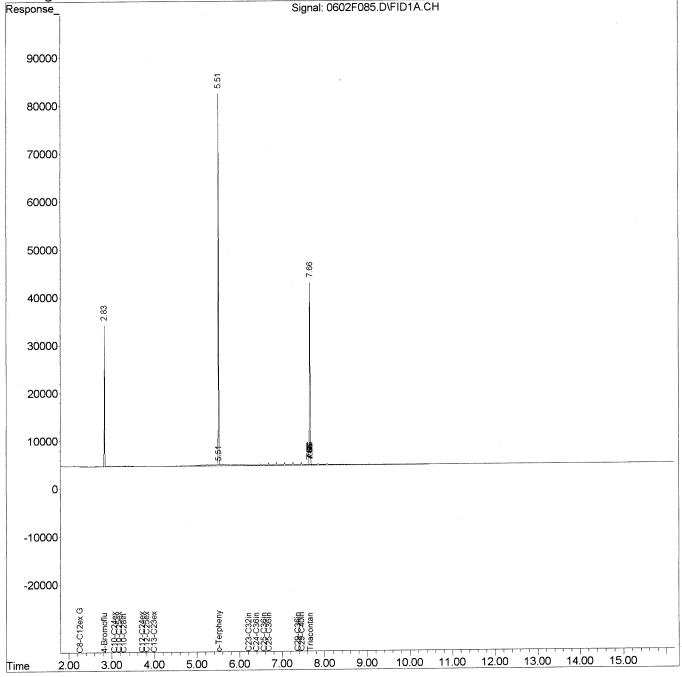
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics | CAL10358 Title

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW3-052411

Lab Code:

K1104627-007

Units: ug/L Basis: NA

Extraction Method:

Method

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	290	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	570	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	96	50-150	06/04/11	Acceptable	
n-Triacontane	96	50-150	06/04/11	Acceptable	

Comments:

Printed: 06/07/2011 15:34:46 $u: \label{lem:limit} u: \label{lem:limit} u: \label{lem:limit} We w. rpt$

Exception Report

J:\GC21\DATA\060211F\0602F086.D **Data File:**

Lab ID: K1104627-007

RunType: **SMPL** Matrix: WATER Date Acquired: Date Quantitated: Batch ID:

06/04/2011 03:39 06/06/2011 11:11 KWG1105074

Analysis Method: ListJoinID:

NWTPH-Dx LJ1365

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	Х	
Preparation Holding Time	NA	NA	NA	Х	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	Х	
Continuing Calibration Recovery	NA	NA	NA	х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	х	
Method Blank	NA	NA	NA	Х	
MB Surrogate Recovery	NA	NA	NA	Х	
Lab Control Spike	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	X	

1 of 1

 $u:\Stealth\Crystal.rpt\except2.rpt$

Printed: 06/06/2011 14:08:45

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

ΙV 05/24/2011 Matrix:

Receive Date:

WATER 05/24/2011

Analysis Lot:

Analysis Method:

KWG1105074

NWTPH-Dx

Prep Lot:

KWG1104910

Prep Method: Prep Date:

Collect Date:

Method

Prep Ref:

1023355

05/27/2011

Report Group:

K1104627

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Report List ID:

Calibration ID:

CAL10358

Method ID:

LJ1365 MJ227

Quant based on Report List

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

Data File: Acqu Date: J:\GC21\DATA\060211F\0602F086.D

06/04/2011 03:39

Quant Date:

06/06/2011 11:11

Instrument:

GC21

Vial: Dilution: 17 1.0

ppm

Run Type:

SMPL

Lab ID: K1104627-007

Soln Conc. Units:

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	60116	47.80	96	50-150 OK	
n-Triacontane	7.66	0.00	52277	47.84	96	50-150 OK	

arget Compounds			Final C	Conc. Units:	ug/L		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	7689 10568	8.15 17.30	19 39	J J	
Residual Range Organics (RRO)	6.58	ſ	10508	17.50	57	•	

Prep Amount:

440 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

Printed:

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

06/06/2011 13:57:34

D: Result from dilution

m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis *: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-clution

Data File : J:\GC21\DATA\060211F\0602F086.D Vial: 17

Acq On : 04 Jun 2011 3:39 am Operator: JMSmith Inst : GC21 : K1104627-007 Sample Multiplr: 1.00

Misc

IntFile : rteint.p

Quant Time: Jun 06 11:11:39 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics | CAL10358 Title

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T. I	Response	Conc Units	
System Monitoring Compounds	2 02	22825	40.272 ppm	
1) S 4-Bromofluorobenzene		y =		
Spiked Amount 50.000	5.51			
2) S o-Terphenyl Spiked Amount 50.000	Recovery			
3) S Triacontane	7.66	52277	47.842 ppm	
Spiked Amount 50.000	Recovery	y =	95.68%	
Spired famoure 50.000	•	•		
Target Compounds				
4) H C8-C12ex GRO NW	2.25		5.535 ppm	
5) H C10-C24ex DRO Arcadis	3.07		7.748 ppm	
6) H C10-C25ex DRO AK102	3.17		8.317 ppm	
7) H C10-C28in DRO 8015	3.27		11.300 ppm	
8) H C12-C24ex DRO T&R	3.72		7.506 ppm	
9) H C12-C25ex DRO NW	3.82		8.147 ppm	
10) H C13-C23ex DRO AZ	4.00		7.661 ppm	
11) H C23-C32in RRO AZ	6.22	8324		
12) H C24-C36in RRO T&R/Arcadis	6.40	11207		
13) H C25-C36in RRO NW	6.58	10568		
14) H C25-C36in RRO Motor Oil	6.68	10568		
15) H C29-C36in RRO Stratus		7299		
16) H C29-C40in RRO Premier	7.46	10679	17.846 ppm	

Data File : J:\GC21\DATA\060211F\0602F086.D Vial: 17

Operator: JMSmith : 04 Jun 2011 3:39 am Acq On : GC21 Inst : K1104627-007 Sample Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

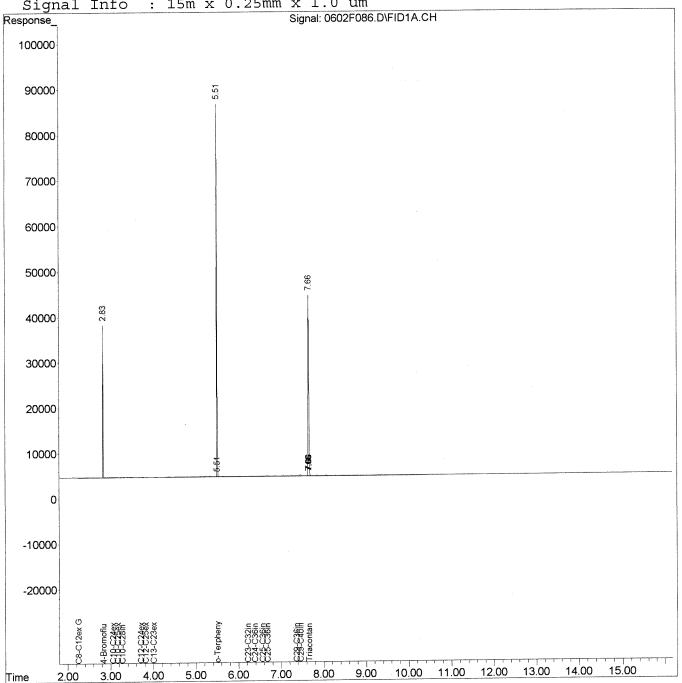
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics | CAL10358 Title

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW4-052411

Lab Code:

K1104627-008

Units: ug/L

Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	1100 Y	280	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	560	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	110	50-150	06/04/11	Acceptable
n-Triacontane	111	50-150	06/04/11	Acceptable

Comments:

Merged

SuperSet Reference:

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F087.D

Lab ID:

K1104627-008

RunType: Matrix:

SMPL WATER Date Acquired:
Date Quantitated:
Batch ID:

Batch ID:
Analysis Method:
ListJoinID:

06/04/2011 04:01 06/06/2011 11:11 KWG1105074 NWTPH-Dx LJ1365

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
Preparation Holding Time	NA	NA	NA	х	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	x	
Second Source ICAL Verification	NA	NA	NA	x	
Calibration Verification Pass/Fail	NA	NA	NA	х	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	х	
Method Blank	NA	NA	NA	x	
MB Surrogate Recovery	NA	NA	NA	X	
Lab Control Spike	NA	NA	NA	х	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	х	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	х	
Enviroquant/Stealth Calibration Check	NA	NA	- NA	X	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review:

Secondary Review

Page 1 of 1

u:\Stealth\Crystal.rpt\except2.rpt

Printed: 06/06/2011 14:08:48

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

IV

Matrix:

WATER

Analysis Lot:

KWG1105074

1023356

Prep Lot:

05/24/2011

Receive Date:

05/24/2011

Analysis Method:

Prep Ref:

NWTPH-Dx

KWG1104910

Prep Method: Prep Date:

Collect Date:

Method 05/27/2011 Report Group:

K1104627

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Report List ID:

CAL10358

Method ID:

LJ1365

MJ227

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

Quant based on Report List

Calibration ID:

GC21

Data File:

J:\GC21\DATA\060211F\0602F087.D 06/04/2011 04:01

Quant Date:

06/06/2011 11:11

Instrument: Vial:

Dilution:

18 1.0

ppm

Acqu Date:

SMPL

Run Type: Lab ID:

K1104627-008

Soln Conc. Units:

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	69139	54.98	110	50-150 OK	
n-Triacontane	7.66	0.00	60472	55.34	111	50-150 OK	

Tar

rget Compounds		Final Conc. Units:	ug/L
3	RT	Solution	Fin

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	465198	492.90	1100	_	
Residual Range Organics (RRO)	6.58	?	28193	46.16	100	J	

Prep Amount:

450 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

Printed:

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

N: Presumptive evidence of compound

B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance
e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060211F\0602F087.D Vial: 18

Acq On : 04 Jun 2011 4:01 am Operator: JMSmith Sample : K1104627-008 Inst : GC21 Multiplr: 1.00

Misc : IntFile : rteint.p

Quant Time: Jun 06 11:11:40 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T. Re	esponse	Conc Units
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S 0-Terphenyl	2.83 Recovery 5.51 Recovery	= 69139 =	93.99% 54.979 ppm 109.96%
3) S Triacontane	7.66		
Spiked Amount 50.000	Recovery	=	110.68%
5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ 11) H C23-C32in RRO AZ	3.07 3.17 3.27 3.72 3.82 4.00 6.22 6.40 6.58 6.68 7.36	453984 466485 485709 452696 465198 432194 57982 40695 28193 28193	63.254 ppm 46.157 ppm 46.321 ppm 21.043 ppm

Data File : J:\GC21\DATA\060211F\0602F087.D Vial: 18

Acq On : 04 Jun 2011 4:01 am Operator: JMSmith Sample : K1104627-008 Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

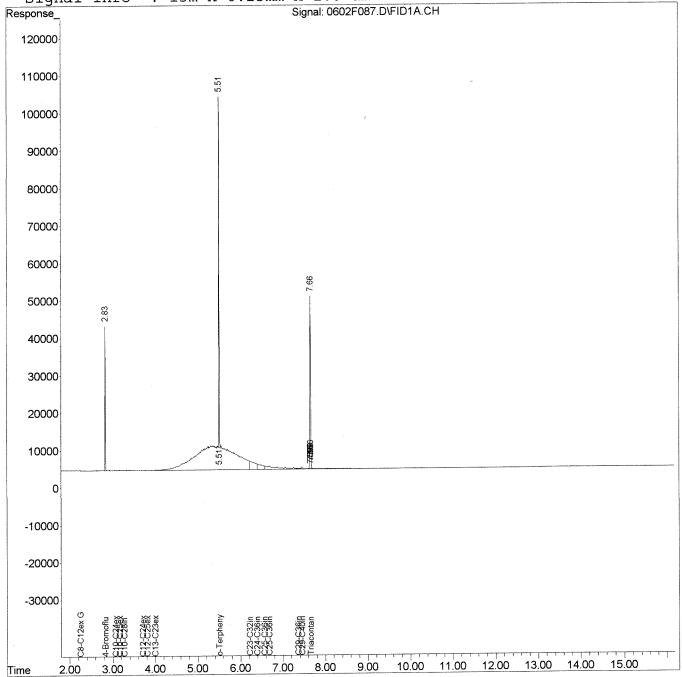
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW5-052411

Lab Code:

K1104627-009

Units: ug/L

Extraction Method:

Method

Basis: NA

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO) Residual Range Organics (RRO)	ND U ND U	300 590	1 1	05/27/11 05/27/11	06/04/11 06/04/11	KWG1104910 KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl n-Triacontane	98 98	50-150 50-150	06/04/11 06/04/11	Acceptable Acceptable	
II-1 Hacomanc	70	30-130	00/04/11	Acceptable	

Comments:

Printed: 06/07/2011 15:34:52 u:\Stealth\Crystal.rpt\FormlmNew.rpt

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F088.D

Lab ID:

K1104627-009 **SMPL**

RunType: Matrix:

WATER

Date Acquired: Date Quantitated:

Batch ID:

Analysis Method: ListJoinID:

06/04/2011 04:23 06/06/2011 11:11 KWG1105074 NWTPH-Dx

LJ1365

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NA	х	
ICAL Analyte Recovery	NA	NA	NA	Х	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	х	
Continuing Calibration Recovery	NA	NA	NA	x	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	X	
MB Surrogate Recovery	NA	NA	NA	X	
Lab Control Spike	NA	NA	NA	х	
Surrogates	NA	NA	NA	x	
Analyte Co-elution	NA	NA	NA	x	
Retention Time	NA	NA	NA	х	
Below Lowest ICAL Level	NA	NA	NA	х	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	х	

Primary Review:

Secondary Review:

Page 1 of 1

 $u:\Stealth\Crystal.rpt\except2.rpt$

Printed: 06/06/2011 14:08:51

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

IV

Matrix:

WATER

Prep Lot:

05/24/2011

Receive Date:

05/24/2011

Analysis Lot: Analysis Method: KWG1105074

NWTPH-Dx

1023357

KWG1104910

Prep Method: Prep Date:

Collect Date:

Method 05/27/2011 Report Group:

K1104627

Quant Method:

Prep Ref:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Report List ID:

Calibration ID:

CAL10358

Method ID:

LJ1365

MJ227

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

Quant based on Report List

Data File:

Lab ID:

J:\GC21\DATA\060211F\0602F088.D

Acqu Date: Run Type:

06/04/2011 04:23

Quant Date:

06/06/2011 11:11

Instrument:

GC21

SMPL

K1104627-009

Vial:

19

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	61516	48.92	98	50-150 OK	
n-Triacontane	7.66	0.00	53726	49.17	98	50-150 Ok	*

arget Compounds			Final (Conc. Units:	ug/L		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	7276 12463	7.71 20.40	18 47	J J	
Residual Range Organics (RRO)	6.58	?	12403	20.40	* /		

Prep Amount:

430 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

06/06/2011 13:57:42

D: Result from dilution

m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance
e: Result >= MRL, but MRL less than low point of ICAL

c. check for co-elution

Printed:

Data File : J:\GC21\DATA\060211F\0602F088.D Vial: 19

IntFile : rteint.p

Quant Time: Jun 06 11:11:41 2011 Quant Results File: 031311FSRO.RES

Ouant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T. R	esponse	Conc Units
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	2.83 Recovery 5.51 Recovery 7.66 Recovery	61516 = 53726	86.62% 48.917 ppm 97.83% 49.168 ppm
5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102	2.25 3.07 3.17 3.27 3.72 3.82 4.00 6.22 6.40 6.58 6.68 7.36 7.46	7825 8675 12093 6426	6.841 ppm 7.709 ppm 6.469 ppm 21.073 ppm 20.693 ppm 20.404 ppm 20.477 ppm 21.221 ppm

Data File : J:\GC21\DATA\060211F\0602F088.D Vial: 19

Acq On : 04 Jun 2011 4:23 am Operator: JMSmith Sample : K1104627-009 Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

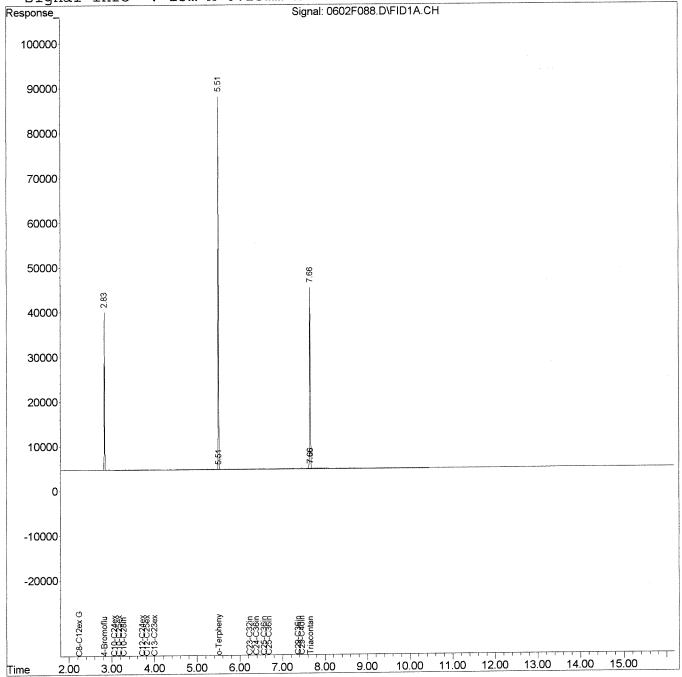
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/24/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

GW6-052411

Lab Code:

K1104627-010

Units: ug/L

Extraction Method:

Method

Basis: NA

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	350	1	05/27/11	06/04/11	KWG1104910	
Residual Range Organics (RRO)	ND U	700	1	05/27/11	06/04/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	85	50-150	06/04/11	Acceptable	
n-Triacontane	84	50-150	06/04/11	Acceptable	

Comments:

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F089.D

Lab ID:

K1104627-010

RunType: Matrix:

SMPL WATER Date Acquired: Date Quantitated: Batch ID:

Analysis Method: ListJoinID:

06/04/2011 04:45 06/06/2011 11:11 KWG1105074 NWTPH-Dx

LJ1365

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	х	
Preparation Holding Time	NA	NA	NA	Х	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	X	
MB Surrogate Recovery	NA	NA	NA	X	
Lab Control Spike	NA	NA	NA	Х	
Surrogates	NA	NA	NA	х	
Analyte Co-elution	NA	NA	NA	х	
Retention Time	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	X	

1 of 1

Printed: 06/06/2011 14:08:54 $u:\Stealth\Crystal.rpt\except2.rpt$

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

ΙV

05/24/2011

Matrix:

WATER

Analysis Lot:

KWG1105074

Prep Lot:

Receive Date:

05/24/2011

Analysis Method:

NWTPH-Dx

Prep Method:

Prep Date:

Collect Date:

KWG1104910

Prep Ref:

1023358

Method

05/27/2011

Report Group:

K1104627

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: Report List ID: CAL10358

LJ1365

Method ID:

MJ227

Quant based on Report List

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

GC21

Data File: Acqu Date: Run Type:

Lab ID:

J:\GC21\DATA\060211F\0602F089.D 06/04/2011 04:45

Quant Date:

Instrument:

SMPL

K1104627-010

06/06/2011 11:11

Vial:

20

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Surrogue compounds		RT		Solution Conc	%Rec	%Rec Limits	Rpt?
Parameter Name	RT	Dev	Response	Conc	70 KEC	Limits	Kpt.
o-Terphenyl	5.51	0.00	53336	42.41	85	50-150 OI	
n-Triacontane	7.66	0.00	45704	41.83	84	50-150 OI	ζ

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q Rpt?
Diesel Range Organics (DRO)	3.82	?	5232	5.54	16	U
Residual Range Organics (RRO)	6.58	?	10009	16.39	46	J

Prep Amount:

360 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

06/06/2011 13:57:46 Printed:

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria #: Acceptance criteria not applicable

?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060211F\0602F089.D Vial: 20 Acq On : 04 Jun 2011 4:45 am Operator: JMSmith : K1104627-010 Inst : GC21 Sample Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 06 11:11:42 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

(Compound		R.T.	Response	Conc (Jnits
1) S 4 Spiked Amo 2) S o Spiked Amo 3) S T	Monitoring (-Bromofluorok ount 50.000 -Terphenyl ount 50.000	penzene)	Recov 5.51 Recov 7.66	20821 very = 53336 very = 45704 very =	73.47% 42.413 84.83% 41.826	ppm
Spiked Am	ount 50.000)	Reco	/ery =	03,03%	
Target	Compounds					
	8-C12ex GRO N	1M	2.25	1837	4.769	
5) H C	10-C24ex DRO	Arcadis	3.07	6006		
6) H C	10-C25ex DRO	AK102	3.17		6.216	
7) H C	10-C28in DRO	8015	3.27	9398		
8) H C	12-C24ex DRO	T&R	3.72	4643		
9) H C	12-C25ex DRO	NM	3.82	5232	5.544	ppm
10) H C	13-C23ex DRO	AZ	4.00	4009		
11) H C	23-C32in RRO	AZ	6.22	7490	16.354	ppm
12) H C	24-C36in RRO	T&R/Arcadis	6.40	10598	16.473	ppm
	25-C36in RRO		6.58	10009	16.386	ppm
	25-C36in RRO	Motor Oil	6.68	10009	16.445	ppm
	29-C36in RRO		7.36	7206	16.907	ppm
	29-C40in RRO	Premier	7.46	11186	18.694	ppm

Data File : J:\GC21\DATA\060211F\0602F089.D Vial: 20

Acq On : 04 Jun 2011 4:45 am Operator: JMSmith Sample : K1104627-010 Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

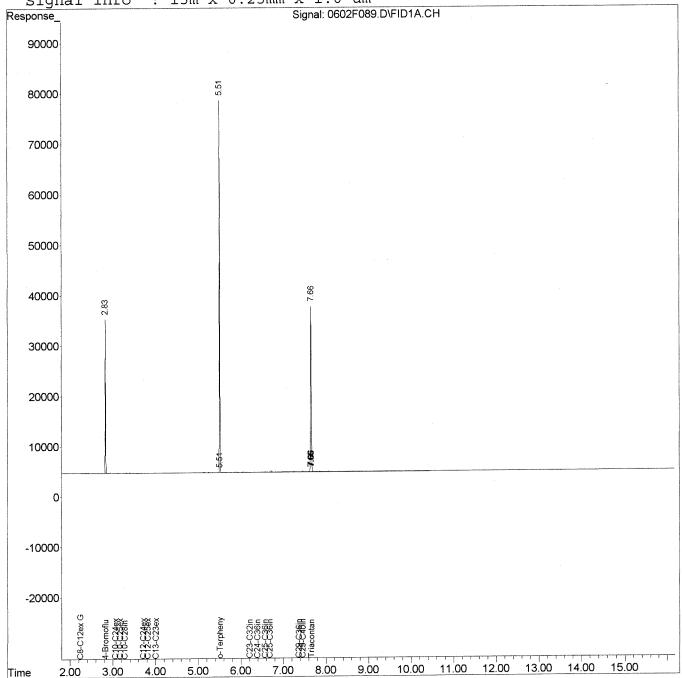
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

TS1-052311DUP

Lab Code:

KWG1104910-1

Units: ug/L Basis: NA

Extraction Method:

Method

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	290	1	05/27/11	06/03/11	KWG1104910	
Residual Range Organics (RRO)	ND U	570	1	05/27/11	06/03/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	97	50-150	06/03/11	Acceptable	
n-Triacontane	94	50-150	06/03/11	Acceptable	

Comments:

Printed: 06/07/2011 15:34:58 u:\Stealth\Crystal.rpt\FormlmNew.rpt

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F068.D

Lab ID:

KWG1104910-1

RunType: Matrix:

DUP WATER Date Acquired: Date Quantitated:

Batch ID:

06/03/2011 21:04 06/06/2011 11:11 KWG1105074

Analysis Method: MethodJoinID: MJ227

NWTPH-Dx

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	х	
ICAL Analyte Recovery	NA	NA	NA	Х	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	~
Overdiluted Analysis	NA	NA	NA	x	

 $u:\Stealth\Crystal.rpt\except2.rpt$

Printed: 06/06/2011 14:07:57

100

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

Collect Date:

Matrix:

WATER

Receive Date:

Report Group:

05/31/2011

Analysis Lot:

Analysis Method:

KWG1105074 NWTPH-Dx

Prep Lot:

KWG1104910

Prep Method: Prep Date:

Quant Date:

Method 05/27/2011

Prep Ref:

1023365

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

Method ID:

J:\GC21\DATA\060211F\0602F066.D

MJ227

MB Ref:

Quant based on Method

Data File:

J:\GC21\DATA\060211F\0602F068.D

Instrument:

GC21

Acqu Date: Run Type:

Lab ID:

06/03/2011 21:04 DUP

KWG1104910-1

06/06/2011 11:11

Vial:

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	60748	48.31	97	50-150 OK	
n-Triacontane	7.66	0.00	51411	47.05	94	50-150 OK	

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	· Q	Rpt?
C10 - C28 DRO	3.27	?	46952	43.87	99.7		
Diesel Range Organics (DRO)	3.82	?	42036	44.54	101	J	
Residual Range Organics (RRO)	6.58	?	7347	12.03	27.3	J	

Prep Amount:

440 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

Printed: 06/06/2011 13:54:49 u:\Stealth\Crystal.rpt\quant1.rpt

D: Result from dilution

m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060211F\0602F068.D

Vial: 4 Acq On : 03 Jun 2011 9:04 pm Operator: JMSmith Sample : K1104627-001DUP

Misc

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:11:22 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

	Compound	R.T. R	esponse	Conc Units	
Svst	em Monitoring Compounds			 	
	4-Bromofluorobenzene	2.83	23998	42 342 nnm	
	Amount 50.000	Recovery			
_	o-Terphenyl	5.51			
	Amount 50.000	Recovery		the the	
	Triacontane	7.66	51411	47.049 ppm	
	Amount 50.000	Recovery			
•					
Targe	et Compounds				
4) H	C8-C12ex GRO NW	2.25	3898	10.120 ppm	
5) H	C10-C24ex DRO Arcadis	3.07	43185		
6) H	C10-C25ex DRO AK102	3.17	44367		
7) H	C10-C28in DRO 8015	3.27	46952		
8) H	C12-C24ex DRO T&R	3.72	40854		
9) H	C12-C25ex DRO NW	3.82	42036		
10) H	C13-C23ex DRO AZ	4.00	38531		
11) H	C23-C32in RRO AZ	6.22	8177		
12) H	C24-C36in RRO T&R/Arcadis	6.40	8529	13.257 ppm	
	C25-C36in RRO NW	6.58	7347		
14) H	C25-C36in RRO Motor Oil	6.68	7347		
	C29-C36in RRO Stratus	7.36	4763		
16) H	C29-C40in RRO Premier	7.46	5869	9.808 ppm	

._______

Vial: 4

Data File : J:\GC21\DATA\060211F\0602F068.D

Acq On : 03 Jun 2011 9:04 pm Operator: JMSmith

Sample : K1104627-001DUP Inst : GC21
Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

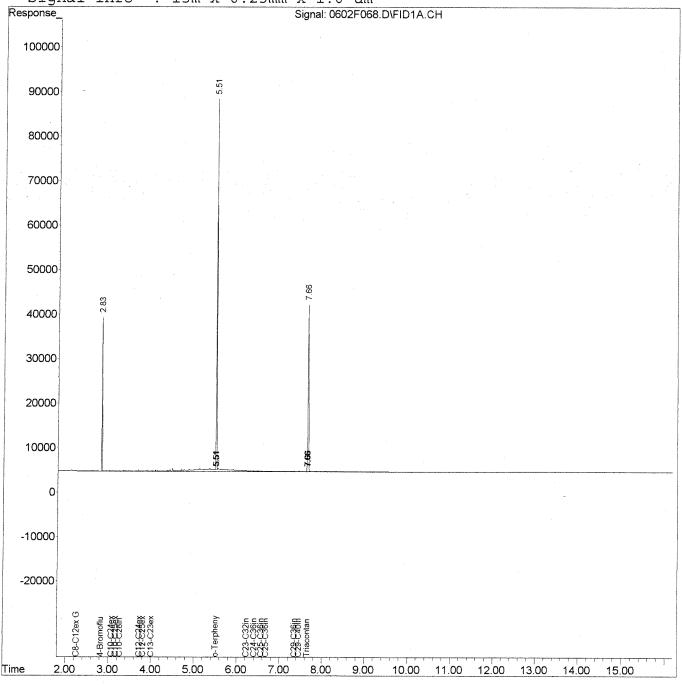
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: NA Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Batch QCDUP

Lab Code:

KWG1104910-2

Units: ug/L

Extraction Method:

Method

Basis: NA

Level: Low

Analysis	Method:	NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO) Residual Range Organics (RRO)	ND U ND U	250 500	1	05/27/11 05/27/11	06/03/11 06/03/11	KWG1104910 KWG1104910	
Residual Range Organics (RRO)	ND U	300	1	03/2//11	00/03/11	KW01104310	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	96	50-150	06/03/11	Acceptable	
n-Triacontane	88	50-150	06/03/11	Acceptable	

Comments:

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F070.D

Lab ID:

KWG1104910-2

RunType: Matrix:

DUP WATER Date Acquired: **Date Quantitated:**

06/03/2011 21:48

06/06/2011 11:11

Batch ID:

KWG1105074 NWTPH-Dx

Analysis Method: MethodJoinID:

MJ227

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	х	
ICAL Analyte Recovery	NA	NA	NA	х	
Second Source ICAL Verification	NA	NA	NA	х	
Calibration Verification Pass/Fail	NA	NA	NA	x	
Continuing Calibration Recovery	NA	NA	NA	х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	х	***********
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	x	
Retention Time	NA	NA	NA	х	
Std MRL Unsupported by ICAL	NA .	NA	NA	x	
Below Lowest ICAL Level	NA	NA	NA	х	
Above Highest ICAL Level	NA	NA	NA	х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	х	

Secondary Review:

Page 1 of 1

Quantitation Report

Bottle ID:

Prod Code:

NWTPH-Dx NW TPH

Tier:

Collect Date:

Matrix:

Receive Date:

Report Group:

WATER 05/31/2011

Analysis Lot:

Prep Ref:

Analysis Method:

KWG1105074

1023366

NWTPH-Dx

Prep Lot:

KWG1104910

Prep Method:

Method

Prep Date:

05/27/2011

Quant Method:

Title:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

J:\GC21\DATA\060211F\0602F066.D

Method ID:

MJ227

Quant based on Method

Data File:

Lab ID:

MB Ref:

J:\GC21\DATA\060211F\0602F070.D

Acqu Date: Run Type:

06/03/2011 21:48

KWG1104910-2

Quant Date:

06/06/2011 11:11

Instrument:

GC21

DUP

Vial:

6

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	60088	47.78	96	50-150	OK
n-Triacontane	7.66	0.00	48124	44.04	88	50-150	OK

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	5927	5.54	15	U	
Diesel Range Organics (DRO)	3.82	?	2593	2.75	11	U	
Residual Range Organics (RRO)	6.58	?	6163	10.09	20.2	J	

Prep Amount: Prep Final Vol: 500 mL 1 mL

Dilution: Unit Factor:

1.0 1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

06/06/2011 13:55:36

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F070.D

Vial: 6 Acq On : 03 Jun 2011 9:48 pm Operator: JMSmith

Sample : K1104704-001DUP Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:11:24 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T. R	esponse	Conc Units	
S/ S Irlacontane	2.83 Recovery 5.51 Recovery 7.66 Recovery	= 60088 = 48124	70.85% 47.782 ppm 95.56% 44.041 ppm	
Target Compounds 4) H C8-C12ex GRO NW 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ 11) H C23-C32in RRO AZ 11) H C24-C36in RRO T&R/Arcadis 13) H C25-C36in RRO NW 14) H C25-C36in RRO Motor Oil 15) H C29-C36in RRO Stratus 16) H C29-C40in RRO Premier	3.07 3.17 3.27 3.72 3.82 4.00 6.22 6.40 6.58 6.68 7.36	3798 4262 5927 2129 2593 1619 5052 6627 6163 4498	4.017 ppm 5.538 ppm 2.266 ppm 2.747 ppm 1.915 ppm 11.031 ppm 10.301 ppm 10.300 ppm	

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F070.D

Vial: 6 Acq On : 03 Jun 2011 9:48 pm Operator: JMSmith

: K1104704-001DUP Sample Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

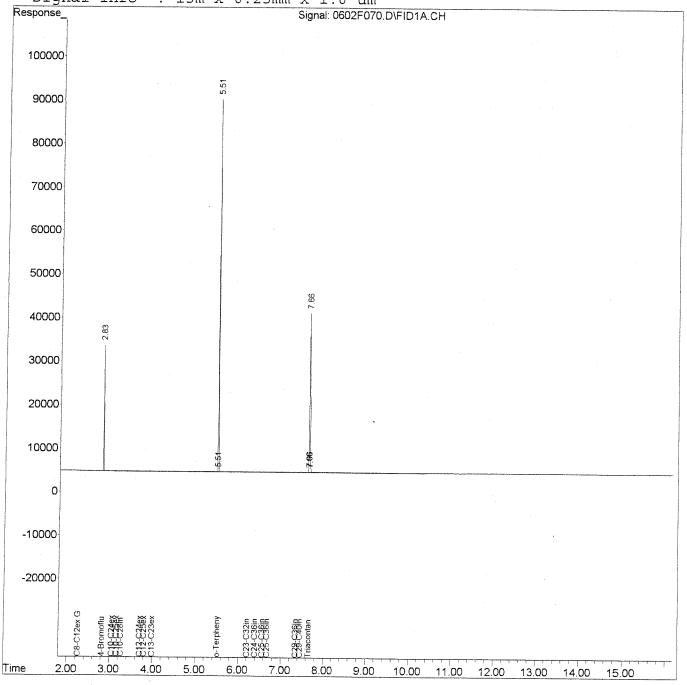
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Misc. aqueous li

Service Request: K1104627

Date Collected: NA **Date Received:** NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Method Blank

Lab Code:

KWG1104910-4

Units: ug/L

Extraction Method:

Method

Basis: NA

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	250	1	05/27/11	06/03/11	KWG1104910	
Residual Range Organics (RRO)	ND U	500	1	05/27/11	06/03/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	90	50-150	06/03/11	Acceptable	
n-Triacontane	90	50-150	06/03/11	Acceptable	

Comments:

Printed: 06/07/2011 15:35:04 u:\Stealth\Crystal.rpt\Form1mNew.rpt

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F066.D

Lab ID:

KWG1104910-4

RunType: Matrix:

MISC. AQUEOUS LIQ

Date Acquired: Date Quantitated: 06/03/2011 20:18 06/06/2011 11:11

Batch ID:

KWG1105074 NWTPH-Dx

Analysis Method: MethodJoinID:

MJ227

Sample Exceptions

MB

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	Х	
ICAL Analyte Recovery	NA	NA	NA	х	***************************************
Second Source ICAL Verification	NA	NA	NA	х	
Calibration Verification Pass/Fail	NA	NA	NA	Х	
Continuing Calibration Recovery	NA	NA	NA	х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	Х	
Surrogates	NA	NA	NA	х	
Analyte Co-elution	NA	NA	NA	· X ·	
Retention Time	NA	NA	NA	х	
Std MRL Unsupported by ICAL	NA	NA	NA	х	
Below Lowest ICAL Level	NA	NA	NA	х	
Above Highest ICAL Level	NA	NA	NA	Х	-
Enviroquant/Stealth Calibration Check	NA	NA	NA	х	
Overdiluted Analysis	NA	NA	NA	х	

Primary Review:

Secondary Review:

Page 1 of 1

Printed: 06/06/2011 14:07:51

Quantitation Report

Bottle ID:

Prod Code:

NWTPH-Dx NW TPH

Tier:

Collect Date:

Matrix:

MISC. AQUEOUS

Receive Date:

Report Group:

05/31/2011

Analysis Lot: Analysis Method: KWG1105074

NWTPH-Dx

Prep Lot:

KWG1104910

Method

Prep Ref:

1023368

Prep Method: Prep Date: 05/27/2011

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

Method ID:

MJ227

MB Ref:

Quant based on Method

J:\GC21\DATA\060211F\0602F066.D

Data File: Acqu Date: Run Type:

Lab ID:

06/03/2011 20:18

KWG1104910-4

Quant Date:

Instrument:

GC21

MB

06/06/2011 11:11

Vial:

2

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	56627	45.03	90	50-150 OK	
n-Triacontane	7.66	0.00	49238	45.06	90	50-150 OK	

Target Compounds

Final Conc. Units:

ug/L

ce compounds					-	/
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q Rpt?
C10 - C28 DRO	3.27	?	9514	8.89	17.8	J
Diesel Range Organics (DRO)	3.82	?	4649	4.93	11	U
Residual Range Organics (RRO)	6.58	?	11179	18.30	36.6	J

Prep Amount:

500 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Residual Range Organics (RRO)

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E. Analyte concentration above high point of ICAL N: Presumptive evidence of compound

06/06/2011 13:54:41 $u:\Stealth\Crystal.rpt\quantl.rpt$

D: Result from dilution m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria #: Acceptance criteria not applicable

^{?:} Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F066.D

Vial: 2 Acq On : 03 Jun 2011 8:18 pm Sample : KQ1104978-04MB Operator: JMSmith Inst : GC21 Multiplr: 1.00

Misc

IntFile : rteint.p

Quant Time: Jun 06 11:11:20 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

	Compound		R.T.	Re	sponse	Conc	Units	
	em Monitoring Compounds							
	4-Bromofluorobenzene		2.83		22316	39.374	ppm	
	Amount 50.000		Red	covery	=	78.75%		
	o-Terphenyl		5.51		56627	45.030	ppm	
	Amount 50.000		Red	covery	=	90.06%		
	Triacontane		7.66		49238	45.061	ppm	
Spiked	Amount 50.000		Red	covery	=	90.12왕		
_	et Compounds							
	C8-C12ex GRO NW		2.25			6.293		
	C10-C24ex DRO Arcadis				6236			
	Clo-C25ex DRO AK102		3.17		6904			
						8.889		
	C12-C24ex DRO T&R		3.72			4.239		
	C12-C25ex DRO NW		3.82		4649	4.926	ppm	
	C13-C23ex DRO AZ		4.00		3141	3.716	ppm	
11) H	C23-C32in RRO AZ		6.22		7963	17.387	ppm	
12) H	C24-C36in RRO T&R/Arcadia	s	6.40		11846	18.413	ppm	
13) H	C25-C36in RRO NW		6.58		11179			
14) H	C25-C36in RRO Motor Oil		6.68		11179			
15) H	C29-C36in RRO Stratus		7.36		8568			
16) H	C29-C40in RRO Premier		7.46		13234			

Data File : J:\GC21\DATA\060211F\0602F066.D

 Acq On
 : 03 Jun 2011 8:18 pm
 Operator: JMSmith

 Sample
 : KQ1104978-04MB
 Inst : GC21

 Misc
 : Multiplr: 1.00

Misc : IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

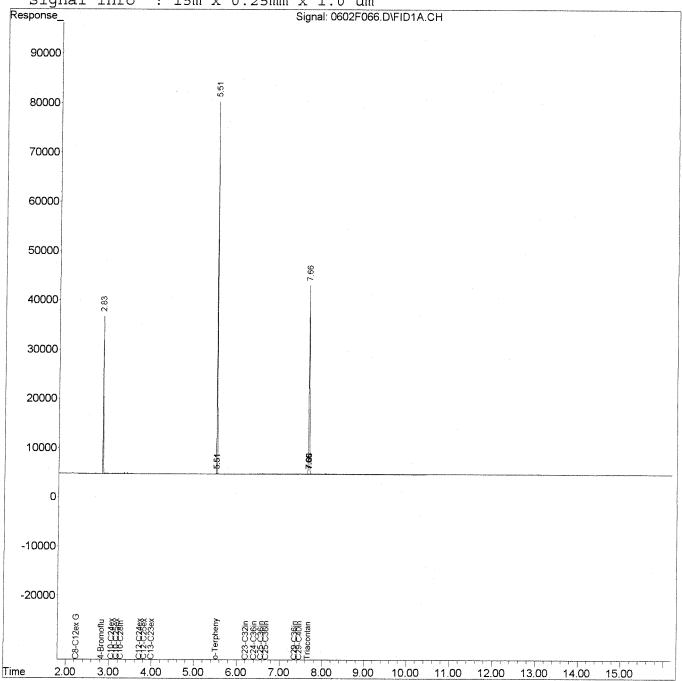
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Vial: 2

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

ND U

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: NA Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Batch QC

Lab Code:

K1104704-001

Units: ug/L

Extraction Method:

Method

Basis: NA

Level: Low

KWG1104910

Analysis Method: NWTPH-Dx

Residual Range Organics (RRO)

Dilution Date Date Extraction **Analyte Name** Result Q **MRL Factor** Extracted Analyzed Lot Note Diesel Range Organics (DRO) ND U 250 1 05/27/11 06/03/11 KWG1104910

1

05/27/11

06/03/11

500

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	86	50-150	06/03/11	Acceptable	
n-Triacontane	83	50-150	06/03/11	Acceptable	

Comments:

Printed: 06/07/2011 15:35:07 u:\Stealth\Crystal.rpt\Form1mNew.rpt

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F069.D

Lab ID:

K1104704-001

RunType: Matrix:

SMPLWATER Date Acquired: Date Quantitated:

Batch ID:

KWG1105074 NWTPH-Dx

Analysis Method: ListJoinID:

LJ1365

06/03/2011 21:26

06/06/2011 11:11

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	х	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	Х	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	Х	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	Х	
MB Surrogate Recovery	NA	NA	NA	x	
Lab Control Spike	NA	NA	NA	x	**********
Surrogates	NA	NA	NA	х	***************************************
Analyte Co-elution	NA	NA	· NA	X	
Retention Time	NA	NA	NA:	x	
Below Lowest ICAL Level	NA	NA	NA	x	
Std MRL Unsupported by ICAL	NA	NA	NA	Χ.	
Above Highest ICAL Level	NA	NA	NA	х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review:

Secondary Review:

Page 1 of 1

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Dx NW TPH

Tier:

П 05/25/2011 Matrix:

WATER

Analysis Lot:

KWG1105074

Prep Lot:

Receive Date:

Report Group:

05/26/2011

K1104704

Analysis Method:

NWTPH-Dx

KWG1104910

Prep Method:

Prep Date:

Collect Date:

Method 05/27/2011

Prep Ref:

1023360

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Report List ID:

CAL10358

Method ID:

LJ1365

Calibration ID:

MB Ref:

J:\GC21\DATA\060211F\0602F066.D

Quant based on Report List

MJ227

Data File:

J:\GC21\DATA\060211F\0602F069.D

Acqu Date: Run Type:

Lab ID:

06/03/2011 21:26

K1104704-001

SMPL

Quant Date:

06/06/2011 11:11

Instrument:

GC21

Vial: Dilution: 5

Soln Conc. Units:

1.0 ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	54125	43.04	86	50-150 OK	
n-Triacontane	7.66	0.00	45105	41.28	83	50-150 OK	

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	4294	4.55	11	U	
Residual Range Organics (RRO)	6.58	?	9073	14.85	30	J	

Prep Amount:

500 mL

Dilution:

1.0

Prep Final Vol:

1 mL

Unit Factor:

1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

Printed:

- D: Result from dilution
- m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

- *: Result fails acceptance criteria
- #: Acceptance criteria not applicable
- ?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F069.D

Vial: 5 Acq On : 03 Jun 2011 9:26 pm Operator: JMSmith

Sample : K1104704-001 Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:11:23 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc Units
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	Recor 5.51 Recor	very = 54125 very = 45105	43.040 ppm 86.08% 41.278 ppm
Target Compounds 4) H C8-C12ex GRO NW 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C25ex DRO AZ 11) H C23-C32in RRO AZ 12) H C24-C36in RRO T&R/Arcadis 13) H C25-C36in RRO NW 14) H C25-C36in RRO Motor Oil 15) H C29-C36in RRO Stratus 16) H C29-C40in RRO Premier	3.17 3.27 3.72 3.82 4.00 6.22 5 6.40 6.58 6.68 7.36	3636 4294 2869 7249 9732 9073 9073	5.426 ppm 6.023 ppm 8.318 ppm 3.871 ppm 4.550 ppm 3.394 ppm 15.828 ppm 15.127 ppm 14.854 ppm 14.907 ppm 15.391 ppm

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F069.D

Vial: 5 : 03 Jun 2011 9:26 pm Acq On Operator: JMSmith Sample : K1104704-001 Inst : GC21

Misc

IntFile

: rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

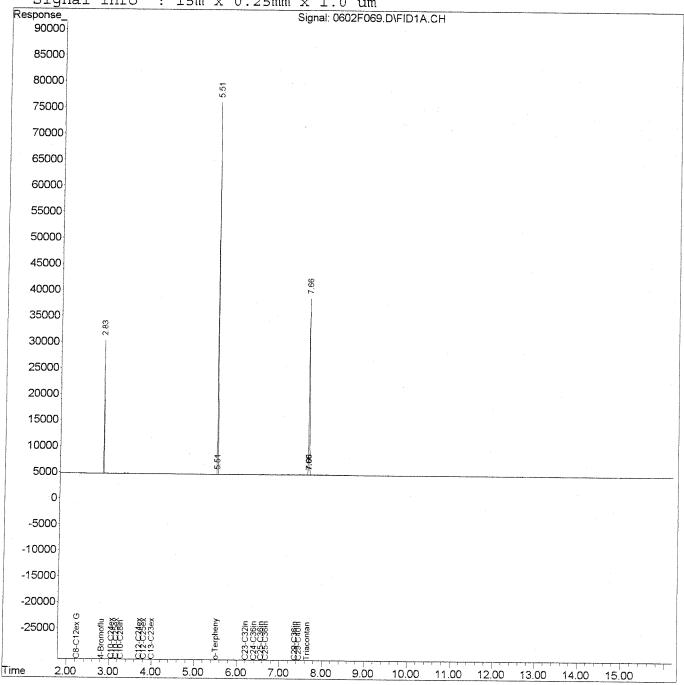
: 8015/NWTPH Semivolatile Range Organics | CAL10358 Title

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



Multiplr: 1.00

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Misc. aqueous li

Service Request: K1104627

Date Collected: NA

Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Lab Control Sample

Lab Code:

KWG1104910-3

Units: ug/L Basis: NA

Extraction Method:

Method

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	3100	250	1	05/27/11	06/03/11	KWG1104910	
Residual Range Organics (RRO)	1800	500	1	05/27/11	06/03/11	KWG1104910	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
-Terphenyl	100	50-150	06/03/11	Acceptable
n-Triacontane	103	50-150	06/03/11	Acceptable

Comments:

Printed: 06/07/2011 15:35:10 $u:\Stealth\Crystal.rpt\Form\ImNew.rpt$

119

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F065.D

Lab ID:

KWG1104910-3

RunType:

LCS

MISC. AQUEOUS LIQ Matrix:

Date Acquired:

Date Quantitated: Batch ID:

MethodJoinID:

Analysis Method:

06/06/2011 11:11 KWG1105074 NWTPH-Dx

06/03/2011 19:56 -

MJ227

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	Х	****
ICAL Analyte Recovery	NA	NA	NA	х	
Second Source ICAL Verification	NA	NA	NA	х	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	Х	
Retention Time	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA	NA	Х	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	х	
Overdiluted Analysis	NA	NA	NA	X	

Secondary Review:

1 of 1

Printed: 06/06/2011 14:07:48 u:\Stealth\Crystal.rpt\except2.rpt

Quantitation Report

Bottle ID:

Prod Code:

Tier:

Matrix:

MISC. AQUEOUS

NWTPH-Dx NW TPH

Collect Date:

Receive Date:

Report Group:

05/31/2011

Analysis Lot: Analysis Method: KWG1105074

NWTPH-Dx

Prep Lot:

KWG1104910

Prep Method: Prep Date:

Quant Date:

Method 05/27/2011

Prep Ref:

1023367

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

J:\GC21\DATA\060211F\0602F066.D

Method ID:

MJ227

MB Ref:

Quant based on Method

Data File:

J:\GC21\DATA\060211F\0602F065.D

Instrument:

GC21

Acqu Date:

06/03/2011 19:56

06/06/2011 11:11

Vial:

1

Run Type: Lab ID:

LCS

KWG1104910-3

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	63100	50.18	100	50-150 OK	
n-Triacontane	7.66	0.00	56511	51.72	103	50-150 OK	

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	1798780	1,681	3360		
Diesel Range Organics (DRO)	3.82	?	1464811	1,552	3100		
Residual Range Organics (RRO)	6.58	?	550577	901.39	1800		

Prep Amount: Prep Final Vol: 1 mL

500 mL

Dilution: Unit Factor:

1.0 1000

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

Printed:

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL
N: Presumptive evidence of compound

06/06/2011 13:54:20 u:\Stealth\Crystal.rpt\quant1.rpt

D: Result from dilution

m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F065.D

Vial: 1 Acq On : 03 Jun 2011 7:56 pm Sample : KQ1104978-03LCS Operator: JMSmith Inst : GC21

Misc

IntFile : rteint.p

Quant Time: Jun 06 11:11:18 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T.	Response	Conc	Units
Gratan Manitanian Gamana				
System Monitoring Compounds				
1) S 4-Bromofluorobenzene	2.83	24930	43.986	ppm
Spiked Amount 50.000	Reco	very =	87.97%	
2) S o-Terphenyl	5.51	63100	50.177	ppm
1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000	Reco	very =	100.35%	
3) S Triacontane	7.66	56511	51.716	mag
Spiked Amount 50.000		very =		
Target Compounds				
4) H C8-C12ex GRO NW	2.25	214561	557.070	maa
5) H C10-C24ex DRO Arcadis	3.07		1499.579	
	3.17		1531.141	
7) H C10-C28in DRO 8015			1680.633	
•	3.72		1516.640	
9) H C12-C25ex DRO NW	3.82		1552.043	
	4.00		1516.753	
11) H C23-C32in RRO AZ	6.22	448605	979 523	ppm
12) H C24-C36in RRO T&R/Arcadis	6 40	590735	010 205	ppm
13) H C25-C36in RRO NW	6 50	550577	910.203	ppiii
	6.50	5505//	901.392	ppiii
14) H C25-C36in RRO Motor Oil	0.68	550577	904.591	ppm
15) H C29-C36in RRO Stratus				
16) H C29-C40in RRO Premier	7.46	533037	890.797	ppm

Multiplr: 1.00

Data File : J:\GC21\DATA\060211F\0602F065.D

Vial: 1 Acq On : 03 Jun 2011 7:56 pm Operator: JMSmith : K01104978-03LCS Sample Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

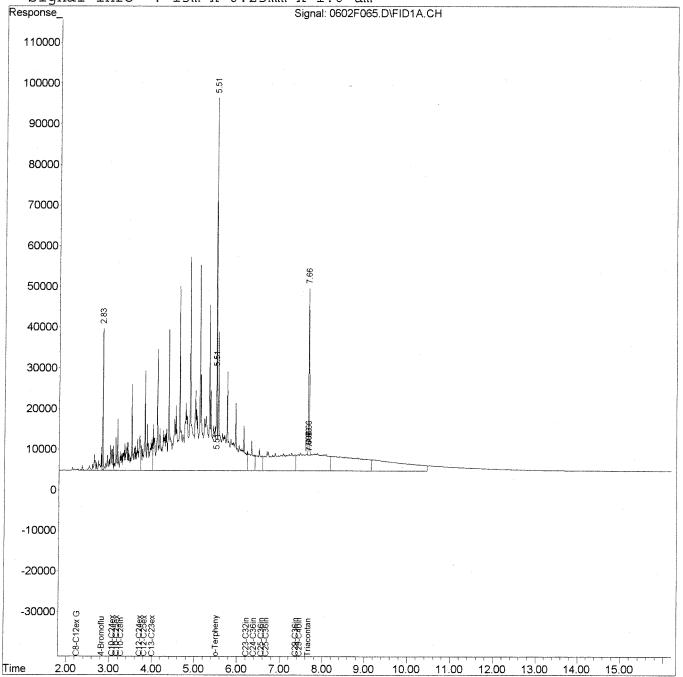
Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u> Validation Package

Standards Data

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104627 **Calibration Date:** 03/14/2011

Initial Calibration Summary
Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: Instrument ID:

CAL10358

GC21

Column: ZB-1

Level ID	File ID	Level ID	File ID
A	J:\GC21\DATA\031311F\0313F110.D	I ·	J:\GC21\DATA\031311F\0313F136.D
В	J:\GC21\DATA\031311F\0313F112.D	J	J:\GC21\DATA\031311F\0313F138.D
C	J:\GC21\DATA\031311F\0313F114.D	K	J:\GC21\DATA\031311F\0313F140.D
D	J:\GC21\DATA\031311F\0313F116.D	L	J:\GC21\DATA\031311F\0313F142.D
E	J:\GC21\DATA\031311F\0313F118.D	M	J:\GC21\DATA\031311F\0313F144.D
F	J:\GC21\DATA\031311F\0313F120.D	N	J:\GC21\DATA\031311F\0313F146.D
G	J:\GC21\DATA\031311F\0313F132.D		
Н	J:\GC21\DATA\031311F\0313F134.D		

Analysta Nama	Level ID	A ¢	DE	Level ID	A 4	DE	Leve ID		DE	Level ID		n.r.	Level ID		DE
Analyte Name		Amt	RF	117	Amt	RF	עו	Amt	RF	110	Amt	RF	ш	Amt	RF
Diesel Range Organics (DRO)															1
				G	20	914	Н	50	923	I	200	981	J	500	971
	K	2000	936	L	5000	999	M	20000	902	N	50000	923	1		
Residual Range Organics (RRO)				В	50	695	С	200	587	D	500	618	Е	2000	559
	F	5000	594	f			1			:					
				1			!			1			!		1
o-Terphenyl							1			1					-
				G	1.0	1260	Н	2.5	1240	I	10	1310	J	25	1250
	K	100	1230	L	250	1260									,
n-Triacontane				!			t t			-			-		
				G	1.0	1130	Н	2.5	1090	I	10	1120	J	25	1060
	K	100	1080	L	250	1080									į
				:			:			:			:		

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

Printed: 06/07/2011 15:35:16 u:\Stealth\Crystal.rpt\Form6iNew.rpt

Form 6A - Organic

Page 1 of 2

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Calibration Date: 03/14/2011

Initial Calibration Summary

Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID:

CAL10358

Instrument ID:

GC21

Column: ZB-1

			Calibratio	n Evaluat	ion	
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	3.8		≤ 20
Residual Range Organics (RRO)	MS	AverageRF	% RSD	8.4		≤ 20
o-Terphenyl	SURR	AverageRF	% RSD	2.4		≤ 20
n-Triacontane	SURR	AverageRF	% RSD	2.4		≤ 20

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

Printed: 06/07/2011 15:35:16

Form 6A - Organic 126

Page RR129651

2 of 2

SuperSet Reference:

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104627 Calibration Date: 03/14/2011

Date Analyzed: 03/14/2011

Second Source Calibration Verification Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type:

External Standard

Calibration ID: CAL10358

Analysis Method:

NWTPH-Dx

Units: ppm

File ID:

J:\GC21\DATA\031311F\0313F150.D J:\GC21\DATA\031311F\0313F152.D Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	961	2	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	616		NA	± 15 %	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 1

SuperSet Reference:

Injection Log

Directory: J:\GC21\DATA\031311F

03/3/18SRO.M/CAL/0358

Line	Vial	FileName	Multiplier	SampleName Misc Info	Injected
1 2 3 4 5 6 7 8 9	90 90 90 90 90 90 90	0313F002.D 0313F004.D 0313F006.D 0313F008.D 0313F010.D 0313F012.D 0313F014.D 0313F016.D 0313F018.D	1, 1, 1, 1, 1, 1, 1,	IB	03/13/22011 6:05 03/13/22011 6:27 03/13/22011 6:45 03/13/22011 7:11 03/13/22011 7:34 03/13/22011 7:56 03/13/22011 8:15 03/13/22011 8:41 03/13/22011 9:03
10 11 12 13 14 15 16 17 18	90 90 90 90 90	0313F020.D 0313F022.D 0313F024.D 0313F026.D 0313F028.D 0313F030.D 0313F032.D 0313F034.D 0313F036.D 0313F038.D	1. " 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	IB IB IB IB IB IB IB IB IB IB	03/13/22011 9:26 03/13/22011 9:48 03/13/22011 10:10 03/13/22011 10:3 03/13/22011 10:5 03/13/22011 11:1 03/13/22011 11:3 03/14/22011 12:0 03/14/22011 12:2 03/14/22011 12:4
26 27 28	90 90 90 90 90 90 99	0313F040.D 0313F042.D 0313F044.D 0313F046.D 0313F048.D 0313F050.D 0313F102.D 0313F104.D 0313F106.D 0313F106.D	1. 1. 1. 1. 1. 1. 1.	IB IB IB IB IB IB SHC MARKER SVF01-04E AROMATICS MARKER DWSTD04-78I IB	03/14/22011 1:08 03/14/22011 1:30 03/14/22011 1:52 03/14/22011 2:14 03/14/22011 2:37 03/14/22011 2:58 03/14/22011 3:42 03/14/22011 4:04 03/14/22011 4:26 03/14/22011 4:48
31 32 33 34 35 36 37	2 3 4 5 6 89	0313F110.D 0313F112.D 0313F114.D 0313F116.D 0313F118.D 0313F120.D 0313F122.D 0313F124.D 0313F126.D	1. 1. 1. 1. 1. 1. 1.	GRO/RRO @ 20ppm SVF01-06D GRO/RRO @ 50ppm SVF01-06B GRO/RRO @ 200ppm SVF01-06C GRO/RRO @ 500ppm SVF01-06A GRO/RRO @ 2000ppm SVF01-05P GRO/RRO @ 5000ppm SVF01-05O DCM DCM GRO/RRO ICV @ 1000ppm DWSTD04-93H	03/14/22011 5:10 03/14/22011 5:33 03/14/22011 5:55 03/14/22011 6:17 03/14/22011 6:39 03/14/22011 7:01 03/14/22011 7:23 03/14/22011 7:45
40 41 42 43 44 45 46 47 48 49 50	89 (8 9 (9 110 (111 (1111) (1111 (1111 (1111) (1111 (1111) (111) (1111) (1111) (1111) (1111) (1111) (1111) (1111) (1111) (111) (1111) (1111) (1111) (1111) (1111) (1111) (1111) (1111) (1111) (1111) (11)) (11) (111) (11) (11)) (11) (11) (11) (11) (11) (11)) (11) (0313F128.D 0313F130.D 0313F132.D 0313F134.D 0313F136.D 0313F138.D 0313F140.D 0313F142.D 0313F144.D 0313F144.D	1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	DCM DRO @ 20/1.0ppm SVF01-06L DRO @ 50/2.5ppm SVF01-06J DRO @ 200/10ppm SVF01-06K DRO @ 500/25ppm SVF01-06I DRO @ 2000/100ppm SVF01-06H DRO @ 5000/250ppm SVF01-06G DRO @ 20000ppm SVF01-06F DRO @ 50000ppm SVF01-06E DCM DRO ICV @ 1000ppm SVF01-01B	03/14/22011 8:07 03/14/22011 8:30 03/14/22011 8:52 03/14/22011 9:14 03/14/22011 9:55 03/14/22011 10:2: 03/14/22011 10:4: 03/14/22011 11:2: 03/14/22011 11:5: 03/14/22011 12:1: 03/14/22011 12:1:
51	7 ()313F152.D	1.	GRO/RRO ICV @ 1000ppm DWSTD04-93H	03/14/22011 12:3:

Page 1

14 Mar 2011 13:28

Response Factor Report GC21

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 14:08:46 2011

Calibration Files

DRO =0309F104.D RRO =0309F104.D 20 =0313F132.D =0313F136.D 500 50 =0313F112.D 200 =0313F138.D

							_		· · ·		
		Compound	DRO	RRO	20	50	200	500	Avg		%RSD
1) 2) 3) 4) 5) 6) 7) 8) 9) 11) 12) 13) 15) 17) 18) 19) 21) 22) 23) 24) 25) 27) 28)	SSSHHHHHHHHHHHHHH	4-Bromofluoroben o-Terphenyl Triacontane C8-C12ex GRO NW C10-C24ex DRO Ar C10-C25ex DRO AK C10-C28in DRO 80 C12-C24ex DRO T& C12-C25ex DRO NW C13-C23ex DRO AZ C23-C32in RRO AZ C24-C36in RRO T& C25-C36in RRO NW C25-C36in RRO Pr Ethylbenzene p,m-Xylenes o-Xylene a-Pinene 1,2,3-Trimethylb Fluoranthene Pyrene 2,6,10-Trimethyl Norpristane Pristane Phytane			1.261 1.132 3.781 1.017 1.026 1.066	1.240 1.090 4.258 1.033 1.037 1.049 9.191 9.233 8.280 5.121 7.227 6.949 6.841 4.870	1.312 1.115 3.481 1.099 1.102 1.107 9.778 9.814 8.797 4.424 6.204 5.874 4.095	1.246 1.063 3.808 1.088 1.091 1.095 9.677 9.715 8.704 4.652 6.533 6.184 6.184	4.580 6.434 6.108 6.086 4.262	E3 E2 E3 E3 E2 E2 E2 E2 E2 E2 E2 E2	3.30 2.37 2.38 7.01 3.85 3.77 3.44 3.85 3.76 3.79 7.29 7.68 8.43 7.74 8.81 7.29 -1.00 -1.0

^{(#) =} Out of Range ### Number of calibration levels exceeded format ### 031311FSRO.M Mon Mar 14 20:51:19 2011 Page 1

DATA ANALYSIS PARAMETERS

Method Name: J:\GC21\METHODS\031311FSRO.M

Percent Report Settings

Sort By: Signal

Output Destination

Screen: No Printer: Yes File: No

Integration Events: Meth Default

Generate Report During Run Method: No

Signal Correlation Window: 0.020

Quantitative Report Settings

Report Type: Summary

Output Destination
Screen: Yes
Printer: No
File: No

Generate Report During Run Method: No

8015/NWTPH Semivolatile Range Organics Calibration Last Updated: Mon Mar 14 14:08:46 2011

Reference Window: 10.00 Minutes Non-Reference Window: 5.00 Minutes Correlation Window: 0.02 minutes

Default Multiplier: 1.00

Default Sample Concentration: 0.00

Compound Information

^{1) 4-}Bromofluorobenzene ()
Ret. Time 2.86 min., Extract & Integrate from 2.81 to 2.91 min.
Lvl ID Conc (ppm) Response

```
50.000 -1 not used for this compound
 RRO
20 1.000 563
50 2.500 1352
200 10.000 5924
500 25.000 14101
2000 100.000 55652
5000 250.000 145967
20K not used for this compound
 50K
        not used for this compound
Curve Fit: Avg. RF
 o-Terphenyl
Ret. Time 5.54 min., Extract & Integrate from 5.49 to 5.59 min.
Lvl ID Conc (ppm) Response DRO 50.000 -1
DRO 50.000
RRO not used for this compound 1261
20
50
        1.000 1261
            2.500
                           3100
       2.500 3100

10.000 13120

25.000 31146

100.000 122565

250.000 315197

not used for this compound
200
500
2000
5000
20K
50K
      not used for this compound
Curve Fit: Avg. RF
3) Triacontane
Ret. Time 7.69 min., Extract & Integrate from 7.64 to 7.74 min.
Lvl ID Conc (ppm) Response
DRO 50.000 -1
        not used for this compound
RRO
20
        1.000 1132
2.500 2725
50 2.500 2725

200 10.000 11152

500 25.000 26575

2000 100.000 107822

5000 250.000 269457

20K not used for this compound

50K not used for this compound
50
Curve Fit: Avg. RF
4) C8-C12ex GRO NW
Ret. Time 2.29 min., Extract & Integrate from 2.29 to 3.74 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
        1000.000 -1
20.000 7561
50.000 21292
200.000 69621
500.000 190407
RRO
20
200
500
```

DRO

```
      2000
      2000.000
      745963

      5000
      5000.000
      2025853

      20K
      20000.000
      -1

      50K
      50000.000
      -1

 Curve Fit: Avg. RF
  ______
  5) C10-C24ex DRO Arcadis
 Ret. Time 3.10 min., Extract & Integrate from 3.10 to 6.43 min.
 Lvl ID Conc (ppm) Response DRO 1000.000 -1
 DRO 1000.000 -1
RRO not used for this compound 20.000 20338
 Curve Fit: Avg. RF
 6) C10-C25ex DRO AK102
Ret. Time 3.20 min., Extract & Integrate from 3.10 to 6.61 min.
Lvl ID Conc (ppm) Response
DRO 1000.000 -1
         not used for this compound
RRO

    not used for this compensation

    20.000
    20518

    50.000
    51846

    200.000
    220475

    500.000
    545727

    2000.000
    2105071

    5000.000
    5623433

    20000.000
    20290541

    50000.000
    51954781

20
50
200
500
2000
5000
20K
50K
Curve Fit: Avg. RF
( )
 7) C10-C28in DRO 8015
Ret. Time 3.30 min., Extract & Integrate from 3.10 to 7.39 min.
Lvl ID Conc (ppm) Response DRO 1000.000 -1
RRO
          not used for this compound
20
          20.000 21323
50.000 52434
50
       50.00052434200.000221300500.0005476532000.00021124565000.000564329020000.0002036225050000.00052137935
200
500
2000
5000
20K
50K
```

```
Lvl ID Conc (ppm) Response
 DRO not used for this compound
        1000.000 -1
20.000 -1
50.000 25607
200.000 88472
500.000 232608
2000.000 851342
5000.000 2222647
20000.000 -1
 RRO
 20
 50
 200
 500
 2000
 5000
 20K
                         -1
-1
 50K
         50000.000
                              -1
 Curve Fit: Avg. RF
12) C24-C36in RRO T&R/Arcadis ( )
Ret. Time 6.43 min., Extract & Integrate from 6.43 to 9.20 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
         1000.000 -1
20.000 -1
50.000 36133
RRO
20
50
       36133
124088
500.000 326671
2000.000 1184124
5000.000 3141438
20000.000
50000.000
200
500
2000
5000
20K 20000.000 -1
50K 50000.000 -1
Curve Fit: Avg. RF
13) C25-C36in RRO NW ()
Ret. Time 6.61 min., Extract & Integrate from 6.61 to 9.20 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO 1000.000 -1
20 20.000 -1
50 50.000 34745
200 200.000 117489
500 500.000 309195
2000 2000.000 1118711
5000 5000.000 2969740
20K 20000.000 -1
50K 50000.000 -1
Curve Fit: Avg. RF
14) C25-C36in RRO Motor Oil
                                                 ( )
Ret. Time 6.71 min., Extract & Integrate from 6.61 to 9.20 min.
Lvl ID
        Conc (ppm) Response
DRO not used for this compound
        1000.000 -1
20.000 -1
50.000 34205
200.000 117489
RRO
20
50
200
```

```
      500
      500.000
      309195

      2000
      2000.000
      1118711

      5000
      5000.000
      2969740

      20K
      20000.000
      -1

      50K
      50000.000
      -1

 Curve Fit: Avg. RF
 15) C29-C36in RRO Stratus
                                                      Ret. Time 7.39 min., Extract & Integrate from 7.39 to 9.20 min.
 Lvl ID Conc (ppm) Response
 DRO not used for this compound
Curve Fit: Avg. RF
 16) C29-C40in RRO Premier ( )
 Ret. Time 7.49 min., Extract & Integrate from 7.39 to 10.53 min.
 Lvl ID Conc (ppm) Response
 DRO not used for this compound

      not used for this composition

      1000.000
      -1

      20.000
      -1

      50.000
      33196

      200.000
      116189

      500.000
      303213

      2000.000
      1088166

      5000.000
      2982681

      20000.000
      -1

      50000.000
      -1

      50000.000
      -1

 RRO
20
50
           200.000
200
 500
 2000
 5000
20K 20000.000
50K 50000.000
                                            -1
 Curve Fit: Avg. RF
17) Ethylbenzene
                                                            ( )
Ret. Time 2.63 min., Extract & Integrate from 2.58 to 2.68 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO
            not used for this compound
20
           20.000 -1
50.000 -1
50 50.000
200 200.000
500 500.000
2000 2000.000
5000 5000.000
20K 20000.000
50K 50000.000
50
                                           - 1
                                           -1
                                           -1
                                           -1
                                           - 1
                                            - 1
```

```
Curve Fit: Avq. RF
  18) p,m-Xylenes ( ) Ret. Time 2.67 min., Extract & Integrate from 2.62 to 2.72 min.
 Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO not used for this compound
 20
 20 20.000 -1
50 50.000 -1
200 200.000 -1
500 500.000 -1
2000 2000.000 -1
2000 2000.000 -1
2000 5000.000 -1
5000 5000.000 -1
50K 50000.000 -1
 Curve Fit: Avg. RF
 19) o-Xylene
 Ret. Time 2.77 min., Extract & Integrate from 2.72 to 2.82 min.
 Lvl ID Conc (ppm) Response
DRO not used for this compound
DRO not used for this compound RRO not used for this compound 20 20.000 -1 50 50.000 -1 500 200.000 -1 5000 2000.000 -1 5000 5000.000 -1 5000 5000.000 -1 5000 5000.000 -1 5000 5000.000 -1 5000 5000.000 -1 5000 5000.000 -1
 Curve Fit: Avg. RF
 20) a-Pinene
Ret. Time 2.98 min., Extract & Integrate from 2.93 to 3.03 min.
Lvl ID Conc (ppm) Response

DRO not used for this compound

RRO 20.000 -1

50 50.000 -1

200 200.000 -1

500 500.000 -1

2000 2000.000 -1

2000 2000.000 -1

2000 2000.000 -1

5000 5000.000 -1

5000 5000.000 -1

50K 20000.000 -1
Curve Fit: Avg. RF
21) b-Pinene
Ret. Time 3.14 min., Extract & Integrate from 3.09 to 3.19 min.
```

```
Lvl ID Conc (ppm) Response
Curve Fit: Avg. RF
 22) 1,2,3-Trimethylbenzene
Ret. Time 3.26 min., Extract & Integrate from 3.21 to 3.31 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO not used for this compound
20 20.000 -1
50 50.000 -1
200 200.000 -1
500 500.000 -1
2000 2000.000 -1
2000 2000.000 -1
5000 5000.000 -1
5000 5000.000 -1
50K 50000.000 -1
Curve Fit: Avg. RF
23) Fluoranthene
Ret. Time 5.92 min., Extract & Integrate from 5.87 to 5.97 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO
         not used for this compound
20
50
         20.000 -1
50.000 -1

      50
      50.000
      -1

      200
      200.000
      -1

      500
      500.000
      -1

      2000
      2000.000
      -1

      5000
      5000.000
      -1

      20K
      20000.000
      -1

      50K
      50000.000
      -1

Curve Fit: Avg. RF
24) Pyrene
Ret. Time 6.03 min., Extract & Integrate from 5.98 to 6.08 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO
          not used for this compound
          20.000 -1
20
             50.000
50
                                    -1
```

```
200 200.000
500 500.000
                                -1
 500 500.000
2000 2000.000
5000 5000.000
20K 20000.000
50K 50000.000
                                -1
                                -1
                                -1
                                -1
                                -1
 Curve Fit: Avg. RF
 25) 2,6,10-Trimethyldodecane ( )
 Ret. Time 4.35 min., Extract & Integrate from 4.30 to 4.40 min.
 Lvl ID Conc ( ) Response
DRO not used for this compound not used for this compound
 20
         20.000
50.000

      50
      50.000

      200
      200.000

      500
      500.000

      2000
      2000.000

      5000
      5000.000

      20K
      20000.000

      50K
      50000.000

 50
                               -1
                              -1
                             -1
                               -1
                              -1
                               -1
                               -1
Curve Fit: Avg. RF
26) 2,6,10-Trimethyltridecane
Ret. Time 4.57 min., Extract & Integrate from 4.52 to 4.62 min.
Lvl ID Conc ( ) Response
DRO not used for this compound
        not used for this compound
RRO
         20.000 -1
20
         50.000
200.000
500.000
50
                               -1
200
                             -1
500
                              -1
      2000.000 5000.000
2000
                              -1
5000
                              -1
20K
                              -1
50K
        50000.000
                               -1
Curve Fit: Avg. RF
27) Norpristane
Ret. Time 5.03 min., Extract & Integrate from 4.98 to 5.08 min.
Lvl ID Conc ( ) Response
DRO not used for this compound
RRO
        not used for this compound
         20.000 -1
50.000 -1
20
50
        200.000
200
                              -1
500
       500.000
2000.000
5000.000
20000.000
                             - 1
2000
                              - 1
5000
                              -1
20K
                              -1
50K
        50000.000
                               -1
```

```
Curve Fit: Avg. RF
28) Pristane
Ret. Time 5.16 min., Extract & Integrate from 5.11 to 5.21 min.
Lvl ID Conc (ppm) Response
      not used for this compound
DRO
RRO
       not used for this compound
20
        20.000
50.000
                   -1
50
                         -1
        200.000
200
                         -1
500
        500.000
                         -1
2000
       2000.000
                         -1
5000
       5000.000
      5000.000
20000.000
                          - 1
20K
                          -1
       50000.000
                         -1
Curve Fit: Avg. RF
29) Phytane
Ret. Time 5.39 min., Extract & Integrate from 5.34 to 5.44 min.
Lvl ID Conc (ppm) Response
DRO
      not used for this compound
RRO
       not used for this compound
20
         20.000
                        -1
50
         50.000
                          -1
        200.000
200
                         -1
        500.000
500
                         -1
      2000.000
5000.000
2000
                         -1
5000
                         - 1
      20000.000
20K
                         - 1
50K
                         -1
```

END OF DATA ANALYSIS PARAMETERS

Curve Fit: Avg. RF

Mon Mar 14 20:49:51 2011

Data File : J:\GC21\DATA\031311F\0313F104.D

Vial: 99 Operator: JMSmith

Acq On : 14 Mar 2011 4:04 am Sample : SHC MARKER | SVF01-04E

Inst : GC21

Misc

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 13:39 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

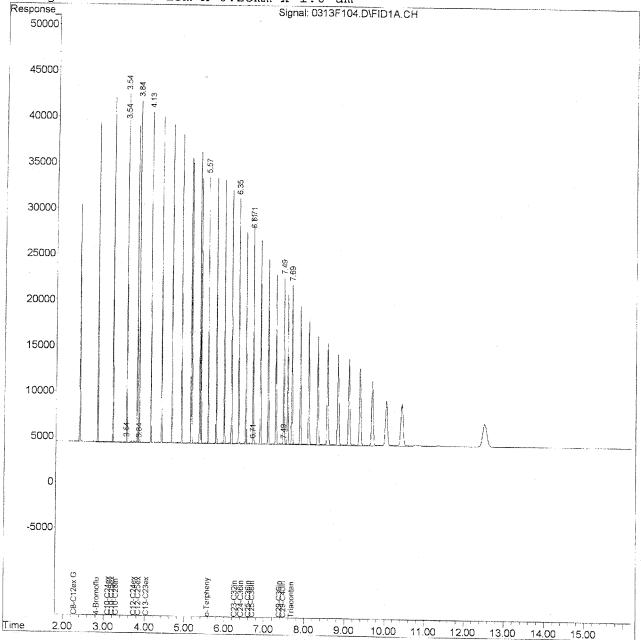
: 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

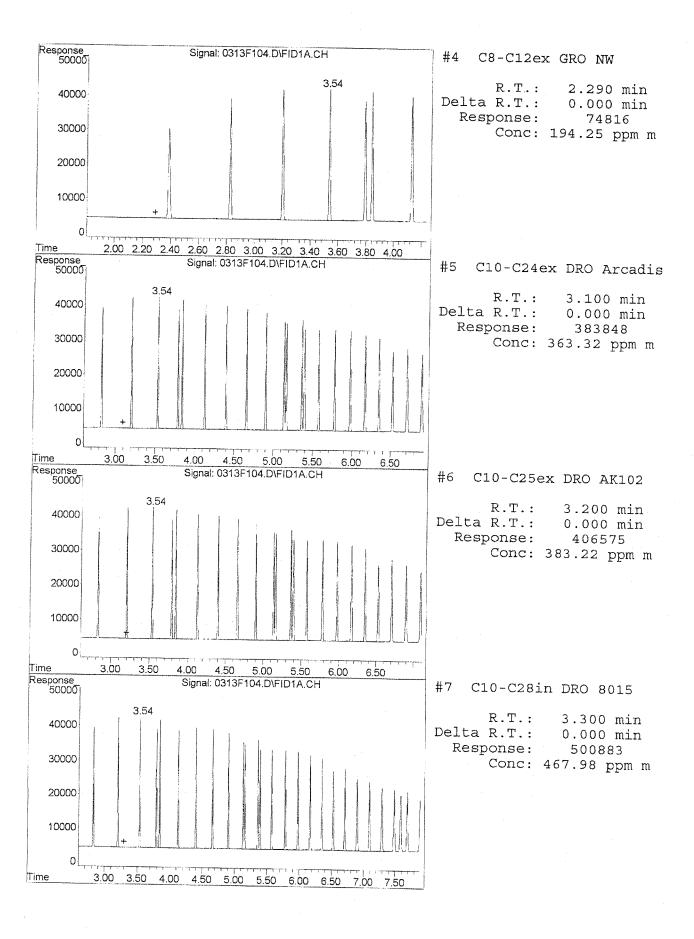
Volume Inj. : 1 uL Signal Phase : ZB-1

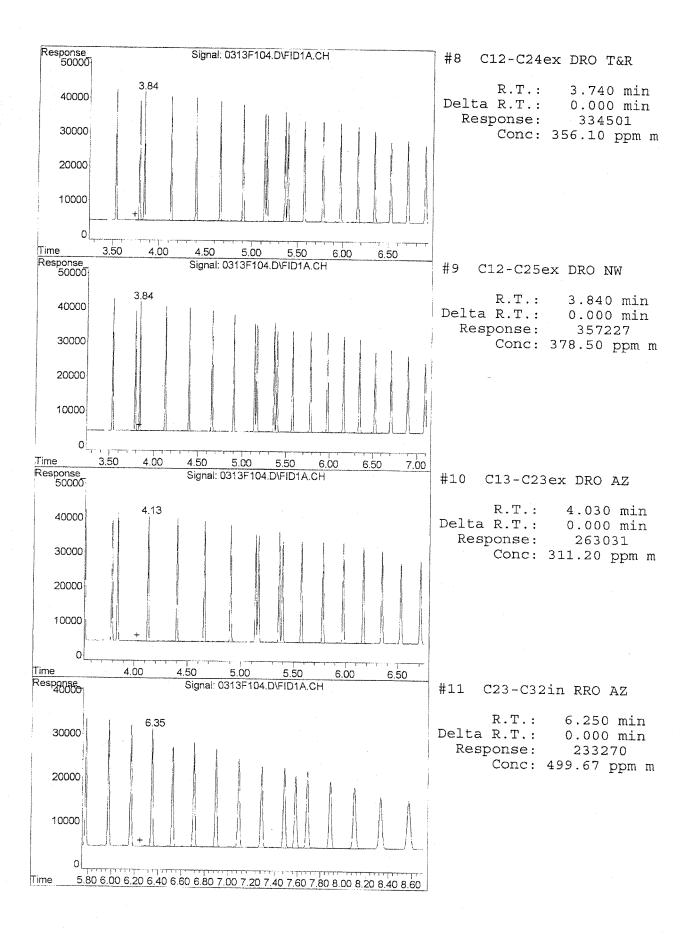
Signal Info : $15m \times 0.25mm \times 1.0$ um

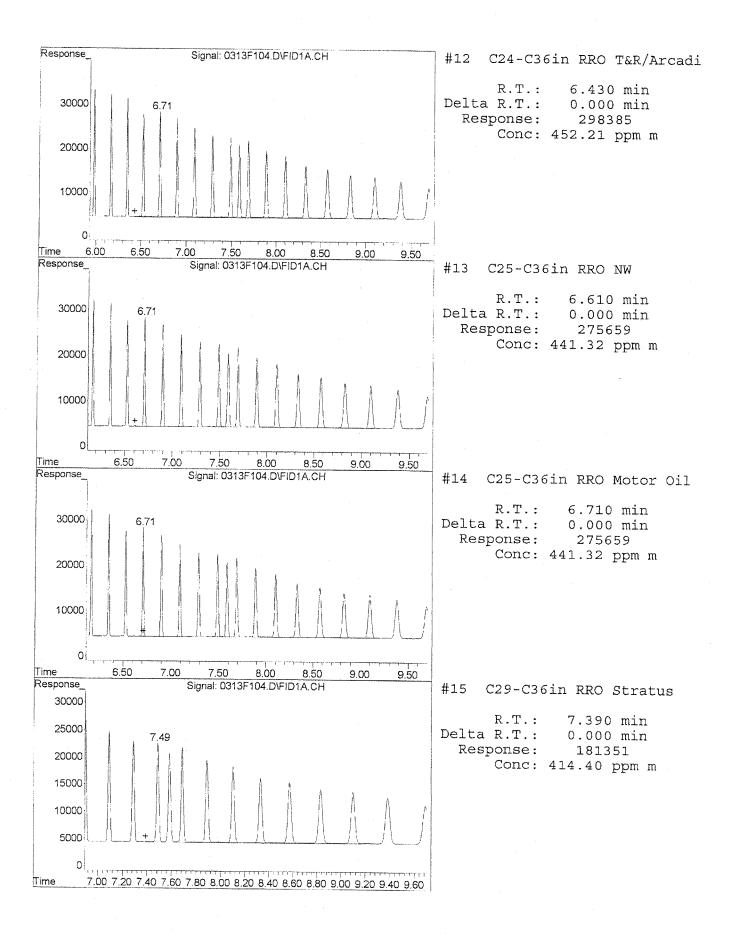


0313F104.D 031311FSRO.M

Mon Mar 14 13:39:59 2011

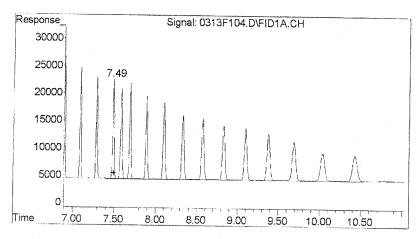






0313F104.D 031311FSRO.M

Mon Mar 14 13:39:59 2011



#16 C29-C40in RRO Premier

R.T.: 7.490 min Delta R.T.: 0.000 min

Response: 265103 Conc: 423.03 ppm m

Data File : J:\GC21\DATA\031311F\0313F110.D

Vial: 1 Acq On : 14 Mar 2011 5:10 am
Sample : GRO/RRO @ 20ppm | SVF01-06D
Misc :
IntFile : rteint.p Operator: JMSmith Inst : GC21 Multiplr: 1.00

Quant Time: Mar 14 11:43:05 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011

Response via : Initial Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds Target Compounds 4) H C8-C12ex GRO NW 11) H C23-C32in RRO AZ 12) H C24-C36in RRO T&R/Arcadis 13) H C25-C36in RRO NW 14) H C25-C36in RRO Motor Oil 15) H C29-C36in RRO Stratus 16) H C29-C40in RRO Premier	2.29 6.25 6.43 6.61 6.71 7.39 7.49	7561 12115 18184 17342 17342 12644 19911	29.615 ppm 18.699 ppm 22.582 ppm 22.831 ppm 22.139 ppm 24.409 ppm 27.448 ppm	

Data File : J:\GC21\DATA\031311F\0313F110.D

Vial: 1

Acq On : 14 Mar 2011 5:10 am Operator: JMSmith

Sample

: GRO/RRO @ 20ppm | SVF01-06D

Inst : GC21 Multiplr: 1.00

Misc IntFile

: rteint.p

Quant Time: Mar 14 11:48 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title

: 8015/NWTPH Semivolatile Range Organics

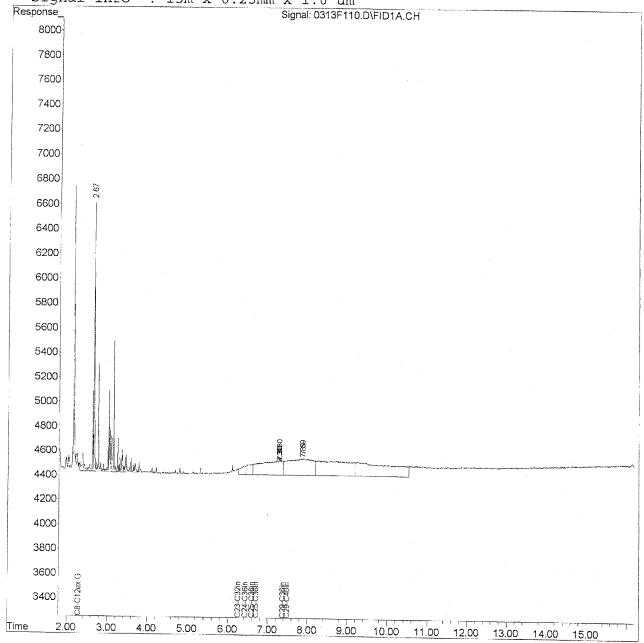
Last Update : Mon Mar 14 11:41:53 2011

Response via : Single Level Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0 um$



0313F110.D 031311FSRO.M

Mon Mar 14 13:30:55 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 Acq On : 14 Mar 2011 5:33 am

Sample : GRO/RRO @ 50ppm | SVF01-06B

Misc : Operator: JMSmith

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:43:06 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics
Last Update : Mon Mar 14 11:41:53 2011
Response via : Initial Calibration
DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

	Compound	R.T.	Response	Conc Units	
	em Monitoring Compounds				_
	get Compounds				
4) H	C8-C12ex GRO NW	2.29	21292	83.397 ppm	
	C23-C32in RRO AZ	6.25	25607	68.243 ppm	
	C24-C36in RRO T&R/Arcadis	6.43	36133	66.778 ppm	
13) H	C25-C36in RRO NW	6.61	34745	67.973 ppm	
14) H	C25-C36in RRO Motor Oil	6.71	34205	65.895 ppm	
15) H	C29-C36in RRO Stratus	7.39	24348	66.224 ppm	
16) H	C29-C40in RRO Premier	7.49	33196	59.863 ppm	

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 Acq On : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 14:08 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

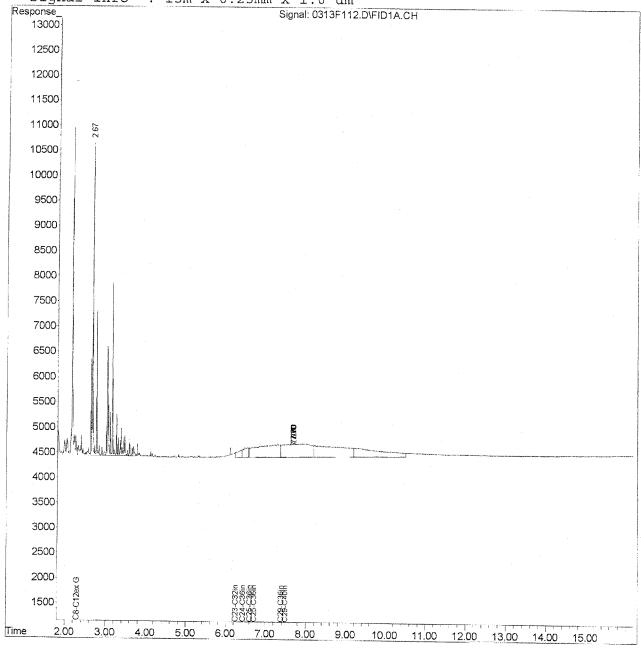
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0313F112.D 031311FSRO.M

Mon Mar 14 14:09:17 2011

Page 2

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2

Acq On : 14 Mar 2011 5:33 am Sample

Operator: JMSmith

Misc

: GRO/RRO @ 50ppm | SVF01-06B

Inst : GC21 Multiplr: 1.00

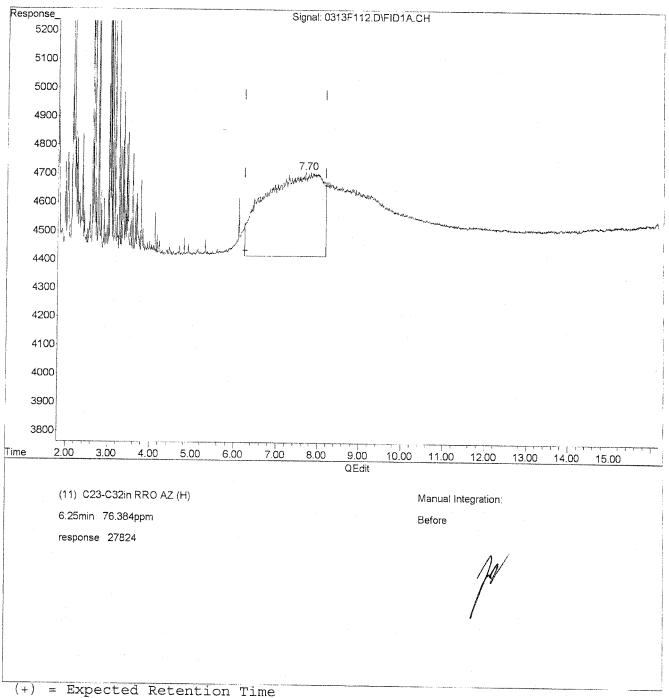
IntFile : rteint.p

Quant Time: Mar 14 11:49 2011 Quant Results File: 031311FSRO.RES

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Method

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M Mon Mar 14 14:02:37 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Operator: JMSmith

Sample : GRO/RRO @ 50ppm | SVF01-06B Misc

Inst : GC21 Multiplr: 1.00

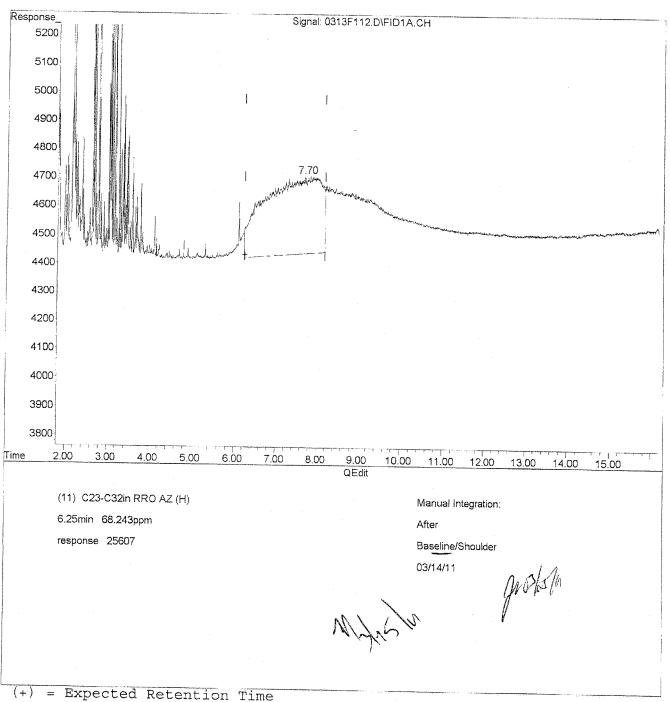
IntFile : rteint.p

Quant Time: Mar 14 11:49 2011 Quant Results File: 031311FSRO.RES

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Method

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M

Mon Mar 14 14:03:15 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Misc Multiplr: 1.00

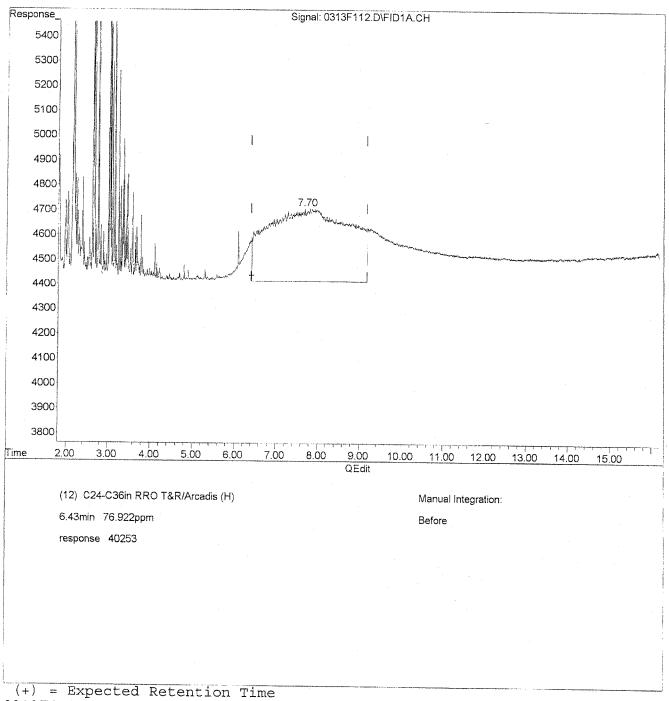
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Method

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M

Mon Mar 14 14:04:08 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 Operator: JMSmith

Acq On : 14 Mar 2011 Sample

5:33 am

: GRO/RRO @ 50ppm | SVF01-06B

Inst : GC21 Multiplr: 1.00

Misc

IntFile

: rteint.p

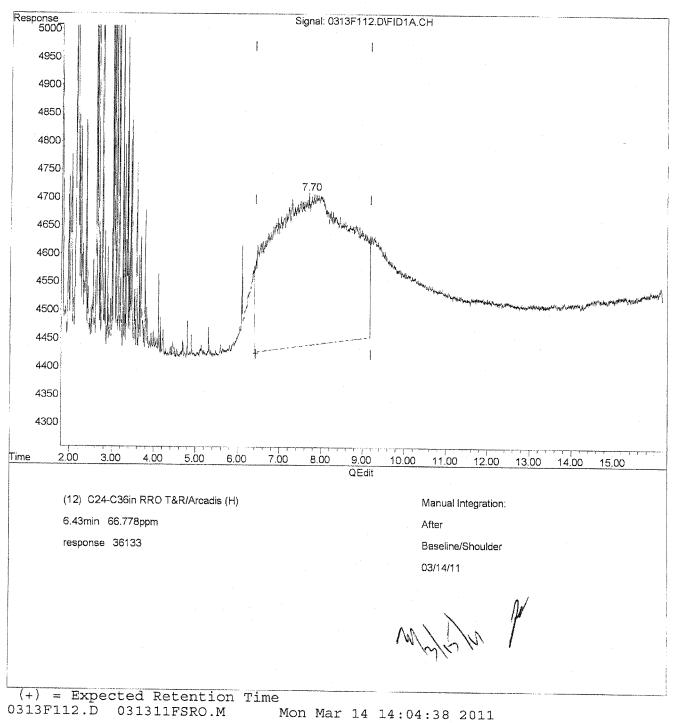
Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 Acq On : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B

Misc

Inst : GC21 Multiplr: 1.00

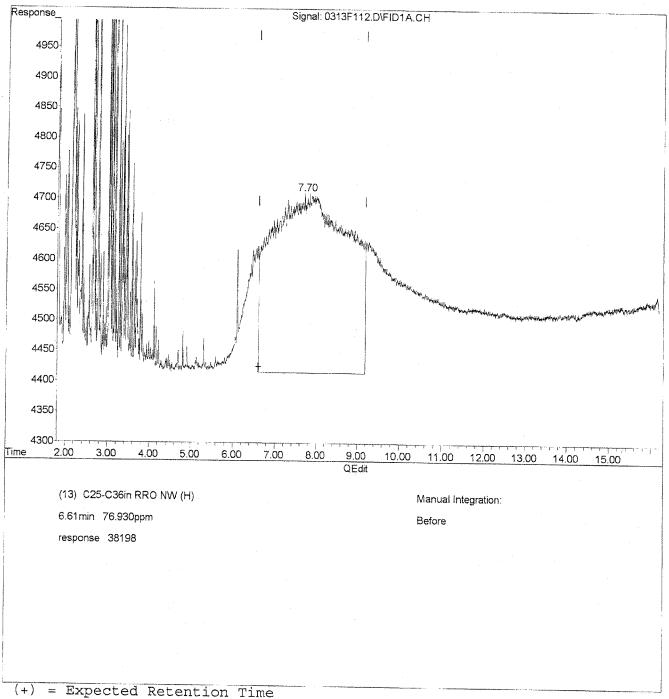
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Method

: 8015/NWTPH Semivolatile Range Organics Title

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M Mon Mar 14 14:04:49 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2

: 14 Mar 2011 5:33 am Sample : GRO/RRO @ 50ppm | SVF01-06B

Operator: JMSmith Inst : GC21 Multiplr: 1.00

Misc

: rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method

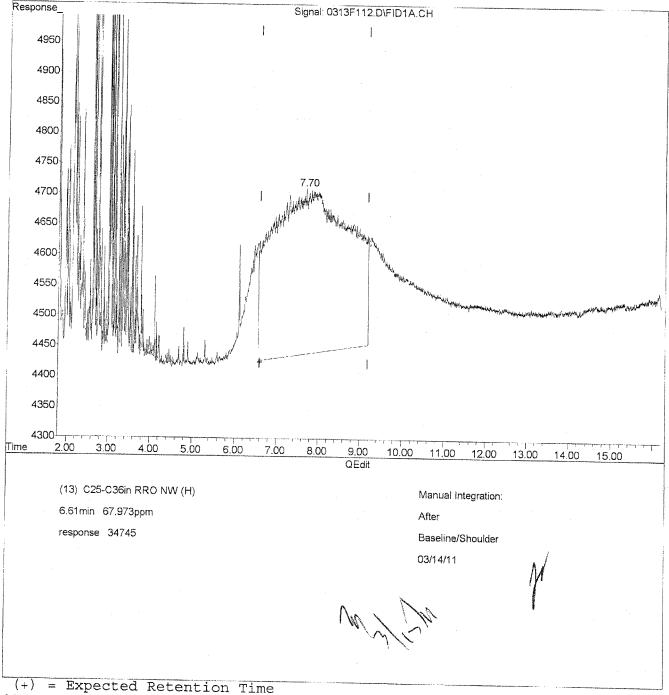
IntFile

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title

: 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M Mon Mar 14 14:05:17 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2

Acq On : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Misc Multiplr: 1.00

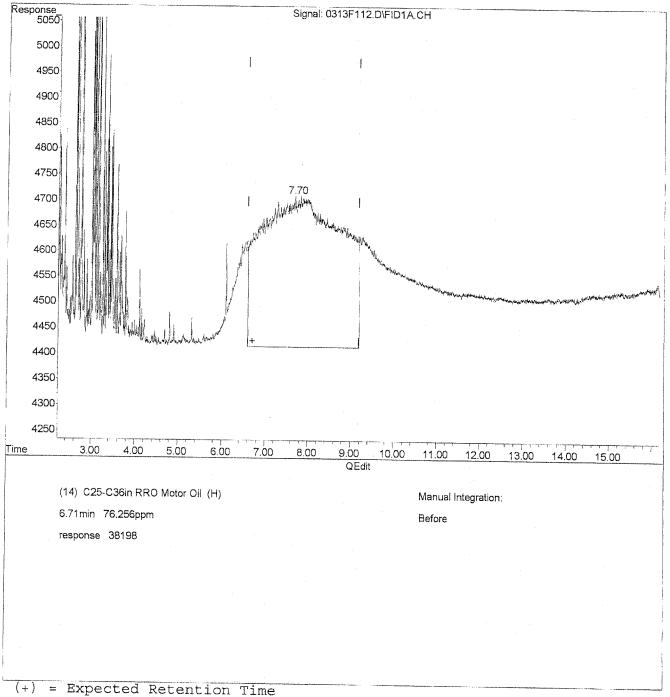
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Method

: 8015/NWTPH Semivolatile Range Organics Title

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M

Mon Mar 14 14:05:32 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2

Acq On : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Misc Multiplr: 1.00

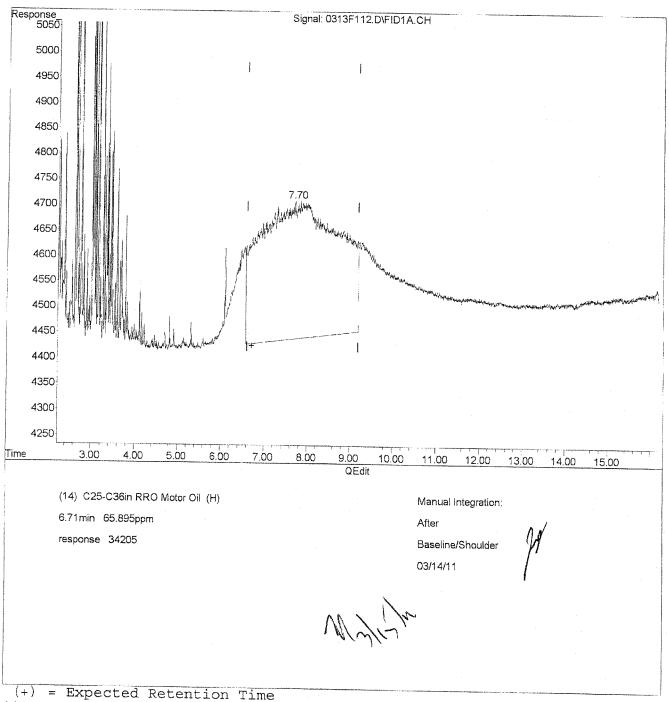
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Method

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M Mon Mar 14 14:06:09 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Acq On : 14 Mar 2011 5:33 am

Vial: 2 Operator: JMSmith

Sample

: GRO/RRO @ 50ppm | SVF01-06B

Inst : GC21

Misc

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

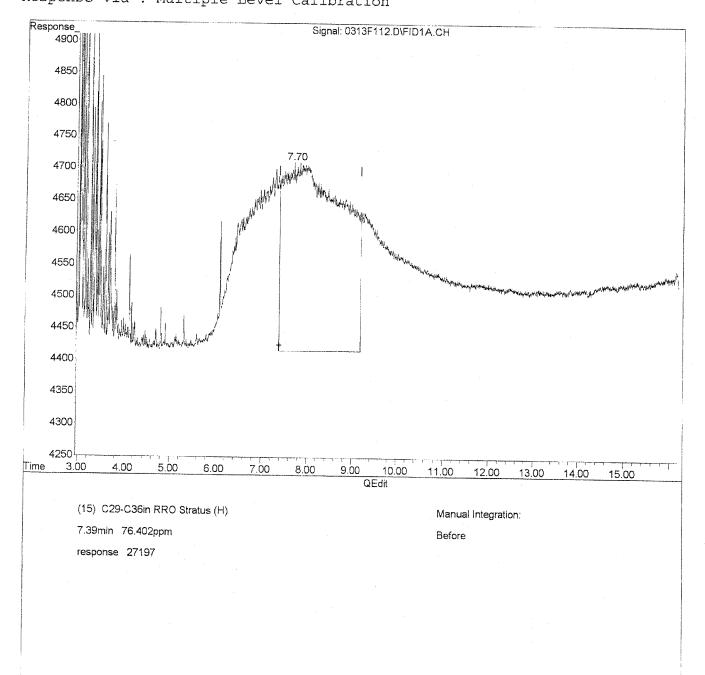
Method

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title

: 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time

0313F112.D 031311FSRO.M

Mon Mar 14 14:07:08 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2

Acq On : 14 Mar 2011 5:33 am

Operator: JMSmith

Sample

: GRO/RRO @ 50ppm | SVF01-06B

Inst : GC21 Multiplr: 1.00

Misc IntFile

: rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

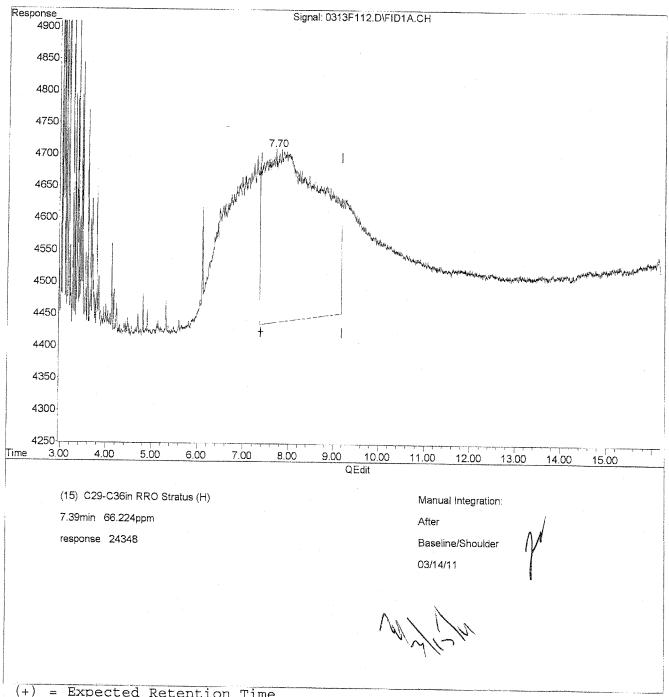
Method

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title

: 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time

0313F112.D 031311FSRO.M

Mon Mar 14 14:07:50 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2

Acq On : 14 Mar 2011

5:33 am

Operator: JMSmith

Sample

: GRO/RRO @ 50ppm | SVF01-06B

Inst : GC21

Misc

IntFile : rteint.p Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Multiplr: 1.00

Method

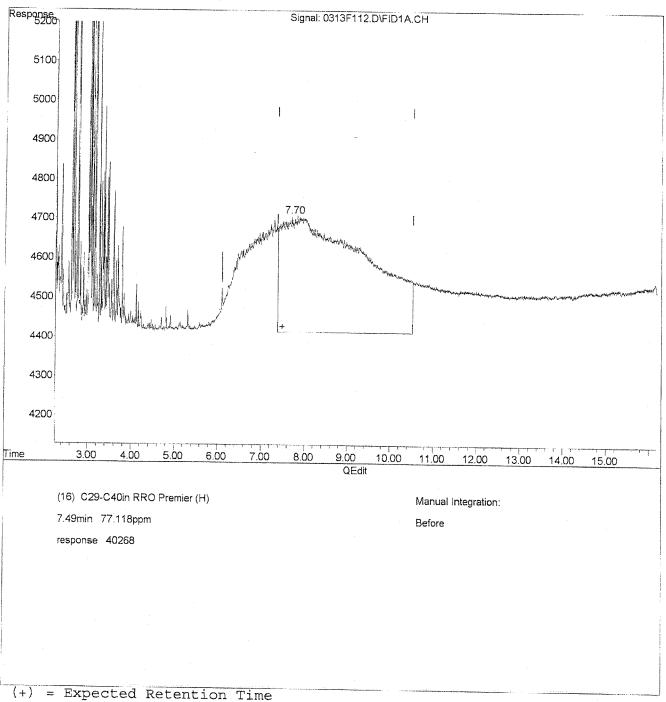
: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title

: 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011

Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M Mon Mar 14 14:08:04 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Operator: JMSmith

Sample : GRO/RRO @ 50ppm | SVF01-06B Misc

: GC21 Multiplr: 1.00

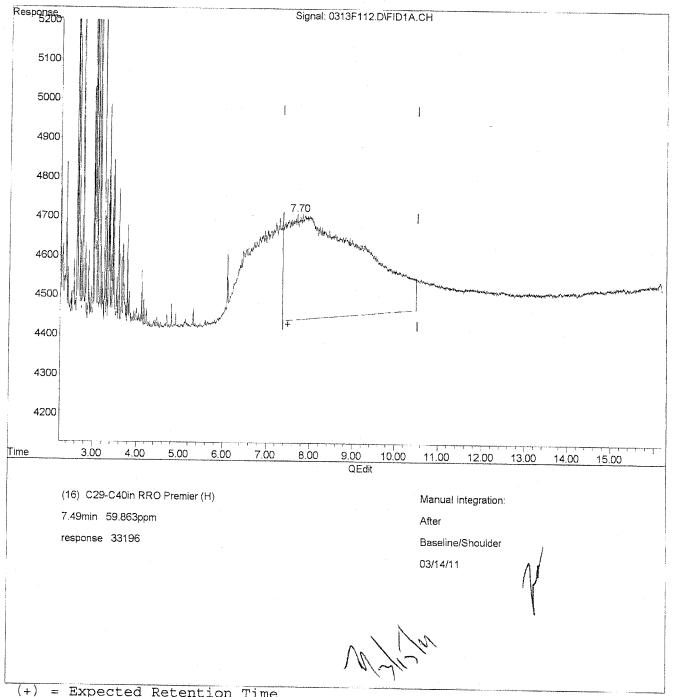
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Method

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time

0313F112.D 031311FSRO.M

Mon Mar 14 14:08:28 2011

Data File : J:\GC21\DATA\031311F\0313F114.D

Vial: 3

Acq On : 14 Mar 2011 5:55 am Sample : GRO/RRO @ 200ppm | SVF01-06C Operator: JMSmith Inst : GC21 Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:43:07 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0 \text{ um}$

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds				
Target Compounds				
) H C8-C12ex GRO NW	2.29	69621	272.692 ppm	
) H C23-C32in RRO AZ	6.25	88472	299.090 ppm	
) H C24-C36in RRO T&R/Arcadis	6.43		283 346 ppm	

	_	<u>.</u>				
4)		C8-C12ex GRO NW	2.29	69621	272.692	nnm
11)	H	C23-C32in RRO AZ	6.25	99472	299.090	ppm
12)		C24-C36in RRO T&R/Arc	- 3: - 6 40	004/2	299.090	ppm
-		CZ4-C30III RRO I&R/APC	adis 6.43	124088	283.346	maa
13)		C25-C36in RRO NW	6.61	117489	282,605	DDm T-T-
14)	H	C25-C36in RRO Motor O	il 6.71		282.000	
15)		C29-C36in RRO Stratus	· · · -	XX/407	202.000	ьbш
-				81895	271.819	mag
16)	H	C29-C40in RRO Premier	7.49	116189	262.365	maa
						To to and

(f)=RT Delta > 1/2 Window (m)=manual 0313F114.D 031311FSRO.M Mon Mar 14 13:30:58 2011

(m)=manual int.

Data File : J:\GC21\DATA\031311F\0313F114.D

Vial: 3
Operator: JMSmith

Acq On : 14 Mar 2011 5:55 am
Sample : GRO/RRO @ 200ppm | SVF01-06C
Misc :

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:51 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

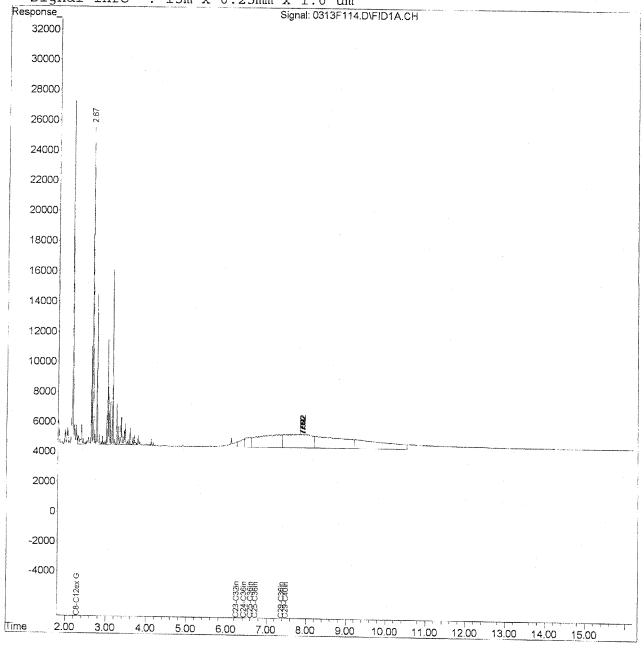
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0313F114.D 031311FSRO.M

Mon Mar 14 13:30:59 2011

Data File : J:\GC21\DATA\031311F\0313F116.D Vial: 4

Acq On : 14 Mar 2011 6:17 am
Sample : GRO/RRO @ 500ppm | SVF01-06A
Misc :
IntFile : rteint.p Operator: JMSmith Inst : GC21

Quant Time: Mar 14 11:43:08 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics
Last Update : Mon Mar 14 11:41:53 2011
Response via : Initial Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds				
Target Compounds				

	rary	ec compounds				
4)	H	C8-C12ex GRO NW	2.29	190407	745.788	nnm
11)	H	C23-C32in RRO AZ	6.25	220207	713.700	ppm
			0.25	232608	828.373	mag
12)		C24-C36in RRO T&R/Arcadi	s 6.43	326671	782.158	nnm
13)	H	C25-C36in RRO NW		320071	704.130	ЬЪш
			6.61	309195	779.874	maga
14)	H	C25-C36in RRO Motor Oil	6.71			
15)	LJ	COO COCim DDO Charl	· · · · · · ·	303133	779.437	ppm
,		C29-C36in RRO Stratus	7.39	215821	750.290	nnm
16)	H	C29-C40in RRO Premier	7.49	202012	730.230	ppm
		or or and reconstruct	7.43	303213	718.702	ppm

(m) = manual int.

Multiplr: 1.00

⁽f)=RT Delta > 1/2 Window 0313F116.D 031311FSRO.M Mon Mar 14 13:30:59 2011

Data File : J:\GC21\DATA\031311F\0313F116.D

Vial: 4

Acq On : 14 Mar 2011 6:17 am Operator: JMSmith Sample : GRO/RRO @ 500ppm | SVF01-06A Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:53 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um Response_ Signal: 0313F116.D\FID1A.CH 75000 70000 65000 60000 55000 50000 45000 40000 35000 30000 25000 20000 15000 10000 5000 0 -5000 -10000 -15000 -20000 38-C12ex G Time 2.00 3.00 4.00 5.00 6.00 7.00 9.00 10.00 11.00 8.00 12.00 13.00 14.00 15.00

0313F116.D 031311FSRO.M

Mon Mar 14 13:31:00 2011

IntFile : rteint.p

Quant Time: Mar 14 11:43:10 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0 \text{ um}$

Compound R.T. Response Conc Units

System Monitoring Compounds

Target	Compounds
--------	-----------

	٠.						
4)		C8-C12ex GRO NW		2.29	745963	2921.794	nnm
11)	H	C23-C32in RRO A2	Z	6.25		3100.432	
12)		C24-C36in RRO T8					
				6.43	1184124	2893.432	ppm
13)		C25-C36in RRO NV		6.61	1118711	2879.692	ppm
14)	H	C25-C36in RRO Mo	otor Oil	6.71		2879.964	
15)	H	C29-C36in RRO St	tratus	7.39		2745.126	
16)	H	C29-C40in RRO Pr	remier	7.49			
,			L Child CL	7.49	1088100	2633.979	ppm

(f)=RT Delta > 1/2 Window 0313F118.D 031311FSRO.M Mon Mar 14 13:31:01 2011

(m) = manual int.

Data File : J:\GC21\DATA\031311F\0313F118.D

Vial: 5

: 14 Mar 2011 6:39 am Acq On Operator: JMSmith Sample

Misc

: GRO/RRO @ 2000ppm | SVF01-05P

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:54 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

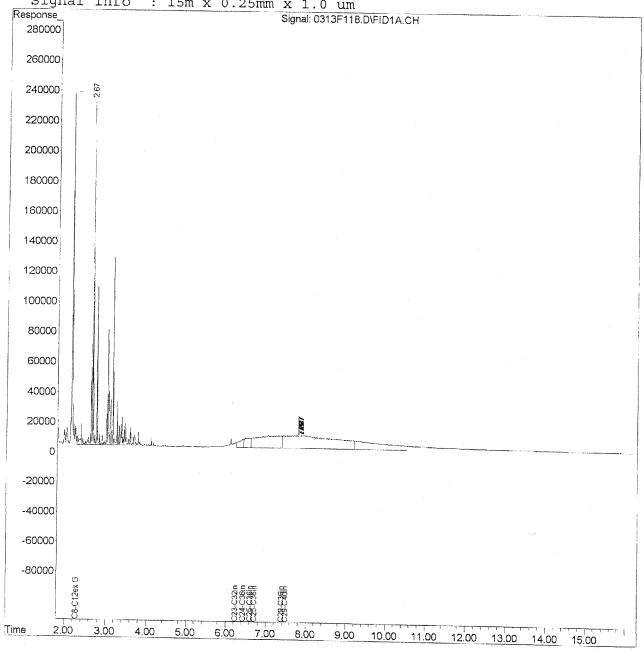
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F118.D 031311FSRO.M

Mon Mar 14 13:31:01 2011

Data File : J:\GC21\DATA\031311F\0313F120.D

Vial: 6
Operator: JMSmith Acq On : 14 Mar 2011 7:01 am

Sample : GRO/RRO @ 5000ppm | SVF01-050 Misc : Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:43:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0 um$

R.T. Response Conc Units

System Monitoring Compounds

Target Compounds

4)		C8-C12ex GRO NW	2.29	2025853	7934.877	*~~~
11)	Н	C23-C32in RRO AZ	6.25	2023033	7334.077	ppm
			0.25	2222647	8136.013	mag
12)		C24-C36in RRO T&R/Arcadis	6.43	3141438	7712.853	nnm
13)	H	C25-C36in RRO NW	6.61	2969740	7/22:000	PPI
14)				2303740	7681.109	ppm
•	1.1	C25-C36in RRO Motor Oil	6.71	2969740	7683.000	nnm
15)	H	C29-C36in RRO Stratus	7.39			
16)	TT	COO CAO' BEO E	·	20/9/01	7409.283	ppm
TO)	п	C29-C40in RRO Premier	7.49	2982681	7256.577	ppm

(f)=RT Delta > 1/2 Window

(m) = manual int.0313F120.D 031311FSRO.M Mon Mar 14 13:31:02 2011

Data File : J:\GC21\DATA\031311F\0313F120.D

Vial: 6 Acq On : 14 Mar 2011 7:01 am Operator: JMSmith Sample : GRO/RRO @ 5000ppm | SVF01-050 : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:55 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

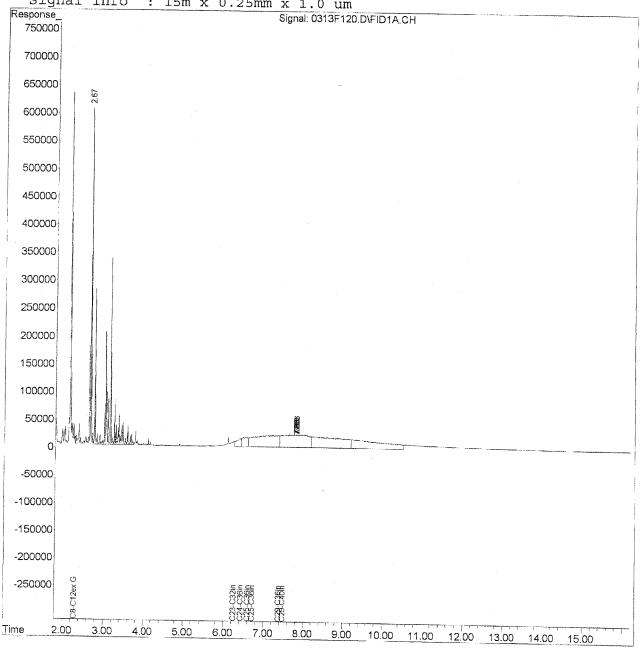
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F120.D 031311FSRO.M

Mon Mar 14 13:31:02 2011

Data File : J:\GC21\DATA\031311F\0313F132.D

Vial: 8 Acq On : 14 Mar 2011 9:14 am Operator: JMSmith : DRO @ 20/1.0ppm | SVF01-06L Sample Inst : GC21 Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:43:25 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc Units
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S 0-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	2.86 Recov 5.53 Recov 7.69 Recov	1261 rery = 1132	1.470 ppm 2.94% 1.495 ppm 2.99% 1.632 ppm 3.26%
Target Compounds 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.10 3.20 3.30 3.74 3.84 4.03	20338 20518 21323 18103 18283 16285	29.045 ppm 29.067 ppm 28.988 ppm 30.253 ppm 30.281 ppm 30.368 ppm

(m)=manual int.

⁽f)=RT Delta > 1/2 Window (m)=manual 0313F132.D 031311FSRO.M Mon Mar 14 13:31:03 2011

Data File : J:\GC21\DATA\031311F\0313F132.D

Vial: 8

Acq On : 14 Mar 2011 9:14 am Operator: JMSmith Sample

: DRO @ 20/1.0ppm | SVF01-06L Misc

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:43 2011 Quant Results File: 031311FSRO.RES

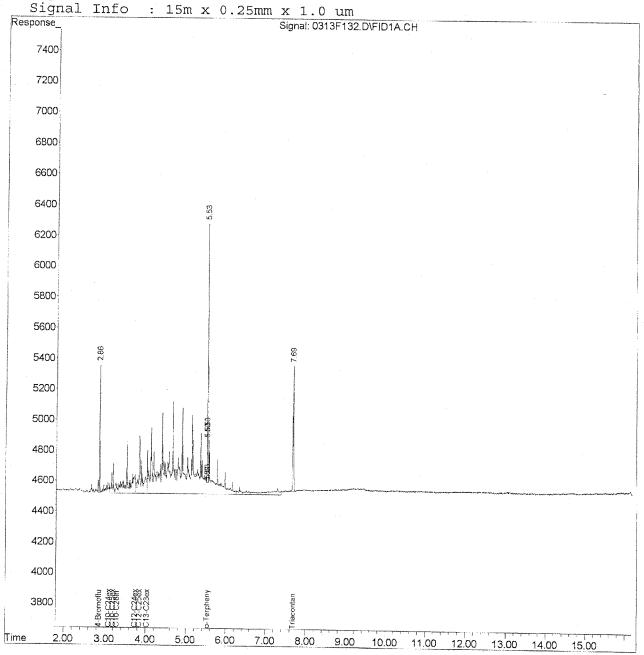
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1



0313F132.D 031311FSRO.M

Mon Mar 14 13:31:03 2011

Data File : J:\GC21\DATA\031311F\0313F134.D Vial: 9

Acq On : 14 Mar 2011 9:37 am
Sample : DRO @ 50/2.5ppm | SVF01-06J
Misc :
IntFile : rteint.p Operator: JMSmith Inst : GC21 Multiplr: 1.00

Quant Time: Mar 14 12:42:54 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Initial Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T. R	esponse	Conc Units	
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	2.86 Recovery 5.54 Recovery 7.69 Recovery	3100 = 2725	7.35%	· - ·
Target Compounds 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.10 3.20 3.30 3.74 3.84 4.03	51639 51846 52434 45957 46163 41399	73.745 ppm 73.447 ppm 71.282 ppm 76.801 ppm 76.456 ppm 77.200 ppm	

(m) = manual int.

⁽f)=RT Delta > 1/2 Window 0313F134.D 031311FSRO.M Mon Mar 14 13:31:03 2011

Data File : J:\GC21\DATA\031311F\0313F134.D Vial: 9

Acq On : 14 Mar 2011 9:37 am Operator: JMSmith Sample : DRO @ 50/2.5ppm | SVF01-06J Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:44 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um Response 10500∶ Signal: 0313F134.D\FID1A.CH 10000 9500 9000 5.54 8500 8000 7500 7000 6500 6000 5500 5000 4500 4000 3500 3000 2500 Time 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00 14.00 15.00

0313F134.D 031311FSRO.M

Mon Mar 14 13:31:04 2011

Page 2

Data File : J:\GC21\DATA\031311F\0313F136.D Vial: 10 Acq On : 14 Mar 2011 9:59 am Operator: JMSmith : DRO @ 200/10ppm | SVF01-06K Sample Inst : GC21 Misc Multiplr: 1.00 IntFile : rteint.p

Quant Time: Mar 14 12:42:55 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011
Response via : Initial Calibration
DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL

Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S 0-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	2.86 Recove: 5.54 Recove: 7.69 Recove:	13120 ry = 11152	T. T	-
Target Compounds 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.10 3.20 3.30 3.74 3.84 4.03	219749 220475 221300 195563 196289 175948	313.822 ppm 312.335 ppm 300.848 ppm 326.815 ppm 325.099 ppm 328.105 ppm	

(m) = manual int.

⁽f)=RT Delta > 1/2 Window 0313F136.D 031311FSRO.M Mon Mar 14 13:31:04 2011

Data File : J:\GC21\DATA\031311F\0313F136.D

Vial: 10

: 14 Mar 2011 9:59 am

Operator: JMSmith

Sample Misc

: DRO @ 200/10ppm | SVF01-06K

Inst : GC21

IntFile : rteint.p Multiplr: 1.00

Quant Time: Mar 14 12:44 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

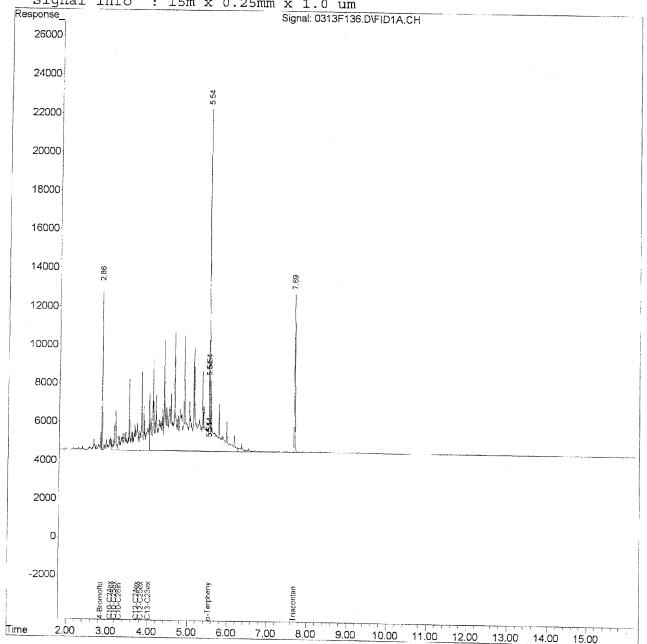
: 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F136.D 031311FSRO.M

Mon Mar 14 13:31:04 2011

Page 2

Data File : J:\GC21\DATA\031311F\0313F138.D Vial: 11 Acq On : 14 Mar 2011 10:21 am Sample : DRO @ 500/25ppm | SVF01-06I Operator: JMSmith Inst : GC21 Misc Multiplr: 1.00 IntFile : rteint.p

Quant Time: Mar 14 12:42:56 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011
Response via : Initial Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0 \text{ um}$

Compound	R.T.	Response	Conc Units
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	2.86 Recover 5.54 Recover 7.69 Recover	y = 31146 y = 26575	73.64% 36.936 ppm 73.87% 38.308 ppm
Target Compounds 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.10 3.20 3.30 3.74 3.84 4.03	543854 545727 547653 483873 485746 435205	773.102 ppm 744.512 ppm 808.623 ppm 804.506 ppm

⁽f)=RT Delta > 1/2 Window 0313F138.D 031311FSRO.M Mon Mar 14 13:31:05 2011

Data File : J:\GC21\DATA\031311F\0313F138.D Vial: 11

Acq On : 14 Mar 2011 10:21 am Operator: JMSmith : DRO @ 500/25ppm | SVF01-06I Sample Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:45 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

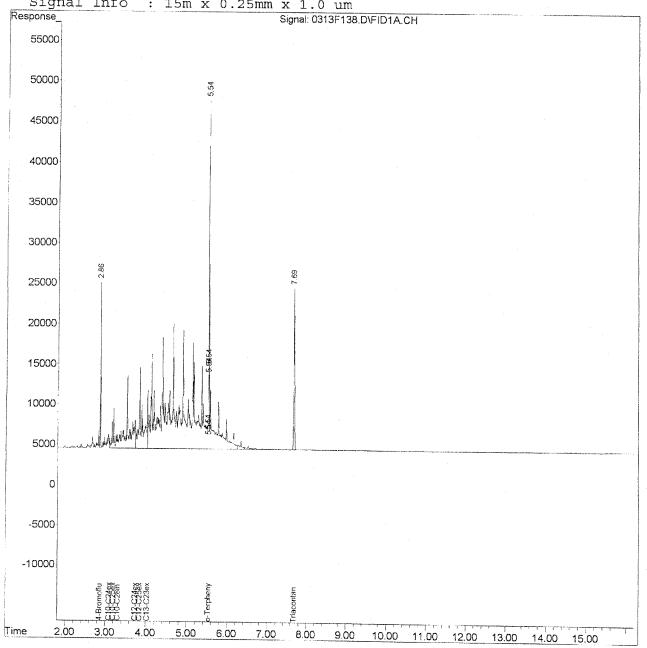
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F138.D 031311FSRO.M

Mon Mar 14 13:31:05 2011

Data File : J:\GC21\DATA\031311F\0313F140.D Vial: 12 Acq On : 14 Mar 2011 10:43 am Operator: JMSmith Sample : DRO @ 2000/100ppm | SVF01-06H Inst : GC21 Misc Multiplr: 1.00 IntFile : rteint.p

Quant Time: Mar 14 12:42:57 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Initial Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc Uni	ts
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000 Target Compounds	Reco 5.54 Reco 7.69	very = 122565 every =	145.348 pp 290.70% 155.427 pp	m
5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.10 3.20 3.30 3.74 3.84 4.03	2105071 2112456 1864894 1872373	2995.552 ppi 2982.139 ppi 2871.798 ppi 3116.514 ppi 3101.076 ppi 3129.315 ppi	m m m m

(m) = manual int.

⁽f)=RT Delta > 1/2 Window 0313F140.D 031311FSRO.M Mon Mar 14 13:31:06 2011

Data File : J:\GC21\DATA\031311F\0313F140.D

Vial: 12

Acq On : 14 Mar 2011 10:43 am

Operator: JMSmith

Sample

: DRO @ 2000/100ppm | SVF01-06H

Inst : GC21

Misc

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:46 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

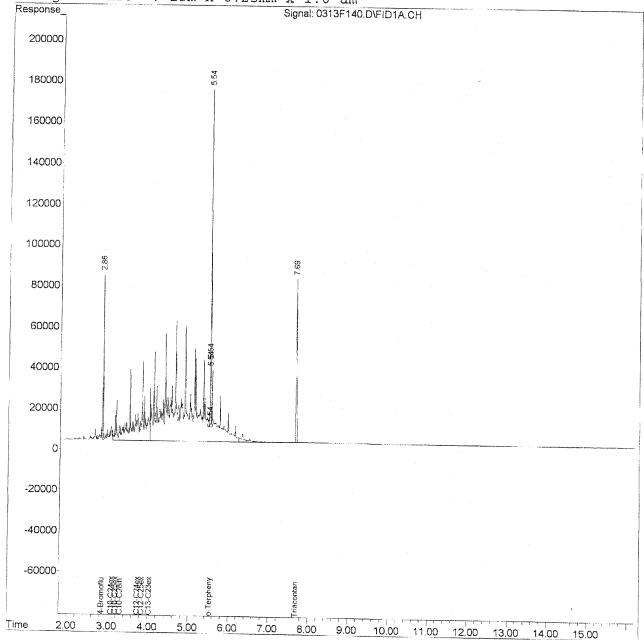
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0313F140.D 031311FSRO.M

Mon Mar 14 13:31:06 2011

Data File : J:\GC21\DATA\031311F\0313F142.D

Vial: 13

Acq On : 14 Mar 2011 11:06 am Sample : DRO @ 5000/250ppm | SV Misc :

Operator: JMSmith

: DRO @ 5000/250ppm | SVF01-06G

Inst : GC21

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:42:59 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Initial Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0 um$

Compound	R.T.	Response	Conc 1	Units
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	5.54 Reco 7.69	145967 every = 315197 every = 269457 every =	762.33% 373.788 747.58% 388.427	ppm
Target Compounds 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.10 3.20 3.30 3.74 3.84 4.03	5623433 5643290 4976119 4996081	8002.267 7966.411 7671.822 8315.830 8274.648 8337.959	ppm ppm

______ (f)=RT Delta > 1/2 Window 0313F142.D 031311FSRO.M Mon Mar 14 13:31:07 2011

Data File : J:\GC21\DATA\031311F\0313F142.D Vial: 13

Acq On : 14 Mar 2011 11:06 am Operator: JMSmith Sample : DRO @ 5000/250ppm | SVF01-06G Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:46 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

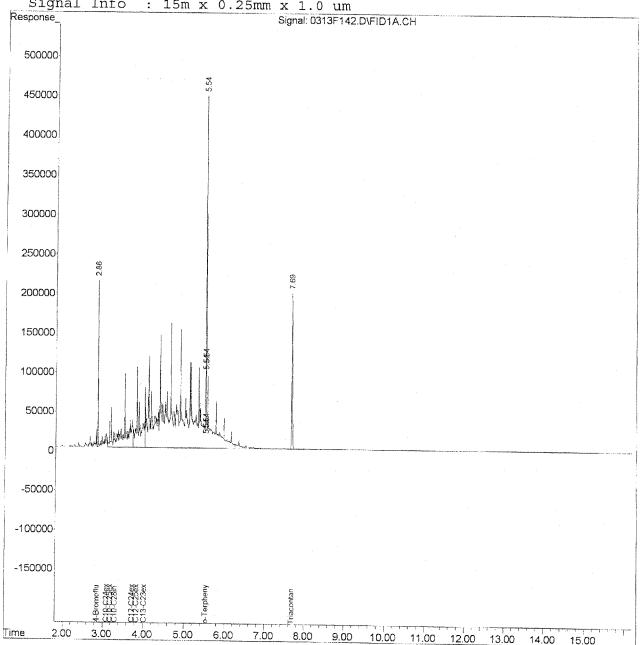
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F142.D 031311FSRO.M

Mon Mar 14 13:31:07 2011

Data File : J:\GC21\DATA\031311F\0313F144.D

Vial: 14

Acq On Sample : Acq On : 14 Mar 2011 11:28 am Vial: 14 Operator: JMSmith

Inst : GC21

: DRO @ 20000ppm | SVF01-06F

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:43:00 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011
Response via : Initial Calibration
DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL

Signal Phase : ZB-1

Compound

Signal Info : $15m \times 0.25mm \times 1.0$ um

R.T. Response Conc Units

System Monitoring Compounds

Target Compounds

Н Н Н Н	C10-C25ex C10-C28in C12-C24ex C12-C25ex	DRO DRO DRO DRO	AK102 8015 T&R NW	3.10 3.20 3.30 3.74 3.84 4.03	20290541 20362250 17966592 18039091	28744.503 27681.647 30024.831 29876.844	bbw bbw bbw
	Н	H C10-C25ex	H C10-C25ex DRO	H C10-C25ex DRO AK102	H C10-C25ex DRO AK102 3.20	H C10-C25ex DRO AK102 3.20 20290541	H C10-C25ex DRO AK102 3.20 20290541 28744.503
	Н	H C10-C28in	H C10-C28in DRO	H C10-C28in DRO 8015	H C10-C28in DRO 8015 3.30	H C10-C28in DRO 8015 3.30 20362250	H C10-C28in DRO 8015 3.30 20362250 27681.647
	Н	H C12-C24ex	H C12-C24ex DRO	H C12-C24ex DRO T&R	H C12-C24ex DRO T&R 3.74	H C12-C24ex DRO T&R 3.74 17966592	H C12-C24ex DRO T&R 3.74 17966592 30024.831
	Н	H C12-C25ex	H C12-C25ex DRO	H C12-C25ex DRO NW	H C12-C25ex DRO NW 3.84	H C12-C25ex DRO NW 3.84 18039091	H C12-C25ex DRO NW 3.84 18039091 29876.844

Data File : J:\GC21\DATA\031311F\0313F144.D

Vial: 14

Acq On : 14 Mar 2011 11:28 am Operator: JMSmith : DRO @ 20000ppm | SVF01-06F Sample Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:47 2011 Quant Results File: 031311FSRO.RES

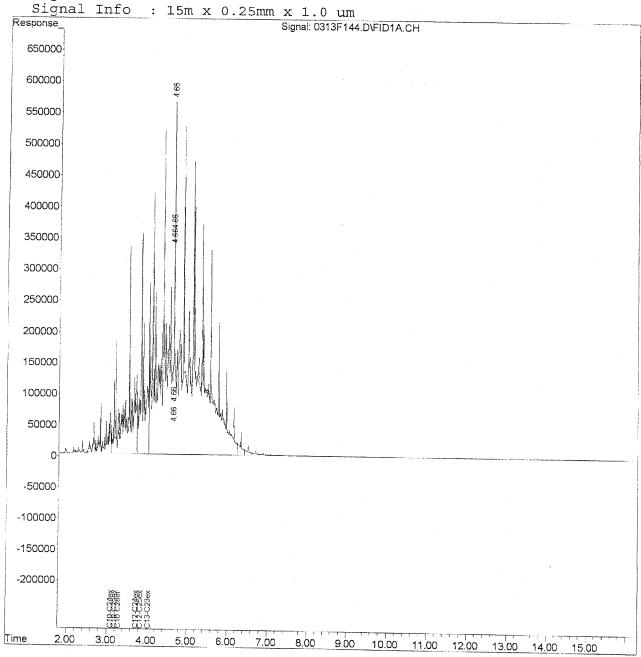
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1



0313F144.D 031311FSRO.M

Mon Mar 14 13:31:08 2011

Data File : J:\GC21\DATA\031311F\0313F146.D

Acq On : 14 Mar 2011 11:50 am

Vial: 15 Operator: JMSmith

Sample : DRO @ 50000ppm | SVF01-06E

Inst : GC21 Multiplr: 1.00

Misc

IntFile : rteint.p

Quant Time: Mar 14 12:43:01 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011

Response via : Initial Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T.	Response Conc Units
System Monitoring Compounds Target Compounds 5) H C10-C24ex DRO Arcadis	2.10	
6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015	3.10 3.20 3.30	51768726 73930.457 ppm 51954781 73601.506 ppm 52137935 70879.393 ppm
8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.74 3.84 4.03	45946780 76783.860 ppm 46132836 76406.486 ppm 41384557 77173.262 ppm

Data File : J:\GC21\DATA\031311F\0313F146.D

Vial: 15

Acq On : 14 Mar 2011 11:50 am Sample

Operator: JMSmith

Misc

: DRO @ 50000ppm | SVF01-06E

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:47 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

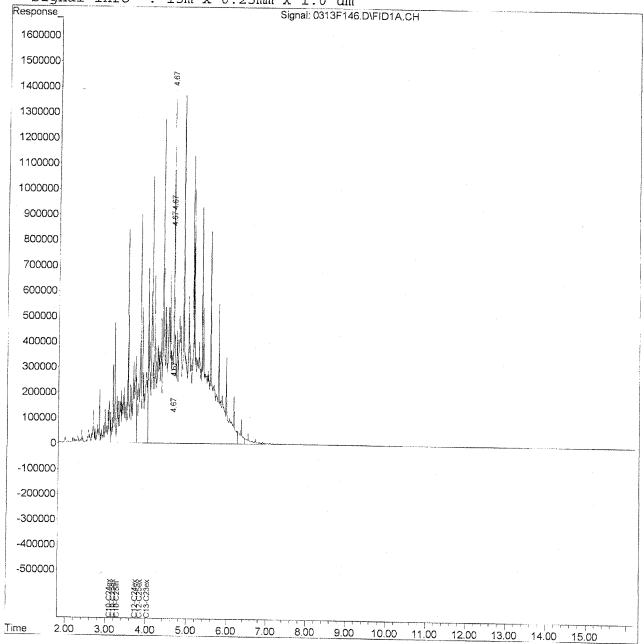
: 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0313F146.D 031311FSRO.M

Mon Mar 14 13:31:08 2011

Page 2

Acq On : 14 Mar 2011 12:35 pm Sample : DRO ICV @ 1000ppm | SVF01-01B Misc :

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:51:40 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011
Response via : Initial Calibration
DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL

Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound R.T. Response Conc Units

System Monitoring Compounds

Target Compounds

		ee compound	A 10					
		C10-C24ex			3.10	1066507	1009.484	nam
6)	Н	C10-C25ex	DRO	AK102	3.20	1074578	1012.858	ppm
7)		C10-C28in				1093007	1014.000	ppm
8)		C12-C24ex			3.74		1011.873	
9)		C12-C25ex			3.84	323787	1014.726	ppm
10)		C13-C23ex				961252	1018.496	ppm
_,		CIU CIUCA	DICO	PAZI	4.03	864621	1022.963	ppm

IntFile : rteint.p

Quant Time: Mar 14 12:51 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

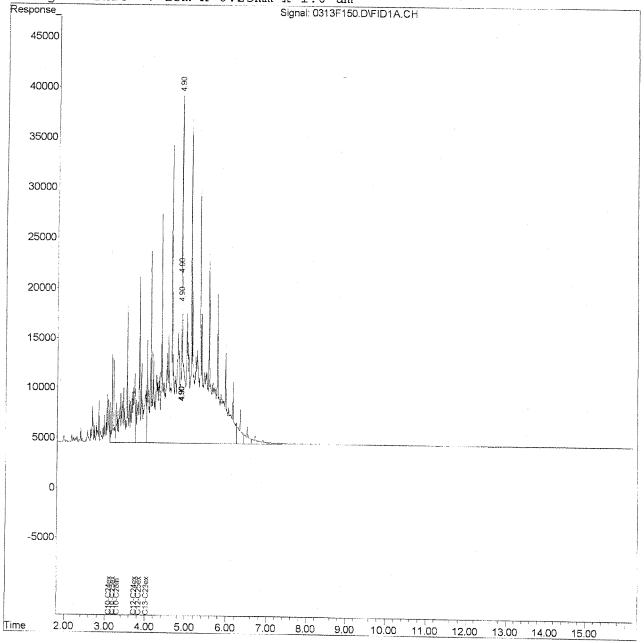
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0313F150.D 031311FSRO.M

Mon Mar 14 13:31:09 2011

Data File : J:\GC21\DATA\031311F\0313F152.D

Vial: 7

Acq On : 14 Mar 2011 12:57 pm Sample : GRO/RRO ICV @ 1000ppm | DWGMD04 6

Multiplr: 1.00

Misc

IntFile : rteint.p

Quant Time: Mar 14 14:09:28 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics
Last Update : Mon Mar 14 14:08:46 2011
Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound R.T. Response Conc Units compound v.t. response come outres System Monitoring Compounds Target Compounds Target Compounds
4) H C8-C12ex GRO NW 2.29 339118 880.460 ppm
11) H C23-C32in RRO AZ 6.25 459913 1004.214 ppm
12) H C24-C36in RRO T&R/Arcadis 6.43 649359 1009.327 ppm
13) H C25-C36in RRO NW 6.61 615571 1007.798 ppm
14) H C25-C36in RRO Motor Oil 6.71 615571 1011.375 ppm
15) H C29-C36in RRO Stratus 7.39 430532 1010.112 ppm
16) H C29-C40in RRO Premier 7.49 604989 1011.041 ppm

0313F152.D 031311FSRO.M Mon Mar 14 14:09:54 2011

(m) = manual int.

⁽f)=RT Delta > 1/2 Window

Data File : J:\GC21\DATA\031311F\0313F152.D

Vial: 7

: 14 Mar 2011 12:57 pm

Operator: JMSmith

Sample

: GRO/RRO ICV @ 1000ppm | DWSTD04-93H

Inst : GC21

Misc

IntFile : rteint.p Quant Time: Mar 14 14:09 2011 Quant Results File: 031311FSRO.RES

Multiplr: 1.00

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

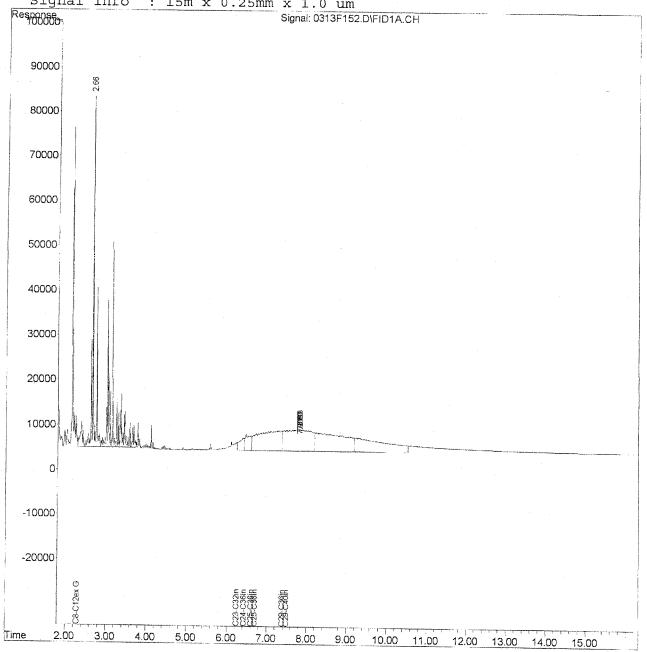
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 14:08:46 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F152.D 031311FSRO.M

Mon Mar 14 14:09:54 2011

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104627

Date Analyzed: 06/03/2011

Continuing Calibration Verification Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: **Analysis Method:**

External Standard

NWTPH-Dx

Calibration Date: 03/14/2011

Calibration ID: CAL10358

Analysis Lot: KWG1105074

Units: ppm

File ID:

J:\GC21\DATA\060211F\0602F058.D

J:\GC21\DATA\060211F\0602F061.D

Column ID: ZB-1

			Average	CCV				
Analyte Name	Expected	Result	RF	RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1100	944	995	5	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	920	611	561	-8	NA	\pm 15 %	AverageRF
o-Terphenyl	50	51	1260	1290	2	NA	\pm 15 %	AverageRF
n-Triacontane	50	47	1090	1020	-7	NA	± 15 %	AverageRF

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

Printed: 6/7/2011 15:35:23 $u:\Stealth\Crystal.rpt\Form7.rpt$

Form 7 - Organic

Page 1 of 1

189

SuperSet Reference:

RR129651

Exception Report

Data File:

J:\GC21\DATA\060211F\0602F058.D

Lab ID: RunType: KWG1105074-1 CCV

Matrix:

NOT APPLICABLE

Date Acquired:

Date Quantitated:

06/06/2011 11:02 KWG1105074

Batch ID:

Analysis Method: MethodJoinID:

KWG1105074 NWTPH-Dx

06/03/2011 17:10

MJ227

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	Х	
Analyte Co-elution	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	·····

Primary Review:

Secondary Review:

Page 1 of 1

u:\Stealth\Crystal.rpt\except2.rpt

Printed: 06/06/2011 14:07:39

Quantitation Report

Bottle ID:

Prod Code:

8015B DRO_RRO

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/06/2011

Analysis Lot: Analysis Method: KWG1105074

NWTPH-Dx

Prep Lot:

Prep Method:

Prep Ref:

Prep Date:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

MB Ref:

Method ID:

MJ227

Quant based on Method

Data File:

Lab ID:

J:\GC21\DATA\060211F\0602F058.D

Acqu Date: Run Type:

06/03/2011 17:10

KWG1105074-1

Quant Date:

06/06/2011 11:02

Instrument:

GC21

Vial:

96

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51		64284	51.12		50-150 NA	
n-Triacontane	7.66		50929	46.61		50-150 NA	

Target Compounds

Final Conc. Units:

ug/L

ei Compounus					46, 2		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	1123712	1,050			
Diesel Range Organics (DRO)	3.82	?	994889	1,054			
Residual Range Organics (RRO)	6.58	?	4945	8.10			NR

Printed:

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

06/06/2011 13:53:47 u:\Stealth\Crystal.rpt\quantl.rpt

D: Result from dilution m: Manual integration performed d: Compound manually deleted
NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060211F\0602F058.D Vial: 96 Acq On : 03 Jun 2011 5:10 pm Sample : DRO @ 1000/50ppm | SVF01-05D Operator: JMSmith Sample : DRO @ 100 Misc : CHECK IntFile : rteint.p Inst : GC21 Multiplr: 1.00

Quant Time: Jun 06 11:02:55 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:01:03 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc	Units
System Monitoring Compounds				
1) S 4-Bromofluorobenzene	2.83	28964	51.104	ppm
Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000		overy =		
2) S o-Terphenyl	5.51	64284	51.119	ppm
Spiked Amount 50.000	Reco	overy = 50929	102.24%	
3) S Triacontane	7.66	50929	46.608	ppm
Spiked Amount 50.000	Reco	overy =	93.22%	
Target Compounds				
4) H C8-C12ex GRO NW	2.25	160089		
5) H C10-C24ex DRO Arcadis			1056.544	
	3.17		1055.754	
7) H C10-C28in DRO 8015			1049.905	
8) H C12-C24ex DRO T&R	3.72		1055.015	
9) H C12-C25ex DRO NW		994889		
10) H C13-C23ex DRO AZ		888140		
11) H C23-C32in RRO AZ	6.23		34.115	
12) H C24-C36in RRO T&R/Arcadis		9024		
13) H C25-C36in RRO NW	6.58	4945	8.096	ppm
14) H C25-C36in RRO Motor Oil		4945	8.125	ppm
15) H C29-C36in RRO Stratus				
16) H C29-C40in RRO Premier	7.46	3520	5.883	ppm

Data File : J:\GC21\DATA\060211F\0602F058.D

Vial: 96 : 03 Jun 2011 5:10 pm Acq On Operator: JMSmith Sample

: DRO @ 1000/50ppm | SVF01-05D Inst : GC21 Misc : CHECK Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:02 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

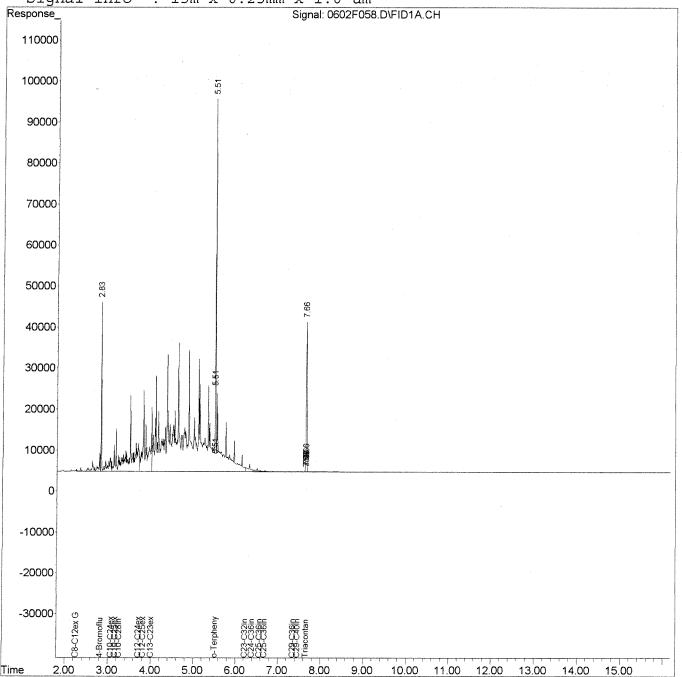
: 8015/NWTPH Semivolatile Range Organics | CAL10358 Title

Last Update : Mon Jun 06 11:01:03 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Exception Report

Data File:

J:\GC21\DATA\060211F\0602F061.D

Lab ID:

KWG1105074-1

RunType: Matrix:

CCV

NOT APPLICABLE

Date Acquired:

Date Quantitated:

06/03/2011 18:29 06/06/2011 11:02

Batch ID:

KWG1105074 NWTPH-Dx

MJ227

Analysis Method: MethodJoinID:

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	х	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	Х	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	

u:\Stealth\Crystal.rpt\except2.rpt

Printed: 06/06/2011 14:07:42

Quantitation Report

Bottle ID:

Prod Code:

8015B DRO_RRO

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/06/2011

Analysis Lot:

KWG1105074

Analysis Method: NWTPH-Dx Prep Lot:

Prep Method:

Prep Date:

Prep Ref:

Title:

MB Ref:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Method ID:

MJ227

Quant based on Method

Data File:

J:\GC21\DATA\060211F\0602F061.D

Acqu Date: Run Type:

Lab ID:

06/03/2011 18:29

CCV

KWG1105074-1

Quant Date:

06/06/2011 11:02

Instrument:

GC21

Vial:

97

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl			0			50-150 NA	NR
n-Triacontane	7.64		247	0.2260		50-150 NA	NR

Target Compounds

arget Compounds			Final	Final Conc. Units: ug/l			
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	383046	357.89			
Diesel Range Organics (DRO)	3.82	?	97206	103.00			NR
Residual Range Organics (RRO)	6.58	?	560837	918.19			

Printed: 06/06/2011 13:53:59

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060211F\0602F061.D Vial: 97 Acq On : 03 Jun 2011 6:29 pm Sample : GRO/RRO @ 1000ppm | SVF01-02L Operator: JMSmith Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:02:58 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:01:03 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 3) S Triacontane	2.84 Recov 7.64	480 ery =		
Spiked Amount 50.000	Recov		0.45%	
Target Compounds 4) H C8-C12ex GRO NW 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ 11) H C23-C32in RRO AZ 12) H C24-C36in RRO T&R/Arcadis 13) H C25-C36in RRO NW	2.25 3.07 3.17 3.27 3.72 3.82 4.01 6.23 6.40 6.58	182288 214070 383046 65369 97206 34690 419124 592673		
14) H C25-C36in RRO Motor Oil 15) H C29-C36in RRO Stratus 16) H C29-C40in RRO Premier	6.68	560837	921.448 ppm 921.853 ppm 932.279 ppm	

Data File : J:\GC21\DATA\060211F\0602F061.D Vial: 97 Acq On : 03 Jun 2011 6:29 pm Operator: JMSmith : GRO/RRO @ 1000ppm | SVF01-02L Sample Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:02 2011 Quant Results File: 031311FSRO.RES

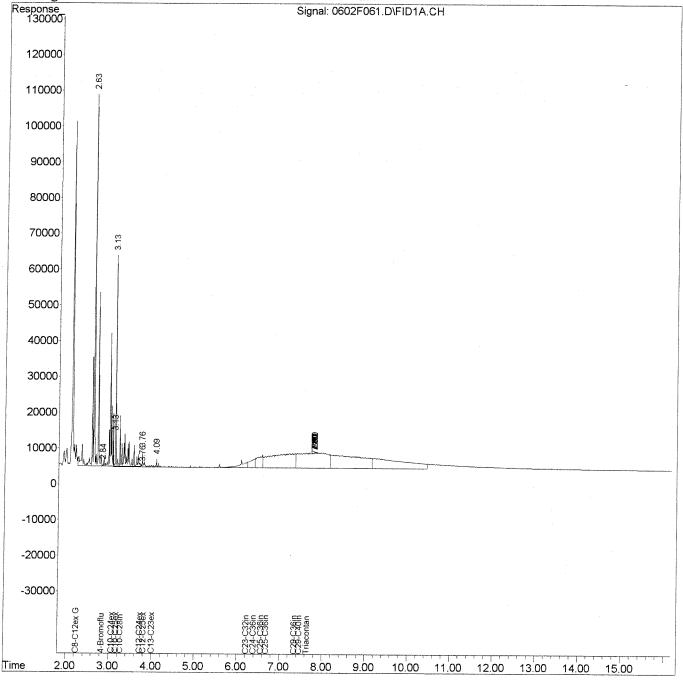
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:01:03 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627 **Date Analyzed:** 06/04/2011

Continuing Calibration Verification Summary

Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: **Analysis Method:**

External Standard

NWTPH-Dx

Calibration Date: 03/14/2011 Calibration ID: CAL10358

Analysis Lot: KWG1105074

Units: ppm

File ID:

J:\GC21\DATA\060211F\0602F078.D

J:\GC21\DATA\060211F\0602F079.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	970	944	919	-3	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	621	2	NA	\pm 15 %	AverageRF
o-Terphenyl	50	48	1260	1220	-3	NA	\pm 15 %	AverageRF
n-Triacontane	50	45	1090	994	- 9	NA	\pm 15 %	AverageRF

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

Printed: 6/7/2011 15:35:26 $u:\Stealth\Crystal.rpt\Form7.rpt$

Form 7 - Organic 198

SuperSet Reference: RR129651 1 of 1

Exception Report

Data File: J:\GC21\DATA\060211F\0602F078.D

Lab ID: KWG1105074-2

RunType: CCV

Matrix: NOT APPLICABLE

Date Acquired: Date Quantitated: Batch ID:

06/06/2011 11:11 KWG1105074

Analysis Method: MethodJoinID:

NWTPH-Dx MJ227

06/04/2011 00:44

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	х	
Second Source ICAL Verification	NA	NA	NA	х	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA.	NA	NA	х	
Above Highest ICAL Level	NA	NA	NA	х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	х	

Primary Review:

Secondary Review:

Page 1 of

u:\Stealth\Crystal.rpt\except2.rpt

Printed: 06/06/2011 14:08:21

Quantitation Report

Bottle ID:

Prod Code:

8015B DRO_RRO

Tier:

Collect Date:

Matrix:

Receive Date:

Report Group:

NOT APPLICABLE

06/06/2011

Analysis Lot: Analysis Method: KWG1105074

NWTPH-Dx

Prep Lot:

Prep Method:

Prep Ref:

Prep Date:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

Method ID:

MJ227

Quant based on Method

Data File:

MB Ref:

J:\GC21\DATA\060211F\0602F078.D

Acqu Date:

06/04/2011 00:44

Run Type:

Lab ID:

CCV

KWG1105074-2

Quant Date:

06/06/2011 11:11

Instrument:

GC21

Vial: Dilution: 96 1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51		60877	48.41		50-150 NA	
n-Triacontane	7.66		49696	45.48		50-150 NA	

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	1038024	969.85			
Diesel Range Organics (DRO)	3.82	?	919458	974.21			
Residual Range Organics (RRO)	6.58	?	4712	7.71			NR

06/06/2011 13:56:40 Printed: u:\Stealth\Crystal.rpt\quant1.rpt

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable

[:] Insufficient information to determine acceptance
e: Result >= MRL, but MRL less than low point of ICAL
c: check for co-elution

Data File : J:\GC21\DATA\060211F\0602F078.D

Vial: 96

Acq On : 04 Jun 2011 12:44 am Operator: JMSmith

Sample : DRO @ 1000/50ppm | SVF01-09E Misc :

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:11:31 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

		Compound		R.T.	Response	Conc	Units
	Syst	tem Monitoring (Compounds				
		4-Bromofluorok		2.83	26137	46.116	mqq
Spi	ked	Amount 50.000 o-Terphenyl)	Reco	very = 60877	92.23%	
2)	S	o-Terphenyl					ppm
		Amount 50.000		Reco	very =	96.82%	
		Triacontane		7.66	49696	45.480	ppm
Spi	ked	Amount 50.000)	Reco	very =	90.96%	
		get Compounds					
		C8-C12ex GRO N					ppm
		C10-C24ex DRO					
		C10-C25ex DRO		3.17		975.775	
		C10-C28in DRO		3.27	1038024		
		C12-C24ex DRO		3.72	915785		
		C12-C25ex DRO		3.82	919458		
		C13-C23ex DRO		4.00	828053		
11)		C23-C32in RRO		6.22	15594	34.049	
		C24-C36in RRO					
13)		C25-C36in RRO		6.58	4712		
		C25-C36in RRO			4712		
		C29-C36in RRO				4.401	ppm
16)	H	C29-C40in RRO	Premier	7.46	2928	4.893	mag

Vial: 96

Data File : J:\GC21\DATA\060211F\0602F078.D

Acq On : 04 Jun 2011 12:44 am Operator: JMSmith

Sample : DRO @ 1000/50ppm | SVF01-09E Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

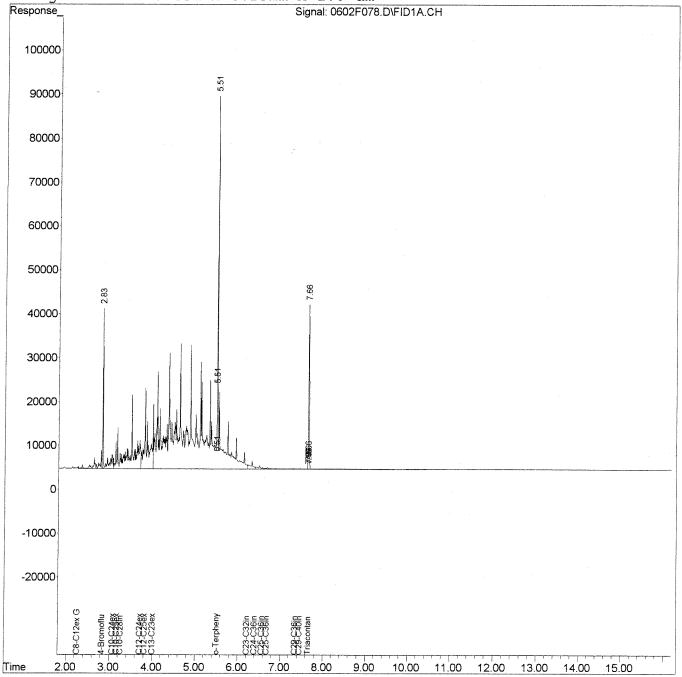
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Exception Report

Data File: J:\GC21\DATA\060211F\0602F079.D

Lab ID: KWG1105074-2

RunType: CCV

Matrix:

NOT APPLICABLE

Date Acquired: Date Quantitated:

Batch ID: Analysis Method: MethodJoinID:

06/06/2011 11:11 KWG1105074 NWTPH-Dx

06/04/2011 01:06

MJ227

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	х	
Second Source ICAL Verification	NA	NA	NA	Х	
Analyte Co-elution	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA	NA	Х	***************************************
Above Highest ICAL Level	NA	NA	NA	X	***************************************
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	·····

Primary Review:

u:\Stealth\Crystal.rpt\except2.rpt

Printed: 06/06/2011 14:08:24

Quantitation Report

Bottle ID: **Prod Code:**

8015B DRO_RRO

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Analysis Lot:

KWG1105074

Prep Lot:

Receive Date:

06/06/2011

Analysis Method:

Report Group:

Prep Ref:

NWTPH-Dx

Prep Method:

Prep Date:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

Method ID:

MB Ref:

MJ227

Quant based on Method

Data File:

Lab ID:

J:\GC21\DATA\060211F\0602F079.D

Acqu Date: Run Type:

06/04/2011 01:06 **CCV**

KWG1105074-2

Quant Date:

06/06/2011 11:11

Instrument:

GC21

Vial:

97

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc %Rec	%Rec Limits	Rpt?
o-Terphenyl		•	0		50-150 NA	NR
n-Triacontane	7.66		519	0.4750	50-150 NA	NR

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	421934	394.22			
Diesel Range Organics (DRO)	3.82	?	106363	112.70			NR
Residual Range Organics (RRO)	6.58	?	621489	1,017			

Printed: 06/06/2011 13:56:53

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed

d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria #: Acceptance criteria not applicable ?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL c: check for co-elution

Data File : J:\GC21\DATA\060211F\0602F079.D Vial: 97 Acq On : 04 Jun 2011 1:06 am Operator: JMSmith Sample : GRO/RRO @ 1000ppm | SVF01-02L Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:11:32 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T.	Response	Conc (Inits
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	7.66	516 /ery = 519 /ery =	0.475	
Target Compounds				
4) H C8-C12ex GRO NW	2.25	390597	1014.116	mag
5) H C10-C24ex DRO Arcadis	3.07		189.299	
6) H C10-C25ex DRO AK102	3.17		221.161	
7) H C10-C28in DRO 8015	3.27	421934	394.221	ppm
8) H Cl2-C24ex DRO T&R	3.72	71663	76.290	ppm
9) H C12-C25ex DRO NW	3.82	106363	112.697	ppm
10) H C13-C23ex DRO AZ	4.00	36800	43.539	ppm
11) H C23-C32in RRO AZ	6.22	464435	1014.087	ppm
12) H C24-C36in RRO T&R/Arcadis	6.40		1019.943	
13) H C25-C36in RRO NW	6.58	621489	1017.487	ppm
14) H C25-C36in RRO Motor Oil	6.68	621489	1021.098	ppm
15) H C29-C36in RRO Stratus	7.36	435247	1021.175	ppm
16) H C29-C40in RRO Premier	7.46	622034	1039.527	ppm

Sample : GRO/RRO @ 1000ppm | SVF01-02L Inst : GC21
Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

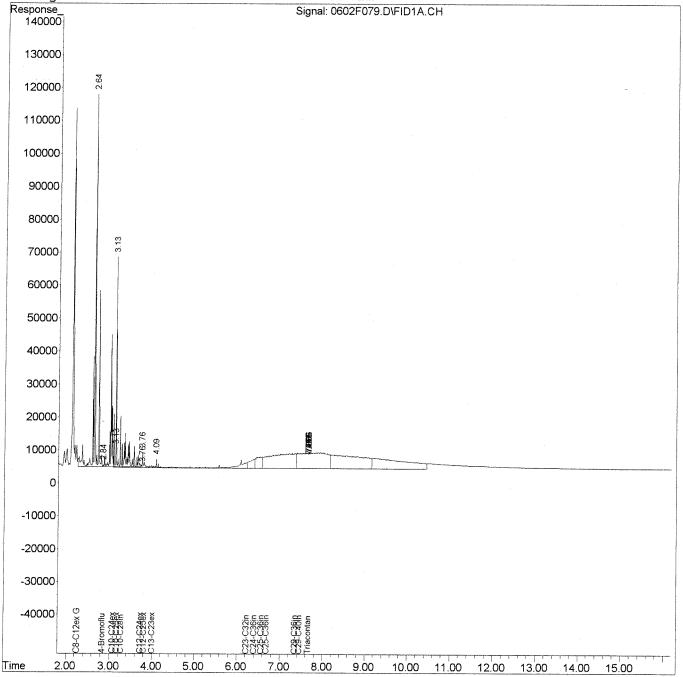
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104627

Date Analyzed: 06/04/2011

Continuing Calibration Verification Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: Analysis Method:

External Standard

NWTPH-Dx

Calibration Date: 03/14/2011 Calibration ID: CAL10358

Analysis Lot: KWG1105074

Iysis Lot: KWG1103

Units: ppm Column ID: ZB-1

File ID:

J:\GC21\DATA\060211F\0602F090.D

J:\GC21\DATA\060211F\0602F091.D

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	957	1	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	615	1	NA	\pm 15 %	AverageRF
o-Terphenyl	50	51	1260	1270	1	NA	\pm 15 %	AverageRF
n-Triacontane	50	47	1090	1020	- 6	NA	\pm 15 %	AverageRF

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

Printed: 6/7/2011
u:\Stealth\Crystal.rpt\Form7.rpt

15:35:29

Form 7 - Organic

Page SuperSet Reference: RR129651

1 of 1

207

Data File:

J:\GC21\DATA\060211F\0602F090.D

Lab ID:

KWG1105074-3

RunType:

CCV

Matrix:

NOT APPLICABLE

Date Acquired: Date Quantitated:

Batch ID:

06/06/2011 11:11 KWG1105074

06/04/2011 05:07

Analysis Method: MethodJoinID:

NWTPH-Dx MJ227

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	Х	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	

Primary Review:

Secondary Review:

Page 1 of 1

 $u:\Stealth\Crystal.rpt\except2.rpt$

Printed: 06/06/2011 14:08:57

Quantitation Report

Bottle ID:

Prod Code:

8015B DRO_RRO

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

Analysis Lot:

KWG1105074

NWTPH-Dx

Prep Lot:

06/06/2011

Analysis Method:

Prep Method:

Prep Date:

Prep Ref:

Calibration ID:

Quant based on Method

CAL10358

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Method ID:

MJ227

MB Ref:

Data File:

J:\GC21\DATA\060211F\0602F090.D

06/04/2011 05:07

Quant Date:

Instrument:

GC21

Acqu Date: Run Type:

Lab ID:

CCV

KWG1105074-3

06/06/2011 11:11

Vial:

96

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51		63718	50.67		50-150 NA	
n-Triacontane	7.66		51179	46.84		50-150 NA	

arget Compounds			Final (Final Conc. Units: ug/L			
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	1081062	1,010			
Diesel Range Organics (DRO)	3.82	?	957491	1,015			
Residual Range Organics (RRO)	6.58	?	4615	7.56			NR

Printed: 06/06/2011 13:57:51 u:\Stealth\Crystal.rpt\quant1.rpt

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria #: Acceptance criteria not applicable ?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F090.D Vial: 96

IntFile : rteint.p

Quant Time: Jun 06 11:11:43 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

System Monitoring Compounds 2.83 27177 47.951 ppm 1) S 4-Bromofluorobenzene 2.83 27177 47.951 ppm Spiked Amount 50.000 Recovery = 95.90% Spiked Amount 50.000 Recovery = 101.34% 3) S Triacontane 7.66 51179 46.837 ppm	
Spiked Amount 50.000 Recovery = 93.67%	
Target Compounds 4) H C8-C12ex GRO NW 2.25 154314 400.649 ppm 5) H C10-C24ex DRO Arcadis 3.07 1074309 1016.869 ppm 6) H C10-C25ex DRO AK102 3.17 1078042 1016.123 ppm 7) H C10-C28in DRO 8015 3.27 1081062 1010.056 ppm 8) H C12-C24ex DRO T&R 3.72 953759 1015.341 ppm 9) H C12-C25ex DRO NW 3.82 957491 1014.511 ppm 10) H C13-C23ex DRO AZ 4.00 862283 1020.197 ppm 11) H C23-C32in RRO AZ 6.22 15666 34.206 ppm	
12) H C24-C36in RRO T&R/Arcadis 6.40 8456 13.144 ppm 13) H C25-C36in RRO NW 6.58 4615 7.556 ppm	
13) H C25-C36in RRO NW 6.58 4615 7.556 ppm 14) H C25-C36in RRO Motor Oil 6.68 4615 7.582 ppm 15) H C29-C36in RRO Stratus 7.36 1749 4.103 ppm 16) H C29-C40in RRO Premier 7.46 3001 5.015 ppm	

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F090.D Vial: 96

Operator: JMSmith : 04 Jun 2011 5:07 am : DRO @ 1000/50ppm | SVF01-09E : GC21 Inst Sample Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

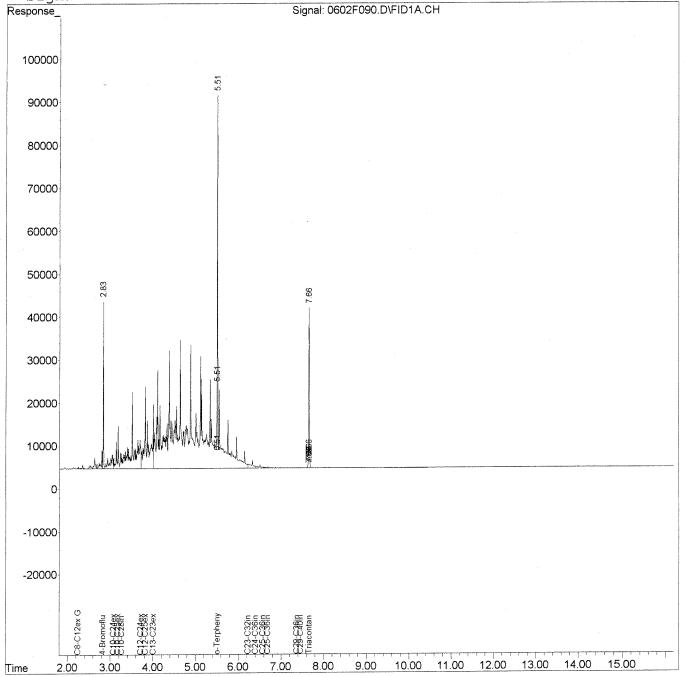
: 8015/NWTPH Semivolatile Range Organics | CAL10358 Title

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Data File:

J:\GC21\DATA\060211F\0602F091.D

Lab ID:

KWG1105074-3

RunType:

CCV

Matrix:

NOT APPLICABLE

Date Acquired: Date Quantitated:

Batch ID:

Analysis Method: MethodJoinID: 06/04/2011 05:29 06/06/2011 11:11 KWG1105074 NWTPH-Dx

MJ227

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	

Primary Review:

Secondary Review:

Page 1 of 1

Printed: 06/06/2011 14:09:00 u:\Stealth\Crystal.rpt\except2.rpt

Quantitation Report

Bottle ID:

Prod Code:

8015B DRO_RRO

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Analysis Lot:

KWG1105074

Prep Lot:

Receive Date:

06/06/2011

Analysis Method:

NWTPH-Dx

Prep Method: Prep Date:

Report Group:

Prep Ref:

Calibration ID:

CAL10358

Quant Method: Title:

J:\GC21\METHODS\031311FSRO.M

MB Ref:

Method ID:

MJ227

Quant based on Method

Data File:

J:\GC21\DATA\060211F\0602F091.D

GC21

Acqu Date:

06/04/2011 05:29

Quant Date:

06/06/2011 11:11

Instrument:

97

Dilution:

CCV Run Type: KWG1105074-3 Lab ID:

1.0

Soln Conc. Units: ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
			0			50-150 NA	NR
o-Terphenyl			0			50-150 NA	NR
n-Triacontane			U			JO-1JO 1471	1110

ant Compounds

Final Conc. Units:

ug/L

arget Compounas							
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	413818	386.64			
Diesel Range Organics (DRO)	3.82	?	103937	110.13			NR
Residual Range Organics (RRO)		?	614669	1,006			

Printed: 06/06/2011 13:58:04 u:\Stealth\Crystal.rpt\quant1.rpt

U: Undetected at or above MDL

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted
NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

Result lais acceptance oriental
Result Acceptance criteria not applicable
Insufficient information to determine acceptance
Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (Not Reviewed)

Vial: 97 Data File : J:\GC21\DATA\060211F\0602F091.D Acq On : 04 Jun 2011 5:29 am Sample : GRO/RRO @ 1000ppm | SVF01-02L Operator: JMSmith Inst : GC21 Multiplr: 1.00 Misc

Misc : IntFile : rteint.p

Quant Time: Jun 06 11:11:44 2011 Quant Results File: 031311FSRO.RES

Ouant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

		Compound	R.T.	Response	Conc U	Jnits
1)	S	em Monitoring Compound 4-Bromofluorobenzene Amount 50.000	2.84	491 eovery =	0.866 1.73%	ppm
	Tarq	et Compounds				
	Н	C8-C12ex GRO NW	2.25	382008	991.816	ppm
5)		C10-C24ex DRO Arcadis	3.07	195715	185.251	ppm
,		C10-C25ex DRO AK102	3.17	229649	216.459	ppm
,		C10-C28in DRO 8015	3.27	413818	386.638	ppm
,	Н	C12-C24ex DRO T&R	3.72	69949	74.465	ppm
9)		C12-C25ex DRO NW	3.82	103937	110.127	ppm
10)	Н	C13-C23ex DRO AZ	4.00	35811	42.369	ppm
,	H	C23-C32in RRO AZ	6.22	458111	1000.279	ppm
12)		C24-C36in RRO T&R/Arca	adis 6.40	648657	1008.236	ppm
		C25-C36in RRO NW	6.58	614669	1006.322	ppm
,		C25-C36in RRO Motor O	il 6.68	614669	1009.893	ppm
15)		C29-C36in RRO Stratus	7.36	431553	1012.508	ppm
16)		C29-C40in RRO Premier	7.46	616776	1030.739	ppm

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

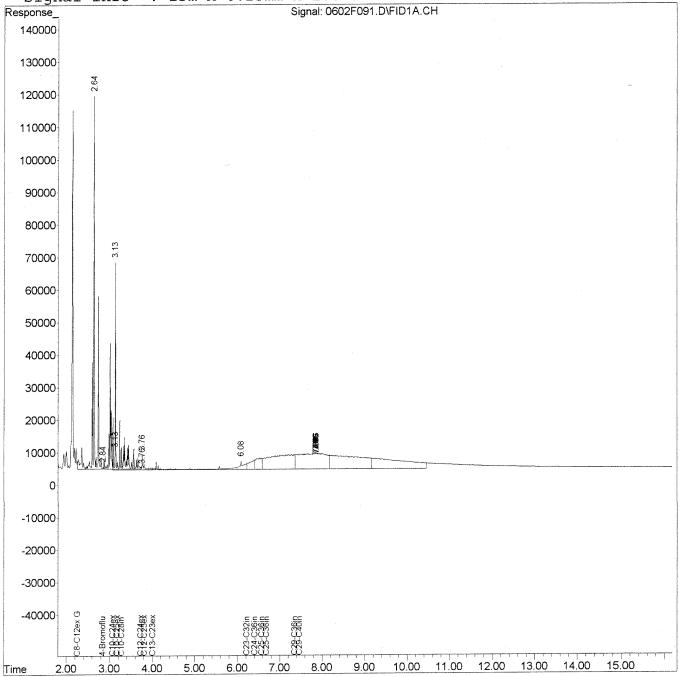
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u> Validation Package

Sample Prep and Screen Data

Preparation Information

Group ID: Department:	KWG1104910 Semivoa GC	Prep Method:	Method	Prep Date:	05/27/11 00:00	

ab Code	Client ID	Product	Matrix	Amt. Ext.	Final Vol.	So
1104627-001	TS1-052311	NWTPH-Dx NW TPH SGT	WATER	420mL	1mL	
.1104627-002	TS2-052311	NWTPH-Dx NW TPH	WATER	470mL	1mL	
1104627-003	SW1-052311	SGT NWTPH-Dx NW TPH	WATER	460mL	1mL	
1104627-004	SW2-052311	SGT NWTPH-Dx NW TPH	WATER	430mL	1mL	
1104627-005	GW1-052411	SGT NWTPH-Dx NW TPH	WATER	220mL	1mL	
1104627-006	GW2-052411	SGT NWTPH-Dx NW TPH	WATER	320mL	1mL	
1104627-007	GW3-052411	SGT NWTPH-Dx NW TPH	WATER	440mL	1mL	
1104627-008	GW4-052411	SGT NWTPH-Dx NW TPH	WATER	450mL	1mL	
1104627-009	GW5-052411	SGT NWTPH-Dx NW TPH	WATER	430mL	1mL	
1104627-010	GW6-052411	SGT NWTPH-Dx NW TPH	WATER	360mL	1mL	
1104672-003	052411-003 Cat Shop Wash §	SGT NWTPH-Dx NW TPH	MISC.	90mL	1mL	
1104704-001	WAM-010	SGT NWTPH-Dx NW TPH	WATER	500mL	1mL	
1104704-002	WAM-011	SGT NWTPH-Dx NW TPH	WATER	500mL	1mL	
1104704-003	WAM-012	SGT NWTPH-Dx NW TPH	WATER	500mL	1mL	
1104704-004	WAM-013	SGT NWTPH-Dx NW TPH	WATER	500mL	lmL	
1104704-005	WAM-014	SGT NWTPH-Dx NW TPH	WATER	500mL	lmL	
WG1104910-1	Duplicate	SGT NWTPH-Dx NW TPH	WATER	440mL	1mL	
WG1104910-2	Duplicate	SGT NWTPH-Dx NW TPH SGT	WATER	500mL	1mL	
WG1104910-3	Lab Control Sample	NWTPH-Dx NW TPH	MISC.	500mL	1mL	
WG1104910-4	Method Blank	SGT NWTPH-Dx NW TPH SGT	MISC.	500mL	lmL	
Lab Code	Parent Lab Code	Comments				
CWG1104910-1	K1104627-001	KQ1104978-01				
	K1104704-001	KQ1104978-02				
KWG1104910-3		KQ1104978-03				
ZWG1104910-4		KQ1104978-04				
Comments:			·			
wareness, 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10						
Started By:	CPorter	Assisted By:				Yes Training No
Completed By:	CPorter	Assisted By:				103

Started By: CPorter Assisted By:

Completed By: CPorter Assisted By:

Reviewed By: E Date: 6-1-11 Storage: DW lab fridge.

Chain of Custody

Relinquished By: Cli Property Date: 5-3/-// Extracts Examined

Received By:

Printed: 05/31/2011
u:\Stealth\Crystal.rpt\prep1.rpt

15:53:10

Preparation Information

Date:

Page 1 of

No

Group ID: KWG1104910 Prep Method: Method Prep Date: 05/27/11 00:00 Department: Semivoa GC

		Surrogate	Amount Added	Spike	Amount Added
Lab Code	Prep Event ID	Solution ID		Solution ID	Witness
K1104627-001	1023349	·			BRice
K1104627-002	1023350				BRice
K1104627-003	1023351				BRice
K1104627-004	1023352				BRice
K1104627-005	1023353				BRice
K1104627-006	1023354				BRice
K1104627-007	1023355				BRice
K1104627-008	1023356				BRice
K1104627-009	1023357				BRice
K1104627-010	1023358				BRice
K1104672-003	1023359				BRice
K1104704-001	1023360				BRice
K1104704-002	1023361				BRice
K1104704-003	1023362				BRice
K1104704-004	1023363				BRice
K1104704-005	1023364				BRice
KWG1104910-1	1023365				BRice
KWG1104910-2	1023366				BRice
KWG1104910-3	1023367				BRice
KWG1104910-4	1023368				BRice

Comments:			
Started By: CPorter	Assisted By:		Training Yes No
Completed By: CPorter	Assisted By:		Yes (No)
Reviewed By:	Date: <u>W/I/N</u>	Storage: DW lab fri	dge
Chain of Custody			,
Relinquished By:		Date: 5-3/-//	Extracts Examined
Received By:	V	Date: 06/03/N	Yes No
Printed: 05/31/2011 15:53:10	Preparation Information		Page 2 of 2

05/31/2011 Printed: u:\Stealth\Crystal.rpt\prep1.rpt

Columbia Analytical Services^{*} Preparation Information Benchsheet



Prep Run: 134804

Prep Workflow: Semivoa

TPHextAq Status:

Draft

Prep Date: 05/27/2011 09:28

Team:

GC

Prep Method:

Method

Current Step: Extraction

Due Date: 05/30/2011

Analyst:

CPorter

Rush/NPDES:

RUSH

(14)

Lab Cod	de	·		1		itial iount	p Init		pH Adj 1	Adj Volume V		Final Volume		Surr Amt		Spike Amt	
K1104627-	-001	TS1-052311	.01	1	4	20	4	2_	na	1	Ø.	1	<u>nL</u>	Īω		10	NW TPH SGT
K1104627-	002	TS2-052311	. 01 .02	S	CJ.	70			and the same of th							1	NW TPH SGT
		SW1-052311	.01 -02	J	41	D.			The second secon								NW TPH SGT
K1104627-	004	SW2-052311	-01 -02	1	Same	30								The state of the s			NW TPH SGT
K1104627-	005	GW1-052411	.01	1	2	20			Name and Address of the Owner, where					orthodate (annual position			NW TPH SGT
K1104627-	006	GW2-052411	.01- .02	1	3	20			and the state of t								NW TPH SGT
K1104627-	007	GW3-052411	.01	/	Lj	40											NW TPH SGT
K1104627-	800	GW4-052411	.01	/	4	50	and the second								1	1	NW TPH SGT
K1104627-	009	GW5-052411	.01	/	4	30					1					1	NW TPH SGT
		GW6-052411	.01	5	3	60		,	V	. ,					1		NW TPH SGT
K1104672-	003	052411-003 Cat Shop Wash Sump	.01	S	90		8		ζ2								NW TPH SGT
K1104704-	001	WAM-010	.04	\int	5	00	<u> </u>	2	nG					Name of the Owner, where	1	1	NW TPH SGT
K1104704-	002	WAM-011	.04	1		00			T					7	1		NW TPH SGT
K1104704-0	003	WAM-012	.04	J	50	D	-		1						1		NW TPH SGT
K1104704-0	004	WAM-013	.04	J	5	00									1		NW TPH SGT
K1104704-0	005	WAM-014	.04	S	50	00.									1		NW TPH
K1104627-0 KQ1104978	001: [3-01	Duplicate	91- -02	J	4	40								NA CONTRACTOR			NW TPH SGT
K1104704-0 KQ1104978		Duplicate	:04"	J		00								-		1	NW TPH SGT
KQ1104978	3-03 l	Lab Control Sample)O	7	À	<u> </u>							100/1	NW TPH
KQ1104978	3-04	Method Blank			50	20			Ţ	1	/			1	\dashv	na	NW TPH

20 Total Samples consisting of 16 Client Samples, 2 Client QC Samples, 2 Batch QC Samples associated with the current Prep Pup

Spiking Solutions

with the current Prep Run.

5-27-11 (EE)

Finished	<u>Finish e</u>	Ву	Assisted By	Training?	Comments
5-27-1	5-27	clordy			
5-27	5.27	Clordy	1947-1		

Comments

theory emulsions formed an all 3 shakes, extracts were drained into centrifuge at bottles and the emulsions were broken with centrifugation. Also see attached documents, the Emulsion formed on first shake, emulsion broken with sulfate (BK1022). 5-2711 the Last shakes extract was poured into waste with the sample water; i.e. it was NOT added to the first two extracts in the KD apparatus. CD 5-27-11

For CASLIMS prep run 134804:

Specifically, sample K1104672-003 "052411-003 Cat Shop Wash Sump" was received with ~80% of the sample consisting of black sediment, large rocks, and organic matter (e.g. pieces of wood, grass). There was also a strong, oily/diesel odor to the sample. The sample bottle was shaken first, then 90 mL of the aqueous sample was decanted off into a clean, methylene chloride-rinsed graduated cylinder. The sample was then acidified to a pH of less than 2 and poured into a appropriately sized separatory funnel. The grad cylinder was then rinsed with the first 60-mL portion of the extraction solvent (methylene chloride) and this rinse was added to the same funnel. While shaking out the sample, a heavy emulsion formed after each of the three shakes. The emulsions were drained into clean bottles, and centrifuged at 1500 rpm for ~5 minutes to separate the organic and aqueous layers. The organic layers were combined and this extract was then added to a prepared K-D apparatus and concentrated to a final volume of 1 mL in methylene chloride before performing a silica gel cleanup.

COP 5-31-11

Additional Prep Information For Fuels by 3510

Service Request # <u>k4627</u> , <u>k4704</u> Work Group # <u>k6</u>	1978
Batch Start (Time/Date/Initial): 1200/5.27-11/W	
Batch Stop (Time/Date/Initial): 1500 /5-27-11 /cd	
DCM Lot # DD930 Acid Lot # 20102580)	
Sulfate Lot # BROZZ Glass Wool Lot # 13710001	
S-Evap Temp. 74°C 5.27-11 N-Evap Temp. 32°C 5.31-11	
S-Evap Temp. 74°(527-11 N-Evap Temp. 32°C 5.31.11 Acid Cleanup: 99296 (56T) 5.31.11 Silica Gel Cleanup: 48094815 (56T) 5.31.11	
Vial: white Storage: DW lat Fridge	
Archive:	
Comments/Observations:	

QC Requirements

AK 102/103	MS/DMS + LCS/DLCS every 20 samples
NWTPH-DX,-HCID	Duplicate every 10 samples + LCS/MB every 20 samples
8015-DRO	MS/DMS + LCS/MB every 20 samples
If insufficient sample for	or MS/DMS or Dup include a DLCS with the batch

Bench Sheet Review Check List

- Hold Times Met (if no, Reason:

- ☑ Weights/Volumes and units correct on raw and final bench sheets
- ☑ Names present for: Started by, Completed by, relinquished by, and witnessed by.
- Training has been circled

- All clean-ups have been noted on additional prep sheet
- Signed service request with Form V, if applicable, has been attached

									K1104672-003@Sx	K1104672-003	LAB ID
									10ml		ALIQUOT
									100ml	word	FINAL VOLUME
· ·										V)	DILUTION FACTOR
								*	B/6/11	18/03/4	DATE
The state of the s							-				ANALYST
									05747		DCM LOT
								C)	(10 overnue total Sex Illians	expect from the sold	/_COMMENTS

SVF DILUTION LOG

223

Preparation Information

Group ID: KWG1105298 Prep Method: EPA 3580A Prep Date: 06/10/11 00:00
Department: Semivoa GC

Lab Code	Client ID	Product	Matrix	Amt. Ext.	Final Vol.		Solid
K1104627-011	PC-Min-052411	None MISC_SVG	NONAQ	10.3mg	10ml		
Lab Code	Parent Lab Code	Comments					
K1104627-011		Mineral oil refere	nce standard prov	ided by client (TEC) for FID fingerprint		
		Surrogate	Amount Added	Spike	Amount Added		
Lab Code	Prep Event ID	Solution ID		Solution ID		Witness	
K1104627-011	1025929					****	

Comments:			
Started By: Completed By:	JMSmith JMSmith	Assisted By: Assisted By:	Yes No
Reviewed By: Chain of Custody	f	Date: Mola Storage:	Yes No
Relinquished By	My h. Sa	Date: John Date:	Extracts Examined Yes No

Printed: 06/10/2011
u:\Stealth\Crystal.rpt\prep1.rpt

21:30:54

Preparation Information

Page

1 of 1

Preparation Information

Group ID:
Department:

KWG1105298 Semivoa GC Prep Method:

EPA 3580A

Prep Date:

06/10/11 00:00

#	Lab Code	Client ID	В#	√	Product	Matrix	Amt. Ext.	pН	Int. Vol.	Final Vol.	Surr. Added	Spike Added
	K1104627-011	PC-Min-052411			None MISC_SVG1	NONAQ LIQUID	10.3ma	NA	NA	IOAL	MA	NA

Comments:	Mineral oil reference Skyllerd provide	added by client (TER) for FID Fingerprint, for obligh
	DEM LOR & ODZON	
Surrogate ID:		
Spike ID:	A/A	
Witness:	_/ / //)	
Started By:	JMSmith	Assisted By:
•		
Completed By:	JMSmith	Assisted By:

 $\begin{array}{ll} \mbox{Printed:} & 06/10/2011 \\ \mbox{u:} \mbox{Stealth}\mbox{Crystal.rpt}\mbox{prep2.rpt} \end{array}$

20:01:11

Preparation Information

Page 1 of 1

		 			 		 			 	 		
			Name of the Control o									K1104627 -011	LAB ID
								The state of the s	The state of the s			100cl	ALIQUOT
						-						1000M	FINAL VOLUME
		100000000000000000000000000000000000000		The state of the s							The state of the s	104	DILUTION FACTOR
Andrews of the control of the contro	-			A SALES OF THE SAL								alista	DATE
											1	M	ANALYST
													DCM LOT
				d a								Minus De Charles	COMMENTS

SVF DILUTION LOG

Data File : J:\GC21\DATA\061011F\0610F100.D Vial: 95 Acq On : 12 Jun 2011 5:10 am Operator: JMSmith : TEC/PACIFICORP MINERAL OIL | K1104627-01 Inst Sample : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 13 11:36 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

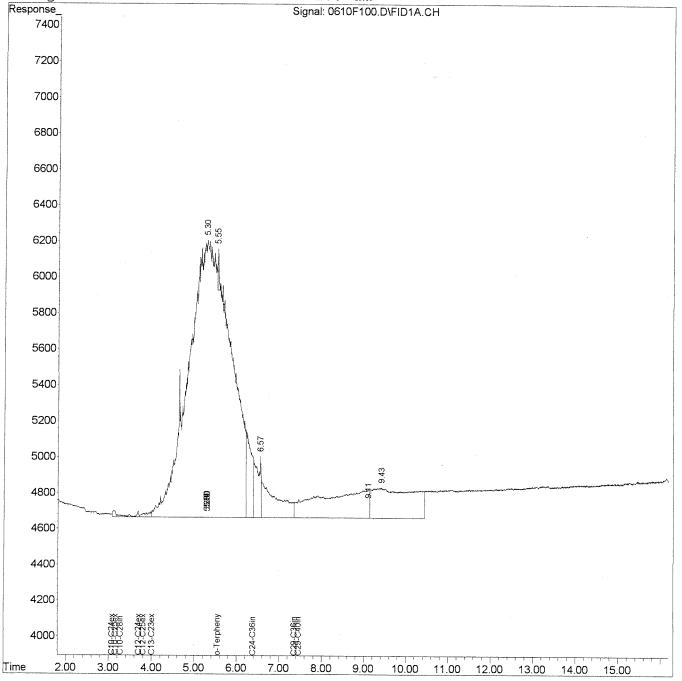
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 13 11:36:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0610F100.D 031311FSRO.M

File : J:\GC21\DATA\060211F\0602F081.D

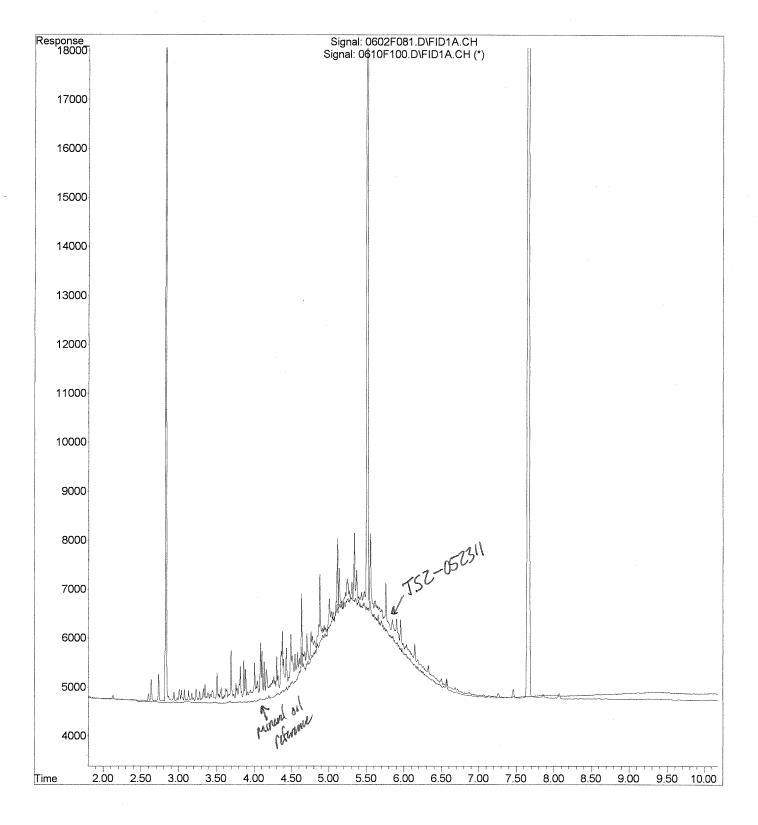
Operator : JMSmith

Acquired : 04 Jun 2011 1:49 am using AcqMethod SVF F.M

Instrument: GC21

Sample Name: K1104627-002

Misc Info : Vial Number: 12



File : J:\GC21\DATA\060211F\0602F082.D

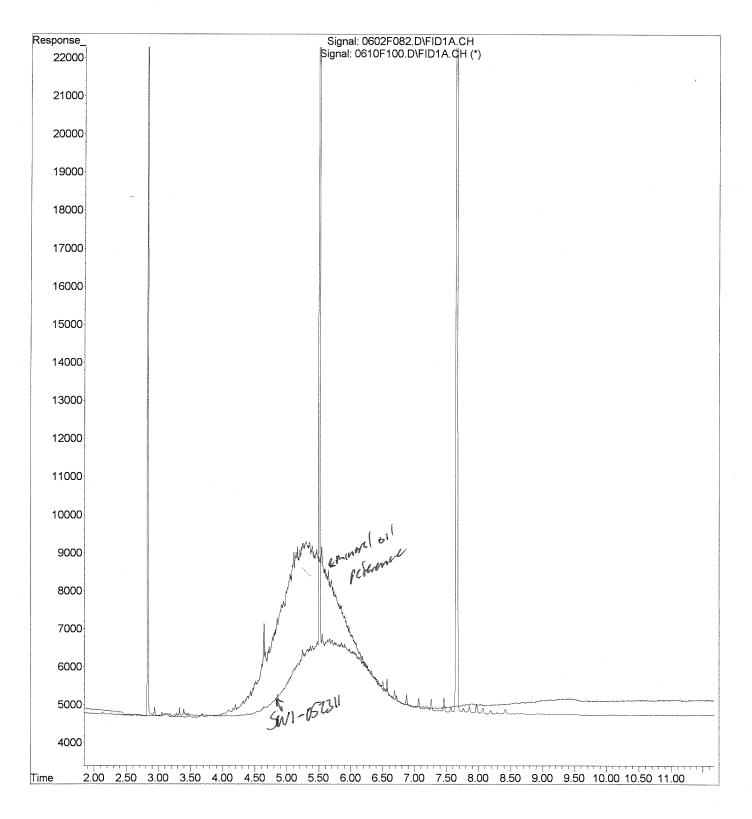
Operator : JMSmith

Acquired : 04 Jun 2011 2:11 am using AcqMethod SVF_F.M

Instrument : GC21

Sample Name: K1104627-003

Misc Info : Vial Number: 13



File : J:\GC21\DATA\060211F\0602F087.D

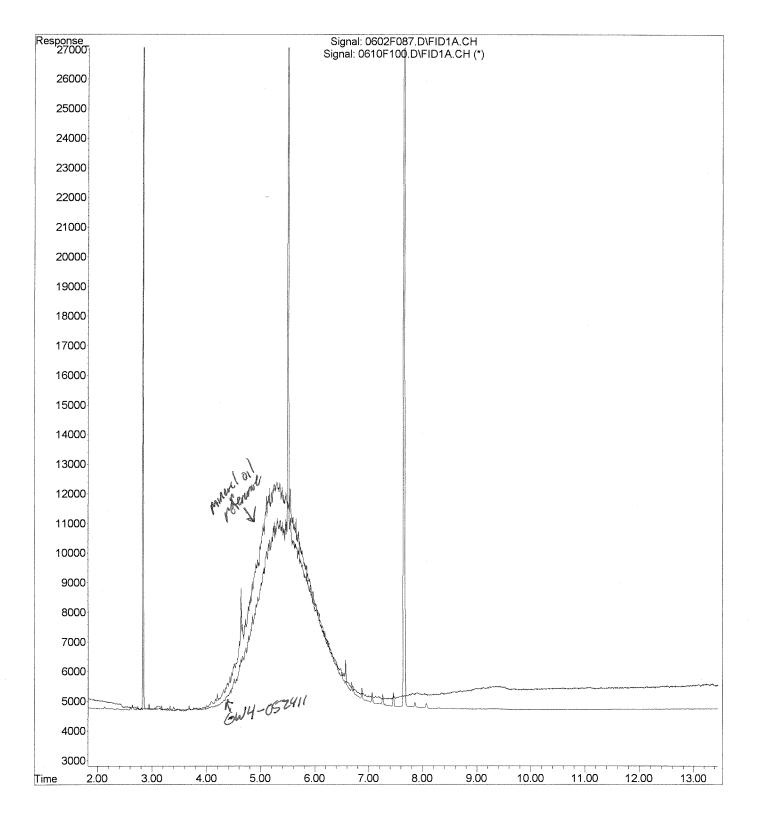
Operator : JMSmith

Acquired : 04 Jun 2011 4:01 am using AcqMethod SVF_F.M

Instrument: GC21

Sample Name: K1104627-008

Misc Info : Vial Number: 18



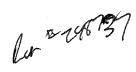
Batch Exceptions

Batch ID:

KWG1105074

Data Path:

J:\GC21\DATA\060211F\



File ID	Laboratory ID	Client ID	Btl ID	Type	Matrix	Date Acquired	Pass	Fail	ReAnalyze?
0602F058.D	KWG11 0507 4-1	Continuing Calibration Verific		CCV	Not appl	06-03-2011 17:10	X		
0602F061.D	KWG1105074-1	Continuing Calibration Verific	1	CCV	Not appl	06-03-2011 18:29	X		
0602F062.D	KWG1105074-9	Instrument Blank		IΒ	Not appl	06-03-2011 18:51	х		
0602F065.D	KWG1104910-3	Lab Control Sample		LCS	Misc. aq	06-03-2011 19:56	X		
0602F066.D	KWG1104910-4	Method Blank		MB	Misc. aq	06-03-2011 20:18	X		
0602F067.D	K1104627-001	TS1-052311	1	SMPL	Water	06-03-2011 20:43	X		
0602F068.D	KWG1104910-1	Duplicate		DUP	Water	06-03-2011 21:04	X		
060 2 F069.D	K1104704-001	WAM-010	1	SMPL	Water	06-03-2011 21:26	Х		
060 2 F070.D	KWG1104910-2	Duplicate		DUP	Water	06-03-2011 21:48	X		
0602F071.D	K1104704-002	WAM-011	`	SMPL	Water	06-03-2011 22:10	Х		
0602F072.D	K1104704-003	WAM-012		SMPL	Water	06-03-2011 22:32	X		
060 2 F073.D	K1104704-004	WAM-013	1	SMPL	Water	06-03-2011 22:54	X		·
0602F074.D	K1104704-005	WAM-014		SMPL	Water	06-03-2011 23:16	X		
0602F075.D	K1104672-003	052411-003 Cat Shop Wash		SMPL	Misc. aq	06-03-2011 23:38		Х	
0602F078.D	KWG1105074-2	Continuing Calibration Verific		CCV	Not appl	06-04-2011 00:44	Х		
0602F079.D	KWG1105074-2	Continuing Calibration Verific		CCV	Not appl	06-04-2011 01:06	Х		
0602F080.D	KWG1105074-10	Instrument Blank		IΒ	Not appl	06-04-2011 01:28	X		
0602F081.D	K1104627-002	TS2-052311		SMPL	Water	06-04-2011 01:49.	Х		
0602F082.D	K1104627-003	SW1-052311		SMPL	Water	06-04-2011 02:11	X		
0602F083.D	K1104627-004	SW2-052311		SMPL	Water	06-04-2011 02:33	X		
0602F084.D	K1104627-005	GW1-052411		SMPL	Water	06-04-2011 02:55	X		
0602F085.D	K1104627-006	GW2-052411		SMPL	Water	06-04-2011 03:17	X		
0602F086.D	K1104627-007	GW3-052411		SMPL	Water	06-04-2011 03:39	Х		·····
0602F087.D	K1104627-008	GW4-052411		SMPL	Water	06-04-2011 04:01	X		
0602F088.D	K1104627-009	GW5-052411		SMPL	Water	06-04-2011 04:23	Х		
0602F089.D	K1104627-010	GW6-052411		SMPL	Water	06-04-2011 04:45	Х		
060 2 F090.D	KWG1105074-3	Continuing Calibration Verific		CCV	Not appl	06-04-2011 05:07	X		
0602F091.D	KWG1105074-3	Continuing Calibration Verific		CCV	Not appl	06-04-2011 05:29	X		
0602F093.D	KWG1105074-11	Instrument Blank		IB	Not appl	06-04-2011 06:12	Х		
0602F107.D	KWG1105074-4	Continuing Calibration Verific		CCV	Not appl	06-04-2011 11:20	X		
0602F108.D	KWG1105074-4	Continuing Calibration Verific		CCV	Not appl	06-04-2011 11:42	X		
0602F110.D	KWG1105074-12	Instrument Blank		IB	Not appl	06-04-2011 12:26	X		
0602F111.D	KWG1104783-3	Lab Control Sample		LCS	Sedimen	06-04-2011 12:48	Х		
0602F112.D	KWG1104783-4	Method Blank		MB	Sedimen	106-04-2011 13:10	X		
0602F113.D	KWG1104784-3	Lab Control Sample		LCS	Sedimen	06-04-2011 13:31	X		
0602F114.D	KWG1104784-4	Method Blank		MB	Sedimen	06-04-2011 13:53	X		
0602F115.D	K1104355-011	OC-47-02		SMPL	Sedimen	06-04-2011 14:15	X		

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Ke	VIE	WS

Level 2:

Printed: 06/06/2011 14:07:32

Page

Batch Exceptions

Batch ID:

KWG1105074

Data Path:

 $J: \label{eq:condition} J: \$

File ID	Laboratory ID	Client ID	Btl ID	Type	Matrix Date Acquired	Pass	Fail	ReAnalyze?
060 2 F116.D	K1104355-012	OC-47-03		SMPL	Sedimen 06-04-2011 14:36	х		
0602F117.D	K1104355-017	OC-48-04		SMPL	Sedimen 06-04-2011 14:58	Х		
0602F118.D	K1104355-009	OC-46-02		SMPL	Sedimen 06-04-2011 15:20	х		
0602F119.D	K1104355-016	OC-48-03		SMPL	Sedimen 06-04-2011 15:41	Х		
0602F120.D	K1104355-023	DC-23-04		SMPL	Sedimen 06-04-2011 16:03	Х		
0602F121.D	K1104355-013	OC-47-04		SMPL	Sedimen 06-04-2011 16:25	Х		
0602F122.D	K1104355-005	DC-24-03-SP		SMPL	Sedimen 06-04-2011 16:47	X		
0602F123.D	K1104355-015	OC-48-02		SMPL	Sedimen 06-04-2011 17:09	Х		
0602F126.D	KWG1105074-5	Continuing Calibration Verific		CCV	Not appl 06-04-2011 18:15	Х		
0602F127.D	KWG1105074-5	Continuing Calibration Verific		CCV	Not appl 06-04-2011 18:37	Х		
0602F128.D	KWG1105074-13	Instrument Blank		IΒ	Not appli06-04-2011 18:59	Х		
0602F129.D	K1104355-008	OC-46-01		SMPL	Sedimen 06-04-2011 19:20	х		
0602F130.D	K1104355-014	OC-48-01		SMPL	Sedimen 06-04-2011 19:42	х		
0602F131.D	K1104355-010	OC-47-01		SMPL	Sedimen 06-04-2011 20:04	х		
0602F132.D	KWG1104784-1	Matrix Spike		MS	Sedimen 06-04-2011 20:26	X		
0602F133.D	KWG1104784-2	Duplicate Matrix Spike		DMS	Sedimen 06-04-2011 20:47	Х		
0602F134.D	K1104355-026	DC-24-03		SMPL	Sedimen 06-04-2011 21:09	Х		
0602F135.D	K1104355-007	OC-35-02		SMPL	Sedimen 06-04-2011 21:31	х		
0602F136.D	K1104355-027	DC-25-02-DP		SMPL	Sedimen 06-04-2011 21:53	х		
0602F137.D	K1104355-022	DC-23-03		SMPL	Sedimen 06-04-2011 22:15	Х		
0602F138.D	K1104355-004	DC-22-03		SMPL	Sedimen 06-04-2011 22:37	Х		
060 2 F141.D	KWG1105074-6	Continuing Calibration Verific		CCV	Not appli06-04-2011 23:43	Х		
0602F142.D	KWG1105074-6	Continuing Calibration Verific		CCV	Not appl 06-05-2011 00:05	Х		
0602F143.D	KWG1105074-14	Instrument Blank		IΒ	Not appl 06-05-2011 00:26	х		
0602F144.D	K1104355-006	OC-35-01		SMPL	Sedimen 06-05-2011 00:48	X		
0602F145.D	K1104355-003	DC-22-02		SMPL	Sedimen 06-05-2011 01:10	X		
060 2 F146.D	K1104355-025	DC-24-02		SMPL	Sedimen 06-05-2011 01:32	х		
0602F147.D	K1104355-018	DC-20-02		SMPL	Sedimen 06-05-2011 01:54	x		
0602F148.D	K1104355-019	DC-22-01-SP		SMPL	Sedimen 06-05-2011 02:16	X		
0602F149.D	K1104355-021	DC-23-02		SMPL	Sedimen 06-05-2011 02:38	X		
0602F150.D	K1104355-002	DC-22-01		SMPL	Sedimen 06-05-2011 02:59	х		
0602F151.D	KWG1104783-1	Matrix Spike		MS	Sedimen 06-05-2011 03:21	х		
0602F152.D	KWG1104783-2	Duplicate Matrix Spike		DMS	Sedimen 06-05-2011 03:43	х		
0602F153.D	K1104355-001	DC-20-03		SMPL	Sedimen 06-05-2011 04:05	х		
0602F157.D	KWG1105074-7	Continuing Calibration Verific		CCV	Not appl 06-05-2011 05:33	Х		
0602F158.D	KWG1105074-7	Continuing Calibration Verific		CCV	Not appl 06-05-2011 05:55	X		
0602F159.D	KWG1105074-15	Instrument Blank		ΙΒ	Not appl 06-05-2011 06:17	х		

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Ke	views	

Level 1:

Level 2:

 $u: \Stealth \Crystal.rpt \except 1.rpt$

Printed: 06/06/2011 14:07:32

Date: 6/6/11

Page 2 of 3

Data File:

J:\GC21\DATA\060211F\0602F062.D

Lab ID:

KWG1105074-9

RunType:

ΙB

Matrix: NOT APPLICABLE Date Acquired:

06/03/2011 18:51 Date Quantitated:

06/06/2011 11:03 KWG1105074

Batch ID: Analysis Method: MethodJoinID:

NWTPH-Dx MJ227

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	Х	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	Х	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	-

Primary Review:

Secondary Review:

1 of 1

 $u:\Stealth\Crystal.rpt\except2.rpt$

Printed: 06/06/2011 14:07:45

Quantitation Report

Bottle ID:

Prod Code:

8015B DRO RRO

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Analysis Lot:

KWG1105074

Prep Lot:

06/06/2011

Analysis Method:

NWTPH-Dx

Prep Method: Prep Date:

Report Group:

Prep Ref:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

Quant Method:

Method ID:

MJ227

Quant based on Method

Data File:

Run Type:

Lab ID:

MB Ref:

J:\GC21\DATA\060211F\0602F062.D

Acqu Date:

06/03/2011 18:51

KWG1105074-9

Quant Date:

06/06/2011 11:03

Instrument:

GC21

Vial:

86

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
 o-Terphenyl			0			50-150 NA	
n-Triacontane			0 .			50-150 NA	

Carget Compounds			Final Conc. Units: ug/L						
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?		
C10 - C28 DRO	3.27	?	4291	4.01					
Diesel Range Organics (DRO)	3.82	?	1850	1.96					
Residual Range Organics (RRO)	6.58	?	6682	10.94					

Printed:

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL
N: Presumptive evidence of compound

06/06/2011 13:54:12 u:\Stealth\Crystal.rpt\quant1.rpt

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria #: Acceptance criteria not applicable ?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F062.D

Vial: 86 Operator: JMSmith

Acq On : 03 Jun 2011 6:51 pm Sample : IB Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:02:59 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:01:03 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

	Compound	R.T.	Response	Conc Units	
Sys	tem Monitoring Compounds				
Tar	get Compounds				
4) H	C8-C12ex GRO NW	2.25	1407	3.653 ppm	
5) H	C10-C24ex DRO Arcadis	3.07	2521	2.386 ppm	
6) H	C10-C25ex DRO AK102	3.17	2890	2.724 ppm	
7) H	C10-C28in DRO 8015	3 27	1291	4 009 ppm	

U ,		010 02001	10100	11111 02	- J /	2000	2./27	PPIII
7)	H	C10-C28in	DRO	8015	3.27	4291	4.009	ppm
8)	H	C12-C24ex	DRO	T&R	3.72	1482	1.578	ppm
9)	H	C12-C25ex	DRO	NW	3.82	1850	1.960	ppm
10)	H	C13-C23ex	DRO	AZ	4.01	1116	1.320	ppm
11)	H	C23-C32in	RRO	AZ	6.23	4417	9.644	ppm
12)	H	C24-C36in	RRO	T&R/Arcadis	6.40	7061	10.975	ppm
13)	H	C25-C36in	RRO	NW	6.58	6682	10.940	ppm
14)	H	C25-C36in	RRO	Motor Oil	6.68	6682	10.978	ppm
15)		C29-C36in	RRO	Stratus	7.36	5234	12.280	ppm
16)	H	C29-C40in	RRO	Premier	7.46	7738	12.932	ppm

Quantitation Report (Not Reviewed)

IntFile : rteint.p

Quant Time: Jun 6 11:03 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

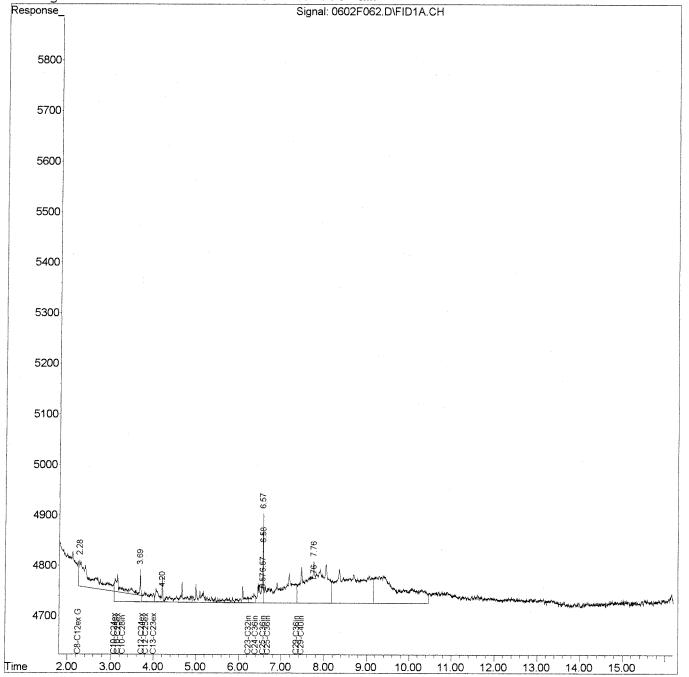
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:01:03 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0602F062.D 031311FSRO.M

Data File:

J:\GC21\DATA\060211F\0602F080.D

Lab ID:

KWG1105074-10

RunType:

ΙB

Matrix:

NOT APPLICABLE

Date Acquired: Date Quantitated:

06/04/2011 01:28 06/06/2011 11:11

Batch ID:

KWG1105074

Analysis Method: MethodJoinID:

NWTPH-Dx MJ227

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	Х	
Second Source ICAL Verification	NA	NA	NA	х	
Analyte Co-elution	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA	NA	х	
Above Highest ICAL Level	NA	NA	NA	x	
Enviroquant/Stealth Calibration Check	NA	NA	NA	х	

Primary Review: __

Secondary Review:

Page 1 of 1

 $\begin{array}{lll} Printed: & 06/06/2011 & 14:08:27 \\ u:\Stealth\Crystal.rpt\except2.rpt \end{array}$

Quantitation Report

Bottle ID:

Prod Code: 8015B DRO_RRO Tier:

Collect Date:

Matrix:

NOT APPLICABLE

KWG1105074

Receive Date:

Analysis Lot:

NWTPH-Dx

Prep Lot:

Report Group:

06/06/2011

Prep Method:

Analysis Method:

Prep Date:

Prep Ref:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

Method ID:

MJ227

MB Ref:

Quant based on Method

Data File:

J:\GC21\DATA\060211F\0602F080.D

Acqu Date:

06/04/2011 01:28

KWG1105074-10

Quant Date:

Instrument:

GC21

Run Type:

Lab ID:

06/06/2011 11:11

Vial: Dilution: 86

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
 o-Terphenyl			. 0			50-150 NA	
n-Triacontane			0			50-150 NA	

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev		Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	-	6790	6.34			
Diesel Range Organics (DRO)	3.82	?		3638	3.86			
Residual Range Organics (RRO)	6.58	?		11396	18.66			

Printed: 06/06/2011 13:57:05 $u:\Stealth\Crystal.rpt\quant1.rpt$

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060211F\0602F080.D

Vial: 86

Acq On : 04 Jun 2011 1:28 am Operator: JMSmith

Sample : IB Misc

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 06 11:11:33 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

	Compound		R.T.	Response	Conc	Units
Syst	em Monitoring Comp	oounds				
Targ	et Compounds					
Н	C8-C12ex GRO NW		2.25	1246	3.235	maa
H	C10-C24ex DRO Arc	cadis	3.07	3898		
			3.17	4514		
			3.27	6790		
		2	3.72	3022		
			3.82	3638		
			4.00	2541		
			6.22	7050		
		Arcadis	6.40	12012	18.671	
			6.58	11396	18.657	ppm
			6.68	11396		
			7.36	9119	21.395	
Н	C29-C40in RRO Pre	mier	7.46	16107	26.918	
	Targ H H H H H H H H	System Monitoring Comp Target Compounds H C8-C12ex GRO NW H C10-C24ex DRO Arc H C10-C25ex DRO AKI H C10-C28in DRO 801 H C12-C24ex DRO T&F H C12-C25ex DRO NW H C13-C23ex DRO AZ H C23-C32in RRO AZ H C24-C36in RRO T&R H C25-C36in RRO NW H C25-C36in RRO MOT H C29-C36in RRO Str	System Monitoring Compounds Target Compounds H C8-C12ex GRO NW H C10-C24ex DRO Arcadis H C10-C25ex DRO AK102 H C10-C28in DRO 8015 H C12-C24ex DRO T&R H C12-C25ex DRO NW H C13-C23ex DRO AZ H C23-C32in RRO AZ H C24-C36in RRO T&R/Arcadis H C25-C36in RRO NW H C25-C36in RRO Motor Oil H C29-C36in RRO Stratus	System Monitoring Compounds Target Compounds 2.25 H C8-C12ex GRO NW 2.25 3.07 H C10-C24ex DRO Arcadis 3.07 3.17 H C10-C25ex DRO AK102 3.17 3.27 H C10-C28in DRO 8015 3.27 3.72 H C12-C24ex DRO T&R 3.72 3.72 H C12-C25ex DRO NW 3.82 4.00 H C13-C23ex DRO AZ 4.00 4.00 H C23-C32in RRO AZ 6.22 6.22 H C24-C36in RRO T&R/Arcadis 6.40 6.58 H C25-C36in RRO NW 6.58 6.68 H C29-C36in RRO Stratus 7.36	System Monitoring Compounds Target Compounds 2.25 1246 H C8-C12ex GRO NW 2.25 1246 H C10-C24ex DRO Arcadis 3.07 3898 H C10-C25ex DRO AK102 3.17 4514 H C10-C28in DRO 8015 3.27 6790 H C12-C24ex DRO T&R 3.72 3022 H C12-C25ex DRO NW 3.82 3638 H C13-C23ex DRO AZ 4.00 2541 H C23-C32in RRO AZ 6.22 7050 H C24-C36in RRO T&R/Arcadis 6.40 12012 H C25-C36in RRO NW 6.58 11396 H C25-C36in RRO Motor Oil 6.68 11396 H C29-C36in RRO Stratus 7.36 9119	System Monitoring Compounds Target Compounds H C8-C12ex GRO NW 2.25 1246 3.235 H C10-C24ex DRO Arcadis 3.07 3898 3.690 H C10-C25ex DRO AK102 3.17 4514 4.255 H C10-C28in DRO 8015 3.27 6790 6.344 H C12-C24ex DRO T&R 3.72 3022 3.217 H C12-C25ex DRO NW 3.82 3638 3.855 H C13-C23ex DRO AZ 4.00 2541 3.006 H C23-C32in RRO AZ 6.22 7050 15.394 H C24-C36in RRO T&R/Arcadis 6.40 12012 18.671 H C25-C36in RRO NW 6.58 11396 18.657 H C25-C36in RRO Motor Oil 6.68 11396 18.723 H C29-C36in RRO Stratus 7.36 9119 21.395

Data File : J:\GC21\DATA\060211F\0602F080.D

Vial: 86

: 04 Jun 2011 1:28 am Acq On Operator: JMSmith

Sample : IB

: GC21 Inst Multiplr: 1.00

Misc IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

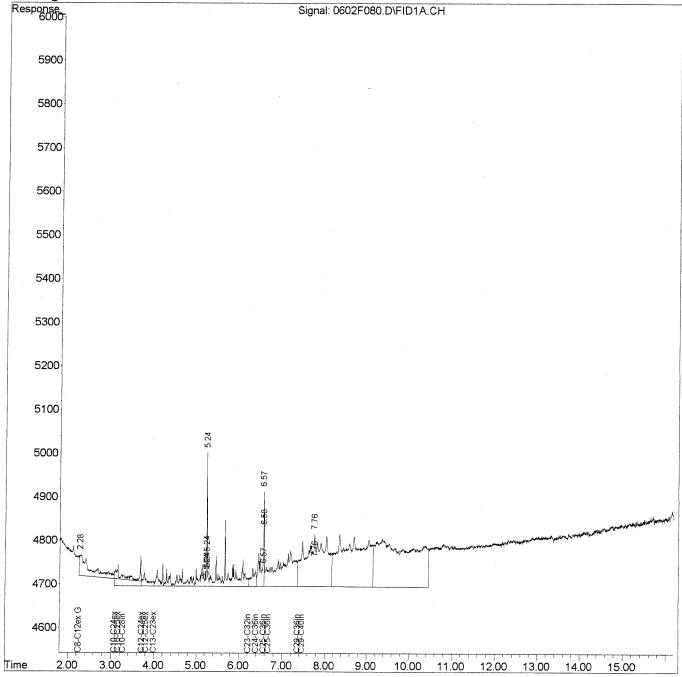
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0 um$



Data File: J:\GC21\DATA\060211F\0602F093.D

Lab ID: KWG1105074-11

RunType: IE

Matrix: NOT APPLICABLE

Date Acquired: Date Quantitated:

Batch ID:

Analysis Method: MethodJoinID:

06/04/2011 06:12 06/06/2011 11:11 KWG1105074 NWTPH-Dx

MJ227

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	Х	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	

Primary Review:

Secondary Review:

Page 1 of 1

u:\Stealth\Crystal.rpt\except2.rpt

Printed: 06/06/2011 14:09:03

Quantitation Report

Bottle ID:

Prod Code:

8015B DRO_RRO

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

Analysis Lot:

KWG1105074

06/06/2011

Prep Lot:

Analysis Method:

NWTPH-Dx

Prep Method:

Prep Date:

Prep Ref:

Calibration ID:

CAL10358

Quant Method: Title:

J:\GC21\METHODS\031311FSRO.M

Method ID:

MJ227

MB Ref:

Quant based on Method

Data File:

J:\GC21\DATA\060211F\0602F093.D

Instrument:

GC21

Acqu Date:

Lab ID:

06/04/2011 06:12

Quant Date:

06/06/2011 11:11

Vial: Dilution: 86

Run Type:

KWG1105074-11

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl n-Triacontane		0			50-150 NA 50-150 NA	

arget Compounds			Final C	onc. Units:	ug/L		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	6256	5.85			
Diesel Range Organics (DRO)	3.82	?	2990	3.17			
Residual Range Organics (RRO)	6.58	?	11918	19.51			

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL
N: Presumptive evidence of compound

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL c: check for co-elution

Data File : J:\GC21\DATA\060211F\0602F093.D

Vial: 86 Operator: JMSmith Acq On : 04 Jun 2011 6:12 am Inst : GC21 Sample : IB Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 06 11:11:45 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

	Compound	R.T.	Response	Conc Units	
Syst	em Monitoring Compounds				
Targ	ret Compounds				
4) H	C8-C12ex GRO NW	2.25	1330	3.453 ppm	
5) H	C10-C24ex DRO Arcadis	3.07	3433	3.249 ppm	
6) H	C10-C25ex DRO AK102	3.17	3994	3.765 ppm	
7) H	C10-C28in DRO 8015	3.27	6256	5.845 ppm	
8) H	C12-C24ex DRO T&R	3.72	2428	2.585 ppm	
9) H	C12-C25ex DRO NW	3.82	2990	3.168 ppm	
10) H	C13-C23ex DRO AZ	4.00	1939	2.294 ppm	
11) H	C23-C32in RRO AZ	6.22	7170	15.656 ppm	
12) H	C24-C36in RRO T&R/Arcadis	6.40	12491	19.415 ppm	
13) H	C25-C36in RRO NW	6.58	11918	19.512 ppm	
14) H	C25-C36in RRO Motor Oil	6.68	11918	19.581 ppm	
15) H	C29-C36in RRO Stratus	7.36	9610	22.547 ppm	
16) H	C29-C40in RRO Premier	7.46	17194	28.734 ppm	

Data File : J:\GC21\DATA\060211F\0602F093.D

Vial: 86 Operator: JMSmith

Acq On : 04 Jun 2011 6:12 am Sample : IB

Inst : GC21

Misc :

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 6 11:11 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

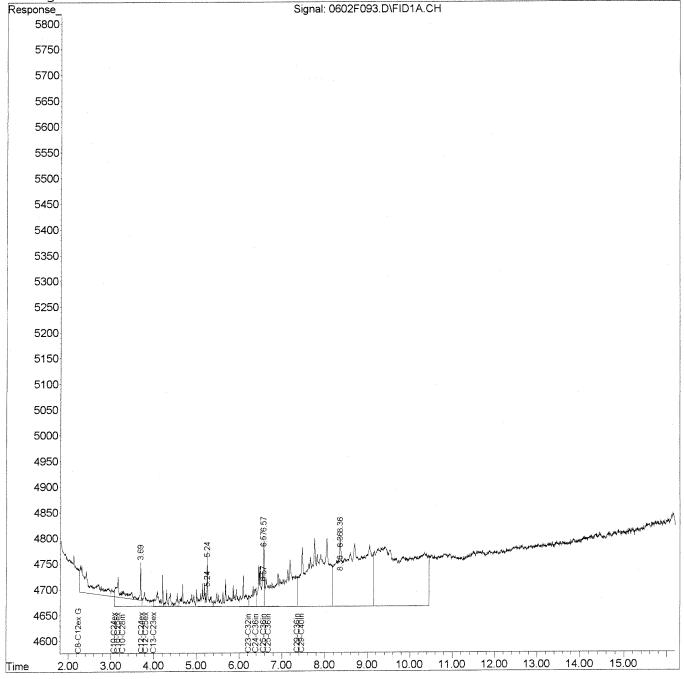
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 06 11:10:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Gasoline Range Organics

Organic Analysis: <u>Gasoline Range Organics</u>

Summary Package

Sample and QC Results

Client: Project: TEC, Inc. - The Environmental Company,In

PacifiCorp Investigation

Service Request:

K1104627

Cover Page - Organic Analysis Data Package Gasoline Range Organics

Sample Name	Lab Code	Date Collected	Date Received
TS1-052311	K1104627-001	05/23/2011	05/24/2011
TS2-052311	K1104627-002	05/23/2011	05/24/2011

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: Khasana	Name: Klussoner
Date: 6/6/11	Title: Scarles

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Gasoline Range Organics

Sample Name:

TS1-052311

Lab Code:

K1104627-001

Extraction Method:

EPA 5030B

Units: ug/L

Basis: NA

Level: Low

Analysis Method:

NWTPH-Gx

			Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	Factor	Extracted	Analyzed	Lot	Note
Gasoline Range Organics-NWTPF	ND U	250	1	05/31/11	05/31/11	KWG1104892	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
1,4-Difluorobenzene	91	50-150	05/31/11	Acceptable

Comments

Printed: 06/03/2011 11:29:36 $u:\Stealth\Crystal.rpt\Form1mNew.rpt$

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Gasoline Range Organics

Sample Name:

TS2-052311

Lab Code:

K1104627-002

Extraction Method:

EPA 5030B

Units: ug/L Basis: NA

Level: Low

Analysis Method:

NWTPH-Gx

Dilution Date Date **Extraction**

Analyte Name

Result Q

MRL

Factor 1

Extracted

Analyzed

Lot Note

Gasoline Range Organics-NWTPF

ND U

250

05/31/11

05/31/11

KWG1104892

Surrogate Name

Control Limits

Date Analyzed

Note

1,4-Difluorobenzene

91

%Rec

50-150

05/31/11

Acceptable

Comments

Printed: 06/03/2011 11:29:40 $u:\Stealth\Crystal.rpt\Form1\,mNew.rpt$

Merged

Form 1A - Organic 249

RR129470

Page 1 of 1

SuperSet Reference:

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: NA

Date Received: NA

Gasoline Range Organics

Sample Name:

Method Blank

Lab Code:

KWG1104892-3

Extraction Method:

EPA 5030B

Analysis Method:

NWTPH-Gx

Units: ug/L

Basis: NA

Level: Low

Analyte Name

Result Q

MRL

Dilution **Factor**

Date Extracted

Date Analyzed Extraction Lot Note

Gasoline Range Organics-NWTPF

ND U

250

1

05/31/11 05/31/11 KWG1104892

Surrogate Name

1,4-Difluorobenzene

%Rec 91

Control Limits 50-150

Date Analyzed 05/31/11

Note

Acceptable

Comments

Printed: 06/03/2011 11:29:44 u:\Stealth\Crystal.rpt\Form1mNew.rpt

Merged

250

Form 1A - Organic

SuperSet Reference:

Page RR129470

QA/QC Report

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Surrogate Recovery Summary Gasoline Range Organics

Extraction Method: EPA 5030B **Analysis Method:**

NWTPH-Gx

Units: PERCENT

Level: Low

Sample Name	<u>Lab Code</u>	Sur1
TS1-052311	K1104627-001	91
TS2-052311	K1104627-002	91
Batch QC	K1104704-003	91
Batch QCDUP	KWG1104892-1	91
Method Blank	KWG1104892-3	91
Lab Control Sample	KWG1104892-2	95

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene

50-150

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

Printed: 06/03/2011 11:29:48

Form 2A - Organic 251

RR129470

SuperSet Reference:

1 of 1 Page

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/31/2011

Date Analyzed: 05/31/2011

Duplicate Sample Summary Gasoline Range Organics

Sample Name:

Batch QC

Lab Code:

K1104704-003

Extraction Method:

EPA 5030B

Analysis Method:

Analyte Name

NWTPH-Gx

Units: ug/L

Basis: NA

Level: Low

Extraction Lot: KWG1104892

Batch QCDUP

KWG1104892-1 **Duplicate Sample**

Relative

Difference

Percent

RPD Limit

Gasoline Range Organics-NWTPH

MRL 250

ND

Sample

Result

ND

Result

Average ND

30

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: 06/03/2011 11:29:52

Form 3B - Organic 252

SuperSet Reference: RR129470

Page 1 of 1

u:\Stealth\Crystal.rpt\Form3DUP.rpt

QA/QC Report

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/31/2011

Date Analyzed: 05/31/2011

Lab Control Spike Summary **Gasoline Range Organics**

Extraction Method: EPA 5030B

Analysis Method:

NWTPH-Gx

Units: ug/L

Basis: NA

Level: Low

Extraction Lot: KWG1104892

Lab Control Sample KWG1104892-2

Lab Control Spike

%Rec Limits

Analyte Name Result **Expected** %Rec

Gasoline Range Organics-NWTPH

493

500

99

80-119

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

Printed: 06/03/2011 11:29:56

Form 3C - Organic 253

Page

1 of 1

SuperSet Reference: RR129470

QA/QC Report

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/31/2011 **Date Analyzed:** 05/31/2011

Time Analyzed: 20:10

Method Blank Summary Gasoline Range Organics

Sample Name: Lab Code:

Extraction Method:

Analysis Method:

Method Blank

KWG1104892-3

EPA 5030B

NWTPH-Gx

File ID: J:\GC06\DATA\053111.FID\0531R017.D

Instrument ID: GC06

Level: Low

Extraction Lot: KWG1104892

This Method Blank applies to the following analyses:

			Date	Time
Sample Name	Lab Code	File ID	Analyzed	Analyzed
TS1-052311	K1104627-001	J:\GC06\DATA\053111.FID\0531R006.D	05/31/11	14:51
TS2-052311	K1104627-002	J:\GC06\DATA\053111.FID\0531R007.D	05/31/11	15:20
Batch QC	K1104704-003	J:\GC06\DATA\053111.FID\0531R013.D	05/31/11	18:14
Batch QCDUP	KWG1104892-1	J:\GC06\DATA\053111.FID\0531R014.D	05/31/11	18:43
Lab Control Sample	KWG1104892-2	J:\GC06\DATA\053111.FID\0531R016.D	05/31/11	19:41

Printed: 06/03/2011 11:30:04 $u:\Stealth\Crystal.rpt\Form4mb.rpt$

Form 4A - Organic

SuperSet Reference:

254

RR129470

Page

QA/QC Report

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/31/2011 **Date Analyzed:** 05/31/2011

Time Analyzed: 19:41

Lab Control Sample Summary Gasoline Range Organics

Sample Name:

Lab Control Sample

File ID: J:\GC06\DATA\053111.FID\0531R016.D

Lab Code:

KWG1104892-2

Instrument ID: GC06

Analysis Method:

Extraction Method: EPA 5030B NWTPH-Gx

Level: Low

Extraction Lot: KWG1104892

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
TS1-052311	K1104627-001	J:\GC06\DATA\053111.FID\0531R006.D	05/31/11	14:51
TS2-052311	K1104627-002	J:\GC06\DATA\053111.FID\0531R007.D	05/31/11	15:20
Batch QC	K1104704-003	J:\GC06\DATA\053111.FID\0531R013.D	05/31/11	18:14
Batch QCDUP	KWG1104892-1	J:\GC06\DATA\053111.FID\0531R014.D	05/31/11	18:43
Method Blank	KWG1104892-3	J:\GC06\DATA\053111.FID\0531R017.D	05/31/11	20:10

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

A

В

C

D

PacifiCorp Investigation

Service Request: K1104627

Calibration Date: 01/31/2011

Initial Calibration Summary Gasoline Range Organics

Calibration ID:

CAL10275

Column: DB-624

Instrument ID:

GC06

Level ID File ID Level ID J:\GC06\DATA\013111.FID\0131R006.D Ε J:\GC06\DATA\013111.FID\0131R007.D F

J:\GC06\DATA\013111.FID\0131R010.D J:\GC06\DATA\013111.FID\0131R011.D

File ID

G

J:\GC06\DATA\013111.FID\0131R012.D

J:\GC06\DATA\013111.FID\0131R008.D J:\GC06\DATA\013111.FID\0131R009.D

	Level			Leve	ı		Level			Level			Level		
Analyte Name	ID	Amt	\mathbf{RF}	ID	Amt	\mathbf{RF}	ID	Amt	\mathbf{RF}	ID	Amt	RF	ID	Amt	RF
Gasoline Range Organics-NWTPH	A F	50 5000	5980 6210	B G	100 10000	5940 6120	С	200	6280	D	500	6020	Е	1000	6120
1,4-Difluorobenzene	A	20	12700	В	25	10800	С	50	12600	D	100	12400	Е	150	12900

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

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Calibration Date: 01/31/2011

Initial Calibration Summary Gasoline Range Organics

Calibration ID:

CAL10275

Instrument ID:

GC06

Column: DB-624

			Calibratio	n Evaluat	ion	
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria
Gasoline Range Organics-NWTPH	MS	AverageRF	% RSD	2.1		≤ 20
1,4-Difluorobenzene	SURR	AverageRF	% RSD	6.8		≤ 20

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

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Form 6A - Organic 257

SuperSet Reference:

Page

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RR129470

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627 Calibration Date: 01/31/2011

Date Analyzed: 01/31/2011

Second Source Calibration Verification Gasoline Range Organics

Calibration Type:

External Standard

Calibration ID: CAL10275

Analysis Method:

NWTPH-Gx

Units: ug/L

File ID:

J:\GC06\DATA\013111.FID\0131R016.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	550	6100	6760	11	NA	± 15 %	AverageRF

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

† SPCC Compound

‡ CCC Compound

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Form 6B - Organic

RR129470

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SuperSet Reference:

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Date Analyzed: 05/31/2011

Continuing Calibration Verification Summary Gasoline Range Organics

Calibration Type: Analysis Method:

External Standard

NWTPH-Gx

Calibration Date: 01/31/2011

Calibration ID: CAL10275

Analysis Lot: KWG1104975

Units: ug/L

File ID:

J:\GC06\DATA\053111.FID\0531R002.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH 1,4-Difluorobenzene	500 100	470 98	6100 12300	5750 12000	-6 -2	NA NA	$^{\pm} 20 \% ^{\pm} 20 \%$	AverageRF AverageRF

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

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Form 7 - Organic 259

SuperSet Reference: RR129470

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104627

Date Analyzed: 05/31/2011

Continuing Calibration Verification Summary Gasoline Range Organics

Calibration Type:

External Standard

Analysis Method: NWTPH-Gx

Calibration Date: 01/31/2011

Calibration ID: CAL10275

Analysis Lot: KWG1104975

Units: ug/L

File ID:

J:\GC06\DATA\053111.FID\0531R018.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH 1,4-Difluorobenzene	500 100	450 96	6100 12300	5440 11800	-11 -4	NA NA	$^{\pm} 20 \% ^{\pm} 20 \%$	AverageRF AverageRF

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

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 $u:\Stealth\Crystal.rpt\Form7.rpt$

Form 7 - Organic 260

SuperSet Reference: RR129470

Page

QA/QC Results

Client: TEC, Inc. - The Environmental Company,In

Project: PacifiCorp Investigation

Analysis Run Log Gasoline Range Organics

Analysis Method: NWTPH-Gx Analysis Lot: KWG1104975

Instrument ID: GC06 Column: DB-624

Service Request: K1104627

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0531R002.D	Continuing Calibration Verification	KWG1104975-1	5/31/2011	11:55		5/31/2011	12:11
0531R003.D	Instrument Blank	KWG1104975-6	5/31/2011	13:24		5/31/2011	13:40
0531R004.D	ZZZZZZ	ZZZZZZ	5/31/2011	13:53		5/31/2011	14:09
0531R005.D	ZZZZZZ	ZZZZZZ	5/31/2011	14:22		5/31/2011	14:38
0531R006.D	TS1-052311	K1104627-001	5/31/2011	14:51		5/31/2011	15:07
0531R007.D	TS2-052311	K1104627-002	5/31/2011	15:20		5/31/2011	15:36
0531R008.D	ZZZZZZ	ZZZZZZ	5/31/2011	15:49		5/31/2011	16:05
0531R011.D.	ZZZZZZ	ZZZZZZ	5/31/2011	17:16		5/31/2011	17:32
0531R012.D	ZZZZZZ	ZZZZZZ	5/31/2011	17:45	<u> </u>	5/31/2011	18:01
0531R013.D	Batch QC	K1104704-003	5/31/2011	18:14		5/31/2011	18:30
0531R014.D	Batch QCDUP	KWG1104892-1	5/31/2011	18:43		5/31/2011	18:59
0531R015.D	ZZZZZZ	ZZZZZZ	5/31/2011	19:12		5/31/2011	19:28
0531R016.D	Lab Control Sample	KWG1104892-2	5/31/2011	19:41		5/31/2011	19:57
0531R017.D	Method Blank	KWG1104892-3	5/31/2011	20:10	<u> </u>	5/31/2011	20:26
0531R018.D	Continuing Calibration Verification	KWG1104975-2	5/31/2011	20:39		5/31/2011	20:55
0531R019.D	Instrument Blank	KWG1104975-7	5/31/2011	21:08		5/31/2011	21:24
0531R020.D	ZZZZZZ	ZZZZZZ	5/31/2011	21:37		5/31/2011	21:53
0531R021.D	ZZZZZZ	ZZZZZZ	5/31/2011	22:06		5/31/2011	22:22
0531R022.D	ZZZZZZ	ZZZZZZ	5/31/2011	22:35		5/31/2011	22:51
0531R023.D	ZZZZZZ	ZZZZZZ	5/31/2011	23:04		5/31/2011	23:20
0531R025.D	ZZZZZZ	ZZZZZZ	6/1/2011	00:01		6/1/2011	00:17
0531R028.D	ZZZZZZ	ZZZZZZ	6/1/2011	01:28	<u> </u>	6/1/2011	01:44
0531R029.D	ZZZZZZ	ZZZZZZ	6/1/2011	01:57	<u> </u>	6/1/2011	02:13
0531R030.D	ZZZZZZ	ZZZZZZ	6/1/2011	02:26		6/1/2011	02:42
0531R031.D	ZZZZZZ	ZZZZZZ	6/1/2011	02:55		6/1/2011	03:11
0531R032.D	ZZZZZZ	ZZZZZZ	6/1/2011	03:24		6/1/2011	03:40
0531R033.D	Continuing Calibration Verification	KWG1104975-3	6/1/2011	03:53		6/1/2011	04:09
0531R034.D	Instrument Blank	KWG1104975-8	6/1/2011	04:22		6/1/2011	04:38
0531R035.D	ZZZZZZ	ZZZZZZ	6/1/2011	04:50		6/1/2011	05:06
0531R036.D	ZZZZZZ	ZZZZZZ	6/1/2011	05:19		6/1/2011	05:35
0531R037.D	ZZZZZZ	ZZZZZZ	6/1/2011	05:48		6/1/2011	06:04
0531R038.D	ZZZZZZ	ZZZZZZ	6/1/2011	06:17	 	6/1/2011	06:33
0531R039.D	ZZZZZZ	ZZZZZZ	6/1/2011	06:46	<u> </u>	6/1/2011	07:02
0531R040.D	ZZZZZZ	ZZZZZZ	6/1/2011	07:15		6/1/2011	07:31
0531R041.D	ZZZZZZ	ZZZZZZ	6/1/2011	07:43	T	6/1/2011	07:59

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

 Printed:
 06/03/2011
 11:30:29
 Form 8 - Organic
 Page 1 of 2

 u:\Stealth\Crystal.rpt\Form8.rpt
 261
 SuperSet Reference: RR129470

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Analysis Run Log Gasoline Range Organics

Analysis Method:

NWTPH-Gx

Analysis Lot: KWG1104975

Instrument ID: GC06

Column: DB-624

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0531R042.D	ZZZZZZ	ZZZZZZ	6/1/2011	08:12		6/1/2011	08:28
0531R043.D	ZZZZZZ	ZZZZZZ	6/1/2011	08:41		6/1/2011	08:57
0531R044.D	ZZZZZZ	ZZZZZZ	6/1/2011	09:10		6/1/2011	09:26
0531R045.D	ZZZZZZ	ZZZZZZ	6/1/2011	09:39		6/1/2011	09:55
0531R046.D	ZZZZZZ	ZZZZZZ	6/1/2011	10:08		6/1/2011	10:24
0531R047.D	Continuing Calibration Verification	KWG1104975-4	6/1/2011	10:37		6/1/2011	10:53
0531R048.D	Instrument Blank	KWG1104975-9	6/1/2011	11:06		6/1/2011	11:22
0531R049.D	ZZZZZZ	ZZZZZZ	6/1/2011	11:34		6/1/2011	11:50
0531R050.D	ZZZZZZ	ZZZZZZ	6/1/2011	12:03		6/1/2011	12:19
0531R051.D	ZZZZZZ	ZZZZZZ	6/1/2011	12:32		6/1/2011	12:48
0531R052.D	ZZZZZZ	ZZZZZZ	6/1/2011	13:01		6/1/2011	13:17
0531R053.D	ZZZZZZ	ZZZZZZ	6/1/2011	13:30		6/1/2011	13:46
0531R054.D	ZZZZZZ	ZZZZZZ	6/1/2011	13:59		6/1/2011	14:15
0531R055.D	ZZZZZZ	ZZZZZZ	6/1/2011	14:28		6/1/2011	14:44
0531R056.D	ZZZZZZ	ZZZZZZ	6/1/2011	14:57		6/1/2011	15:13
0531R057.D	Continuing Calibration Verification	KWG1104975-5	6/1/2011	15:26		6/1/2011	15:42
0531R058.D	Instrument Blank	KWG1104975-10	6/1/2011	15:55		6/1/2011	16:11

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

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/31/2011

Extraction Prep Log Gasoline Range Organics

Extraction Method: EPA 5030B **Analysis Method:**

NWTPH-Gx

Extraction Lot: KWG1104892

Level: Low

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
TS1-052311	K1104627-001	05/23/11	05/24/11	10ml	10ml	NA	
TS2-052311	K1104627-002	05/23/11	05/24/11	10ml	10ml	NA	
Batch QCDUP	KWG1104892-1	NA	NA	10ml	10ml	NA	
Method Blank	KWG1104892-3	NA	NA	10ml	10ml	NA	
Batch QC	K1104704-003	NA	NA	10ml	10ml	NA	
Lab Control Sample	KWG1104892-2	NA	NA	10ml	10ml	NA	

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

Page

Organic Analysis: <u>Gasoline Range Organics</u>

Validation Package

Organic Analysis: <u>Gasoline Range Organics</u>

Validation Package

QC Reports

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Surrogate Recovery Summary Gasoline Range Organics

Extraction Method: Analysis Method:

EPA 5030B

NWTPH-Gx

Units: PERCENT

Level: Low

Service Request: K1104627

Sample Name	<u>Lab Code</u>	Sur1
TS1-052311	K1104627-001	91
TS2-052311	K1104627-002	91
Batch QC	K1104704-003	91
Batch QCDUP	KWG1104892-1	91
Method Blank	KWG1104892-3	91
Lab Control Sample	KWG1104892-2	95

Surrogate Recovery Control Limits (%)

Sur1 = 1,4-Difluorobenzene

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

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SuperSet Reference:

RR129470

Page

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/31/2011

Date Analyzed: 05/31/2011

Duplicate Sample Summary Gasoline Range Organics

Sample Name:

Batch QC

Lab Code:

K1104704-003

Extraction Method:

EPA 5030B

Analysis Method:

NWTPH-Gx

Units: ug/L

Basis: NA

Level: Low

Extraction Lot: KWG1104892

Batch QCDUP

KWG1104892-1

Result

Relative

Duplicate Sample

Average

Percent

RPD Limit

Analyte Name

Sample

Result

Difference

MRL ND ND ND Gasoline Range Organics-NWTPH 250

30

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: 06/03/2011 11:30:46 $u:\Stealth\Crystal.rpt\Form3DUP.rpt$

Form 3B - Organic 267

SuperSet Reference: RR129470

Page

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/31/2011

Date Analyzed: 05/31/2011

Lab Control Spike Summary **Gasoline Range Organics**

Extraction Method: EPA 5030B

Analysis Method:

NWTPH-Gx

Units: ug/L

Basis: NA

Level: Low

Extraction Lot: KWG1104892

Lab Control Sample KWG1104892-2

Lab Control Spike

%Rec

Analyte Name Result **Expected**

Limits %Rec

Gasoline Range Organics-NWTPH

493

500

99

80-119

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

Printed: 06/03/2011 11:30:50

Form 3C - Organic 268

Page

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SuperSet Reference: RR129470

QA/QC Report

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/31/2011 **Date Analyzed:** 05/31/2011

Time Analyzed: 20:10

Method Blank Summary Gasoline Range Organics

Sample Name:

Method Blank

Lab Code:

KWG1104892-3

Extraction Method: Analysis Method:

EPA 5030B

NWTPH-Gx

File ID: J:\GC06\DATA\053111.FID\0531R017.D

Instrument ID: GC06

Level: Low

Extraction Lot: KWG1104892

This Method Blank applies to the following analyses:

			Date	Time
Sample Name	Lab Code	File ID	Analyzed	Analyzed
TS1-052311	K1104627-001	J:\GC06\DATA\053111.FID\0531R006.D	05/31/11	14:51
TS2-052311	K1104627-002	J:\GC06\DATA\053111.FID\0531R007.D	05/31/11	15:20
Batch QC	K1104704-003	J:\GC06\DATA\053111.FID\0531R013.D	05/31/11	18:14
Batch QCDUP	KWG1104892-1	J:\GC06\DATA\053111.FID\0531R014.D	05/31/11	18:43
Lab Control Sample	KWG1104892-2	J:\GC06\DATA\053111.FID\0531R016.D	05/31/11	19:41

Printed: 06/03/2011 11:30:58

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Form 4A - Organic

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SuperSet Reference: RR129470

Page

QA/QC Report

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Extracted: 05/31/2011 **Date Analyzed:** 05/31/2011

Time Analyzed: 19:41

Lab Control Sample Summary Gasoline Range Organics

Sample Name:

Lab Control Sample

File ID: J:\GC06\DATA\053111.FID\0531R016.D

Lab Code:

KWG1104892-2

Instrument ID: GC06

Extraction Method: EPA 5030B

Level: Low

Analysis Method:

NWTPH-Gx

Extraction Lot: KWG1104892

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
TS1-052311	K1104627-001	J:\GC06\DATA\053111.FID\0531R006.D	05/31/11	14:51
TS2-052311	K1104627-002	J:\GC06\DATA\053111.FID\0531R007.D	05/31/11	15:20
Batch QC	K1104704-003	J:\GC06\DATA\053111.FID\0531R013.D	05/31/11	18:14
Batch QCDUP	KWG1104892-1	J:\GC06\DATA\053111.FID\0531R014.D	05/31/11	18:43
Method Blank	KWG1104892-3	J:\GC06\DATA\053111.FID\0531R017.D	05/31/11	20:10

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Form 4B - Organic 270

SuperSet Reference: RR129470

Page

Organic Analysis: <u>Gasoline Range Organics</u>

Validation Package

Raw Data

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix: Water

Date Collected: 05/23/2011

Service Request: K1104627

Date Received: 05/24/2011

Gasoline Range Organics

Sample Name:

TS1-052311

Lab Code:

K1104627-001

Units: ug/L Basis: NA

Extraction Method: EPA 5030B

Level: Low

Analysis Method:

NWTPH-Gx

			Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	Factor	Extracted	Analyzed	Lot	Note
Gasoline Range Organics-NWTPF	ND U	250	1	05/31/11	05/31/11	KWG1104892	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
1,4-Difluorobenzene	91	50-150	05/31/11	Acceptable	

Comments

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Page

Exception Report

Data File:

J:\GC06\DATA\053111.FID\0531R006.D

Lab ID:

K1104627-001

RunType: Matrix:

SMPL WATER Date Acquired:

Date Quantitated: Batch ID:

ListJoinID:

Analysis Method:

05/31/2011 14:51 06/01/2011 09:22 KWG1104975

NWTPH-Gx LJ5068

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	Х	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Average RSD	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	х	
MB Surrogate Recovery	NA	NA	NA	Х	
Lab Control Spike	NA	NA	NA	Х	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	Х	
Std MRL Unsupported by ICAL	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA	NA	Х	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	х	
Overdiluted Analysis	NA	NA	NA	Х	

Secondary Review:

Printed: 06/02/2011 11:26:00 $u:\Stealth\Crystal.rpt\except2.rpt$

Page 1 of 1

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Gx NW_GAS

Tier:

IV

Matrix:

WATER

Analysis Lot:

KWG1104975

Prep Lot:

05/23/2011

Receive Date:

05/24/2011

Analysis Method:

NWTPH-Gx

Prep Method:

Collect Date:

KWG1104892 EPA 5030B

Report Group:

K1104627

Prep Ref:

1023142

Prep Date:

05/31/2011

Quant Method:

J:\GC06\METHODS\013111GAS.M

Title:

Gasoline Range Organics

Calibration ID: Report List ID: CAL10275

LJ5068

MB Ref:

J:\GC06\DATA\053111.FID\0531R017.D

Method ID:

MJ202

Quant based on Report List

Data File:

J:\GC06\DATA\053111.FID\0531R006.D

Instrument:

GC06

Acqu Date:

05/31/2011 14:51

06/01/2011 09:22

Vial:

6

Run Type:

SMPL

Quant Date:

Dilution:

1.0

Lab ID:

K1104627-001

Soln Conc. Units:

ug/L

Surrogate Compounds

Parameter Name

RT RT Dev

Response

Response

240525

Solution Conc

%Rec %Rec

39

Rpt?

1,4-Difluorobenzene

Parameter Name

3.31 0.00

RT

4.63

1120249

91.24

Solution

Conc

39.46

Limits

OK

Target Compounds

Final Conc. Units:

ug/L

91

Final Conc Q Rpt?

50-150

Prep Amount:

10 ml

Gasoline Range Organics-NWTF

Dilution:

RT

Dev

1.0

Prep Final Vol:

10 ml

Unit Factor:

1

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound 06/02/2011 10:55:42 D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis Result fails acceptance criteria

#: Acceptance criteria not applicable

?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\053111.FID\0531R006.D Vial: 6 Acq On : 31 May 2011 02:51 pm Sample : 4627-1 Misc : Operator: RA Inst : GC06 Multiplr: 1.00

IntFile : RTEINT.P

Quant Time: Jun 01 09:22:47 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275
Last Update : Tue May 31 12:24:31 2011

Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

	Compound	R.T.	Response	Conc Units
1) S	m Monitoring Compounds a,a,a-Trifluorotoluene 1,4-Difluorobenzene	3.83 3.31	591867 1120249	42.244 ug/L 91.237 ug/L
4) H 5) H	t Compounds AK101 GRO (C6-C10) 8015B GRO (2mp-1,2,4tmb) NWTPH-GX (TolNaph.)	1.63 1.34 4.63	80382 97426 240525	9.821 ug/L 10.061 ug/L 39.456 ug/L

Data File : J:\GC06\DATA\053111.FID\0531R006.D

Vial: 6
Operator: RA

Acq On : 31 May 2011 02:51 pm Sample : 4627-1

Inst : GC06

Misc :

Multiplr: 1.00

IntFile : RTEINT.P

Quant Time: Jun 1 9:22 2011 Quant Results File: 013111GAS.RES

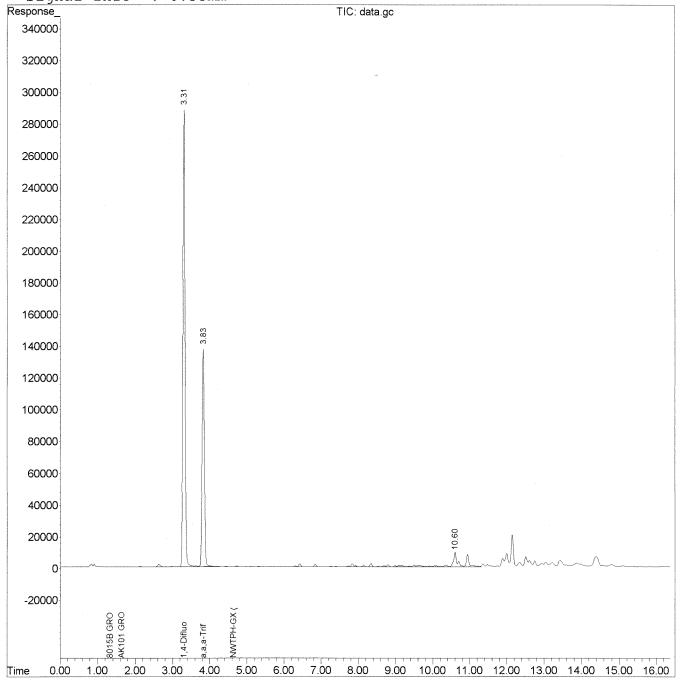
Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011
Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm



Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: 05/23/2011

Date Received: 05/24/2011

Gasoline Range Organics

Sample Name:

TS2-052311

Lab Code:

K1104627-002

Extraction Method:

EPA 5030B

Analysis Method:

NWTPH-Gx

Units: ug/L

Basis: NA

Level: Low

Analyte Name

Result Q MRL

Dilution Factor Date Extracted A

Date Analyzed

Extraction Lot Note

Gasoline Range Organics-NWTPF

ND U

250

1 05/3

05/31/11 05

05/31/11 KWG1104892

202

Surrogate Name

1,4-Difluorobenzene

%Rec

91

Control Limits 50-150

Date Analyzed

Note

05/31/11 Acceptable

Comments

Printed: 06/03/2011 11:31:12 u:\Stealth\Crystal.rpt\Form1mNew.rpt

Merged

Form 1A - Organic

SuperSet Reference:

RR129470

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Exception Report

Data File:

J:\GC06\DATA\053111.FID\0531R007.D

Lab ID:

K1104627-002

RunType: Matrix:

SMPL WATER

Date Acquired: Date Quantitated:

Batch ID: **Analysis Method:** ListJoinID:

05/31/2011 15:20 06/01/2011 09:22 KWG1104975

NWTPH-GxLJ5068

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	Х	
Preparation Holding Time	NA	NA	NA	Х	·
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Average RSD	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	·
Second Source ICAL Verification	NA	NA	NA	Х	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	X	
MB Surrogate Recovery	NA	NA	NA	Х	
Lab Control Spike	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review: RA 6/2/11

Secondary Review: Lle 4/2/4

Quantitation Report

Bottle ID: ΙV Matrix: WATER **Prod Code:** Collect Date: Receive Date: NWTPH-Gx NW_GAS 05/23/2011 05/24/2011 Analysis Lot: KWG1104975 Prep Lot: KWG1104892 Report Group: K1104627 **Analysis Method:** Prep Method: NWTPH-Gx EPA 5030B Prep Date: 05/31/2011 Prep Ref: 1023143 Quant Method: J:\GC06\METHODS\013111GAS.M Calibration ID: CAL10275 Title:

Gasoline Range Organics Report List ID: Method ID: MB Ref:

MJ202 J:\GC06\DATA\053111.FID\0531R017.D Quant based on Report List

Data File: J:\GC06\DATA\053111.FID\0531R007.D Instrument: GC06 Acqu Date: 05/31/2011 15:20 Quant Date: 06/01/2011 09:22 Vial: Run Type: **SMPL** Dilution: 1.0 Lab ID: K1104627-002 Soln Conc. Units: ug/L

Surrogate Compounds

Parameter Name	RT	RT Dev	Solution %Rec Response Conc %Rec Limits Rpt	t?
1,4-Difluorobenzene	3.31	0.00	1115446 90.85 91 50-150 OK	

Target Compounds Final Conc. Units: ug/L

<u> </u>					-0		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Gasoline Range Organics-N	IWTF 4.63		703460	115.40	120	J	

Prep Amount: Dilution: 10 ml 1.0 Prep Final Vol: 10 ml **Unit Factor:** 1

Final Concentration = ((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

06/02/2011 10:55:46

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed

d: Compound manually deleted NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable

Insufficient information to determine acceptance
 Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

LJ5068

Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\053111.FID\0531R007.D Vial: 7 Acq On : 31 May 2011 03:20 pm Sample : 4627-2 Misc : Operator: RA Inst : GC06 Multiplr: 1.00

IntFile : RTEINT.P

Quant Time: Jun 01 09:22:47 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275
Last Update : Tue May 31 12:24:31 2011
Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S a,a,a-Trifluorotoluene 2) S 1,4-Difluorobenzene	3.83 3.31	592489 1115446	42.288 ug/L 90.846 ug/L	——————
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.63 1.34 4.63	169418 201316 703460	20.699 ug/L 20.790 ug/L 115.398 ug/L	

IntFile : RTEINT.P

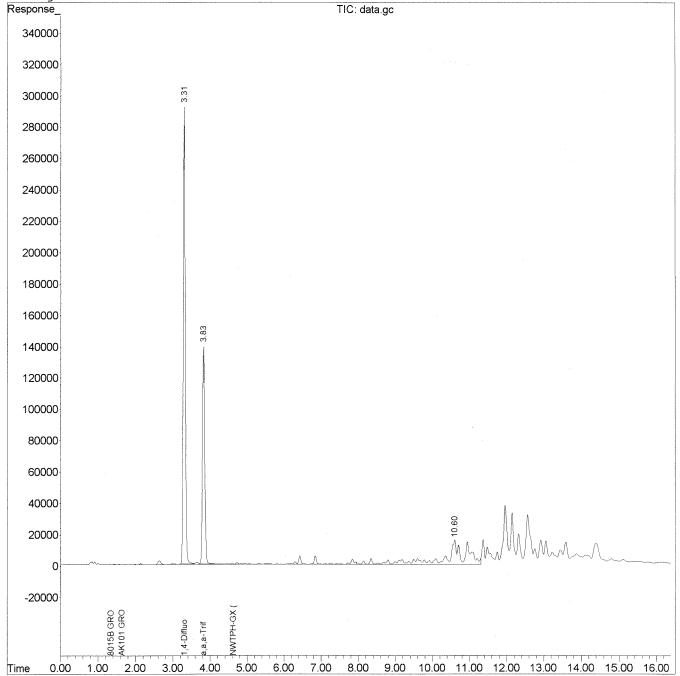
Quant Time: Jun 1 9:22 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update: Tue May 31 12:24:31 2011
Response via: Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: NA Date Received: NA

Gasoline Range Organics

Sample Name:

Batch QCDUP

Lab Code:

KWG1104892-1

Extraction Method:

EPA 5030B

Analysis Method:

NWTPH-Gx

Units: ug/L Basis: NA

Level: Low

Analyte Name

Result Q

MRL

Dilution Factor

1

Date **Extracted**

Date Analyzed **Extraction** Lot Note

KWG1104892

Gasoline Range Organics-NWTPF

ND U

250

05/31/11

05/31/11

Surrogate Name 1,4-Difluorobenzene

%Rec

91

Control Limits

50-150

Date Analyzed 05/31/11

Note

Acceptable

Comments

Printed: 06/03/2011 11:31:16 $u:\Stealth\Crystal.rpt\Form1mNew.rpt$

Merged

Form 1A - Organic 282

RR129470

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SuperSet Reference:

Exception Report

Data File:

J:\GC06\DATA\053111.FID\0531R014.D

Lab ID:

KWG1104892-1

RunType: Matrix:

DUP WATER Date Acquired: Date Quantitated:

Batch ID: Analysis Method: MethodJoinID:

05/31/2011 18:43 06/01/2011 09:22

KWG1104975 NWTPH-Gx MJ202

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
ICAL Average RSD	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Surrogates	NA	NA	NA		X
Analyte Co-elution	NA	NA	NA	Х	
Retention Time	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	X	

Analyte Exceptions

Exception Categories	Analyte Name	Result	Low Limit	High Limit	Corrective Action
Surrogates	4-Bromofluorobenzene	0	50	150	OK, water samp

Primary Review: RA 6/2/11
Secondary Review: La 4/2/4

Quantitation Report

Bottle ID: Prod Code:

NWTPH-Gx NW_GAS

Collect Date:

Matrix:

WATER

Receive Date:

Analysis Lot:

KWG1104975

Prep Lot:

06/01/2011

Analysis Method:

NWTPH-Gx

1023150

Prep Method:

KWG1104892

Prep Date:

Quant Date:

EPA 5030B 05/31/2011

Report Group:

Prep Ref:

J:\GC06\METHODS\013111GAS.M

Calibration ID:

CAL10275

Title:

Quant Method:

Method ID:

MJ202

MB Ref:

J:\GC06\DATA\053111.FID\0531R017.D

Quant based on Method

Data File:

J:\GC06\DATA\053111.FID\0531R014.D

Instrument:

GC06

Acqu Date:

05/31/2011 18:43

KWG1104892-1

Vial:

14

Run Type: Lab ID:

DUP

06/01/2011 09:22

Dilution:

1.0

Soln Conc. Units:

ug/L

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
1,4-Difluorobenzene	3.31	0.00	1114970	90.81	91	50-150 OK	
4-Bromofluorobenzene			0		0	50-150 *	

Target Compounds

Final Conc. Units:

ug/L

- 11 8 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -							
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Gasoline Range Organics-N	IWTF 4.63		40274	6.61	13	U	

Prep Amount: Prep Final Vol: 10 ml $10 \, \mathrm{ml}$ Dilution:

1.0

Unit Factor:

1

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

10:56:08

N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable

?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

Page

Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\053111.FID\0531R014.D Vial: 14 Acq On : 31 May 2011 06:43 pm Sample : 4704-3 DUP Misc : Operator: RA Inst : GC06 Multiplr: 1.00

IntFile : RTEINT.P

Quant Time: Jun 01 09:22:50 2011 Quant Results File: 013111GAS.RES

Quant Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S a,a,a-Trifluorotoluene 2) S 1,4-Difluorobenzene	3.83	588331 1114970	41.991 ug/L 90.807 ug/L	
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.63 1.34 4.63	45219 49017 40274	5.525 ug/L 5.062 ug/L 6.607 ug/L	

IntFile : RTEINT.P

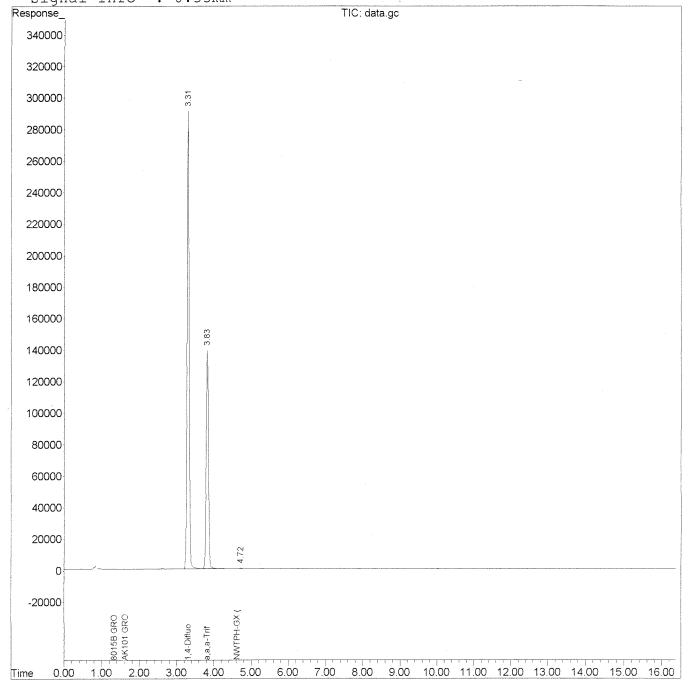
Quant Time: Jun 1 9:22 2011 Quant Results File: 013111GAS.RES

Quant Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011
Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: NA

Date Received: NA

Gasoline Range Organics

Sample Name:

Method Blank

Lab Code:

KWG1104892-3

Units: ug/L Basis: NA

Extraction Method:

EPA 5030B

Analysis Method:

Level: Low

NWTPH-Gx

Result Q **MRL** Dilution **Factor**

1

Date **Extracted**

Date Analyzed

Extraction Lot

Note

Analyte Name Gasoline Range Organics-NWTPF

ND U

250

05/31/11

05/31/11

KWG1104892

Control Limits

Date

%Rec Note Surrogate Name Analyzed 1,4-Difluorobenzene 91 50-150 05/31/11 Acceptable

Comments:

Printed: 06/03/2011 11:31:20

Merged

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Form 1A - Organic 287

SuperSet Reference:

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RR129470

Exception Report

Data File:

J:\GC06\DATA\053111.FID\0531R017.D

Lab ID:

KWG1104892-3

RunType: Matrix:

MB WATER

Date Acquired: Date Quantitated:

05/31/2011 20:10 06/01/2011 09:22

Batch ID:

KWG1104975 NWTPH-Gx

Analysis Method: MethodJoinID:

MJ202

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
ICAL Average RSD	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	Х	····
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Surrogates	NA	NA	NA		X
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	х	
Below Lowest ICAL Level	NA	NA	NA	х	
Above Highest ICAL Level	NA	NA	NA	x	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	
Overdiluted Analysis	NA	NA	NA	х	

Analyte Exceptions

Exception Categories	Analyte Name	Result	Low Limit	High Limit	Corrective Action
Surrogates	4-Bromofluorobenzene	0	50	150	OK, water

Primary Review: RA 6/2/11
Secondary Review: See 4/2/4

Quantitation Report

Matrix: Bottle ID: WATER Collect Date: Receive Date: Prod Code: NWTPH-Gx NW_GAS 06/01/2011

KWG1104975 Prep Lot: KWG1104892 Report Group: Analysis Lot: Analysis Method: NWTPH-Gx Prep Method: EPA 5030B Prep Date: 05/31/2011 Prep Ref: 1023152

Quant Method: J:\GC06\METHODS\013111GAS.M

Title:

Run Type:

Method ID: MJ202 MB Ref: Quant based on Method

Data File: J:\GC06\DATA\053111.FID\0531R017.D

Acqu Date: 05/31/2011 20:10

Lab ID: KWG1104892-3

Instrument: Quant Date: 06/01/2011 09:22

Vial:

Calibration ID:

GC06 17

CAL10275

Dilution: 1.0

Soln Conc. Units: ug/L

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
1,4-Difluorobenzene	3.31	0.00	1112932	90.64	91	50-150 OK	
4-Bromofluorobenzene			0		0	50-150 *	

Final Conc. Units: ug/L Target Compounds

Parameter Name		RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Gasoline Range Organics	-NWTF	4.63		65434	10.73	- 13	U	

Prep Amount: Prep Final Vol: $10 \, \mathrm{ml}$ 10 ml Dilution:

1.0

Unit Factor:

1

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

U: Undetected at or above MDL

J. Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

06/02/2011 10:56:45

N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\053111.FID\0531R017.D Vial: 17 Acq On : 31 May 2011 08:10 pm Sample : 4627/4689/4704 MB Operator: RA Inst : GC06 Multiplr: 1.00 Misc

IntFile : RTEINT.P

Ouant Time: Jun 01 09:22:51 2011 Ouant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011

Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

	Compound	R.T.	Response	Conc Units
Syst	em Monitoring Compounds			
1) S	a,a,a-Trifluorotoluene	3.83	588093	41.974 ug/L
2) S	1,4-Difluorobenzene	3.31	1112932	90.641 ug/L
Targ	et Compounds			
4) H	AK101 GRO (C6-C10)	1.63	61793	7.550 ug/L
5) H	8015B GRO (2mp-1,2,4tmb)	1.34	70184	7.248 ug/L
6) H	NWTPH-GX (TolNaph.)	4.63	6,5434	10.734 ug/L

Quantitation Report (QT Reviewed)

IntFile : RTEINT.P

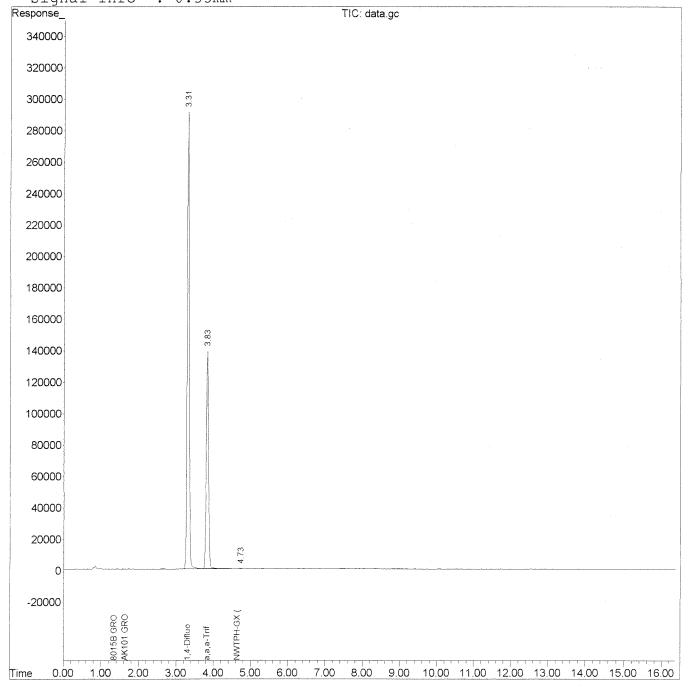
Quant Time: Jun 1 9:22 2011 Quant Results File: 013111GAS.RES

Quant Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: NA

Date Received: NA

Gasoline Range Organics

Sample Name:

Batch QC

Lab Code:

K1104704-003

Extraction Method:

EPA 5030B

Analysis Method:

Units: ug/L Basis: NA

Level: Low

NWTPH-Gx

			Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	Factor	Extracted	Analyzed	Lot	Note
Gasoline Range Organics-NWTPF	ND U	250	1	05/31/11	05/31/11	KWG1104892	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
1,4-Difluorobenzene	91	50-150	05/31/11	Acceptable	

Comments

Printed: 06/03/2011 11:31:24 $u:\Stealth\Crystal.rpt\Form1mNew.rpt$

Exception Report

Data File:

J:\GC06\DATA\053111.FID\0531R013.D

Lab ID:

K1104704-003

RunType: Matrix:

SMPL WATER Date Acquired: Date Quantitated:

Batch ID:

Analysis Method: ListJoinID:

05/31/2011 18:14 06/01/2011 09:22 KWG1104975

NWTPH-Gx LJ5068

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NA	. X	
ICAL Average RSD	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	Х	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	Х	
MB Surrogate Recovery	NA	NA	NA	X	
Lab Control Spike	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	Х	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA .	X	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review: A 6/2/IISecondary Review: A 6/2/II

Quantitation Report

Bottle ID: Tier: Matrix: WATER Prod Code: Collect Date: Receive Date: NWTPH-Gx NW_GAS 05/25/2011 05/26/2011

Prep Lot: Report Group: Analysis Lot: KWG1104975 KWG1104892 K1104704 Analysis Method: NWTPH-Gx Prep Method: EPA 5030B Prep Date: 05/31/2011 Prep Ref: 1023148

Quant Method: J:\GC06\METHODS\013111GAS.M Calibration ID: CAL10275 Title: Gasoline Range Organics Report List ID: LJ5068 Method ID: MJ202 MB Ref: J:\GC06\DATA\053111.FID\0531R017.D Quant based on Report List

Data File: J:\GC06\DATA\053111.FID\0531R013.D Instrument: GC06 Acqu Date: 05/31/2011 18:14 Quant Date: 06/01/2011 09:22 Vial: 13 Dilution: Run Type: 1.0 SMPL Lab ID: Soln Conc. Units: K1104704-003 ug/L

Surrogate Compounds

		RT		Solution			
Parameter Name	RT	Dev	Response	Conc	%Rec	Limits	Rpt?
1,4-Difluorobenzene	3.31	0.00	1116600	90.94	91	50-150 OK	

Final Conc. Units: Target Compounds ug/L RT Solution Final Parameter Name RT Dev Response Conc Conc Rpt? Gasoline Range Organics-NWTF 4.63 37026 6.07 13 U

Dilution: 1.0 Prep Amount: 10 ml Unit Factor: Prep Final Vol: 10 ml 1

Final Concentration = ((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor

06/02/2011 10:56:03

Printed:

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL
N: Presumptive evidence of compound

Result fails acceptance criteria

^{#:} Acceptance criteria not applicable

^{?:} Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

Quantitation Report (QT Reviewed)

IntFile : RTEINT.P

Quant Time: Jun 01 09:22:49 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011

Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

	Compound	R.T.	Response	Conc Units	
		<u> </u>			
Syst	em Monitoring Compounds		ster.		
1) Ŝ	a,a,a-Trifluorotoluene	3.83	591979	42.252 ug/L	
2) S	1,4-Difluorobenzene	3.31	1116600	90.940 ug/L	
Targ	et Compounds				
4) H	AK101 GRO (C6-C10)	1.63	35053	4.283 ug/L	
5) H	8015B GRO (2mp-1,2,4tmb)	1.34	38373	3.963 ug/L	
6) H	NWTPH-GX (TolNaph.)	4.63	37026	6.074 ug/L	

IntFile : RTEINT.P

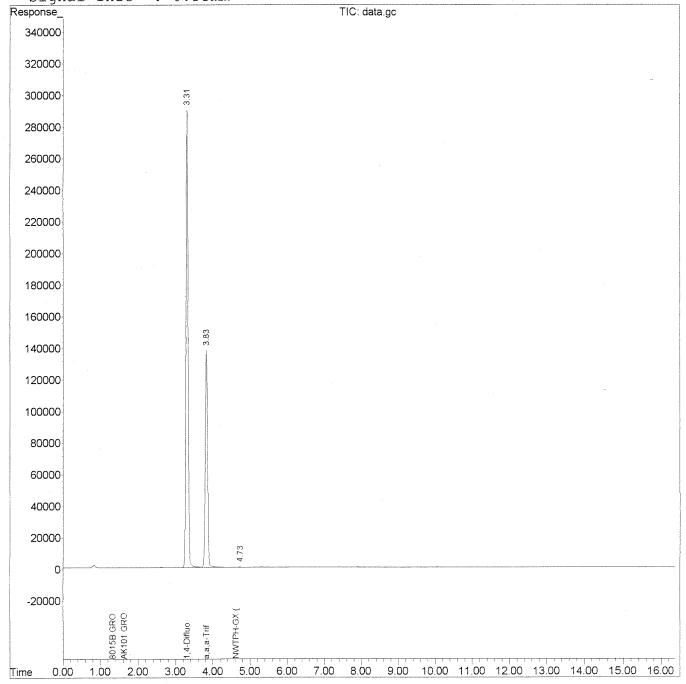
Quant Time: Jun 1 9:22 2011 Quant Results File: 013111GAS.RES

Ouant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011
Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Water

Service Request: K1104627

Date Collected: NA Date Received: NA

Gasoline Range Organics

Sample Name:

Lab Control Sample

Lab Code:

KWG1104892-2

Extraction Method:

EPA 5030B

Analysis Method:

NWTPH-Gx

Units: ug/L

Basis: NA

Level: Low

Analyte Name

Result Q

MRL

Dilution **Factor**

Date Date Extracted Analyzed

Extraction Lot

Note

Gasoline Range Organics-NWTPF

493

250

1 05/31/11

05/31/11

KWG1104892

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
1,4-Difluorobenzene	95	50-150	05/31/11	Acceptable	

Comments

Printed: 06/03/2011 11:31:28 u:\Stealth\Crystal.rpt\Form1mNew.rpt

Merged

Form 1A - Organic

297

SuperSet Reference:

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RR129470

Exception Report

J:\GC06\DATA\053111.FID\0531R016.D Data File:

KWG1104892-2 Lab ID:

LCS RunType: Matrix: WATER

Date Acquired: Date Quantitated:

Batch ID: Analysis Method:

MethodJoinID:

05/31/2011 19:41 06/01/2011 09:32 KWG1104975

NWTPH-Gx MJ202

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
ICAL Average RSD	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	Х	
Calibration Verification Pass/Fail	NA	NA	NA	Х	
Continuing Calibration Recovery	NA	NA	NA	Х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Surrogates	NA	NA	NA		X
Analyte Co-elution	NA	NA	NA	\mathbf{X}^{\cdot}	
Retention Time	NA	NA	NA	X ·	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	X	

Analyte Exceptions

Exception Categories	Analyte Name	Result	Low Limit	High Limit	Corrective Action
Surrogates	4-Bromofluorobenzene	0	50	150	OK, water

Primary Review: Review: La 4/2/11
Secondary Review: La 4/2/11

Printed: 06/02/2011 11:26:24 u:\Stealth\Crystal.rpt\except2.rpt

Page 1 of 1

Quantitation Report

Matrix: Bottle ID: WATER Collect Date: Receive Date: Prod Code: NWTPH-Gx NW_GAS 06/01/2011

Analysis Lot: Prep Lot: KWG1104892 Report Group: KWG1104975 Analysis Method: NWTPH-Gx Prep Method: EPA 5030B Prep Date: 05/31/2011 Prep Ref: 1023151

Quant Method: J:\GC06\METHODS\013111GAS.M

Title: Method ID:

MJ202 J:\GC06\DATA\053111.FID\0531R017.D MB Ref: Quant based on Method

Data File: J:\GC06\DATA\053111.FID\0531R016.D Instrument: GC06 Vial: Quant Date: 16 06/01/2011 09:32

Acqu Date: 05/31/2011 19:41 Dilution: 1.0 Run Type: LCS Lab ID: Soln Conc. Units: ug/L KWG1104892-2

Surrogate Compounds

RT Solution %Rec %Rec Limits Parameter Name RT Dev Response Conc Rpt? 1163477 1.4-Difluorobenzene 3.31 0.00 94.76 95 50-150 OK 0 50-150 4-Bromofluorobenzene

Final Conc. Units: Target Compounds ug/L

RT Solution Final RT Parameter Name Dev Response Conc Conc Q Rpt? 3005634 493.05 493 Gasoline Range Organics-NWTF 4.63

Dilution: 1.0 10 ml Prep Amount:

Prep Final Vol: 10 ml Unit Factor: 1

((Soln Conc x Prep Final Vol x Dilution) / Prep Amount) x Unit Factor Final Concentration =

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

06/02/2011 10:56:33

N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable

Calibration ID:

CAL10275

?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL c: check for co-elution

Quantitation Report (QT Reviewed)

Vial: 16 Data File : J:\GC06\DATA\053111.FID\0531R016.D Acq On : 31 May 2011 07:41 pm Sample : 4627/4689/4704 LCS Misc : Operator: RA Inst : GC06 Multiplr: 1.00

IntFile : RTEINT.P

Quant Time: Jun 01 09:22:50 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Compound		R.T.	Response	Conc U	nits
System Monitoring 1) S a,a,a-Triflu 2) S 1,4-Difluoro	orotoluene	3.83 3.31	600694 1163477	42.874 94.758	
Target Compounds 4) H AK101 GRO (C 5) H 8015B GRO (2 6) H NWTPH-GX (To	2mp-1,2,4tmb)	1.63 1.34 4.63	4216327 5015403 3005634	515.134 517.932 493.053	ug/L

Quantitation Report (Qedit)

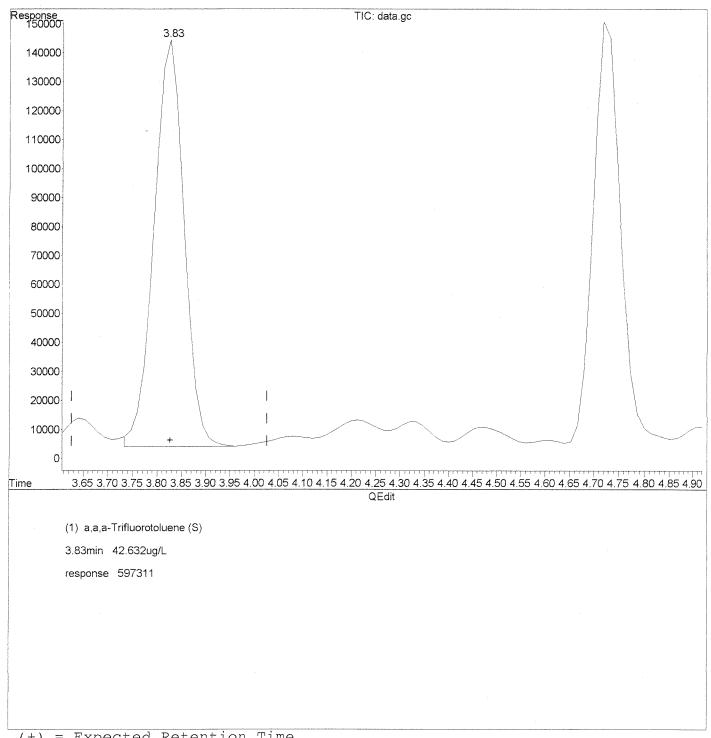
IntFile : RTEINT.P

Quant Time: Jun 1 9:22 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011
Response via : Multiple Level Calibration



(+) = Expected Retention Time

0531R016.D 013111GAS.M Wed Jun 01 09:32:41 2011

Quantitation Report (Qedit)

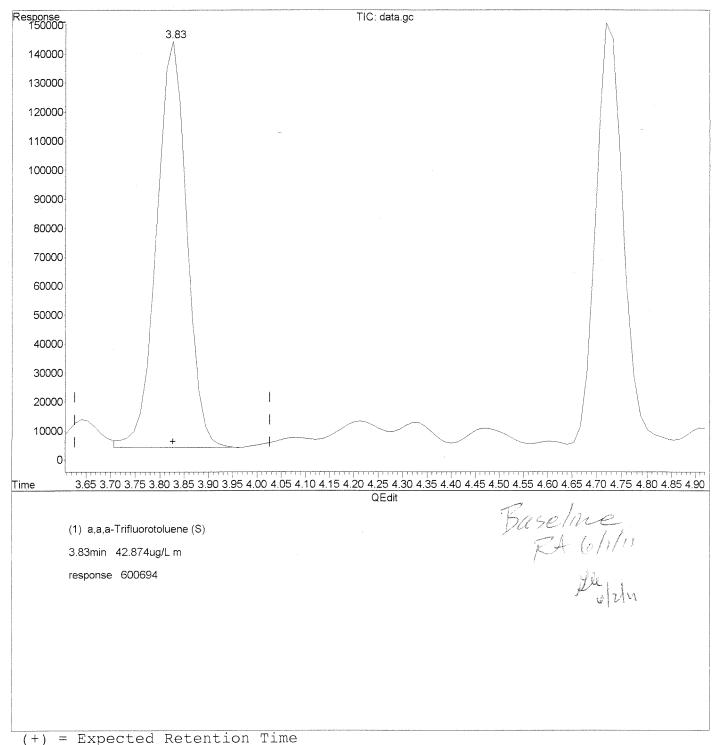
IntFile : RTEINT.P

Quant Time: Jun 1 9:22 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011
Response via : Multiple Level Calibration



0531R016.D 013111GAS.M

Wed Jun 01 09:32:59 2011

IntFile : RTEINT.P

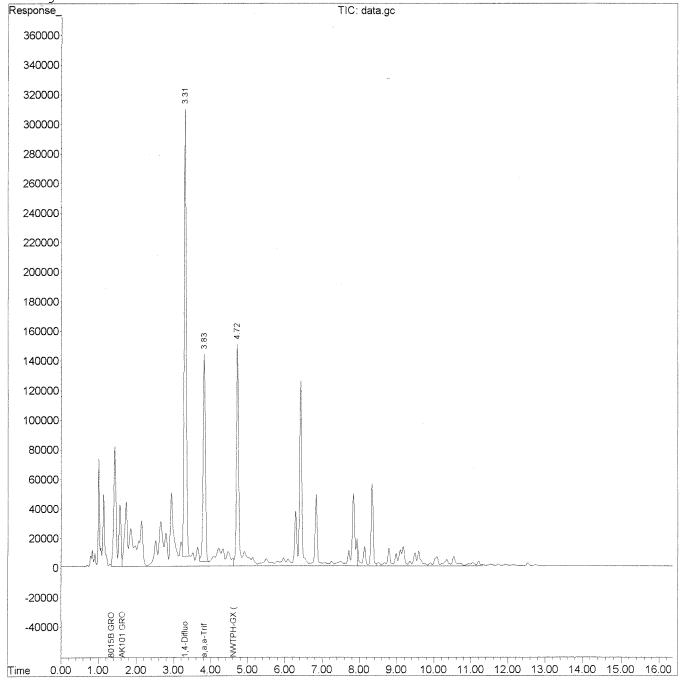
Quant Time: Jun 1 9:32 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Organic Analysis: <u>Gasoline Range Organics</u>

Validation Package

Standards Data

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Calibration Date: 01/31/2011

Initial Calibration Summary Gasoline Range Organics

Calibration ID:

CAL10275

Column: DB-624

Instrument ID:

GC06

Level ID File ID Level ID File ID

J:\GC06\DATA\013111.FID\0131R006.D В J:\GC06\DATA\013111.FID\0131R007.D J:\GC06\DATA\013111.FID\0131R008.D C

E F

J:\GC06\DATA\013111.FID\0131R010.D J:\GC06\DATA\013111.FID\0131R011.D

J:\GC06\DATA\013111.FID\0131R012.D

G

J:\GC06\DATA\013111.FID\0131R009.D D

	Level			Level	l		Level			Level			Level		
Analyte Name	ID	Amt	RF	ID	Amt	RF	ID	Amt	RF	ID	Amt	RF	ID	Amt	\mathbf{RF}
Gasoline Range Organics-NWTPH	A F	50 5000	5980 6210	B G	100 10000	5940 6120	С	200	6280	D	500	6020	Е	1000	6120
1,4-Difluorobenzene	A	20	12700	В	25	10800	C	50	12600	D	100	12400	Е	150	12900

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

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Calibration Date: 01/31/2011

Initial Calibration Summary Gasoline Range Organics

Calibration ID:

CAL10275

Instrument ID:

GC06

Column: DB-624

		Calibration Evaluation								
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria				
Gasoline Range Organics-NWTPH	MS	AverageRF	% RSD	2.1		≤ 20				
1,4-Difluorobenzene	SURR	AverageRF	% RSD	6.8		≤ 20				

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

Printed: 06/03/2011 11:31:35 $u:\Stealth\Crystal.rpt\Form6iNew.rpt$

Form 6A - Organic 306

SuperSet Reference:

RR129470

Page

2 of 2

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Calibration Date: 01/31/2011

Date Analyzed: 01/31/2011

Second Source Calibration Verification Gasoline Range Organics

Calibration Type:

External Standard

Calibration ID: CAL10275

Analysis Method:

NWTPH-Gx

Units: ug/L

File ID:

J:\GC06\DATA\013111.FID\0131R016.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	550	6100	6760	11	NA	± 15 %	AverageRF

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

† SPCC Compound

‡ CCC Compound

Printed: 6/3/2011 $u:\Stealth\Crystal.rpt\Form6SS.rpt$

11:31:40

Form 6B - Organic 307

SuperSet Reference: RR129470

Page 1 of 1

Injection Log

Directory: J:\GC06\DATA\013111.FID

ine	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
	1 2 2 3 4 3 4 5 6	0131R001.D 0131R002.D 0131R003.D 0131R004.D 0131R005.D 0131R006.D 0131R007.D 0131R008.D 0131R009.D	1. 1. 1. 1. 1. 1. 1.	IB MARKER HCV5-32P IB IB IB GAS/SURR HCV5-32Q 50PPB GAS/SURR HCV5-32R 100PPB GAS/SURR HCV5-32S 200PPB GAS/SURR HCV5-32T 500PPB		31 Jan 2011 11:4:31 Jan 2011 12:31 31 Jan 2011 13:01 31 Jan 2011 13:31 Jan 2011 14:01 31 Jan 2011 14:31 31 Jan 2011 15:04 31 Jan 2011 15:31
0 1 2 3 4 5 6 7 8	7 8 9 10 11 12 13 14	0131R010.D 0131R011.D 0131R012.D 0131R013.D 0131R014.D 0131R015.D 0131R016.D 0131R017.D 0131R018.D	1. 1. 1. 1. 1. 1. 1.	GAS/SURR HCV5-32U 1,000PPB GAS HCV5-33A 5,000PPB GAS HCV5-33B 10,000PPB IB IB IB GAS/SURR ICV HCV5-33D GAS/SURR ICV HCV5-33D		31 Jan 2011 16:0° 31 Jan 2011 16:30 31 Jan 2011 16:51 31 Jan 2011 17:21 31 Jan 2011 17:5° 31 Jan 2011 18:20 31 Jan 2011 18:50 31 Jan 2011 19:20 31 Jan 2011 19:50

IS: HCV5-32E

Ical: 10275

MH ZIII

12/11

Initial Calibration - Summary Report

Calibration ID: Method ID:

CAL10275

MJ183

Instrument ID: Column Name:

GC06 DB-624

Parameter Name	Туре	Curve Fit	Min RF	Mean RF	Max %RSD	%RSD	Min COD	COD	MRL Check	Conc ½ Low pt.
Gasoline Range Organics-NWTPH	MS	AverageRF		6.1E+3	20	2.1			NA	
1,4-Difluorobenzene	SURR	AverageRF		1.2E+4	20	6.8			NA	
4-Bromofluorobenzene	SURR	AverageRF		7.3E+3	20	5.3			NA	
C6 - C10 GRO	MS	AverageRF		8.2E+3	25	4.0			OK	
Gasoline Range Organics (GRO)	MS	AverageRF		9.7E+3	20	5.7			OK	

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Printed: 02/02/2011 11:59:36

Initial Calibration - Detallea Keport

Calibration ID: Method ID: CAL10275 MJ183 Instrument ID: Column Name:

GC06 DB-624

Calibration Fit:

AverageRF

#	FileID	File Location	Acquisition Date	Quantitation Date	Last Updated
1	196625	J:\GC06\DATA\013111.FID\0131R006.D	01/31/2011 14:06	01/31/2011 15:08	01/31/2011 17:28
2	196626	J:\GC06\DATA\013111.FID\0131R007.D	01/31/2011 14:35	01/31/2011 15:09	01/31/2011 17:28
3	196627	J:\GC06\DATA\013111.FID\0131R008.D	01/31/2011 15:04	02/02/2011 11:28	02/02/2011 11:56
4	196628	J:\GC06\DATA\013111.FID\0131R009.D	01/31/2011 15:32	02/02/2011 11:29	02/02/2011 11:56
5	196629	J:\GC06\DATA\013111.FID\0131R010.D	01/31/2011 16:01	02/02/2011 11:30	02/02/2011 11:56
6	196630	J:\GC06\DATA\013111.FID\0131R011.D	01/31/2011 16:30	02/01/2011 16:11	02/01/2011 16:24
7	196631	J:\GC06\DATA\013111.FID\0131R012.D	01/31/2011 16:59	02/01/2011 16:15	02/01/2011 16:24

Parameter Name	#	RF	#	RF	#	RF	#	RF	#	RF	#	RF	Mean RF	%RSD
1,4-Difluorobenzene	1	1.3E+4	2	1.1E+4	-3	1.3E+4	4	1.2E+4	5	1.3E+4			1.2E+4	6.8
4-Bromofluorobenzene	1	7.5E+3	2	6.6E+3	3	7.5E+3	4	7.5E+3	5	7.5E+3			7.3E+3	5.3
C6 - C10 GRO	1 7	8.0E+3 7.8E+3	2	8.0E+3	3	8.8E+3	4	8.3E+3	5	8.3E+3	6	8.0E+3	8.2E+3	4.0
Gasoline Range Organics (GRO)	1 7	9.5E+3 8.9E+3	2	9.6E+3	3	1.1E+4	4	9.9E+3	5	1.0E+4	6	9.3E+3	9.7E+3	5.7
Gasoline Range Organics-NWTPH	1 7	6.0E+3 6.1E+3	2	5.9E+3	3	6.3E+3	4	6.0E+3	5	6.1E+3	6	6.2E+3	6.1E+3	2.1

M2/2/V

Initial Calibration - Detailed Report

Calibration ID:CAL10275Instrument ID:GC06Method ID:MJ183Column Name:DB-624

#	FileID	File Location						Acq	uisition Date	Quar	ıtitatio	on Date	Last Updat	ted
1	196625	J:\GC06\DATA\0	01311	1.FID\013	1R006.D			01/3	1/2011 14:06	01/31	/2011	15:08	01/31/2011	17:28
2	196626	J:\GC06\DATA\(01311	1.FID\013	1R007.D			01/3	1/2011 14:35	01/31	/2011	15:09	01/31/2011	17:28
3	196627	J:\GC06\DATA\0	01311	1.FID\013	1R008.D			01/3	1/2011 15:04	02/02	2/2011	11:28	02/02/2011	11:56
4	196628	J:\GC06\DATA\(J:\GC06\DATA\013111.FID\0131R009.D					01/3	1/2011 15:32	02/02	2/2011	11:29	02/02/2011	11:56
5	196629	J:\GC06\DATA\0	01311	1.FID\013	1R010.D			01/3	1/2011 16:01	02/02	2/2011	11:30	02/02/2011	11:56
6	196630	J:\GC06\DATA\0	01311	1.FID\013	1R011.D			01/3	1/2011 16:30	02/01	/2011	16:11	02/01/2011	16:24
7	196631	J:\GC06\DATA\()1311	1.FID\013	1R012.D			01/3	1/2011 16:59	02/01	/2011	16:15	02/01/2011	16:24
				Cal	Calc			Cal	Calc			Cal	Calc	
Paran	neter Name		#	Amt	Conc	% D	#	Amt	Conc	% D	#	Amt	Conc	% D
1.4-D	1,4-Difluorobenzene		1	20	20.73	3.6	2	25	22.00	-12.0	3	50	51.16	2.3
-,			4	100	101.4	1.4	5	150	157.0	4.7				
4-Bro	mofluoroben	izene	1	20	20.43	2.1	2	25	22.62	-9.5	3	50	51.37	2.7
			4	100	101.7	1.7	5	150	154.3	2.9				
										v				*****************
C6 - 0	C10 GRO		1	50	48.91	-2.2	2	100	98.28	-1.7	3	200	216.1	8.0
			4	500	504.4	0.9	5	1000	1014	1.4	6	5000	4891	-2.2
			7	10000	9575	-4.3								
Gasol	ine Range O	rganics (GRO)	1	50	49.25	-1.5	2	100	99.11	-0.9	3.	200	218.7	9.3
P		5 ()	4	500	511.3	2.3	5	1000	1032	3.2	6	5000	4806	-3.9
			7	10000	9151	-8.5								
Gasol	ine Range Ω	rganics-NWTPH	1	50	49.05	-1.9	2	100	97.36	-2.6	3	200	206.2	3.1
Justi.			4	500	494.0	-1.2	5	1000	1003	0.3	6	5000	5096	1.9
			7	10000	10040	0.4	-						· -	
									-					

MH 2/2/11

Second Source Calibration Verification Summary

CalibrationID:

CAL10275

Units: ug/L

Method ID:

MJ183

Column: DB-624

DataFile Location:

J:\GC06\DATA\013111.FID\0131R016.D

Parameter Name	File ID	Curve Fit	Method Criteria	AveRF	SSV RF	% Diff	True Value	Sol'n Conc	% Drift
C6 - C10 GRO	196632	AverageRF	25	8.2E+3	8.5E+3	3.6	500.00	517.8	
Gasoline Range Organics (GRO)	196632	AverageRF	15	9.7E+3	1.0E+4	5.8	500.00	528.8	
Gasoline Range Organics-NWTPH	196632	AverageRF	15	6.1E+3	6.8E+3	10.8	500.00	554.1	

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2/2/4

Quantitation report (Venit)

Vial: 2 Data File : J:\GC06\DATA\013111.FID\0131R002.D Acq On : 31 Jan 2011 12:10 pm Operator: MH : GC06 Sample : MARKER HCV5-32P Inst Multiplr: 1.00 Misc

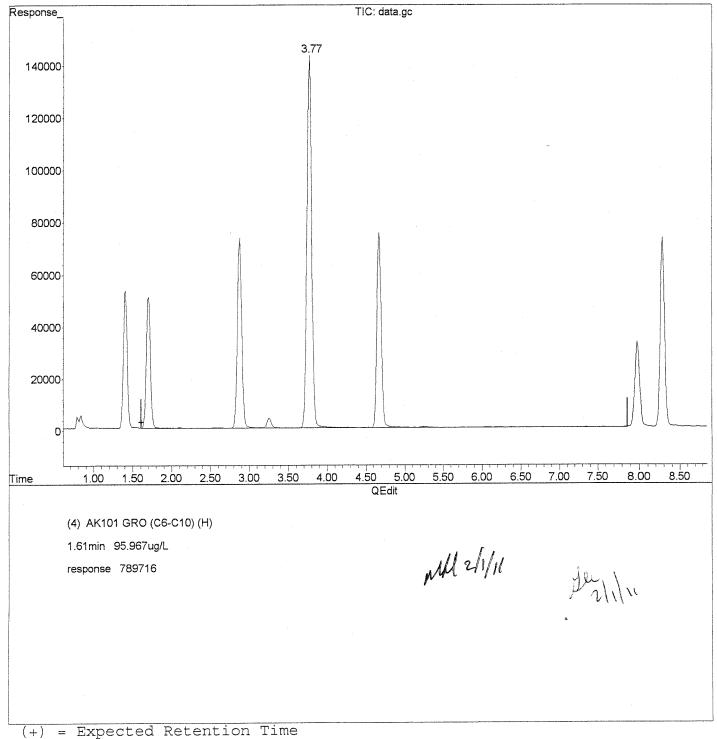
: RTEINT.P IntFile

Quant Time: Feb 1 9:31 2011 Quant Results File: 013111GAS.RES

: J:\GC06\METHODS\013111GAS.M (RTE Integrator) Method

: Gas CAL Title

Last Update : Mon Jan 31 17:26:13 2011 Response via : Multiple Level Calibration



Tue Feb 01 09:31:36 2011 0131R002.D 013111GAS.M

Anametracton vehore (Acare)

Data File : J:\GC06\DATA\013111.FID\0131R002.D

Vial: 2

: 31 Jan 2011 12:10 pm Acq On : MARKER HCV5-32P

Operator: MH Inst : GC06

Sample

Multiplr: 1.00

Misc

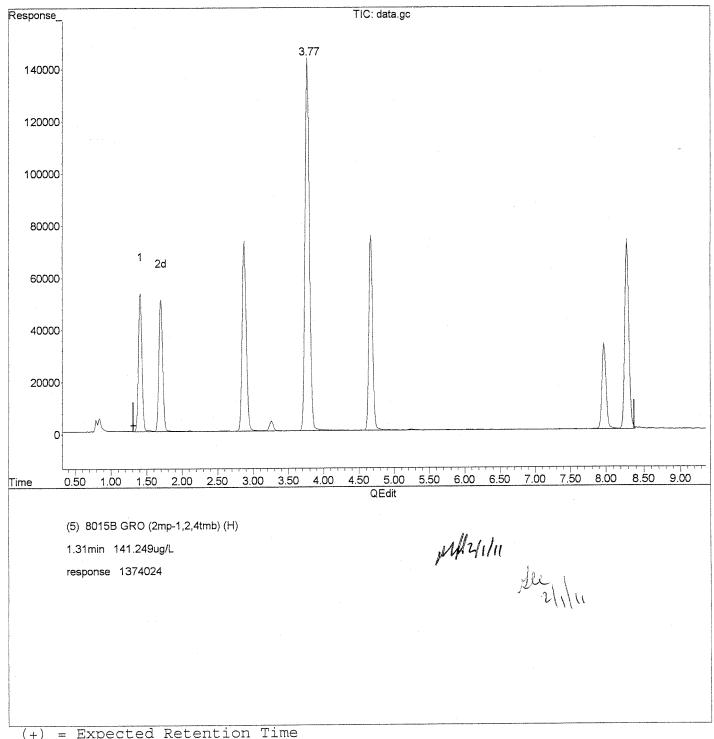
IntFile

: RTEINT.P

Quant Time: Feb 1 9:31 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

: Gas CAL Title Last Update : Mon Jan 31 17:26:13 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time

0131R002.D 013111GAS.M Tue Feb 01 09:31:39 2011

Data File : J:\GC06\DATA\013111.FID\0131R002.D

Vial: 2 Acq On : 31 Jan 2011 12:10 pm Operator: MH

Sample : MARKER HCV5-32P Inst : GC06 Multiplr: 1.00

Misc

IntFile

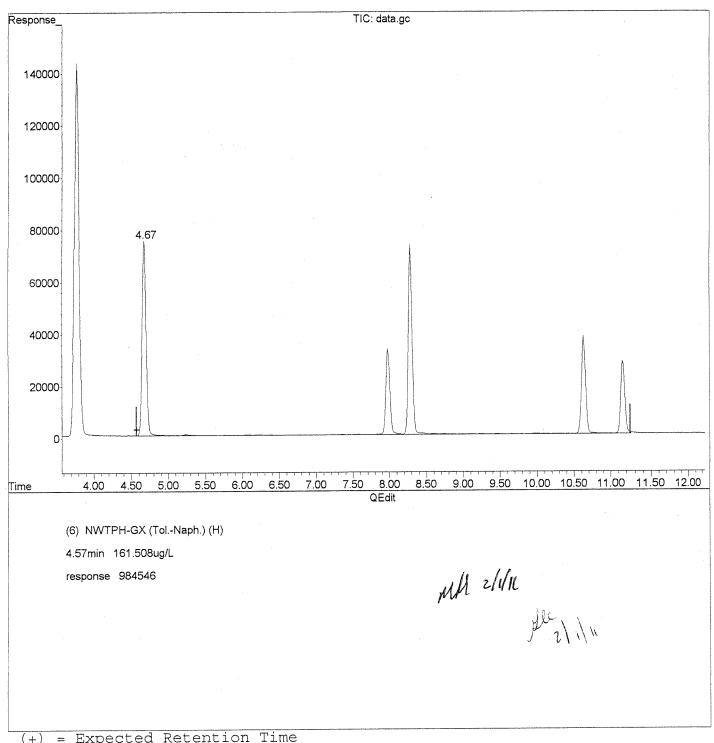
: RTEINT.P

Quant Time: Feb 1 9:31 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

: Gas CAL Title

Last Update : Mon Jan 31 17:26:13 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time

0131R002.D 013111GAS.M Tue Feb 01 09:31:42 2011

Vial: 4 Data File : J:\GC06\DATA\013111.FID\0131R005.D Acq On : 31 Jan 2011 01:37 pm Operator: MH : IB Inst : GC06 Sample Multiplr: 1.00 Misc

IntFile : RTEINT.P

Quant Time: Jan 31 15:09:15 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011

Response via : Initial Calibration DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S a,a,a-Trifluorotoluene 2) S 1,4-Difluorobenzene	3.77	608390 7942	51.870 ug/L 0.725 ug/L	
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.61 1.31 4.57	30587 35273 37627	4.104 ug/L 4.051 ug/L 6.419 ug/L	

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IntFile : RTEINT.P

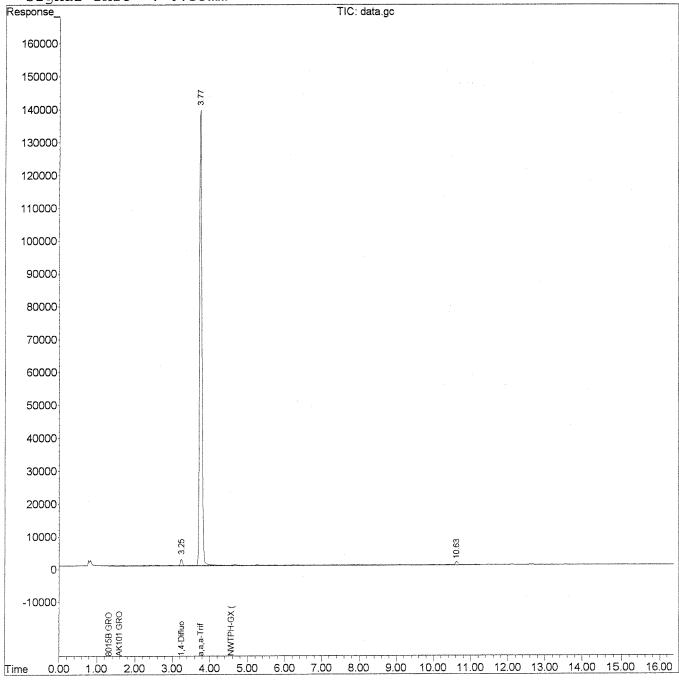
Quant Time: Jan 31 15:09 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\013111.FID\0131R006.D Vial: 3 Acq On : 31 Jan 2011 02:06 pm Sample : GAS/SURR HCV5-32Q 50PPB Operator: MH Inst : GC06 Misc Multiplr: 1.00

IntFile : RTEINT.P

Quant Time: Jan 31 15:08:54 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S a,a,a-Trifluorotoluene 2) S 1,4-Difluorobenzene 3) S 4-Bromofluorobenzene	3.77 3.25 7.35	601881 254516 149679	51.315 ug/L 23.229 ug/L 20.862 ug/L	
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.61 1.31 4.57	400348 476867 299022	53.723 ug/L 54.770 ug/L 51.011 ug/L	

Ml 2/1/11

IntFile : RTEINT.P

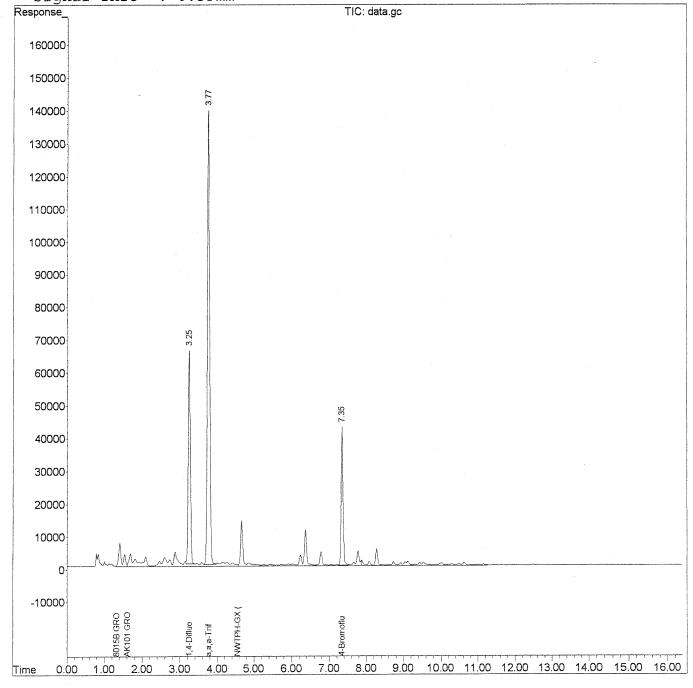
Quant Time: Jan 31 15:08 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Data File : J:\GC06\DATA\013111.FID\0131R007.D Vial: 4 Acq On : 31 Jan 2011 02:35 pm Operator: MH : GAS/SURR HCV5-32R 100PPB Inst : GC06 Sample Multiplr: 1.00 Misc

IntFile : RTEINT.P

Quant Time: Jan 31 15:09:01 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011

Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

	Compound	R.T.	Response	Conc Units
1) S 2) S	em Monitoring Compounds a,a,a-Trifluorotoluene 1,4-Difluorobenzene 4-Bromofluorobenzene	3.77 3.25 7.35	599128 270146 165754	51.081 ug/L 24.655 ug/L 23.103 ug/L
4) H 5) H	et Compounds AK101 GRO (C6-C10) 8015B GRO (2mp-1,2,4tmb) NWTPH-GX (TolNaph.)	1.61 1.31 4.57		107.944 ug/L 110.225 ug/L 101.248 ug/L

M/ 21/11

ylle 2/1/11

IntFile : RTEINT.P

Quant Time: Jan 31 15:09 2011 Quant Results File: 013111GAS.RES

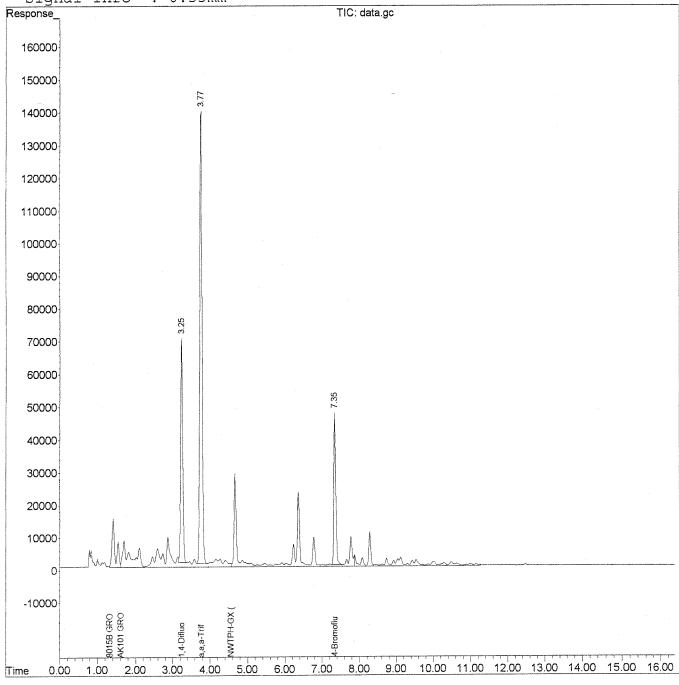
Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm



0131R007.D 013111GAS.M

Mon Jan 31 17:27:52 2011

Quantitation Report (QT Reviewed)

Vial: 5 Data File : J:\GC06\DATA\013111.FID\0131R008.D Acq On : 31 Jan 2011 03:04 pm Operator: MH Inst : GC06 : GAS/SURR HCV5-32S 200PPB Sample Multiplr: 1.00 Misc

IntFile : RTEINT.P

Quant Time: Jan 31 15:57:13 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011

Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound		R.T.	Response	Conc Units
1) S 2) S	em Monitoring Compounds a,a,a-Trifluorotoluene 1,4-Difluorobenzene 4-Bromofluorobenzene	3.77 3.25 7.35	603596 628167 376377	51.462 ug/L m 57.330 ug/L 52.459 ug/L
4) H 5) H	et Compounds AK101 GRO (C6-C10) 8015B GRO (2mp-1,2,4tmb) NWTPH-GX (TolNaph.)	1.61 1.31 4.57		237.331 ug/L 243.206 ug/L 214.388 ug/L

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Page 1

Mauritarion vehorr (Mearr)

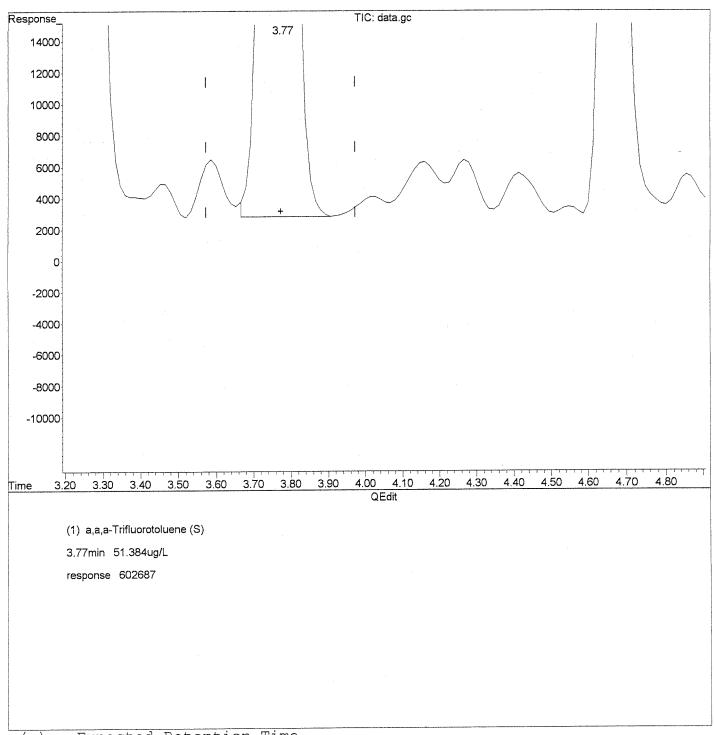
IntFile : RTEINT.P

Quant Time: Jan 31 15:57 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue Feb 01 16:17:57 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time 0131R008.D 013111GAS.M Wed Feb 02 11:28:31 2011

Quantitation Report (Qealt)

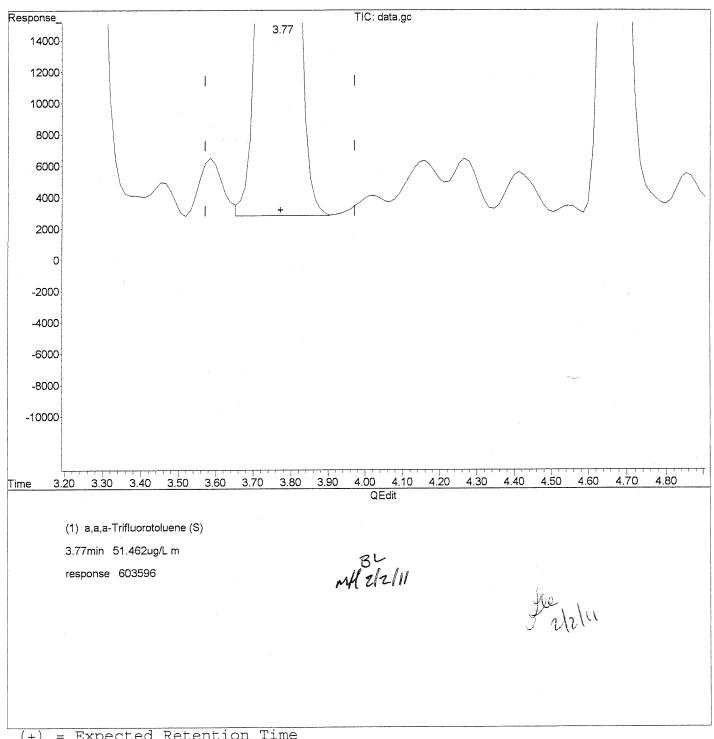
IntFile : RTEINT.P

Quant Time: Jan 31 15:57 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue Feb 01 16:17:57 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time 0131R008.D 013111GAS.M Wed Feb 02 11:28:39 2011

IntFile : RTEINT.P

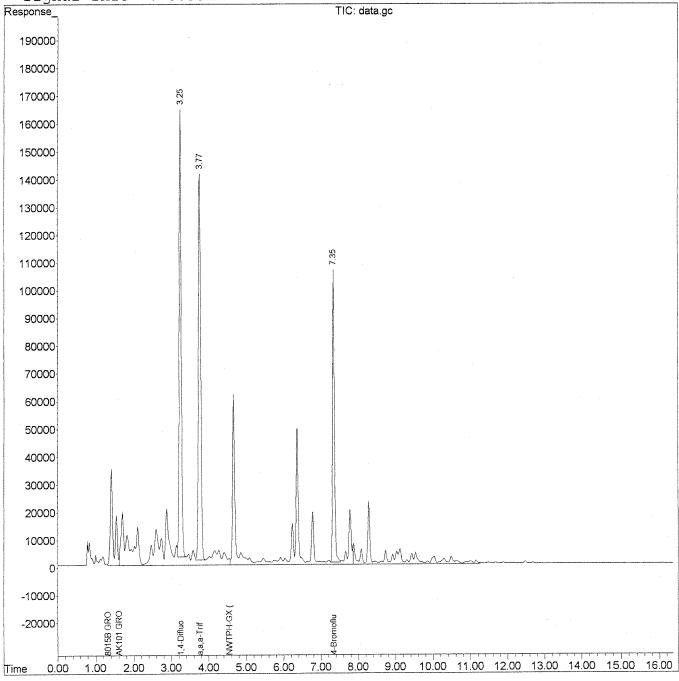
Quant Time: Feb 2 11:28 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Data File : J:\GC06\DATA\013111.FID\0131R009.D Vial: 6 Acq On : 31 Jan 2011 03:32 pm Operator: MH Sample : GAS/SURR HCV5-32T 500PPB Inst : GC06 Multiplr: 1.00 Misc

IntFile : RTEINT.P

Quant Time: Jan 31 15:57:19 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound	R.T.	Response	Conc Units
System Monitoring Compounds 1) S a,a,a-Trifluorotoluene 2) S 1,4-Difluorobenzene 3) S 4-Bromofluorobenzene	3.77 3.25 7.35		52.811 ug/L m 113.592 ug/L 103.895 ug/L
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.61 1.31 4.57	4128104 4950784 3011128	553.950 ug/L 568.617 ug/L 513.675 ug/L

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Quantitation Report (Qedit)

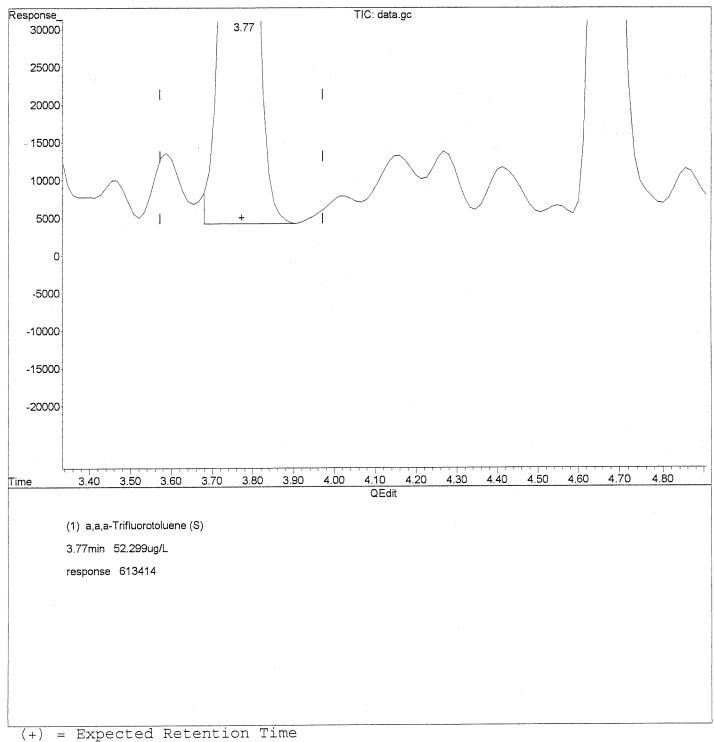
IntFile : RTEINT.P

Quant Time: Jan 31 15:57 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue Feb 01 16:17:57 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time 0131R009.D 013111GAS.M Wed Feb 02 11:29:14 2011

Quantitation Report (Qedit)

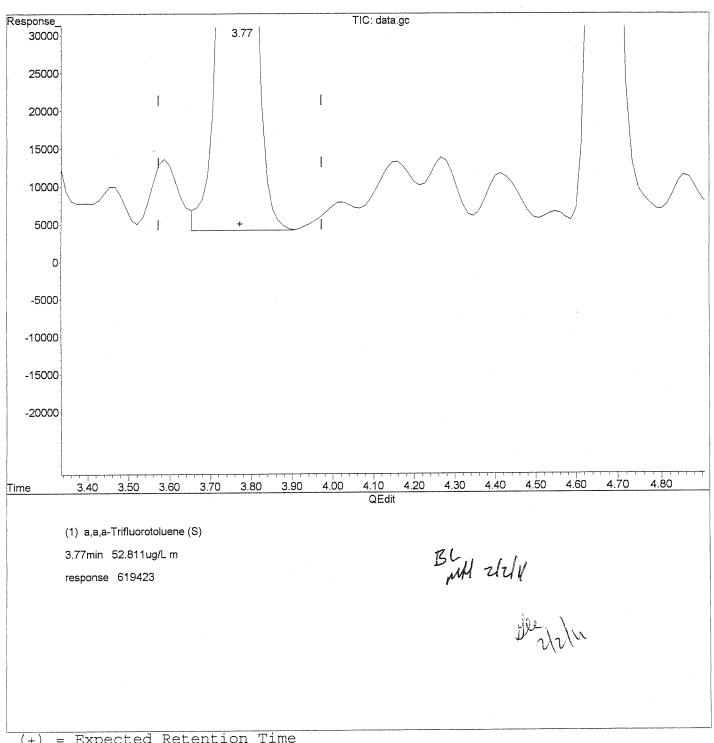
IntFile : RTEINT.P

Quant Time: Jan 31 15:57 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue Feb 01 16:17:57 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time 0131R009.D 013111GAS.M Wed Feb 02 11:29:41 2011

IntFile : RTEINT.P

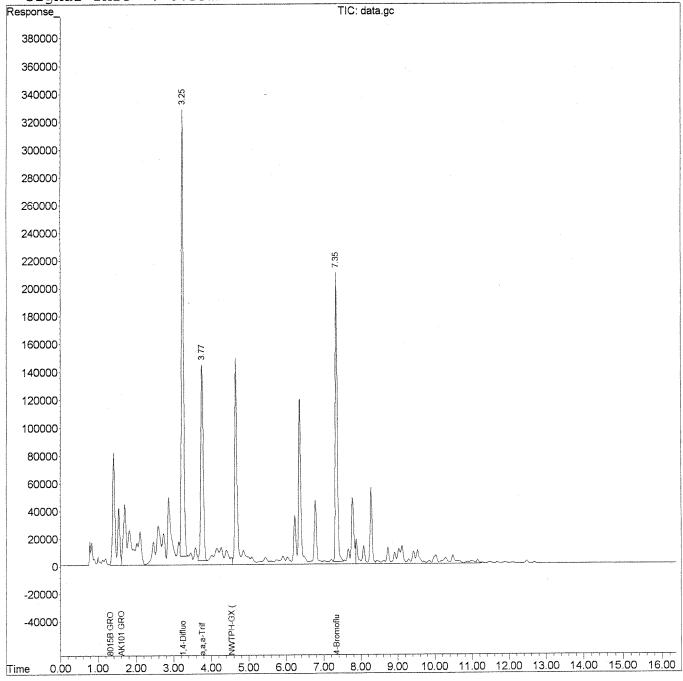
Quant Time: Feb 2 11:29 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\013111.FID\0131R010.D Vial: 7 Acq On : 31 Jan 2011 04:01 pm Sample : GAS/SURR HCV5-32U 1,000PPB Operator: MH Inst : GC06 Multiplr: 1.00 Misc

IntFile : RTEINT.P

Ouant Time: Jan 31 17:20:07 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011

Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S a,a,a-Trifluorotoluene 2) S 1,4-Difluorobenzene 3) S 4-Bromofluorobenzene	3.77 3.25 7.35		55.075 ug/L m 175.931 ug/L 157.602 ug/L	
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.61 1.31 4.57	9992369	1113.827 ug/L 1147.664 ug/L 1043.422 ug/L	

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Analicicación vehore (Aeare)

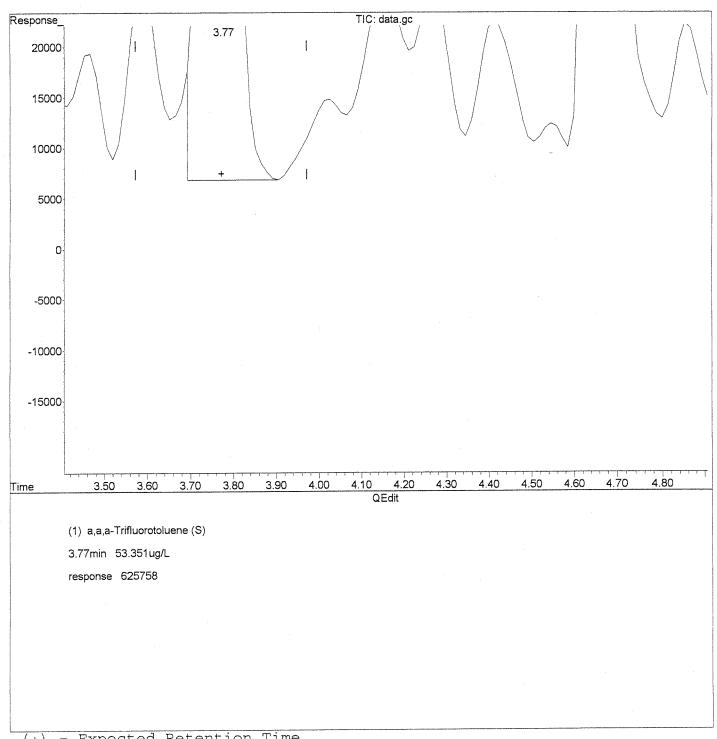
IntFile : RTEINT.P

Quant Time: Jan 31 17:20 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue Feb 01 16:17:57 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time 0131R010.D 013111GAS.M Wed Feb 02 11:30:10 2011

Quantitation Report (Qealt)

Data File : J:\GC06\DATA\013111.FID\0131R010.D

Operator: MH

Vial: 7

Sample

Acg On : 31 Jan 2011 04:01 pm

: GC06 Inst

Misc

: GAS/SURR HCV5-32U 1,000PPB

Multiplr: 1.00

IntFile

: RTEINT.P

Quant Time: Jan 31 17:20 2011 Quant Results File: 013111GAS.RES

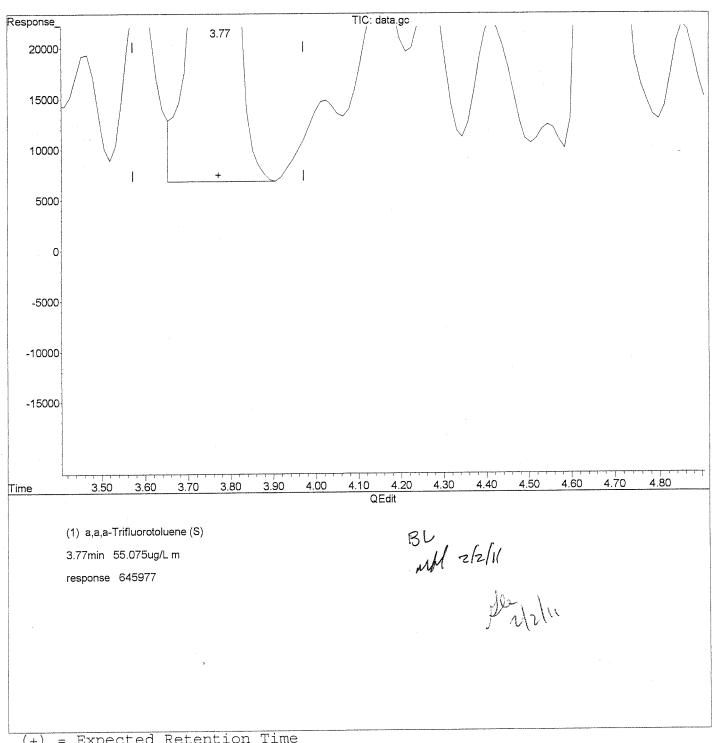
Method

: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title

: Gas CAL:10275

Last Update : Tue Feb 01 16:17:57 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time

0131R010.D 013111GAS.M

Wed Feb 02 11:30:34 2011

Quantitation keport (QT keviewed)

IntFile : RTEINT.P

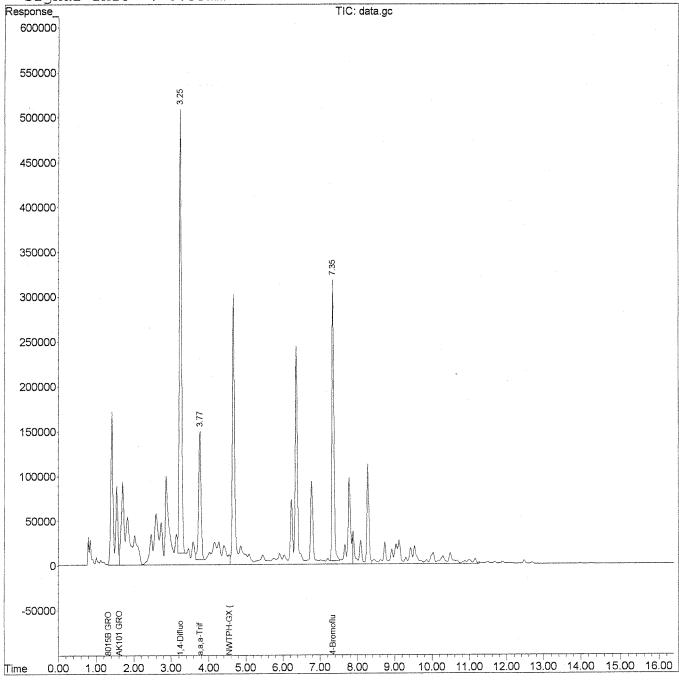
Quant Time: Feb 2 11:30 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Quantitation Report (QT Reviewed)

IntFile : RTEINT.P

Quant Time: Jan 31 17:20:14 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011

Response via: Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound	R.T. Response		Conc Units		
System Monitoring Compounds 1) S a,a,a-Trifluorotoluene	3.77	886978	75.622	ug/L m	
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.61 1.31 4.57	46537293	5372.152 5344.994 5299.428	ug/L	

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Quantitation Report (Qeart)

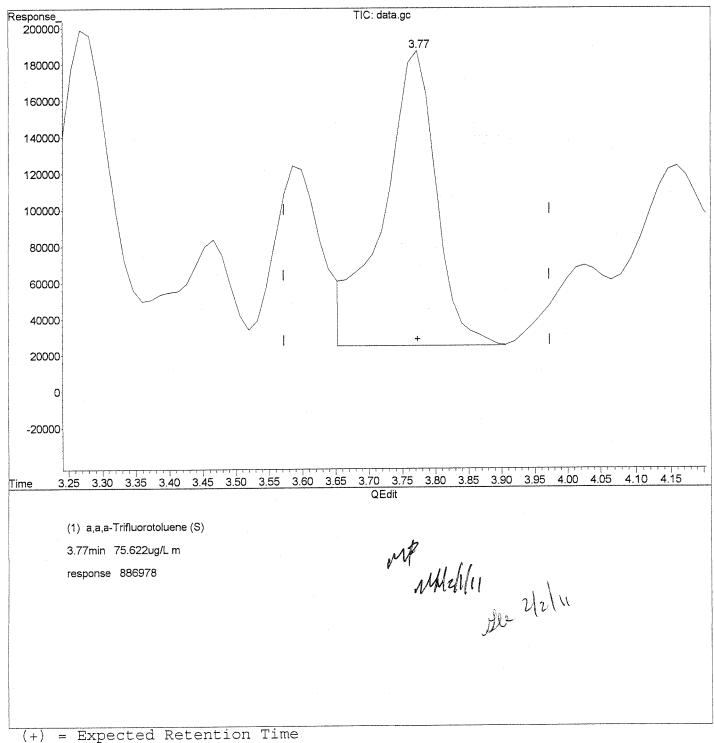
IntFile : RTEINT.P

Quant Time: Jan 31 17:20 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue Feb 01 10:52:18 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time 0131R011.D 013111GAS.M Tue Feb 01 16:11:38 2011

IntFile : RTEINT.P

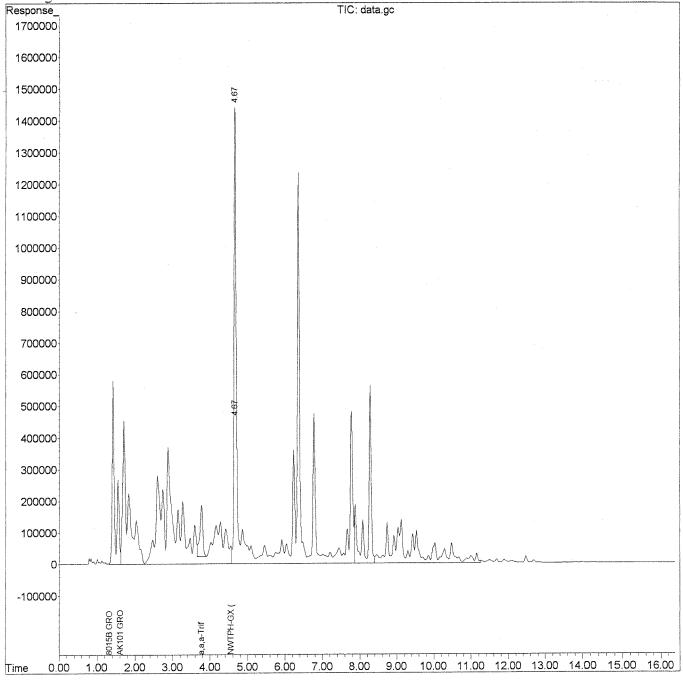
Quant Time: Feb 1 16:11 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



IntFile : RTEINT.P

Quant Time: Jan 31 17:20:20 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011

Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S a,a,a-Trifluorotoluene	3.77	946774	80.721 ug/L m	
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.61 1.31 4.57	88613377	10516.158 ug/L 10177.601 ug/L 10441.789 ug/L	

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Quantitation Report (Qeatt)

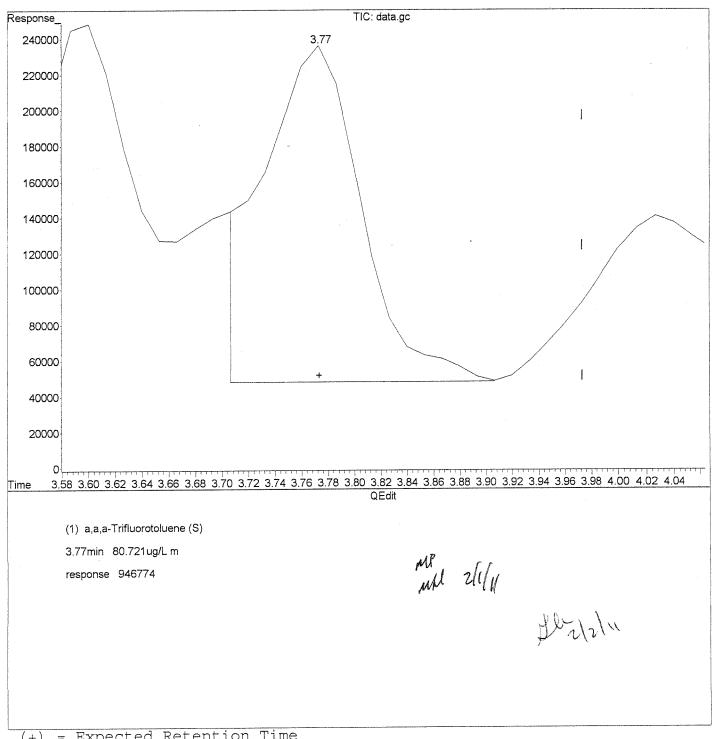
IntFile : RTEINT.P

Quant Time: Jan 31 17:20 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue Feb 01 10:52:18 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time 0131R012.D 013111GAS.M Tue Feb 01 16:15:21 2011

IntFile : RTEINT.P

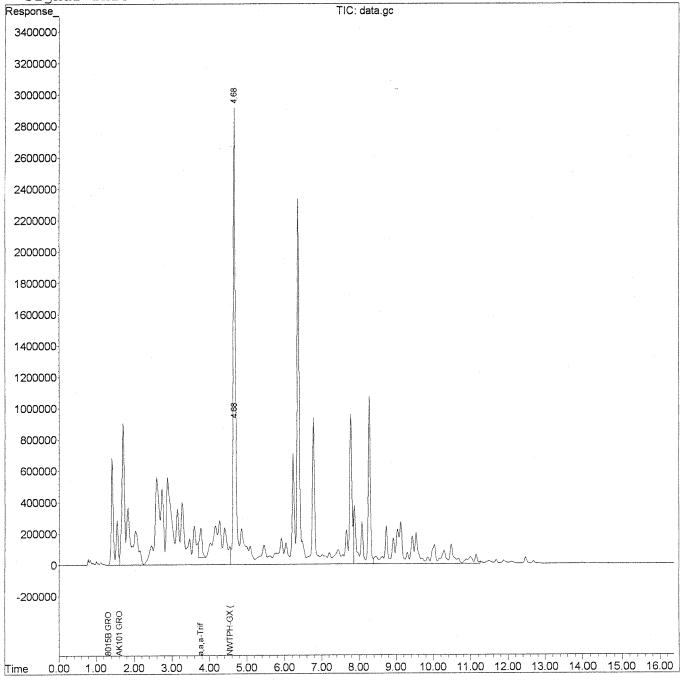
Quant Time: Feb 1 16:15 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL

Last Update : Mon Jan 31 14:57:50 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



Vial: 13 Data File : J:\GC06\DATA\013111.FID\0131R016.D Acq On : 31 Jan 2011 06:55 pm Operator: MH : GAS/SURR ICV HCV5-33D Inst : GC06 Sample Multiplr: 1.00 Misc

IntFile : RTEINT.P

Quant Time: Feb 02 11:57:47 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Wed Feb 02 11:57:23 2011

Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound	R.T.	Response	Conc Units
System Monitoring Compounds 1) S a,a,a-Trifluorotoluene 2) S 1,4-Difluorobenzene 3) S 4-Bromofluorobenzene	3.77 3.25 7.35	1227222	45.572 ug/L m 99.949 ug/L 102.570 ug/L
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.62 1.33 4.59		517.756 ug/L 528.818 ug/L 554.137 ug/L

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Quantitation Report (Qeatt)

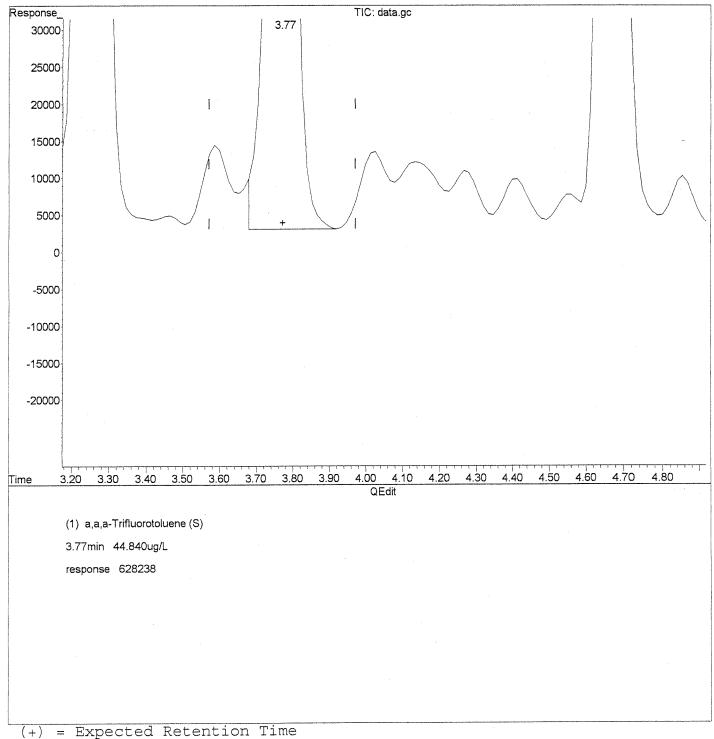
IntFile : RTEINT.P

Quant Time: Feb 2 11:57 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Wed Feb 02 11:57:23 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time 0131R016.D 013111GAS.M Wed Feb 02 11:58:00 2011

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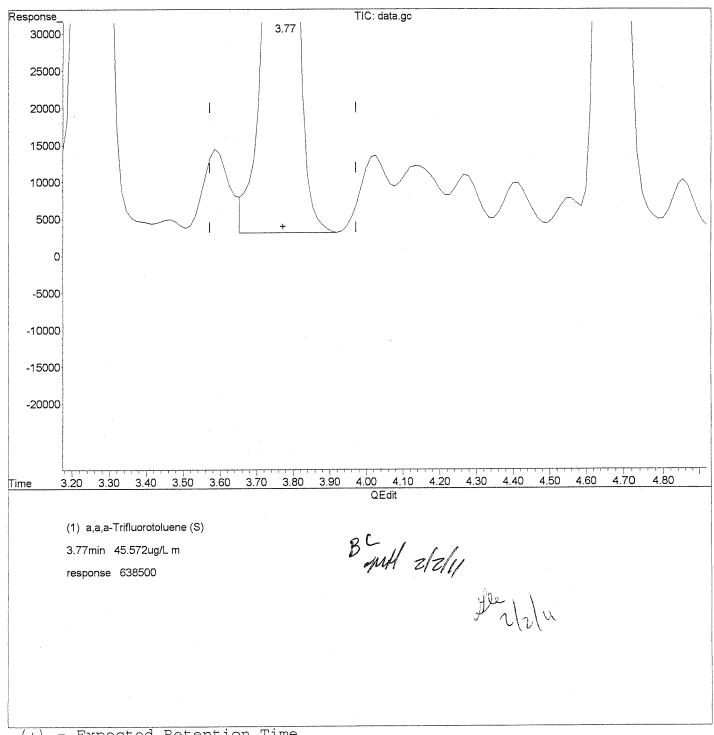
IntFile : RTEINT.P

Quant Time: Feb 2 11:57 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Wed Feb 02 11:57:23 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time 0131R016.D 013111GAS.M Wed Feb 02 11:58:20 2011

IntFile : RTEINT.P

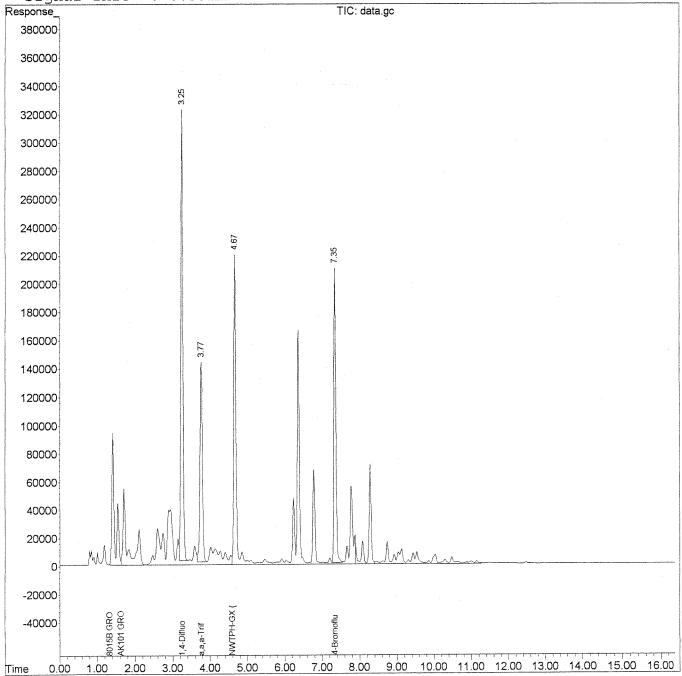
Quant Time: Feb 2 11:58 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Wed Feb 02 11:57:23 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH



COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client:

File ID:

TEC, Inc. - The Environmental Company,In

J:\GC06\DATA\053111.FID\0531R002.D

Project:

PacifiCorp Investigation

Service Request: K1104627

Date Analyzed: 05/31/2011

Continuing Calibration Verification Summary Gasoline Range Organics

Calibration Type: **Analysis Method:**

External Standard

NWTPH-Gx

Calibration Date: 01/31/2011

Calibration ID: CAL10275

Analysis Lot: KWG1104975

Units: ug/L

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH 1,4-Difluorobenzene	500 100	470 98	6100 12300	5750 12000	-6 -2	NA NA	$^{\pm20~\%}_{\pm20~\%}$	AverageRF AverageRF

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

Printed: 6/3/2011 11:31:43 $u:\Stealth\Crystal.rpt\Form7.rpt$

Form 7 - Organic 344

SuperSet Reference:

RR129470

Page

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Exception Report

J:\GC06\DATA\053111.FID\0531R002.D Data File:

Lab ID: KWG1104975-1

RunType: CCV Matrix: WATER Date Acquired: Date Quantitated: Batch ID: 05/31/2011 11:55 06/01/2011 09:25 KWG1104975 NWTPH-Gx

MJ202

Analysis Method: MethodJoinID:

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Average RSD	NA	NA	NA	X	2000
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	···
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	

Primary Review: $\frac{\mathbb{R}A \left(\frac{6}{2} \right) / 1}{1}$ Secondary Review: $\frac{1}{2} \frac{6}{2} \frac{6}{2} \frac{1}{1}$

Quantitation Report

WATER Tier: Matrix: Bottle ID: Prod Code: NWTPH-Gx NW_GAS Collect Date: Receive Date: 06/02/2011

Prep Lot: Report Group: Analysis Lot: KWG1104975 Analysis Method: NWTPH-Gx Prep Method: Prep Date: Prep Ref:

Quant Method: J:\GC06\METHODS\013111GAS.M Calibration ID: CAL10275

Title: Method ID: MJ202

MB Ref: Quant based on Method

Instrument: GC06 Data File: J:\GC06\DATA\053111.FID\0531R002.D Vial: Quant Date: 06/01/2011 09:25 Acqu Date: 05/31/2011 11:55

Dilution: Run Type: **CCV** 1.0 Soln Conc. Units: Lab ID: KWG1104975-1 ug/L

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec %Rec Limits	Rpt?
1,4-Difluorobenzene	3.31		1201970	97.89	50-150) NA
4-Bromofluorobenzene	7.41		697014	95.13	50-150) NA

Final Conc. Units: Target Compounds ug/L RT Solution Final

Parameter Name RTDev Response Conc Conc Q Rpt? 2874535 471.55 Gasoline Range Organics-NWTF 4.63

U: Undetected at or above MDL

Printed:

06/02/2011 10:55:12

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\053111.FID\0531R002.D Vial: 2 Acq On : 31 May 2011 11:55 am Sample : GAS/BFB HCV5-39D 6/01/11 Misc : Operator: RA Inst : GC06 Multiplr: 1.00 Misc

IntFile : RTEINT.P

Quant Time: May 31 12:26:53 2011 Quant Results File: 013111GAS.RES

Quant Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update: Tue May 31 12:24:31 2011 Response via: Initial Calibration

DataAcq Meth : TPH1.MTH

Compound	R.T.	Response	Conc Units	
System Monitoring Compound 1) S a,a,a-Trifluorotoluen 2) S 1,4-Difluorobenzene 3) S 4-Bromofluorobenzene		608503 1201970 697014	43.431 ug/L m 97.893 ug/L 95.132 ug/L	-
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4t 6) H NWTPH-GX (TolNaph.)	1.63 mb) 1.34 4.63		481.603 ug/L 484.886 ug/L 471.547 ug/L	

Quantitation Report (Qedit)

Data File : J:\GC06\DATA\053111.FID\0531R002.D Vial: 2 Acq On : 31 May 2011 11:55 am Sample : GAS/BFB HCV5-39D 6/01/11 Operator: RA Inst : GC06 Misc Multiplr: 1.00

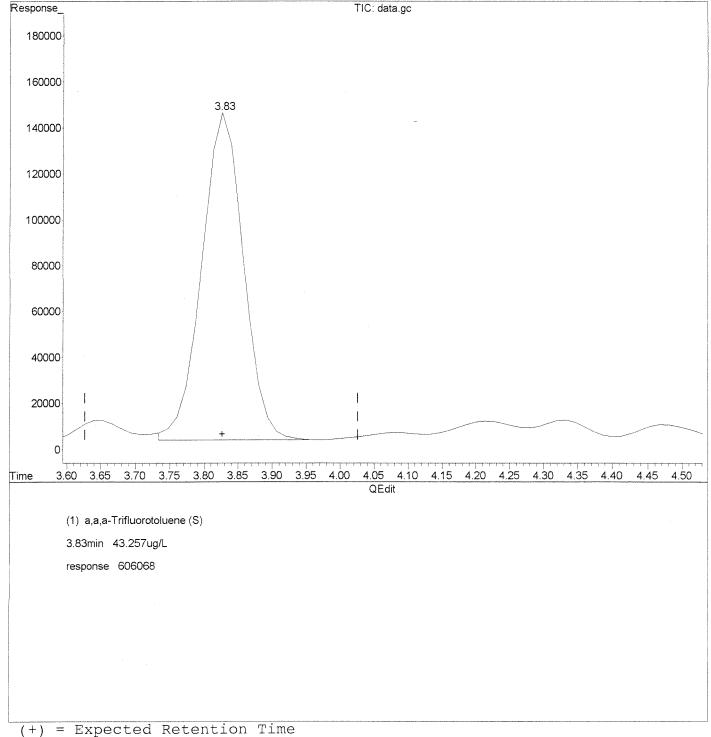
IntFile : RTEINT.P

Quant Time: May 31 12:26 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

: Gas CAL:10275 Title

Last Update : Tue May 31 12:24:31 2011 Response via: Multiple Level Calibration



Quantitation Report (Qedit)

Data File : J:\GC06\DATA\053111.FID\0531R002.D Vial: 2 Acq On : 31 May 2011 11:55 am Operator: RA : GAS/BFB HCV5-39D 6/01/11 : GC06 Sample Inst Misc Multiplr: 1.00

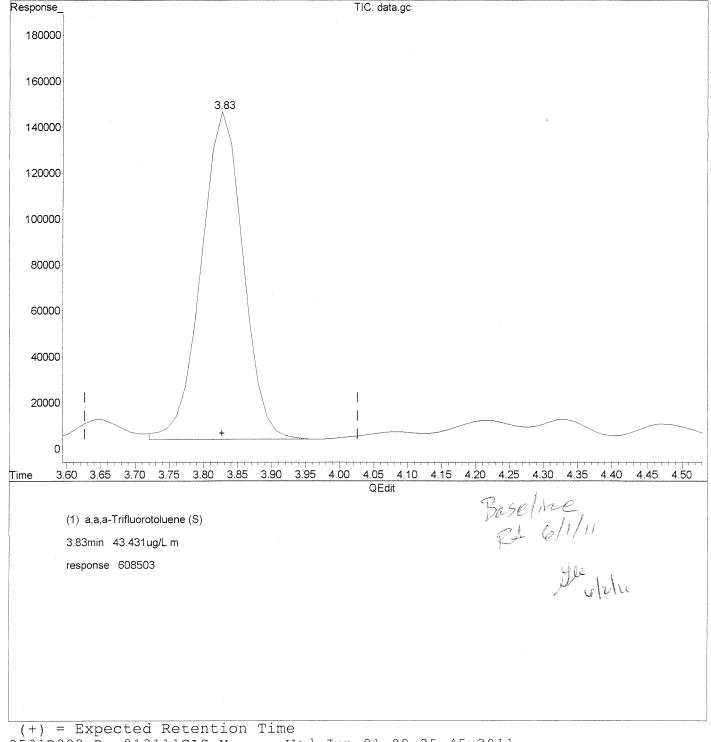
IntFile : RTEINT.P

Quant Time: May 31 12:26 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

: Gas CAL:10275 Title

Last Update : Tue May 31 12:24:31 2011 Response via: Multiple Level Calibration



IntFile : RTEINT.P

Quant Time: Jun 1 9:25 2011 Quant Results File: 013111GAS.RES

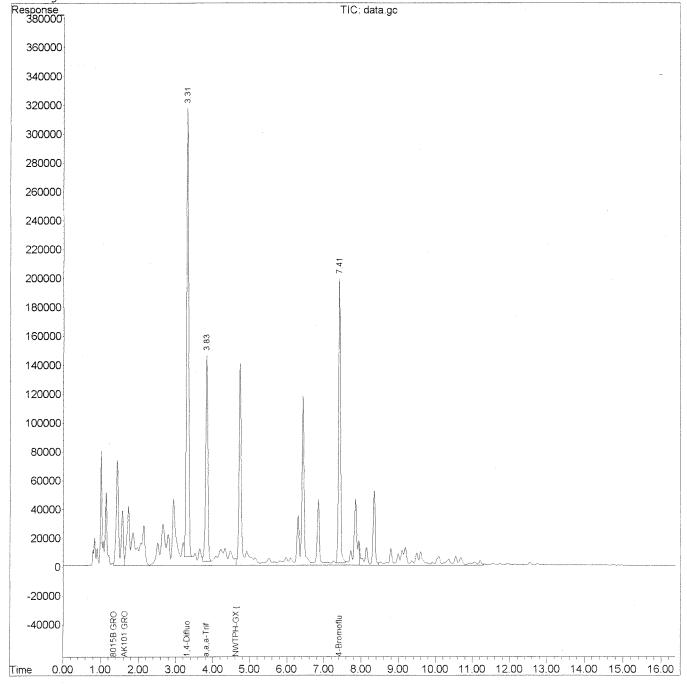
Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm



QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104627

Date Analyzed: 05/31/2011

Continuing Calibration Verification Summary Gasoline Range Organics

Calibration Type: **Analysis Method:**

External Standard

NWTPH-Gx

Calibration Date: 01/31/2011

Calibration ID: CAL10275

Analysis Lot: KWG1104975

Units: ug/L

File ID:

J:\GC06\DATA\053111.FID\0531R018.D

Column ID: DB-624

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Gasoline Range Organics-NWTPH	500	450	6100	5440	-11	NA	\pm 20 %	AverageRF
1,4-Difluorobenzene	100	96	12300	11800	-4	NA	$\pm~20~\%$	AverageRF

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

Printed: 6/3/2011 11:31:47 $u:\Stealth\Crystal.rpt\Form7.rpt$

Form 7 - Organic

SuperSet Reference:

351

RR129470

Page

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Exception Report

Data File:

J:\GC06\DATA\053111.FID\0531R018.D

Lab ID:

KWG1104975-2

RunType: Matrix:

CCV

WATER

Date Acquired:

Date Quantitated:

Batch ID:

05/31/2011 20:39 06/01/2011 09:33

KWG1104975 NWTPH-Gx

Analysis Method: MethodJoinID: MJ202

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Average RSD	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	

Primary Review: RA 6/2/11

Secondary Review: The 4/2/11

Quantitation Report

Bottle ID: Matrix: Collect Date: Receive Date: Prod Code: NWTPH-Gx NW_GAS

06/02/2011 Analysis Lot: KWG1104975 Prep Lot: Report Group:

Prep Method: Analysis Method: NWTPH-Gx Prep Date:

Quant Method: J:\GC06\METHODS\013111GAS.M Calibration ID: CAL10275

Title: Method ID: MJ202

MB Ref: Quant based on Method

Data File: J:\GC06\DATA\053111.FID\0531R018.D Instrument: GC06 Quant Date: Vial: 18 Acqu Date: 05/31/2011 20:39 06/01/2011 09:33

Run Type: CCV Dilution: 1.0 Soln Conc. Units: Lab ID: KWG1104975-2 ug/L

Surrogate Compounds

Prep Ref:

Parameter Name	RT	RT Dev	Response	Solution Conc		Rec nits	Rpt?
 1.4-Difluorobenzene	3.31	A MALE OF THE STAT	1180800	96.17	50-	-150 NA	
4-Bromofluorobenzene	7.41		687051	93.77	50-	-150 NA	

Final Conc. Units: ug/L Target Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Gasoline Range Organics-NWTF	4.63		2720106	446.21			

U: Undetected at or above MDL

Printed:

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria #: Acceptance criteria not applicable

?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

WATER

06/02/2011 10:56:49

Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\053111.FID\0531R018.D Vial: 18 Acq On : 31 May 2011 08:39 pm Sample : GAS/BFB HCV5-39D 6/01/11 Misc : Operator: RA Inst : GC06 Multiplr: 1.00 Misc

IntFile : RTEINT.P

Quant Time: Jun 01 09:22:51 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011

Response via: Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound	R.T.	Response	Conc Units
-System Monitoring Compounds 1) S a,a,a-Trifluorotoluene 2) S 1,4-Difluorobenzene 3) S 4-Bromofluorobenzene	3.83	598390	42.709 ug/L m
	3.31	1180800	96.168 ug/L
	7.41	687051	93.772 ug/L
Target Compounds 4) H AK101 GRO (C6-C10) 5) H 8015B GRO (2mp-1,2,4tmb) 6) H NWTPH-GX (TolNaph.)	1.63	3735372	456.373 ug/L
	1.34	4436861	458.187 ug/L
	4.63	2720106	446.214 ug/L

Quantitation Report (Qedit)

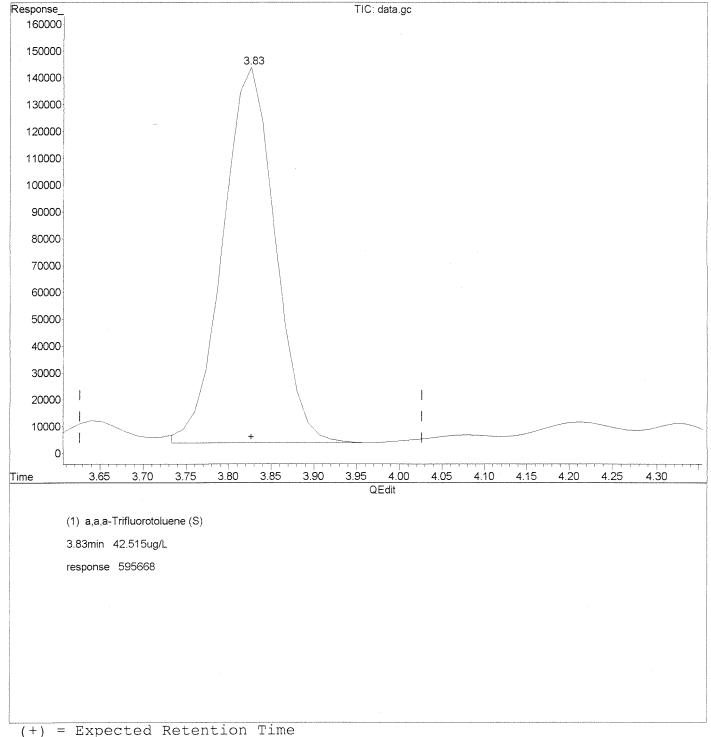
IntFile : RTEINT.P

Quant Time: Jun 1 9:22 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011
Response via : Multiple Level Calibration



Quantitation Report (Qedit)

Data File : J:\GC06\DATA\053111.FID\0531R018.D Vial: 18 Acq On : 31 May 2011 08:39 pm Operator: RA Sample : GAS/BFB HCV5-39D 6/01/11 Inst : GC06 Misc Multiplr: 1.00

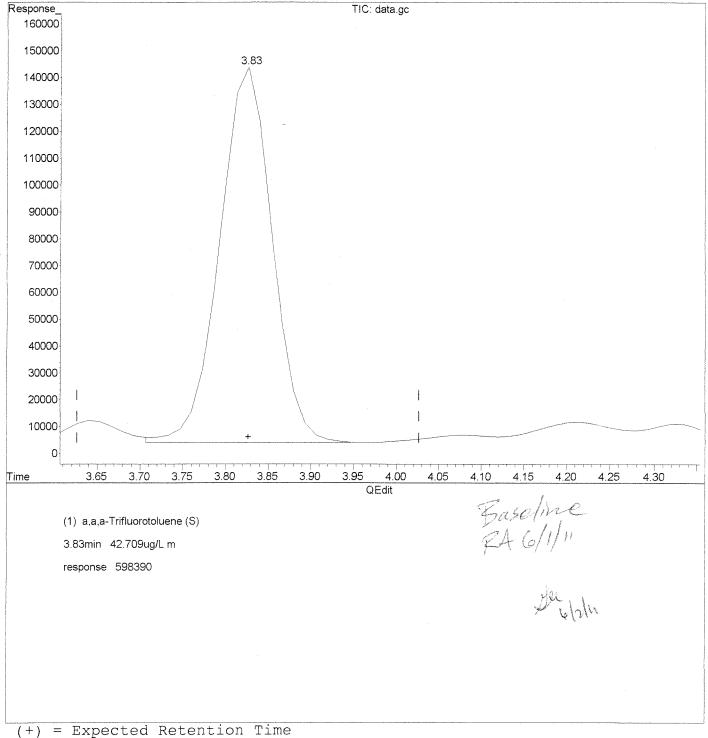
: RTEINT.P IntFile

Quant Time: Jun 1 9:22 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via: Multiple Level Calibration



0531R018.D 013111GAS.M

Wed Jun 01 09:34:00 2011

IntFile : RTEINT.P

Ouant Time: Jun 1 9:33 2011 Quant Results File: 013111GAS.RES

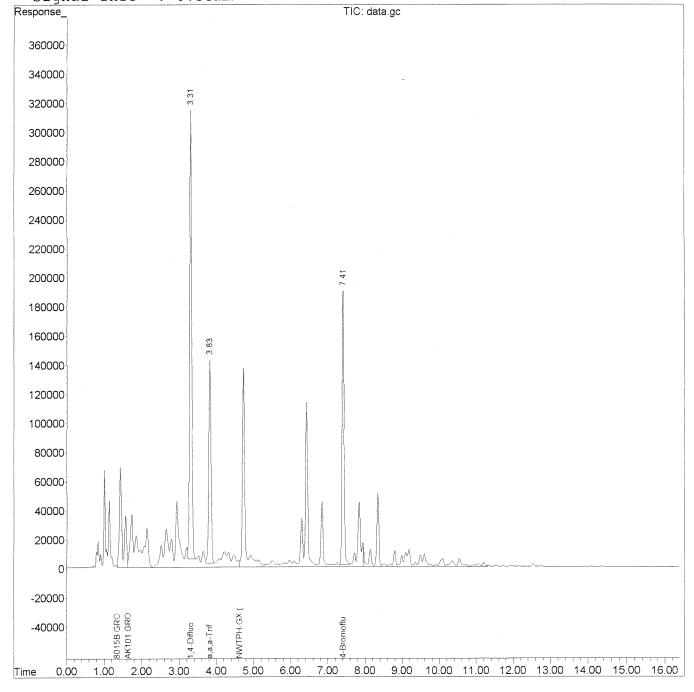
Quant Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm



Organic Analysis: <u>Gasoline Range Organics</u>

Validation Package

Sample Prep and Screen Data

Jun: 248145/248147/248246

Injection Log RA 6/2/11

Directory: J:\GC06\DATA\053111.FID

Line	Vial FileName	Multiplier	SampleName	Misc Info	Injected
1 2 3 4 5 6 7 8 9	1 0531R001.D 2 0531R002.D 3 0531R003.D 4 0531R004.D 5 0531R005.D 6 0531R006.D 7 0531R007.D 8 0531R008.D 9 0531R009.D	1. 1. 1. 1. 1. 1. 1. 1.	MARKER HCV5-39B 6/01/11 GAS/BFB HCV5-39D 6/01/11 IB 4689-13 4689-14 4627-1 4627-2 4704-4 IB		31 May 2011 11:2 31 May 2011 11:5 31 May 2011 13:2 31 May 2011 13:5 31 May 2011 14:2 31 May 2011 14:5 31 May 2011 15:2 31 May 2011 15:4 31 May 2011 16:1
10 11 12 13 14 15 16 17 18	10 0531R010.D 11 0531R011.D 12 0531R012.D 13 0531R013.D 14 0531R014.D 15 0531R015.D 16 0531R016.D 17 0531R017.D 18 0531R019.D	1. 1. 1. 1. 1. 1. 1. 1.	IB 4704-1 4704-2 4704-3 4704-3 DUP 4704-5 4627/4689/4704 LCS 4627/4689/4704 MB GAS/BFB HCV5-39D 6/01/11 IB		31 May 2011 16:4 31 May 2011 17:1 31 May 2011 17:4 31 May 2011 18:1 31 May 2011 18:4 31 May 2011 19:1 31 May 2011 19:4 31 May 2011 20:1 31 May 2011 20:3 31 May 2011 21:0
20 21 22 23 24 25 26 27 28 29	20 0531R020.D 21 0531R021.D 22 0531R022.D 23 0531R023.D 24 0531R024.D 25 0531R025.D 26 0531R026.D 27 0531R027.D 28 0531R029.D	1. 1. 1. 1. 1. 1. 1. 1.	4743-15 4743-15 DUP 4743-16 4743-14 IB 4786-17 IB IB 4786-15 4786-16		31 May 2011 21:3 31 May 2011 22:0 31 May 2011 22:3 31 May 2011 23:0 31 May 2011 23:3 01 Jun 2011 00:0 01 Jun 2011 00:5 01 Jun 2011 00:5 01 Jun 2011 01:2 01 Jun 2011 01:5
30 31 32 33 34 35 36 37 38 39	30 0531R030.D 31 0531R031.D 32 0531R032.D 33 0531R033.D 34 0531R034.D 35 0531R035.D 36 0531R036.D 37 0531R037.D 38 0531R038.D 39 0531R039.D	1. 1. 1. 1. 1. 1. 1. 1.	4786-18 4743/4786 LCS 4743/4786 MB GAS/BFB HCV5-39D 6/01/11 IB 4786-1ML 50X 4786-3ML 50X 4786-4ML 50X 4786-7ML 50X 4786-10ML 50X	Hlelalu	01 Jun 2011 02:26 01 Jun 2011 02:56 01 Jun 2011 03:26 01 Jun 2011 03:55 01 Jun 2011 04:26 01 Jun 2011 05:16 01 Jun 2011 05:46 01 Jun 2011 06:16 01 Jun 2011 06:46
40 41 42 43 44 45 46 47 48 49	40 0531R040.D 41 0531R041.D 42 0531R042.D 43 0531R043.D 44 0531R044.D 45 0531R045.D 46 0531R046.D 47 0531R047.D 48 0531R048.D 49 0531R049.D	1. 1. 1. 1. 1. 1. 1. 1. 1.	4786-11ML 50X 4786-12ML 50X 4786-13ML 50X 4786-14ML 50X 4786-14ML DUP 50X 4786 LCS 4786 MB GAS/BFB HCV5-39D 6/01/11 IB 4743-1ML 50X		01 Jun 2011 07:1! 01 Jun 2011 07:4: 01 Jun 2011 08:1: 01 Jun 2011 08:4: 01 Jun 2011 09:1! 01 Jun 2011 10:0! 01 Jun 2011 10:3: 01 Jun 2011 11:0! 01 Jun 2011 11:0! 01 Jun 2011 11:3:
50 51 52 53 54 55	50 0531R050.D 51 0531R051.D 1 0531R052.D 2 0531R053.D 3 0531R054.D 4 0531R055.D	1. 1. 1. 1.	4743-4ML 50X 4743-7ML 50X 4743-10ML 50X 4743-11ML 50X 4743-11ML DUP 50X 4743 LCS		01 Jun 2011 12:0: 01 Jun 2011 12:3: 01 Jun 2011 13:0: 01 Jun 2011 13:3: 01 Jun 2011 13:5! 01 Jun 2011 14:2!

Injection Log

Directory:

J:\GC06\DATA\053111.FID

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
56	5	0531R056.D	1.	4743 MB		01 Jun 2011 14:5
57	6	0531R057.D	1.	GAS/BFB HCV5-39D 6/01/11		01 Jun 2011 15:20
58	7	0531R058.D	1.	IB		01 Jun 2011 15:5!

Quantitation Report (Qedit)

Data File: J:\GC06\DATA\052611.FID\0526R001.D
Acq On: 26 May 2011 09:33 am

Vial: 1
Operator: GR
Inst : GC06

RA 6/2/11

Sample Misc

: MARKER HCV5-38R 5/27/11

Multiplr: 1.00

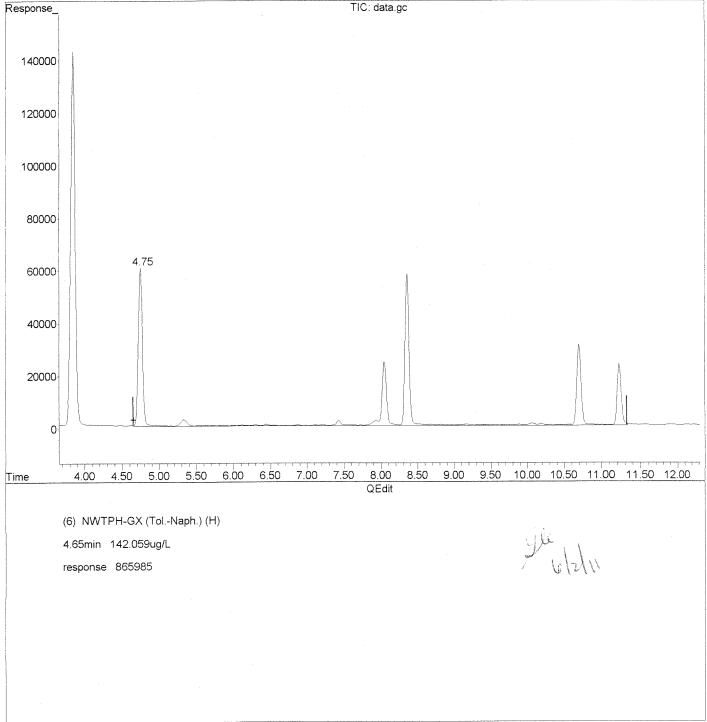
IntFile : RTEINT.P

Quant Time: May 26 14:14 2011 Quant Results File: 013111GAS.RES

Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011
Response via : Multiple Level Calibration



(+) = Expected Retention Time

0526R001.D 013111GAS.M Thu Jun 02 11:57:07 2011

Exception Report

Data File:

J:\GC06\DATA\053111.FID\0531R003.D

Lab ID:

KWG1104975-6

RunType: Matrix:

ΙB

WATER

Date Acquired:

Date Quantitated:

Batch ID:

Analysis Method: MethodJoinID:

05/31/2011 13:24 06/01/2011 09:27

KWG1104975 NWTPH-Gx MJ202

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Average RSD	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	

Secondary Review:

Printed: 06/02/2011 11:25:51 $u:\Stealth\Crystal.rpt\except2.rpt$

Page 1 of 1

Quantitation Report

Tier: Bottle ID: Matrix: WATER Prod Code: Collect Date: Receive Date: 06/02/2011 NWTPH-Gx NW_GAS

Analysis Lot: Prep Lot: Report Group: KWG1104975 Prep Method: Analysis Method: NWTPH-Gx Prep Date: Prep Ref:

Calibration ID: Quant Method: J:\GC06\METHODS\013111GAS.M CAL10275

Title: Method ID: MJ202

MB Ref: Quant based on Method

Data File: Instrument: GC06 J:\GC06\DATA\053111.FID\0531R003.D Acqu Date: 05/31/2011 13:24 Quant Date: 06/01/2011 09:27 Vial:

Run Type: Dilution: 1.0 Lab ID: Soln Conc. Units: KWG1104975-6 ug/L

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
1,4-Difluorobenzene	3.31		1150110	93.67		50-150 NA	4
4-Bromofluorobenzene			0 d			50-150 NA	A.

Final Conc. Units: ug/L Target Compounds RT Final Solution Parameter Name RT Dev Conc Response Conc Q Rpt?

89914 14.75 Gasoline Range Organics-NWTF 4.63

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed

d: Compound manually deleted NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable

?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report

Bottle ID: Tier: Matrix: WATER Prod Code: NWTPH-Gx NW_GAS Collect Date: Receive Date: 06/02/2011 Prep Lot: Report Group: Analysis Lot: KWG1104975 Analysis Method: NWTPH-Gx Prep Method: Prep Date: Prep Ref: J:\GC06\METHODS\013111GAS.M Quant Method: Calibration ID: CAL10275 Title: Method ID: MJ203 MB Ref: Quant based on Method

Data File: Acqu Date:

Lab ID:

J:\GC06\DATA\053111.FID\0531R003.D

Run Type:

05/31/2011 13:24

KWG1104975-6

Quant Date:

06/01/2011 09:27

Instrument:

GC06

Vial: Dilution:

1.0

Soln Conc. Units:

ug/L

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
4-Bromofluorobenzene			0 d			50-150 NA	

Target Compounds

Final Conc. Units:

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Gasoline Range Organics-NWTF	4.63		89914	14.75			

U: Undetected at or above MDL

N: Presumptive evidence of compound

06/02/2011 10:55:29

- D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis
- *: Result fails acceptance criteria #: Acceptance criteria not applicable
 ?: Insufficient information to determine acceptance
 - e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\053111.FID\0531R003.D Vial: 3 Acq On : 31 May 2011 01:24 pm Sample : IB Operator: RA Inst : GC06 Misc Multiplr: 1.00

IntFile : RTEINT.P

Quant Time: Jun 01 09:22:46 2011 Quant Results File: 013111GAS.RES

Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

Compound		R.T.	Response	Conc Uni	ts
System Monitori 1) S a,a,a-Trif 2) S 1,4-Difluo	luorotoluene	3.83	600667 1150110	42.872 ug 93.669 ug	
Target Compound 4) H AK101 GRO 5) H 8015B GRO 6) H NWTPH-GX ((C6-C10) (2mp-1,2,4tmb)	1.63 1.34 4.63	66544 78054 89914	8.130 ug 8.060 ug 14.750 ug	/L

IntFile : RTEINT.P

Quant Time: Jun 1 9:27 2011 Quant Results File: 013111GAS.RES

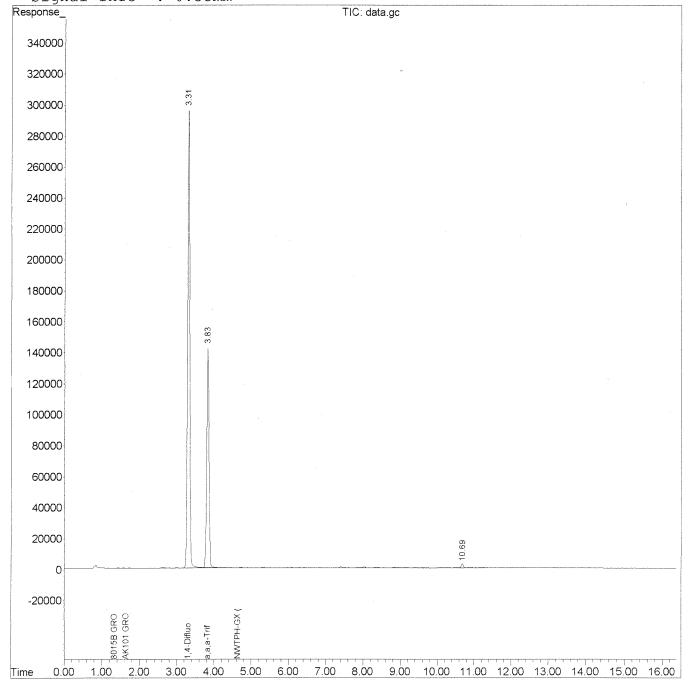
Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm



Exception Report

Data File:

J:\GC06\DATA\053111.FID\0531R019.D

Lab ID:

KWG1104975-7

RunType:

ΙB

WATER Matrix:

Date Acquired: Date Quantitated:

05/31/2011 21:08 06/01/2011 09:34

Batch ID:

Analysis Method: MethodJoinID:

KWG1104975 NWTPH-Gx MJ202

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Average RSD	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	

Primary Review: RA 6/2/11
Secondary Review: La 4/2/4

Quantitation Report

Bottle ID: Tier: Matrix: WATER **Prod Code:** Collect Date: Receive Date: NWTPH-Gx NW_GAS 06/02/2011

Analysis Lot: KWG1104975 Prep Lot: Report Group: Prep Method: Analysis Method: NWTPH-Gx Prep Date: Prep Ref:

Quant Method: J:\GC06\METHODS\013111GAS.M Calibration ID: CAL10275

Title: Method ID: MJ202

MB Ref: Quant based on Method

Data File: J:\GC06\DATA\053111.FID\0531R019.D Instrument: GC06 Quant Date: Vial: 19 Acqu Date: 05/31/2011 21:08 06/01/2011 09:34 Run Type: Dilution: 1.0

Lab ID: KWG1104975-7 Soln Conc. Units: ug/L

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
1,4-Difluorobenzene	3.31		1113338	90.67		50-150 NA	
4-Bromofluorobenzene			Od			50-150 NA	

Final Conc. Units: Target Compounds ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Gasoline Range Organics NV	VTF 4.63		49120	8.06			

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

06/02/2011 10:57:01

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Printed:

Quantitation Report

Bottle ID: Tier: Matrix: WATER Collect Date: Prod Code: Receive Date: NWTPH-Gx NW_GAS 06/02/2011 KWG1104975 **Analysis Lot:** Prep Lot: Report Group: Prep Method: Analysis Method: NWTPH-Gx Prep Date: Prep Ref:

Quant Method:

J:\GC06\METHODS\013111GAS.M

Title:

MB Ref:

Data File: Acqu Date:

05/31/2011 21:08

Run Type: Lab ID:

KWG1104975-7

J:\GC06\DATA\053111.FID\0531R019.D

Quant Date:

06/01/2011 09:34

Instrument:

Method ID:

Calibration ID:

GC06 19

CAL10275

MJ203

Vial: Dilution:

Quant based on Method

1.0

Soln Conc. Units:

ug/L

Surrogate Compounds

RT Solution %Rec RTParameter Name Dev Response Conc %Rec Limits Rpt? 4-Bromofluorobenzene $0\mathbf{d}$ 50-150 NA

Target Compounds

Final Conc. Units:

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Gasoline Range Organics-N	JWTF 4.63		49120	8.06			

Printed:

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

06/02/2011 10:57:05

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

*: Result fails acceptance criteria #: Acceptance criteria not applicable

?: Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

Quantitation Report (QT Reviewed)

Data File : J:\GC06\DATA\053111.FID\0531R019.D Vial: 19 Acq On : 31 May 2011 09:08 pm Sample : IB Operator: RA Inst : GC06 Misc Multiplr: 1.00 :

IntFile : RTEINT.P

Quant Time: Jun 01 09:22:51 2011 Quant Results File: 013111GAS.RES

Quant Method : J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Initial Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm

	Compound	R.T.	Response	Conc Units	
Syste	em Monitoring Compounds				
	a,a,a-Trifluorotoluene 1,4-Difluorobenzene	3.83 3.31	589022 1113338	42.041 ug/L 90.674 ug/L	
Targe	et Compounds				
	AK101 GRO (C6-C10)	1.63	44686	5.460 ug/L	
	8015B GRO (2mp-1,2,4tmb) NWTPH-GX (TolNaph.)	1.34 4.63	51312 49120	5.299 ug/L 8.058 ug/L	
0) 11	IMITELI-GY (101 Maph.)	4.00	49120	0.000 ug/b	

IntFile : RTEINT.P

Quant Time: Jun 1 9:34 2011 Quant Results File: 013111GAS.RES

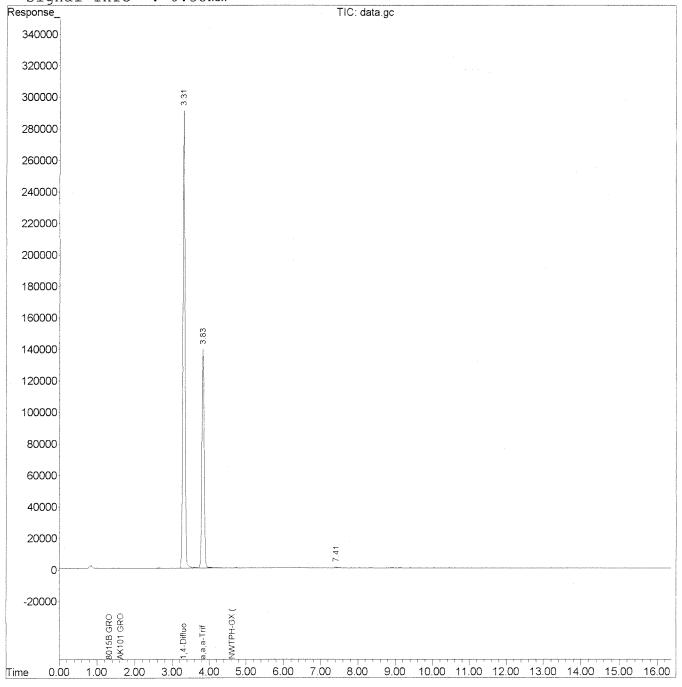
Quant Method: J:\GC06\METHODS\013111GAS.M (RTE Integrator)

Title : Gas CAL:10275

Last Update : Tue May 31 12:24:31 2011 Response via : Multiple Level Calibration

DataAcq Meth : TPH1.MTH

Volume Inj. : 10mL Signal Phase : DB-624 Signal Info : 0.53mm





June 13, 2011

Analytical Report for Service Request No: K1104656

Brian Rupert The Environmental Company,Inc. 1450 114th Ave SE Suite 220 Bellevue, WA 98004

RE: PacifiCorp Investigation

Dear Brian:

Enclosed are the results of the samples submitted to our laboratory on May 25, 2011. For your reference, these analyses have been assigned our service request number K1104656.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. 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 3364. You may also contact me via Email at HHolmes@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Howard Holmes

Project Chemist

HH/ln

Page 1 of 1941

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 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 as defined by the DOD or NELAC standards.
- The result is an estimate amount because the value exceeded the instrument calibration range.
- I The result is an estimated value
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

 DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- O See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- 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 analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.

 **DOD-QSM 4.1 definition:* Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- 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 or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- The correlation coefficient for the MSA is less than 0.995.
- O See case narrative. One or more quality control criteria was outside the limits.

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 as defined by the DOD or NELAC standards.
- 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.
- The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- 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.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
 - DOD-QSM 4.1 definition: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

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.

Columbia Analytical Services, Inc. Kelso, WA State Certifications, Accreditations, and Licenses

- 1	
Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	







Case Narrative

Client:

TEC, Inc

Project:

Sample Matrix:

PacifiCorp

Soil

Service Request No.:

K1104656

Date Received:

5/25/11

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 IV 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

Three soil samples were received for analysis at Columbia Analytical Services on 5/25/11. 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.

Diesel Range Organics by NWTPH-Dx

Sample Notes and Discussion:

The chromatographic fingerprint of sample SG1-052511 appeared to be consistent with that of the mineral oil reference standard (PC-Min-052411) provided by the client.

Responses for Diesel and Residual Range Organics in samples SG2-052511 and SG3-052511 were less than the Method Reporting Limit (MRL).

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

Approved by

Date 6-13-1

Chain of Custody



CHAIN OF CUSTODY

SR# K1104654

coc set / of /
Page 1 OF 1 COC#

Printed Name Firm	Firm	Printed Name	Firm	Name	Printed Name	Frinted Name Firm
Signature Date/Time	Date/Time	Signature	Daté/ Jinge S			let.
Received By:	Relinquished By:		Received By:/ 5/25/// //	E. "	1050	Relinquish
	(check box if applicable)	Sample Shipment contains USDA regulated soil samples (check box if applicable)	Sample Shipment cont		Requested Report Date	
				s)	Standard (10-15 working days) Provide Fax Results	V. EDD
				5 (11)	24 hr. 48 h 5 Day	
CA WI Northwest Other (Circle On	*Indicate State Hydrocarbon Procedure: AK		Special Instructions/Comments:		Turnaround Requirements	Т
Pb Mg Mn Mo Ni K Ag Na Se Sr Ti Sn V Zn Hg	Co Cr Cu Fe	d As Sb Ba Be B Ca Cd	Dissolved Metals. Al			II. Report Dup., MS, MSD as
Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg	Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na	As Sb Ba Be B Ca Cd Co	Total Metals: Al		Bill To:	Blank, Surrogate, as Bi
	Circle which metals are to be analyzed	Ω		tion	Invoice Information P.O.#	ts
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				~ ×	2 0550	2511 5/25/11
		Remarks	NW		Time LabID Matrix	Sample ID Date
			TPH-C	ГРН-С	1041-492(902)	Sampler Signature 7
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			\W		20186	Seattle, wo
			GAS	f Con	Ave Eust	Comany Address 2825 Eusthale
						- 1
					4	Project Manager Brian Dupert
				12		
				4D	Investigation	Project Name Pacificorp In
- 000#	- aye	1317 South 13th Ave, Kelso, WA 98626 360.577.7222 800.695.7222 360.636.1068 (fax)).577.7222 800.695.7	98626 360	13th Ave, Kelso, WA	1317 South

Columbia Analytical Services, Inc. Cooler Receipt and Preservation Form Client / Project: Service Request K11 Received: Opened: By: Unloaded: Samples were received via? Mail Fed Ex **UPS** DHLPDXCourier Hand Delivered Samples were received in: (circle) Cooler Box Envelope Other NAWere custody seals on coolers? NA Y N If yes, how many and where? If present, were custody seals intact? Y N Y If present, were they signed and dated? N Cooler/COC Cooler Temp Thermometer Temp °C Blank °C Tracking Number NA ID . Filed Packing material used. Inserts Baggies (Wet Ice) Bubble Wrap Gel Packs Sleeves Other Were custody papers properly filled out (ink, signed, etc.)? NA N Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA N 10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA N 11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2*. NA N Were appropriate bottles/containers and volumes received for the tests indicated? NA N 13. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below N Were VOA vials received without headspace? Indicate in the table below. N 15. Was C12/Res negative? N Sample ID on Bottle Sample ID on COC Identified by: **Bottle Count** Out of Head-Volume Reagent Lot Temp space Broke Sample ID **Bottle Type** Reagent added Number Initials Time Notes, Discrepancies, & Resolutions:

Total Solids

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investiga

Sample Matrix:

Soil

Total Solids

Prep Method:

NONE

Analysis Method:

160.3M

Units: PERCENT

Service Request: K1104656

Basis: Wet

Test Notes:

		Date Collected	Date Received	Date Analyzed	Dogult	Result Notes
Sample Name	Lab Code	Confected	Received	Analyzeu	Result	110163
SG1-052511	K1104656-001	05/25/2011	05/25/2011	05/27/2011	94.2	
SG2-052511	K1104656-002	05/25/2011	05/25/2011	05/27/2011	94.8	
SG3-052511	K1104656-003	05/25/2011	05/25/2011	05/27/2011	94.7	

Page

1 of 1

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11

QA/QC Report

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investiga

Sample Matrix:

Soil

Service Request: K1104656 **Date Collected:** 05/25/2011

Date Received: 05/25/2011 Date Analyzed: 05/27/2011

Duplicate Sample Summary Total Solids

Prep Method:

Analysis Method:

NONE

Units: PERCENT

Basis: Wet

Test Notes:

Sample Name

160.3M

Lab Code

Result 94.2

Sample

Result

Duplicate

Sample

Average

Percent Difference

Relative

Result Notes

<1

SG1-052511

K1104656-001

94.8

94.5

Printed: 06/01/2011 09:00 $u:\Stealth\Crystal.rpt\Solids.rpt$

SuperSet Reference: W1104842

12

EPA Method 160.3 - Total Solids

Analyst: Group ID: ABradbur KWG1104842 Oven TempStart: Run #247976 Reviewed By:

Oven TempEnd: 105 DEG C 105 DEG C

Date Completed: Date Acquired:

05/31/2011 00:00 05/27/2011 00:00

Date Reviewed:

1 2 2	K1104415-001	BAS-SED-01-2011	SEDIMENT	1.32g	12 150	5 74¢	36.2		
3 2				(a	ä			
اند	K1104415-002	BAS-SED-02-2011	SEDIMENT	1.32g	12.33g	8.42g	64.5		
	K1104415-004	BAS-SED-03-2011	SEDIMEN'I	1.31g	13.61g	7.48g	50.2		
4	K1104415-005	BAS-SED-04-2011	SEDIMENT	·1.32g	12.00g	5.98g	43.6		
5	K1104415-007	BAS-SED-05-2011	SEDIMENT	1.32g	12.23g	6.95g	51.6	And a final filling date of st	
6	K1104415-008	BAS-SED-27-2011	SEDIMENT	1.32g	12.26g	6.67g	48.9		And the second s
7	K1104435-001	Ovenell	SOIL	1.31g	12.50g	9.45g	72.7	The second secon	
8	K1104435-002	Hansen	SOIL	1.31g	12.51g	11.10g	87.4	A CANADA	The state of the s
9	K1104494-001	BAS-SED-12-2011	SEDIMENT	1.32g	12.40g	7.46g	55.4	· ·	
10	K1104494-003	BAS-SED-13-2011	SEDIMENT	1.32g	12.28g	7.61g	57.4		
	K1104494-004	BAS-SED-14-2011	SEDIMENT	1.32g	12.22g	7.71g	58.6		And the state of t
12	K1104494-005	BAS-SED-21-2011	SEDIMENT	1.32g	14.34g	7.99g	51.2	And the second s	
13	K1104494-007	BAS-SED-23-2011	SEDIMENT	1.32g	13.02g	7.80g	55.4		
14	K1104494-008	BAS-SED-25-2011	SEDIMENT	1.32g	13.07g	7.33g	51.1		
15	K1104494-010	BAS-SED-28-2011	SEDIMENT	1.32g	12.04g	6.99g	52.9		
16	K1104494-011	BAS-SED-29-2011	SEDIMENT	1.31g	13.49g	8.26g	57.1		
17	K1104569-001	BAS-SED-06-2011	SEDIMENT	1.32g	12.31g	7.03g	52.0		
18	K1104569-003	BAS-SED-07-2011	SEDIMENT	1.33g	13.02g	7.34g	51.4		
19	K1104569-004	BAS-SED-08-2011	SEDIMENT	1.32g	15.87g	11.70g	71.3		
20	K1104569-006	BAS-SED-16-2011	SEDIMENT	1.32g	12.75g	7.36g	52.8		
21	K1104569-008	BAS-SED-20-2011	SEDIMENT	1.32g	13.28g	7.31g	50.1		
22	K1104569-010	BAS-SED-09-2011	SEDIMENT	1.32g	13.22g	8.47g	60.1		
23	K1104569-011	BAS-SED-10-2011	SEDIMENT	1.33g	13.65g	7.90g	53.3		
24	K1104569-012	BAS-SED-11-2011	SEDIMEN1	1.32g	12.63g	7.38g	53.6		
25	K1104569-013	BAS-SED-15-2011	SEDIMENT	1.32g	12.27g	6.71g	49.2		
26	K1104569-014	BAS-SED-17-2011	SEDIMENT	1.33g	11.96g	6.93g	52.7		

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297976

ABradbur

Group ID:

KWG1104842

Analyst:

Reviewed By:

Dat	Date Acquired: Date Completed:	05/27/2011 00:00	Oven TempStart: Oven TempEnd:	pStart: pEnd:	105 DEG C			Date Reviewed:	6/1	I W
Γ										
#	Lab Code	Client ID	Matrix	Tare	Tare+Wet	Tare+Dry	% Solids	QC Ref Sample	Comments	
27	K1104569-015	BAS-SED-18-2011	SEDIMENT	1.32g	14.20g	7.77g	50.1			
28	K1104569-016	BAS-SED-19-2011	SEDIMENT	1.32g	12.50g	7.22g	52.8			Management of the Control of the Con
29	K1104569-017	BAS-SED-30-2011	SEDIMENT	1.32g	12.44g	7.35g	54.2	The state of the s		
30	K1104605-001	UNIPDX-SoilComp-052011	SOIL	1.32g	12.86g	10.01g	75.3			OWNERS OF THE PROPERTY OF THE
31	K1104619-001	BAS-SED-22-2011	SEDIMENT	1.31g	12.57g	6.97g	50.3			
32	K1104619-002	BAS-SED-24-2011	SEDIMENT	1.31g	13.67g	7.68g	51.5		ALL THE REAL PROPERTY OF THE P	
33	K1104619-003	BAS-SED-26-2011	SEDIMENT	1.31g	12.24g	6.77g	50.0			
34	K1104656-001	SG1-052511	SOIL	1.30g	12.94g	12.27g	94.2			Alabamympadamymin
35	K1104656-002	SG2-052511	SOIL	1.31g	12.95g	12.34g	94.8		THE REAL PROPERTY AND ADDRESS OF THE PERSON NAMED AND ADDRESS	
36	K1104656-003	SG3-052511	SOIL	1.32g	12.56g	11.96g	94.7			The state of the s
37	KWG1104842-1	Duplicate Client Sample	SEDIMENT	1.31g	12.44g	5.28g	35.7	K1104415-001	X = 36.0	RPD=)
38	KWG1104842-2	Duplicate Client Sample	SEDIMENT	1.31g	12.14g	7.35g	55.8	K1104494-001	X = 55.6	RPPE
39	KWG1104842-4	Duplicate Client Sample	SEDIMENT	1.32g	13.13g	6.96g	47.8	K1104569-001	x = 49.9	RPD = 8
40	KWG1104842-5	Duplicate Client Sample	SOIL	1.32g	12.13g	9.42g	74.9	K1104605-001	X = 75.1	RPD= 41
41	KWG1104842-6	Duplicate Client Sample	SEDIMENT	1.32g	12.31g	6.82g	50.0	K1104619-001	X150.7	RPD = c1
42	KWG1104842-7	Duplicate Client Sample	SOIL	1.31g	12.40g	11.82g	94.8	K1104656-001	x=94.5	RPD = <
43	KWG1104842-8	Duplicate Client Sample	SEDIMENT	1.32g	12.63g	7.51g	54.7	K1104569-017	X=54.5	RPD = c/

Diesel and Residual Range Organics

Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u>

Summary Package

Sample and QC Results

Client: Project: TEC, Inc. - The Environmental Company,In

PacifiCorp Investigation

Service Request:

K1104656

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

		Date	Date
Sample Name	Lab Code	Collected	Received
SG1-052511	K1104656-001	05/25/2011	05/25/2011
SG2-052511	K1104656-002	05/25/2011	05/25/2011
SG3-052511	K1104656-003	05/25/2011	05/25/2011
SG1-052511	KWG1105150-1	05/25/2011	05/25/2011

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:

Name:

Title:

Date:

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: 05/25/2011

Date Received: 05/25/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SG1-052511

Lab Code:

K1104656-001

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Units: mg/Kg

Basis: Dry

Level: Low

Result Q	MRL		Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
160 Y	27		1	06/06/11	06/08/11	KWG1105150	
ND U	110		1	06/06/11	06/08/11	KWG1105150	
	160 Y	160 Y 27	160 Y 27	Result Q MRL Factor 160 Y 27 1	Result Q MRL Factor Extracted 160 Y 27 1 06/06/11	Result Q MRL Factor Extracted Analyzed 160 Y 27 1 06/06/11 06/08/11	Result Q MRL Factor Extracted Analyzed Lot 160 Y 27 1 06/06/11 06/08/11 KWG1105150

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	97	50-150	06/08/11	Acceptable	
n-Triacontane	. 88	50-150	06/08/11	Acceptable	

Comments:

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Merged

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: 05/25/2011 **Date Received:** 05/25/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SG3-052511

Lab Code:

K1104656-003

EPA 3550B

Extraction Method: Analysis Method:

NWTPH-Dx

Units: mg/Kg

Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	27	1	06/06/11	06/09/11	KWG1105150	
Residual Range Organics (RRO)	ND U	110	1	06/06/11	06/09/11	KWG1105150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	94	50-150	06/09/11	Acceptable	
n-Triacontane	87	50-150	06/09/11	Acceptable	

Comments:

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Form 1A - Organic

Page 1 of 1

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: 05/25/2011 **Date Received:** 05/25/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SG2-052511

Lab Code:

K1104656-002

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Units: mg/Kg
Basis: Dry

Level: Low

A V A N	D 11 0	MON	Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	Factor	Extracted	Analyzed	Lot	Note
Diesel Range Organics (DRO)	ND U	27	1	06/06/11	06/09/11	KWG1105150	
Residual Range Organics (RRO)	ND U	110	1	06/06/11	06/09/11	KWG1105150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	97	50-150	06/09/11	Acceptable Acceptable
n-Triacontane	88	50-150	06/09/11	

Comments:

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Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: NA Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Method Blank

Lab Code:

KWG1105150-3

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Units: mg/Kg Basis: Dry

Level: Low

			Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	Factor	Extracted	Analyzed	Lot	Note
Diesel Range Organics (DRO)	ND U	25	1	06/06/11	06/08/11	KWG1105150	
Residual Range Organics (RRO)	ND U	99	1	06/06/11	06/08/11	KWG1105150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	98	50-150	06/08/11	Acceptable	
n-Triacontane	93	50-150	06/08/11	Acceptable	

Comments:

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QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Surrogate Recovery Summary

Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Service Request: K1104656

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2
SG1-052511	K1104656-001	97	88
SG2-052511	K1104656-002	97	88
SG3-052511	K1104656-003	94	. 87
Batch QC	K1104689-001	96	85 .
SG1-052511DUP	KWG1105150-1	98	88
Batch QCDUP	KWG1105150-4	103	92
Method Blank	KWG1105150-3	98	93
Lab Control Sample	KWG1105150-2	104	100

Surrogate Recovery Control Limits (%)

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

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

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Extracted: 06/06/2011 **Date Analyzed:** 06/09/2011

Duplicate Sample Summary

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SG1-052511

Lab Code:

K1104656-001

Units: mg/Kg Basis: Dry

Extraction Method:

EPA 3550B

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1105150

SG1-052511DUP

		Sample	KWG11		Relative Percent	RPD Limit
Analyte Name	MRL	Result	Result	Average	Difference	
Diesel Range Organics (DRO)	27	160	170	160	8	40
Residual Range Organics (RRO)	110	ND	ND	ND	-	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

Page 1 of

23

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Extracted: 06/06/2011

Date Analyzed: 06/09/2011

Duplicate Sample Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Batch QC

Lab Code:

K1104689-001

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Units: mg/Kg

Basis: Dry

Level: Low

Extraction Lot: KWG1105150

		Sample	Batch (KWG11 Duplicat	05150-4	Relative Percent	RPD Limit
Analyte Name	MRL	Result	Result	Average	Difference	
Diesel Range Organics (DRO)	27	ND	ND	ND	-	40
Residual Range Organics (RRO)	110	ND	ND	ND	-	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

Page 1 of

24

RR129758 SuperSet Reference:

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Extracted: 06/06/2011

Date Analyzed: 06/08/2011

Lab Control Spike Summary Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Units: mg/Kg

Basis: Dry

Level: Low Extraction Lot: KWG1105150

Lab Control Sample KWG1105150-2

Lab Control Spike

%Rec Limits

Analyte Name Result Expected %Rec Diesel Range Organics (DRO) 255 267 96 56-124 Residual Range Organics (RRO) 136 133 102 60-135

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 1 of 1

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656 **Date Extracted:** 06/06/2011 **Date Analyzed:** 06/08/2011

Time Analyzed: 23:37

Method Blank Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Method Blank

File ID: J:\GC21\DATA\060811F\0608F022.D

Lab Code:

KWG1105150-3

Instrument ID: GC21

Extraction Method:

EPA 3550B

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1105150

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Lab Control Sample	KWG1105150-2	J:\GC21\DATA\060811F\0608F021.D	06/08/11	23:15
SG1-052511	K1104656-001	J:\GC21\DATA\060811F\0608F023.D	06/08/11	23:59
SG1-052511DUP	KWG1105150-1	J:\GC21\DATA\060811F\0608F024.D	06/09/11	00:21
SG2-052511	K1104656-002	J:\GC21\DATA\060811F\0608F025.D	06/09/11	00:43
SG3-052511	K1104656-003	J:\GC21\DATA\060811F\0608F026.D	06/09/11	01:04
Batch QC	K1104689-001	J:\GC21\DATA\060811F\0608F028.D	06/09/11	01:48
Batch QCDUP	KWG1105150-4	J:\GC21\DATA\060811F\0608F029.D	06/09/11	02:10

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Extracted: 06/06/2011 **Date Analyzed:** 06/08/2011

Time Analyzed: 23:15

Lab Control Sample Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Lab Control Sample

File ID: J:\GC21\DATA\060811F\0608F021.D

Lab Code:

KWG1105150-2

Instrument ID: GC21

Extraction Method:

EPA 3550B

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1105150

This Lab Control Sample applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed	Time Analyzed
Method Blank	KWG1105150-3	J:\GC21\DATA\060811F\0608F022.D	06/08/11	23:37
SG1-052511	K1104656-001	J:\GC21\DATA\060811F\0608F023.D	06/08/11	23:59
SG1-052511DUP	KWG1105150-1	J:\GC21\DATA\060811F\0608F024.D	06/09/11	00:21
SG2-052511	K1104656-002	J:\GC21\DATA\060811F\0608F025.D	06/09/11	00:43
SG3-052511	K1104656-003	J:\GC21\DATA\060811F\0608F026.D	06/09/11	01:04
Batch QC	K1104689-001	J:\GC21\DATA\060811F\0608F028.D	06/09/11	01:48
Batch QCDUP	KWG1105150-4	J:\GC21\DATA\060811F\0608F029.D	06/09/11	02:10

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

Η

PacifiCorp Investigation

Service Request: K1104656 **Calibration Date:** 03/14/2011

Initial Calibration Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID:

CAL10358

J:\GC21\DATA\031311F\0313F134.D

Column: ZB-1

Instrument	ID:	GC21

Level ID	File ID	Level ID	File ID
A	J:\GC21\DATA\031311F\0313F110.D	I	J:\GC21\DATA\031311F\0313F136.D
В	J:\GC21\DATA\031311F\0313F112.D	, ·J	J:\GC21\DATA\031311F\0313F138.D
$\mathbf{C}_{\mathbf{r}}$	J:\GC21\DATA\031311F\0313F114.D	K	J:\GC21\DATA\031311F\0313F140.D
\mathbf{D}	J:\GC21\DATA\031311F\0313F116.D	L	J:\GC21\DATA\031311F\0313F142.D
E	J\GC21\DATA\031311F\0313F118.D	M	J:\GC21\DATA\031311F\0313F144.D
F	J:\GC21\DATA\031311F\0313F120.D	N	J:\GC21\DATA\031311F\0313F146.D
G	J:\GC21\DATA\031311F\0313F132.D		

Analyte Name	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	Amt	RF	Level ID	l Amt	RF	Level ID	Amt	RF
Diesel Range Organics (DRO)				1 1 1			1			1			1 1		****
				G	20	914	Н	5Ő	923	I	200	981	J	500	971
	K	2000	936	L	5000	999	M	20000	902	N	50000	923	1 t		
Residual Range Organics (RRO)			<u>.</u>	В	50	695	C	200	587	D	500	618	E	2000	559
	F	5000	594	; ; ; ;			# 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1 4 8 8					
o-Terphenyl							: :		-	1			:	······································	w -
				G	1.0	1260	Н	2.5	1240	I	10	1310	J	25	1250
e de la companya de l	K	100.	1230	L	250	1260				1 4 4 1			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
n-Triacontane	· · · · · · · · · · · · · · · · · · ·									:		· · · · · · · · · · · · · · · · · · ·	1		
				G	1.0	1130	Н	2.5	1090	I	10	1120	J	25	1060
	K	100	1080	L	250	1080	!			!					

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

Printed: 06/10/2011 08:25:31 u:\Stealth\Crystal.rpt\Form6iNew.rpt

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104656

Calibration Date: 03/14/2011

Initial Calibration Summary

Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID:

CAL10358

Instrument ID:

GC21

Column: ZB-1

			Calibratio	-			
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria	Free \star
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	3.8	***************************************	≤ 20	
Residual Range Organics (RRO)	MS	AverageRF	% RSD	8.4		≤ 20	
o-Terphenyl	SURR	AverageRF	% RSD	2.4		≤ 20	
n-Triacontane	SURR	AverageRF	% RSD	2.4		≤ 20	

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

Printed: 06/10/2011 08:25:31 u:\Stealth\Crystal.rpt\Form6iNew.rpt

Form 6A - Organic

Page 2 of 2

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QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104656 Calibration Date: 03/14/2011

Date Analyzed: 03/14/2011

Second Source Calibration Verification Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type:

External Standard

Calibration ID: CAL10358

Analysis Method:

NWTPH-Dx

Units: ppm

File ID:

J:\GC21\DATA\031311F\0313F150.D

J:\GC21\DATA\031311F\0313F152.D

Column ID: ZB-1

et e			Average	SSV	•			
Analyte Name	Expected	Result	RF	RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	961	2	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	616	1	NA	\pm 15 %	AverageRF

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

† SPCC Compound

‡ CCC Compound

Printed: 6/10/2011 08:25:41 $u:\Stealth\Crystal.rpt\Form6SS.rpt$

Form 6B - Organic

Page 1 of 1

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104656

Date Analyzed: 06/08/2011

Continuing Calibration Verification Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: **Analysis Method:**

External Standard

NWTPH-Dx

Calibration Date: 03/14/2011 Calibration ID: CAL10358

Analysis Lot: KWG1105220

Units: ppm

File ID:

J:\GC21\DATA\060811F\0608F018.D

J:\GC21\DATA\060811F\0608F019.D

Column ID: ZB-1

			Average	CCV				
Analyte Name	Expected	Result	RF	RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	970	3	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	990	611	604	-1	NA	\pm 15 %	AverageRF
o-Terphenyl	50	52	1260	1300	4	NA	\pm 15 %	AverageRF
n-Triacontane	50	48	1090	1050	-4	NA	± 15 %	AverageRF

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

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Form 7 - Organic 31

Page

1 of 1

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104656

Date Analyzed: 06/09/2011

Continuing Calibration Verification Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type: **Analysis Method:**

External Standard

NWTPH-Dx

Calibration Date: 03/14/2011

Calibration ID: CAL10358

Analysis Lot: KWG1105220

Units: ppm

File ID:

J:\GC21\DATA\060811F\0608F034.D

J:\GC21\DATA\060811F\0608F035.D

Column ID: ZB-1

			Average	CCV				
Analyte Name	Expected	Result	\mathbf{RF}	RF	% D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	955	1 .	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	616	1	NA	\pm 15 %	AverageRF
o-Terphenyl	50	50	1260	1270	1	NA	\pm 15 %	AverageRF
n-Triacontane	50	47	1090	1020	-7	NA	± 15 %	AverageRF

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

Printed: 6/10/2011 08:25:47 $u:\Stealth\Crystal.rpt\Form7.rpt$

QA/QC Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Service Request: K1104656

Analysis Run Log Diesel and Residual Range Organics - Silica Gel Treated

Analysis Method:

NWTPH-Dx

Analysis Lot: KWG1105220

Instrument ID: GC21 Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0608F006.D	Continuing Calibration Verification	KWG1105220-1	6/8/2011	17:44		6/8/2011	18:00
0608F007.D	Continuing Calibration Verification	KWG1105220-1	6/8/2011	18:06		6/8/2011	18:22
0608F008.D	Instrument Blank	KWG1105220-5	6/8/2011	18:28		6/8/2011	18:44
0608F009.D	ZZZZZZ	ZZZZZZ	6/8/2011	18:50		6/8/2011	19:06
0608F010.D	ZZZZZZ	ZZZZZZ	6/8/2011	19:13		6/8/2011	19:29
0608F011.D	ZZZZZZ	ZZZZZZ	6/8/2011	19:34		6/8/2011	19:50
0608F012.D	ZZZZZZ	ZZZZZZ	6/8/2011	19:57		6/8/2011	20:13
0608F013.D	ZZZZZZ	ZZZZZZ	6/8/2011	20:19		6/8/2011	20:35
0608F014.D	ZZZZZZ	ZZZZZZ	6/8/2011	20:41		6/8/2011	20:57
0608F015.D	ZZZZZZ	ZZZZZZ	6/8/2011	21:03		6/8/2011	21:19
0608F016.D	ZZZZZZ	ZZZZZZ	6/8/2011	21:25		6/8/2011	21:41
0608F017.D	ZZZZZZ	ZZZZZZ	6/8/2011	21:48		6/8/2011	22:04
0608F018.D	Continuing Calibration Verification	KWG1105220-2	6/8/2011	22:10		6/8/2011	22:26
0608F019.D	Continuing Calibration Verification	KWG1105220-2	6/8/2011	22:31		6/8/2011	22:47
0608F020.D	Instrument Blank	KWG1105220-6	6/8/2011	22:53		6/8/2011	23:09
0608F021.D	Lab Control Sample	KWG1105150-2	6/8/2011	23:15		6/8/2011	23:31
0608F022.D	Method Blank	KWG1105150-3	6/8/2011	23:37		6/8/2011	23:53
0608F023.D	SG1-052511	K1104656-001	6/8/2011	23:59		6/9/2011	00:15
0608F024.D	SG1-052511DUP	KWG1105150-1	6/9/2011	00:21		6/9/2011	00:37
0608F025.D	SG2-052511	K1104656-002	6/9/2011	00:43		6/9/2011	00:59
0608F026.D	SG3-052511	K1104656-003	6/9/2011	01:04		6/9/2011	01:20
0608F027.D	ZZZZZZ	ZZZZZZ	6/9/2011	01:26		6/9/2011	01:42
0608F028.D	Batch QC	K1104689-001	6/9/2011	01:48		6/9/2011	02:04
0608F029.D	Batch QCDUP	KWG1105150-4	6/9/2011	02:10		6/9/2011	02:26
0608F030.D	ZZZZZZ	ZZZZZZ	6/9/2011	02:32		6/9/2011	02:48
0608F031.D	ZZZZZZ	ZZZZZZ	6/9/2011	02:54		6/9/2011	03:10
0608F034.D	Continuing Calibration Verification	KWG1105220-3	6/9/2011	03:59		6/9/2011	04:15
0608F035.D	Continuing Calibration Verification	KWG1105220-3	6/9/2011	04:21		6/9/2011	04:37
0608F036.D	Instrument Blank	KWG1105220-7	6/9/2011	04:43		6/9/2011	04:59
0608F037.D	ZZZZZZ	ZZZZZZ	6/9/2011	05:05		6/9/2011	05:21
0608F038.D	ZZZZZZ	ZZZZZZ	6/9/2011	05:27		6/9/2011	05:43
0608F039.D	ZZZZZZ	ZZZZZZ	6/9/2011	05:49		6/9/2011	06:05
0608F040.D	ZZZZZZ	ZZZZZZ	6/9/2011	06:11		6/9/2011	06:27
0608F041.D	ZZZZZZ	ZZZZZZ	6/9/2011	06:32		6/9/2011	06:48

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

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Form 8 - Organic

Page 1 of 2 SuperSet Reference: RR129758

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104656

Analysis Run Log

Diesel and Residual Range Organics - Silica Gel Treated

Analysis Method:

NWTPH-Dx

Analysis Lot: KWG1105220

Instrument ID: GC21

Column: ZB-1

File ID	Sample Name	Lab Code	Date Analysis Started	Start Time	Q	Date Analysis Finished	Finish Time
0608F042.D	ZZZZZZ	ZZZZZZ	6/9/2011	06:54		6/9/2011	07:10
0608F046.D	Continuing Calibration Verification	KWG1105220-4	6/9/2011	08:22		6/9/2011	08:38
0608F047.D	Continuing Calibration Verification	KWG1105220-4	6/9/2011	08:44		6/9/2011	09:00
0608F048.D	Instrument Blank	KWG1105220-8	6/9/2011	09:06		6/9/2011	09:22

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

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Extracted: 06/06/2011

Extraction Prep Log Diesel and Residual Range Organics - Silica Gel Treated

Extraction Lot: KWG1105150

Analysis Method:

NWTPH-Dx

Level: Low

Extraction Method: EPA 3550B

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Volume	% Solids	Note
SG1-052511	K1104656-001	05/25/11	05/25/11	30.34g	10mL	94.2	
SG2-052511	K1104656-002	05/25/11	05/25/11	30.03g	10mL	94.8	
SG3-052511	K1104656-003	05/25/11	05/25/11	30.27g	10mL	94.7	
SG1-052511DUP	KWG1105150-1	05/25/11	05/25/11	30.31g	10mL	94.2	
Batch QCDUP	KWG1105150-4	NA	NA	30.22g	10mL	93.5	
Method Blank	KWG1105150-3	NA	NA	30.34g	10mL	NA	
Batch QC	K1104689-001	NA	NA	30.23g	10mL	93.5	
Lab Control Sample	KWG1105150-2	NA	NA	30.00g	10mL	NA	

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

RR129758

Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u> Validation Package

Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u>

Validation Package

QC Reports

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Surrogate Recovery Summary

Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: Analysis Method:

EPA 3550B

NWTPH-Dx

Units: PERCENT

Level: Low

Sample Name	Lab Code	Sur1	Sur2
SG1-052511	K1104656-001	97	88
SG2-052511	K1104656-002	97	88
SG3-052511	K1104656-003	94	87
Batch QC	K1104689-001	96	85
SG1-052511DUP	KWG1105150-1	. 98	88
Batch QCDUP	KWG1105150-4	103	92
Method Blank	KWG1105150-3	. 98	93
Lab Control Sample	KWG1105150-2	104	100

Surrogate Recovery Control Limits (%)

Sur1 =	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.

Printed: 06/10/2011 08:26:03

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Form 2A - Organic

Page 1 of 1

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Extracted: 06/06/2011

Date Analyzed: 06/09/2011

Duplicate Sample Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SG1-052511

Lab Code:

K1104656-001

Units: mg/Kg Basis: Dry

Extraction Method:

Level: Low

Analysis Method:

EPA 3550B

NWTPH-Dx

Extraction Lot: KWG1105150

		Sample	SG1-052511DUP KWG1105150-1 Duplicate Sample		Relative Percent	RPD Limit	
Analyte Name	MRL	Result	Result	Average	Difference		
Diesel Range Organics (DRO)	27	160	170	160	8	40	
Residual Range Organics (RRO)	110	ND	ND	ND	-	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

Page 1 of 1

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QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Extracted: 06/06/2011

Date Analyzed: 06/09/2011

Duplicate Sample Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Batch QC

Lab Code:

K1104689-001

Units: mg/Kg Basis: Dry

Extraction Method:

Analysis Method:

EPA 3550B

Level: Low Extraction Lot: KWG1105150

NWTPH-Dx

Batch QCDUP KWG1105150-4 Relative **Duplicate Sample** Percent **RPD** Limit Sample **Difference** Result MRL Result **Analyte Name** Average Diesel Range Organics (DRO) 27 ND ND ND 40 Residual Range Organics (RRO) 110 ND ND ND 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.

Printed: 06/10/2011 08:26:10

Form 3B - Organic

Page 1 of

SuperSet Reference:

RR129758

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Extracted: 06/06/2011

Date Analyzed: 06/08/2011

Lab Control Spike Summary Diesel and Residual Range Organics - Silica Gel Treated

Extraction Method: EPA 3550B

Analysis Method:

NWTPH-Dx

Units: mg/Kg

Basis: Dry Level: Low

Extraction Lot: KWG1105150

Lab Control Sample KWG1105150-2

Lab Control Spike

%Rec Limits **Analyte Name** Result %Rec Expected Diesel Range Organics (DRO) 255 267 96 56-124 Residual Range Organics (RRO) 136 133 102 60-135

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.

Printed: 06/10/2011 08:26:13

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Form 3C - Organic

Page

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RR129758

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656 **Date Extracted:** 06/06/2011

Time Analyzed: 23:37

Date Analyzed: 06/08/2011

Method Blank Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Method Blank

File ID: J:\GC21\DATA\060811F\0608F022.D

Lab Code:

KWG1105150-3

Instrument ID: GC21

Extraction Method:

EPA 3550B

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1105150

This Method Blank applies to the following analyses:

			Date	Time
Sample Name	Lab Code	File ID	Analyzed	Analyzed
Lab Control Sample	KWG1105150-2	J:\GC21\DATA\060811F\0608F021.D	06/08/11	23:15
SG1-052511	K1104656-001	J:\GC21\DATA\060811F\0608F023.D	06/08/11	23:59
SG1-052511DUP	KWG1105150-1	J:\GC21\DATA\060811F\0608F024.D	06/09/11	00:21
SG2-052511	K1104656-002	J:\GC21\DATA\060811F\0608F025.D	06/09/11	00:43
SG3-052511	K1104656-003	J:\GC21\DATA\060811F\0608F026.D	06/09/11	01:04
Batch QC	K1104689-001	J:\GC21\DATA\060811F\0608F028.D	06/09/11	01:48
Batch QCDUP	KWG1105150-4	J:\GC21\DATA\060811F\0608F029.D	06/09/11	02:10

QA/QC Report

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656 **Date Extracted:** 06/06/2011 **Date Analyzed:** 06/08/2011

Time Analyzed: 23:15

Lab Control Sample Summary Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Lab Control Sample

File ID: J:\GC21\DATA\060811F\0608F021.D

Lab Code:

KWG1105150-2

Instrument ID: GC21

Extraction Method:

EPA 3550B

Level: Low

Analysis Method:

NWTPH-Dx

Extraction Lot: KWG1105150

This Lab Control Sample applies to the following analyses:

			Date	Time
Sample Name	Lab Code	File ID	Analyzed	Analyzed
Method Blank	KWG1105150-3	J:\GC21\DATA\060811F\0608F022.D	06/08/11	23:37
SG1-052511	K1104656-001	J:\GC21\DATA\060811F\0608F023.D	06/08/11	23:59
SG1-052511DUP	KWG1105150-1	J:\GC21\DATA\060811F\0608F024.D	06/09/11	00:21
SG2-052511	K1104656-002	J:\GC21\DATA\060811F\0608F025.D	06/09/11	00:43
SG3-052511	K1104656-003	J:\GC21\DATA\060811F\0608F026.D	06/09/11	01:04
Batch QC	K1104689-001	J:\GC21\DATA\060811F\0608F028.D	06/09/11	01:48
Batch QCDUP	KWG1105150-4	J:\GC21\DATA\060811F\0608F029.D	06/09/11	02:10

Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u> Validation Package

Raw Data

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: 05/25/2011

Date Received: 05/25/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Lab Code:

SG1-052511

K1104656-001

Units: mg/Kg
Basis: Dry

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	160 Y	27	1	06/06/11	06/08/11	KWG1105150	
Residual Range Organics (RRO)	ND U	110	1	06/06/11	06/08/11	KWG1105150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl n-Triacontane	97 88	50-150 50-150	06/08/11 06/08/11	Acceptable Acceptable	

Comments:

Printed: 06/10/2011 08:26:31 u:\Stealth\Crystal.rpt\Form1mNew.rpt

Exception Report

Data File: J:\GC21\DATA\060811F\0608F023.D

Lab ID: K1104656-001

RunType: SMPL SOIL

Date Acquired:
Date Quantitated:
Batch ID:

Analysis Method:

ListJoinID:

06/08/2011 23:59 06/09/2011 10:26 KWG1105220

NWTPH-Dx LJ10933

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	Х	
Preparation Holding Time	NA	NA	NA	х	
Pre-Preparation Holding Time	NA	NA	NA	х	·
ICAL Analyte Recovery	NA	NA	NA	Х	
Second Source ICAL Verification	NA	NA	NA	X	-
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	Х	
MB Surrogate Recovery	NA	NA	NA	Х	
Lab Control Spike	NA	NA	NA	X	
Surrogates	NA	NA	NA	Х	-
Analyte Co-elution	NA	NA	NA	х	
Retention Time	NA	NA	NA	Х	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	Х	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	·
Overdiluted Analysis	NA	NA	NA	X	

Primary Review:

Secondary Review:

Printed: 06/09/2011 14:05:27

u:\Stealth\Crystal.rpt\except2.rpt

Quantitation Report

Bottle ID: Tier: ΙV Matrix: Prod Code: NWTPH-Dx NW TPH Collect Date: 05/25/2011 Receive Date:

Analysis Lot: KWG1105220

Analysis Method: NWTPH-Dx

Prep Lot: KWG1105150 Prep Method: EPA 3550B

Prep Ref: 1024819 Prep Date:

06/06/2011

Report Group:

K1104656

05/25/2011

SOIL

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

MB Ref:

Diesel and Residual Range Organics - Silica Gel Treated

Report List ID:

Calibration ID:

CAL10358 LJ10933

Method ID:

MJ1081

Quant based on Report List

Data File:

J:\GC21\DATA\060811F\0608F023.D

J:\GC21\DATA\060811F\0608F022.D

Acqu Date: Run Type:

Lab ID:

06/08/2011 23:59

K1104656-001

SMPL

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial: Dilution: 12 1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	30342	24.13	97	50-150 OK	
n-Triacontane	7.65	0.00	24090	22.05	88	50-150 OK	

Target Compounds

Final Conc. Units:

mg/Kg Dry Weight

		RT		Solution	Final		
Parameter Name	RT	Dev	Response	Conc	Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	424906	450.21	160 🔰		
Residual Range Organics (RRO)	6.58	?	43858	71.80	25	J	

Prep Amount:

30.34 g 10 mL

Dilution: **Unit Factor:** 1.0

Prep Final Vol:

Solids:

94.2 %

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / (Prep Amount x Solids)) x Unit Factor

u:\Stealth\Crystal.rpt\quant1.rpt

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable

^{?:} Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F023.D Vial: 12

Acq On : 08 Jun 2011 11:59 pm Sample : K1104656-001 Operator: JMSmith Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 09 10:26:09 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T. Re	esponse	Conc t	Jnits
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl	2.83 Recovery 5.51		43.71%	
Spiked Amount 50.000	Recovery	. =	48.26%	-
3) S Triacontane Spiked Amount 50.000	7.65 Recovery			ppm
Target Compounds			<	
	2.25	2154	5.592	ppm
5) H C10-C24ex DRO Arcadis	3.07	412962	390.882	ppm
6) H C10-C25ex DRO AK102	3.17	426136		
7) H C10-C28in DRO 8015	3.27		419.976	
8) H Cl2-C24ex DRO T&R	3.72	411732		
9) H C12-C25ex DRO NW	3.82	424906		
10) H C13-C23ex DRO AZ	4.00	391287		
11) H C23-C32in RRO AZ	6.22	68564		
12) H C24-C36in RRO T&R/Arcadis	6.40		88.647	
13) H C25-C36in RRO NW	6.58		71.803	
14) H C25-C36in RRO Motor Oil			72.058	
15) H C29-C36in RRO Stratus			48.083	
16) H C29-C40in RRO Premier	7.46	27655	46.216	ppm

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F023.D Vial: 12

Acq On : 08 Jun 2011 11:59 pm Operator: JMSmith

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

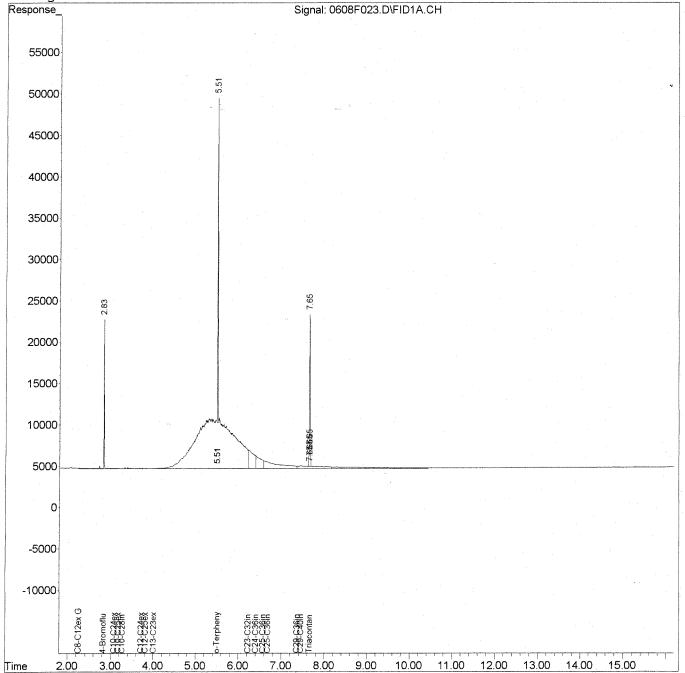
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: 05/25/2011

Date Received: 05/25/2011

Diesel and Residual Range Organics - Silica Gel Treated

Dilution

Date

Sample Name:

SG2-052511

Lab Code:

K1104656-002

Units: mg/Kg Basis: Dry

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Level: Low

Extraction

Analyte Name
Diesel Range Organics (DRO)
Residual Range Organics (RRO)

cesuit	Ų	MKL
ND	U	27
ND	U	110

Factor	Extracted	Analyzed	Lot	Note
1	06/06/11	06/09/11	KWG1105150	
1	06/06/11	06/09/11	KWG1105150	

Date

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	•
o-Terphenyl n-Triacontane	97 88	50-150 50-150	06/09/11 06/09/11	Acceptable Acceptable	

Comments:

Printed: 06/10/2011 08:26:34 $u: \label{lem:limit} w: \label{lem:limit} u: \label{lem:limit} We w. rpt$

50

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F025.D

Lab ID:

K1104656-002

RunType: Matrix:

SMPL SOIL Date Acquired: Date Quantitated:

Batch ID:

Analysis Method: ListJoinID:

06/09/2011 00:43 06/09/2011 10:26 KWG1105220 NWTPH-Dx

LJ10933

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	х	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	X	
MB Surrogate Recovery	NA	NA	NA	X	
Lab Control Spike	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	Χ -	
Retention Time	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA	NA	Х	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	Х	

Primary Review: JUL 41911

Secondary Review: _

Quantitation Report

Bottle ID: **Prod Code:**

NWTPH-Dx NW TPH

Tier:

ΙV

Matrix:

SOIL

Receive Date:

05/25/2011

Analysis Lot:

Prep Ref:

Analysis Method:

KWG1105220 NWTPH-Dx

Prep Lot:

Collect Date:

05/25/2011

KWG1105150

1024820

Prep Method: Prep Date:

EPA 3550B 06/06/2011

Report Group:

K1104656

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

RT

5.51

7.65

Report List ID:

CAL10358

Method ID:

LJ10933

MJ1081

MB Ref:

J:\GC21\DATA\060811F\0608F022.D

Quant based on Report List

Calibration ID:

Data File:

GC21

Acqu Date:

J:\GC21\DATA\060811F\0608F025.D 06/09/2011 00:43

Quant Date:

06/09/2011 10:26

Instrument: Vial:

Dilution:

22.12

14 1.0

Soln Conc. Units:

ppm

Run Type: Lab ID:

SMPL

K1104656-002

Surrogate Compounds

RT **Solution** Dev Response Conc

> 30504 24174

24.26

%Rec

88

Limits 50-150 OK

50-150 OK

Rpt?

%Rec

n-Triacontane Target Compounds

o-Terphenyl

Parameter Name

Final Conc. Units:

mg/Kg Dry Weight

u, got componie							
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	? ·	12318	13.05	4.6	J	
Residual Range Organics (RRO)	6.58	?	19494	31.92	- 11	J	

Prep Amount: Prep Final Vol: 30.03 g

Dilution: **Unit Factor:**

0.00

0.00

1.0 1

Solids:

10 mL 94.8 %

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / (Prep Amount x Solids)) x Unit Factor

06/09/2011 14:01:53

Printed:

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable

^{?:} Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060811F\0608F025.D Vial: 14

Acq On : 09 Jun 2011 12:43 am Operator: JMSmith Inst : GC21 : K1104656-002 Sample Multiplr: 1.00

Misc

IntFile : rteint.p Quant Time: Jun 09 10:26:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358 Last Update : Thu Jun 09 10:25:09 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T. Re	esponse	Conc Units	
System Monitoring Compounds			01 001	
1) S 4-Bromofluorobenzene	2.83	12430		
Spiked Amount 50.000	Recovery			
2) S o-Terphenyl	5.51	30504		
Spiked Amount 50.000	Recovery	= .		
3) S Triacontane	7.65	24174	22.123 ppm	
Spiked Amount 50.000	Recovery	manua munia	44.25%	
	· -			
Target Compounds				
4) H C8-C12ex GRO NW	2.25	1873	4.863 ppm	
5) H C10-C24ex DRO Arcadis	3.07	12301		
6) H C10-C25ex DRO AK102	3.17	13675		
7) H C10-C28in DRO 8015	3.27	19669	18.377 ppm	
8) H C12-C24ex DRO T&R	3.72	10944	11.651 ppm	
9) H C12-C25ex DRO NW	3.82	12318	13.052 ppm	
10) H C13-C23ex DRO AZ	4.00	9292		
•	6.22	15697	34.274 ppm	
	6.40	20868	32.436 ppm	
12) H C24-C36in RRO T&R/Arcadis				
13) H C25-C36in RRO NW	6.58	19494		
14) H C25-C36in RRO Motor Oil	6.68	19494		
15) H C29-C36in RRO Stratus	7.36	13500		
16) H C29-C40in RRO Premier	7.46	19895	33.248 ppm	

Data File : J:\GC21\DATA\060811F\0608F025.D

Acq On : 09 Jun 2011 12:43 am Operator: JMSmith

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

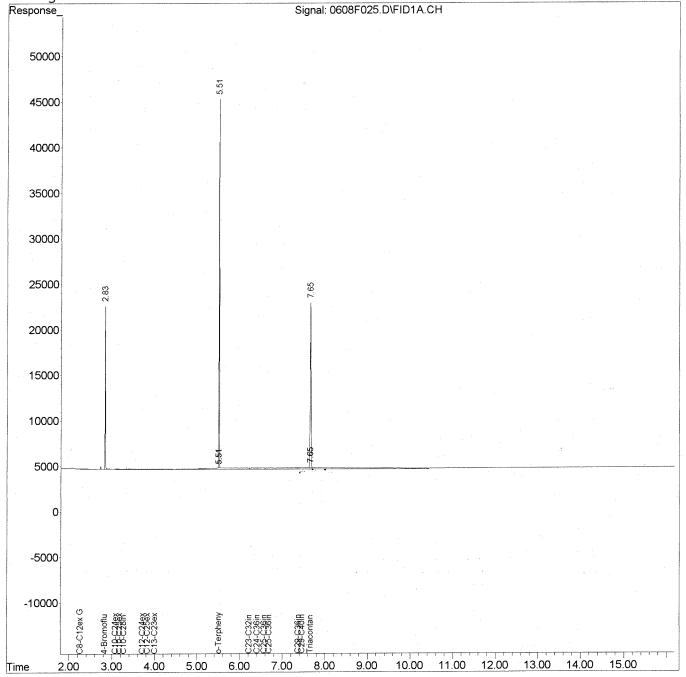
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



Vial: 14

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company,In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: 05/25/2011

Date Received: 05/25/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SG3-052511

Lab Code:

K1104656-003

Units: mg/Kg
Basis: Dry

Extraction Method:

EPA 3550B

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	27	1	06/06/11	06/09/11	KWG1105150	
Residual Range Organics (RRO)	ND U	110	I	06/06/11	06/09/11	KWG1105150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note		
o-Terphenyl	94	50-150	06/09/11	Acceptable		
n-Triacontane	87	50-150	06/09/11	Acceptable		

Comments:

 $\begin{array}{lll} Printed: & 06/10/2011 & 08:26:37 \\ u:\Stealth\Crystal.rpt\Form1m\New.rpt \end{array}$

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F026.D

Lab ID:

K1104656-003

RunType: Matrix:

SMPL SOIL Date Acquired:
Date Quantitated:

Batch ID:

Analysis Method: ListJoinID: 06/09/2011 01:04 06/09/2011 10:26 KWG1105220

NWTPH-Dx LJ10933

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
Preparation Holding Time	NA	NA	NA	X	
Pre-Preparation Holding Time	NA	NA	NΑ	X	
ICAL Analyte Recovery	NA	NA	NA	х	
Second Source ICAL Verification	NA	NA	NA	X	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	X	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Method Blank	NA	NA	NA	X	
MB Surrogate Recovery	NA	NA	NA	X	
Lab Control Spike	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	X	<u> </u>

Primary Review:

Secondary Review:

Quantitation Report

Bottle ID:

Tier:

IV

Matrix:

SOIL

Prod Code:

NWTPH-Dx NW TPH

Collect Date:

05/25/2011

Receive Date:

05/25/2011

Analysis Lot:

KWG1105220

Prep Lot:

Report Group:

Analysis Method:

NWTPH-Dx

1024821

KWG1105150

Prep Method: Prep Date:

EPA 3550B -06/06/2011

K1104656

Quant Method:

Prep Ref:

J:\GC21\METHODS\031311FSRO.M

Title:

Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID: Report List ID: CAL10358

LJ10933

Method ID:

MJ1081

MB Ref:

J:\GC21\DATA\060811F\0608F022.D

Quant based on Report List

Data File:

J:\GC21\DATA\060811F\0608F026.D

Instrument:

GC21

Acqu Date: Run Type:

06/09/2011 01:04

Quant Date:

Vial:

15

SMPL

Lab ID: K1104656-003 06/09/2011 10:26

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	 29704	23.62	94	50-150 OF	
n-Triacontane	7.65	0.00	23641	21.64	87	50-150 OF	

Target Compounds

Final Conc. Units:

mg/Kg Dry Weight

1 111	get compounts							
	Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
	Diesel Range Organics (DRO)	3.82	?	 17754	18.81	6.6	J	
	Residual Range Organics (RRO)	6.58	?	16269	26.64	9.3	J	

Prep Amount: Prep Final Vol:

Solids:

30.27 g 10 mL

94.7 %

Dilution:

1.0

Unit Factor:

1

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / (Prep Amount x Solids)) x Unit Factor

Printed:

NR: Analyte not reported from this analysis

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable

^{?:} Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060811F\0608F026.D

Vial: 15 Acq On : 09 Jun 2011 1:04 am Operator: JMSmith Inst : GC21 : K1104656-003 Sample

Misc

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 09 10:26:12 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics | CAL10358 Title

Last Update : Thu Jun 09 10:25:09 2011 Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0 um$

Compound	R.T. Re	sponse	Conc Units	
System Monitoring Compounds		w.,		
1) S 4-Bromofluorobenzene	2.83	12113		
Spiked Amount 50.000	Recovery		42.74%	
2) S o-Terphenyl	5.51	29704	23.621 ppm	
Spiked Amount 50.000	Recovery	anana anana	47.24%	
3) S Triacontane	7.65		21.635 ppm	
Spiked Amount 50.000	Recovery		43.27%	
Target Compounds				
4) H C8-C12ex GRO NW	2.25		4.980 ppm	
5) H C10-C24ex DRO Arcadis	3.07	17598		
6) H C10-C25ex DRO AK102	3.17	18933	17.846 ppm	
7) H C10-C28in DRO 8015	3.27	23687	22.131 ppm	
8) H C12-C24ex DRO T&R	3.72	16419	17.479 ppm	
9) H C12-C25ex DRO NW	3.82	17754	18.811 ppm	
10) H C13-C23ex DRO AZ	4.00	14738	17.437 ppm	
11) H C23-C32in RRO AZ	6.22	13284	29.005 ppm	
12) H C24-C36in RRO T&R/Arcadis	6.40	17605	27.364 ppm	
13) H C25-C36in RRO NW	6.58	16269		
14) H C25-C36in RRO Motor Oil	6.68	16269		
15) H C29-C36in RRO Stratus	7.36	11516		
16) H C29-C40in RRO Premier	7.46	17764	29.687 ppm	
	· · · · · · · · · · · · · · · · · · ·		. 	

Data File : J:\GC21\DATA\060811F\0608F026.D

Acq On : 09 Jun 2011 1:04 am Operator: JMSmith

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

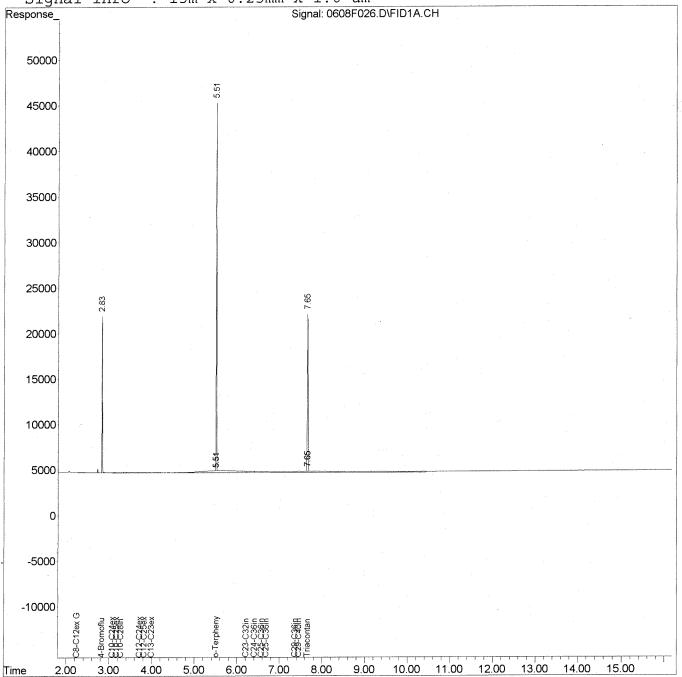
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Vial: 15

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: NA Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Batch QCDUP

Lab Code:

KWG1105150-4

Extraction Method:

EPA 3550B

Analysis Method:

NWTPH-Dx

Units: mg/Kg

Basis: Dry

Level: Low

Analyte Name	Result Q	MRL	 Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	27	1	06/06/11	06/09/11	KWG1105150	
Residual Range Organics (RRO)	ND U	110	1	06/06/11	06/09/11	KWG1105150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	103	50-150	06/09/11	Acceptable	
n-Triacontane	92	50-150	06/09/11	Acceptable	

Comments:

Printed: 06/10/2011 08:26:43

1 of 1

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F029.D

Lab ID:

KWG1105150-4 DUP

RunType: Matrix:

SOIL

Date Acquired:

Date Quantitated: Batch ID:

Batch ID:
Analysis Method:
MethodJoinID:

06/09/2011 02:10 06/09/2011 10:26 KWG1105220

KWG1105220 NWTPH-Dx MJ1081

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA .	х	
ICAL Analyte Recovery	NA	NA	NA	х	
Second Source ICAL Verification	NA	NA	NA	Х	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	Х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X-	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	х	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review:

Secondary Review:

Quantitation Report

Bottle ID: **Prod Code:**

NWTPH-Dx NW_TPH

Tier:

Collect Date:

Matrix:

SOIL

Receive Date:

Report Group:

Calibration ID:

06/08/2011

Analysis Lot: Analysis Method: KWG1105220

NWTPH-Dx

Prep Lot:

KWG1105150

Prep Method: Prep Date:

EPA 3550B 06/06/2011

Prep Ref:

1024835

CAL10358

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

Method ID:

MJ1081

MB Ref:

J:\GC21\DATA\060811F\0608F022.D

Quant based on Method

Data File: Acqu Date: J:\GC21\DATA\060811F\0608F029.D

06/09/2011 02:10

Run Type: Lab ID:

DUP KWG1105150-4 Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

18

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	32225	25.63	103	50-150 OK	
n-Triacontane	7.65	0.00	25006	22.88	92	50-150 OK	

Target Compounds

Final Conc. Units:

mg/Kg Dry Weight

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	10698	11.34	4.01	J	
Residual Range Organics (RRO)	6.58	.?	37414	61.25	21.7	J	

Prep Amount: Prep Final Vol:

Solids:

30.22 g

10 mL 93.5 % Dilution:

1.0

Unit Factor:

1

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / (Prep Amount x Solids)) x Unit Factor

U: Undetected at or above MDL

Printed:

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL

D: Result from dilution

m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis *: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

06/09/2011 14:02:10

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F029.D

Vial: 18 Acq On : 09 Jun 2011 2:10 am Operator: JMSmith Sample : K1104689-001DUP Inst : GC21 Multiplr: 1.00

Misc

IntFile : rteint.p

Quant Time: Jun 09 10:26:15 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T. Re	esponse	Conc Units	
System Monitoring Compounds				
1) S 4-Bromofluorobenzene	2.83	13548	23.904 ppm	
Spiked Amount 50.000	Recovery			
2) S o-Terphenyl	5.51	32225	25 625 nnm	
Spiked Amount 50.000	Recovery			
3) S Triacontane	7.65	25006	22 884 ppm	
Spiked Amount 50.000	Recovery	23000	45 77%	
bpined imodife 50.000	recevery	_	13.770	
Target Compounds				
4) H C8-C12ex GRO NW	2.25	1709	4.437 ppm	* .
5) H C10-C24ex DRO Arcadis	3.07		8.779 ppm	
6) H C10-C25ex DRO AK102	3.17	11846		
	3.27	24539		
8) H C12-C24ex DRO T&R	3.72	8127	8.652 ppm	
9) H C12-C25ex DRO NW	3.82	10698		
10) H C13-C23ex DRO AZ	4.00	5749	6.802 ppm	
11) H C23-C32in RRO AZ	6.22	32212		
12) H C24-C36in RRO T&R/Arcadis	6.40	39985		
13) H C25-C36in RRO NW	6.58	37414	61.253 ppm	
14) H C25-C36in RRO Motor Oil			61.471 ppm	
15) H C29-C36in RRO Stratus		24721		
16) H C29-C40in RRO Premier	7.46		56.471 ppm	

Data File : J:\GC21\DATA\060811F\0608F029.D

Vial: 18 : 09 Jun 2011 2:10 am Operator: JMSmith

Sample : K1104689-001DUP : GC21 Inst Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

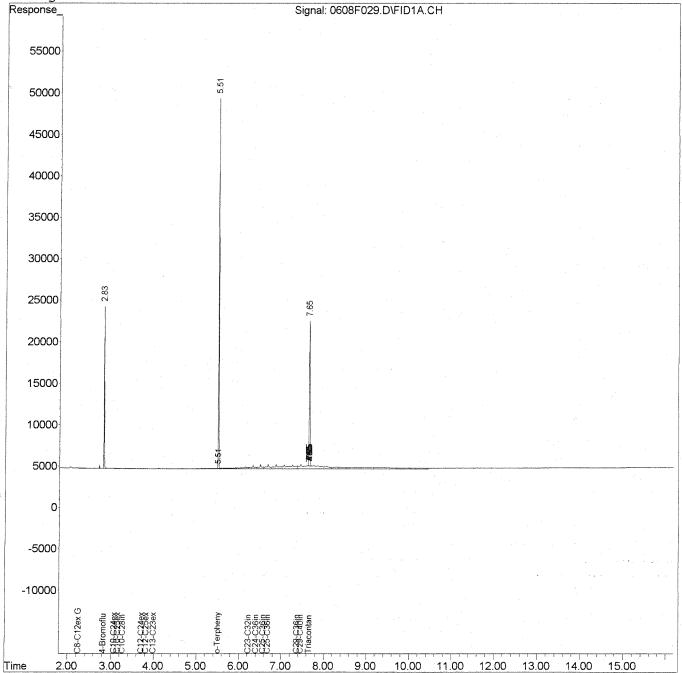
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: 05/25/2011 **Date Received:** 05/25/2011

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

SG1-052511DUP

Lab Code:

KWG1105150-1

Units: mg/Kg

Extraction Method:

EPA 3550B

Basis: Dry

Analysis Method:

NWTPH-Dx

Level: Low

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	170	27	1	06/06/11	06/09/11	KWG1105150	
Residual Range Organics (RRO)	ND U	110	1	06/06/11	06/09/11	KWG1105150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	98	50-150	06/09/11	Acceptable	
n-Triacontane	88	50-150	06/09/11	Acceptable	

Comments:

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F024.D

Lab ID:

KWG1105150-1

RunType: Matrix:

DUP SOIL Date Acquired:

Date Quantitated:

Batch ID: **Analysis Method:**

MethodJoinID:

06/09/2011 10:26 KWG1105220 NWTPH-Dx

06/09/2011 00:21

MJ1081

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	NA	NA	· X	
Second Source ICAL Verification	NA	NA	NA ·	Х	•
Calibration Verification Pass/Fail	NA	™ NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	x	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA *	NA	X	
Above Highest ICAL Level	NA	NA	NA	х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	. X	
Overdiluted Analysis	NA	NA	NA	х	

Secondary Review:

Quantitation Report

Bottle ID: Tier: Matrix: SOIL Prod Code: Collect Date: Receive Date: 06/08/2011 NWTPH-Dx NW TPH Analysis Lot: KWG1105220 Prep Lot: KWG1105150 Report Group: Prep Method: Analysis Method: NWTPH-Dx EPA 3550B Prep Date: 06/06/2011 1024832 Prep Ref:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

J:\GC21\DATA\060811F\0608F022.D

Calibration ID:

CAL10358

Method ID:

MJ1081

Quant based on Method

Data File:

MB Ref:

J:\GC21\DATA\060811F\0608F024.D

Acqu Date: Run Type:

06/09/2011 00:21

KWG1105150-1

DUP

Lab ID:

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial: Dilution: 13

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
 o-Terphenyl	5.51	0.00	30769	24.47	98	50-150 OK	
n-Triacontane	7.65	0.00	24117	22.07	88	50-150 OK	

Target Compounds

Final Conc. Units:

mg/Kg Dry Weight

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	459030	486.37	170		
Residual Range Organics (RRO)	6.58	, ? ·	43031	70.45	24.7	J	

Prep Amount: Prep Final Vol:

Solids:

30.31 g

Dilution: **Unit Factor:** 1.0

10 mL

94.2 %

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / (Prep Amount x Solids)) x Unit Factor

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

Printed: 06/09/2011 14:01:16 u:\Stealth\Crystal.rpt\quant1.rpt

D. Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable

^{?:} Insufficient information to determine acceptance e; Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F024.D

Acq On : 09 Jun 2011 12:21 am Operator: JMSmith

 Sample
 : K1104656-001DUP
 Inst : GC21

 Misc
 : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 09 10:26:10 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

		Compound	 R.T.	Re	esponse	Conc	Units	
1) Spi 2) Spi	S ked S ked	tem Monitoring Compounds 4-Bromofluorobenzene Amount 50.000 o-Terphenyl Amount 50.000	5.51	Recovery Recovery	= 30769 =	22.289 44.58% 24.467 48.93%	ppm	
3)	S	Triacontane	7.65		24117	22.071	ppm	
Spi	ked	Amount 50.000		Recovery	=	44.14%		
4) 5)	H H	get Compounds C8-C12ex GRO NW C10-C24ex DRO Arcadis C10-C25ex DRO AK102	3.07		446012	4.907 422.165 433.623	ppm	
		C10-C28in DRO 8015				452.279		
8.)	H	C12-C24ex DRO T&R C12-C25ex DRO NW	3.72 3.82		444995 459030	473.727 486.366	ppm	
10)	H	C13-C23ex DRO AZ						
11)	H	C23-C32in RRO AZ	6.22		70938			
12)	H	C24-C36in RRO T&R/Arcadis	6.40			88.702		
13)	Н	C25-C36in RRO NW	6.58		43031	70.449	ppm	
14)	H	C25-C36in RRO Motor Oil	6.68		43031	70.699	ppm	
		C29-C36in RRO Stratus	7.36		19005	44.589	ppm	
16)			7.46		24961	41.714	ppm	

Vial: 13

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F024.D

Vial: 13 Acq On : 09 Jun 2011 12:21 am Operator: JMSmith

Sample : K1104656-001DUP : GC21 Inst Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

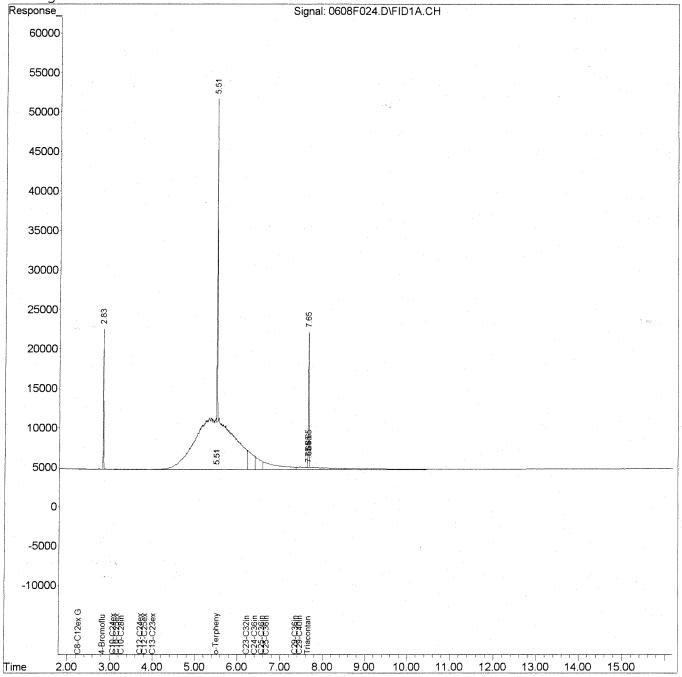
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: NA Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Method Blank

Lab Code:

KWG1105150-3

Units: mg/Kg Basis: Dry

Extraction Method:

EPA 3550B

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	 Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO) Residual Range Organics (RRO)	ND U ND U	25 99	1	06/06/11 06/06/11	06/08/11 06/08/11	KWG1105150 KWG1105150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
o-Terphenyl	98	50-150	06/08/11	Acceptable
n-Triacontane	93	50-150	06/08/11	Acceptable

Comments:

Printed: 06/10/2011 08:26:46

Merged

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F022.D

Lab ID:

KWG1105150-3

RunType: Matrix:

MB SOIL Date Acquired:

Date Quantitated:

Batch ID:

Analysis Method: MethodJoinID:

06/08/2011 23:37 06/09/2011 10:26

KWG1105220

NWTPH-Dx MJ1081

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	х	
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NĂ	NA	NA	Х	
Calibration Verification Pass/Fail	NA	NA	NA	X	
Continuing Calibration Recovery	NA	NA	NA	Х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	X	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	Х	
Below Lowest ICAL Level	NA	NA	NA	x	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review:

Secondary Review:

Page 1 of 1

Quantitation Report

Bottle ID:

Prod Code:

NWTPH-Dx NW TPH

Tier:

Collect Date:

Matrix:

SOIL

Receive Date:

06/08/2011

Analysis Lot: **Analysis Method:** KWG1105220

NWTPH-Dx

Prep Lot:

KWG1105150

Prep Method: Prep Date:

Quant Date:

EPA 3550B

Prep Ref:

1024834

06/06/2011

Report Group:

Quant Method:

J.\GC21\METHODS\031311FSRO.M

Title:

MB Ref:

Calibration ID:

CAL10358

Method ID:

MJ1081

Quant based on Method

Data File:

J:\GC21\DATA\060811F\0608F022.D

Acqu Date: Run Type:

06/08/2011 23:37

MB

Lab ID:

KWG1105150-3

06/09/2011 10:26

Instrument:

GC21

Vial:

11

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	in the second se	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00		30742	24.45	98	50-150 OK	
n-Triacontane	7.65	0.00		25361	23.21	93	50-150 OK	

Target Compounds

Final Conc. Units:

mg/Kg Wet Weight

meter Name	RT	RT Dev	Response	Solution Conc	Conc	Q	Rpt?
el Range Organics (DRO)	3.82	?	4426	4.69	1.8	U	
dual Range Organics (RRO)	6.58	?	11700	19.16	6.31	J	
	meter Name el Range Organics (DRO) dual Range Organics (RRO)	el Range Organics (DRO) 3.82	meter Name RT Dev el Range Organics (DRO) 3.82 ?	meter Name RT Dev Response el Range Organics (DRO) 3.82 ? 4426	meter Name RT Dev Response Conc el Range Organics (DRO) 3.82 ? 4426 4.69	el Range Organics (DRO) 3.82 ? 4426 4.69 1.8	meter Name RT Dev Response Conc Q el Range Organics (DRO) 3.82 ? 4426 4.69 1.8 U

Prep Amount:

30.34 g 10 mL

Dilution: **Unit Factor:** 1.0

Prep Final Vol: Solids:

%

Final Concentration =

((Soln Conc x Prep Final Vol x Dilution) / (Prep Amount x Solids)) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F022.D Vial: 11

Acq On : 08 Jun 2011 11:37 pm Operator: JMSmith : KQ1105099-03MB Inst : GC21 Sample Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 09 10:26:08 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T. Re	esponse	Conc Units
	· · · · · · · · · · · · · · · · · · ·		
System Monitoring Compounds			
1) S 4-Bromofluorobenzene	2.83	12763	22.519 ppm
Spiked Amount 50.000	Recovery 5.51	=	45.04%
2) S o-Terphenyl	5.51	30742	24.446 ppm
Spiked Amount 50.000	Recovery	=	48.89%
3) S Triacontane	7.65		
Spiked Amount 50.000	Recovery	=	46.42%
Target Compounds			. 505
-,	2.25		4.707 ppm
5) H C10-C24ex DRO Arcadis	3.07		5.101 ppm
6) H C10-C25ex DRO AK102	3.17		5.617 ppm
7) H C10-C28in DRO 8015	3.27	8598	8.033 ppm
8) H C12-C24ex DRO T&R	3.72	3856	4.105 ppm
9) H C12-C25ex DRO NW		4426	4.690 ppm
10) H C13-C23ex DRO AZ	4.00	2956	3.497 ppm
11) H C23-C32in RRO AZ		7787	
12) H C24-C36in RRO T&R/Arcadis	6.40	12270	19.072 ppm
	6.58	11700	19.155 ppm
14) H C25-C36in RRO Motor Oil	6.68	11700	19.223 ppm
15) H C29-C36in RRO Stratus		9061	
16) H C29-C40in RRO Premier		15603	

(Not Reviewed) Quantitation Report

Data File : J:\GC21\DATA\060811F\0608F022.D Vial: 11

: 08 Jun 2011 11:37 pm Operator: JMSmith Acq On : KQ1105099-03MB Inst : GC21 Sample Misc Multiplr: 1.00

: rteint.p IntFile

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

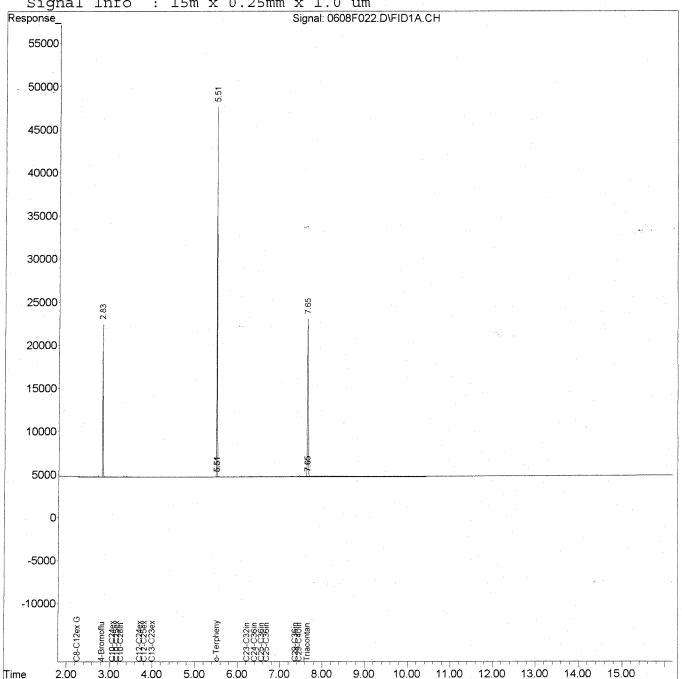
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358 Last Update : Thu Jun 09 10:25:09 2011

Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: NA Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Batch QC

Lab Code:

K1104689-001

Units: mg/Kg

Extraction Method:

EPA 3550B

Basis: Dry

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO)	ND U	27	1	06/06/11	06/09/11	KWG1105150	
Residual Range Organics (RRO)	ND U	110	1	06/06/11	06/09/11	KWG1105150	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note			
o-Terphenyl n-Triacontane	96 85	50-150 50-150	06/09/11 06/09/11	Acceptable Acceptable	 	-	

Comments:

Printed: 06/10/2011 08:26:49 u:\Stealth\Crystal.rpt\Form1mNew.rpt

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F028.D

Lab ID:

K1104689-001

RunType: Matrix:

SMPL

SOIL

Date Acquired: Date Quantitated:

Batch ID:

06/09/2011 01:48 06/09/2011 10:26 KWG1105220

Analysis Method: ListJoinID:

NWTPH-Dx LJ10933

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	х	
Preparation Holding Time	NA	NA	NA	Х	
Pre-Preparation Holding Time	NA	,NA	NA	Х	
ICAL Analyte Recovery	NA	NA	NA	х	
Second Source ICAL Verification	NA	NA	NA	Х	
Calibration Verification Pass/Fail	NA	NA	NA	х	
Continuing Calibration Recovery	NA	NA	NA	Х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	Х	
Method Blank	NA	NA	NA	Х	
MB Surrogate Recovery	NA	NA	NA	Х	
Lab Control Spike	NA	NA	NA	х	
Surrogates	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	NA	NA	NA .	Х	
Below Lowest ICAL Level	NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	
Overdiluted Analysis	NA	NA	NA	X	

Primary Review:

Secondary Review:

Quantitation Report

Bottle ID: Tier: IV Matrix: Receive Date: **Prod Code:** Collect Date: NWTPH-Dx NW_TPH 05/24/2011

Analysis Lot: KWG1105220 Prep Lot: KWG1105150 Report Group: K1104689 Prep Method: Analysis Method: NWTPH-Dx EPA 3550B Prep Date: 06/06/2011 Prep Ref: 1024822

J:\GC21\METHODS\031311FSRO.M Calibration ID: Quant Method: CAL10358 Title: Diesel and Residual Range Organics - Silica Gel Treated Report List ID: LJ10933 Method ID: MJ1081

MB Ref: J:\GC21\DATA\060811F\0608F022.D Quant based on Report List

Data File: J:\GC21\DATA\060811F\0608F028.D Instrument: GC21 Acqu Date: 06/09/2011 01:48 Quant Date: 06/09/2011 10:26 Vial: 17 Dilution: Run Type: **SMPL** 1.0 Lab ID: K1104689-001 Soln Conc. Units: ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	0.00	30126	23.96	96	50-150 OK	
n-Triacontane	7.65	0.00	23322	21.34	85	50-150 OK	

Final Conc. Units: mg/Kg Dry Weight Target Compounds

Parameter Name	RT	RT Dev	 Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	23507	24.91	8.8	J	
Residual Range Organics (RRO)	6.58	?	55712	91.21	32	J	

Dilution: Prep Amount: 30.23 g 1.0 Prep Final Vol: Unit Factor: 10 mL

Solids: 93.5 %

Final Concentration = ((Soln Conc x Prep Final Vol x Dilution) / (Prep Amount x Solids)) x Unit Factor

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

06/09/2011 14:02:05

D: Result from dilution m: Manual integration performed

d: Compound manually deleted NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance
e: Result >= MRL, but MRL less than low point of ICAL

SOIL

05/25/2011

c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F028.D

Vial: 17 Operator: JMSmith Acq On : 09 Jun 2011 1:48 am Inst : GC21 Sample : K1104689-001 Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 09 10:26:14 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358 Last Update : Thu Jun 09 10:25:09 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Com	pound	R.Т.	Re	sponse	Conc (Jnits	
	nitoring Compou			10005	21 (02		
	omofluorobenzen			12295			
Spiked Amoun			Recovery				1.50
2) S o-Te				30126			
	t 50.000		Recovery	_ =	47.91%		
3) S Tria			5			ppm	
Spiked Amoun	t 50.000		Recovery	=	42.69%		
Target Co	-						
	12ex GRO NW	2.25			5.476		v - y V
	C24ex DRO Arcad			20410			
6) H C10-	C25ex DRO AK102	3.17	•	24703			
7) H C10-	C28in DRO 8015	3.27	7	44232	41.327	ppm	
8) H Cl2-	C24ex DRO T&R	3.72	2	19215	20.456	ppm	
9) H C12-	C25ex DRO NW	3.82	2	23507	24.907	ppm	
10) H C13-	C23ex DRO AZ	4.00		14858			
11) H C23-	C32in RRO AZ	6.22		50038			
	C36in RRO T&R/A			60005			
	C36in RRO NW	6.58		55712			
•	C36in RRO Motor			55712			
	C36in RRO Strat			36183			
•	C40in RRO Premi			47059			

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F028.D

Vial: 17

Acq On : 09 Jun 2011 1:48 am Operator: JMSmith : K1104689-001 Sample : GC21 Multiplr: 1.00

Misc

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

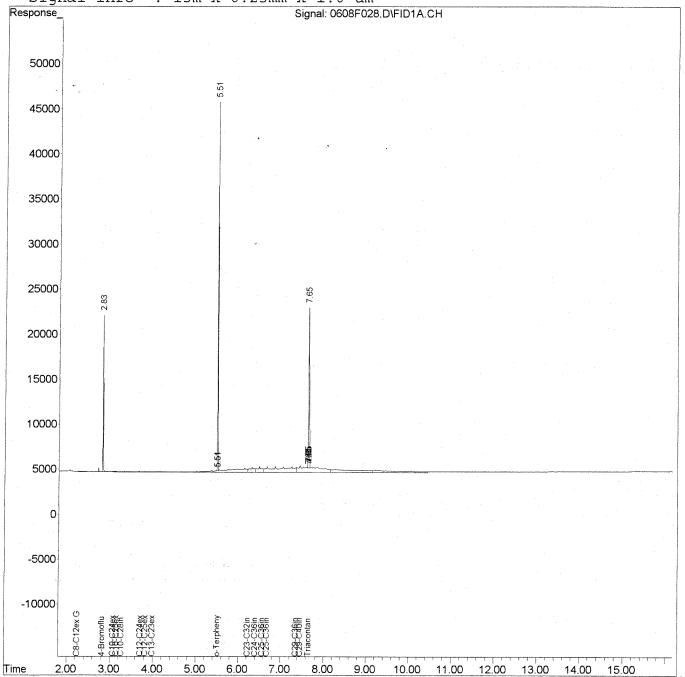
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

IntFile : rteint.p

Volume Inj. : 1 uL Signal Phase : ZB-1



COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Sample Matrix:

Soil

Service Request: K1104656

Date Collected: NA

Date Received: NA

Diesel and Residual Range Organics - Silica Gel Treated

Sample Name:

Lab Control Sample

Lab Code:

Units: mg/Kg Basis: Dry

KWG1105150-2

Extraction Method:

EPA 3550B

Level: Low

Analysis Method:

NWTPH-Dx

Analyte Name	Result Q	MRL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Diesel Range Organics (DRO) Residual Range Organics (RRO)	255 136	25 100	1	06/06/11 06/06/11	06/08/11 06/08/11	KWG1105150 KWG1105150	

Surrogate Name		%Rec	Control Limits	Date Analyzed	Note	
o-Terphenyl	-	104	50-150	06/08/11	Acceptable	
n-Triacontane		100	50-150	06/08/11	Acceptable	

Comments:

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F021.D

Lab ID:

KWG1105150-2

RunType: Matrix: LCS SOIL Date Acquired:

Date Quantitated:

06/08/2011 23:15 06/09/2011 10:26 KWG1105220

Batch ID:

KWG1105220 NWTPH-Dx MJ1081

Analysis Method: MethodJoinID:

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
Analytical Holding Time	NA	NA	NA	X	
ICAL Analyte Recovery	NA	. NA	NA	X	
Second Source ICAL Verification	NA	NA	NA	Х	
Calibration Verification Pass/Fail	NA	NA	NA	х	
Continuing Calibration Recovery	NA	NA	NA	Х	
Continuing Calibration Recovery (Closing)	NA	NA	NA	Х	
Surrogates	NA	NA	NA	Х	
Analyte Co-elution	NA	NA	NA	X	
Retention Time	. NA	NA	NA	X	
Std MRL Unsupported by ICAL	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	Х	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	-
Overdiluted Analysis	NA	NA	NA	x	

Primary Review:

Secondary Review:

Printed: 06/09/2011 14:05:21 u:\Stealth\Crystal.rpt\except2.rpt

Page 1 of 1

Quantitation Report

Bottle ID: Tier: Matrix: SOIL Prod Code: NWTPH-Dx NW TPH Collect Date: Receive Date: 06/08/2011 Analysis Lot: KWG1105220 Prep Lot: KWG1105150 Report Group:

Analysis Method: NWTPH-Dx Prep Method: EPA 3550B Prep Date: 06/06/2011 Prep Ref: 1024833

Calibration ID: **Ouant Method:** J:\GC21\METHODS\031311FSRO.M CAL10358 Title: Method ID: MJ1081 MB Ref: J:\GC21\DATA\060811F\0608F022.D Quant based on Method

Data File: Instrument: GC21 J:\GC21\DATA\060811F\0608F021.D Vial: Acqu Date: Quant Date: 10 06/08/2011 23:15 06/09/2011 10:26 Run Type: LCS Dilution: 1.0 Lab ID: Soln Conc. Units: KWG1105150-2 ppm

Surrogate Compounds

 Parameter Name	RT	RT Dev	Response	Solution Ćonc	%Rec	%Rec Limits	Rpt?
 o-Terphenyl	5.51	0.00	32628	25.95	104	50-150 OK	
n-Triacontane	7.65	0.00	27278	24.96	100	50-150 OK	

Final Conc. Units: mg/Kg Wet Weight Target Compounds RT Solution Final RT Q Rpt? Parameter Name Dev Response Conc Conc Diesel Range Organics (DRO) 3.82 ? 721462 764.43 255

249272

Dilution: 1.0 Prep Amount: 30:00 g Prep Final Vol: 10 mL Unit Factor:

6.58

Solids: %

Final Concentration =

Residual Range Organics (RRO)

((Soln Conc x Prep Final Vol x Dilution) / (Prep Amount x Solids)) x Unit Factor

u:\Stealth\Crystal.rpt\quant1.rpt

Printed:

?

408.10

136

U: Undetected at or above MDL

J. Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F021.D

Vial: 10 Acq On : 08 Jun 2011 11:15 pm Operator: JMSmith Sample : KQ1105099-02LCS Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 09 10:26:06 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Cor	mpound		R.T.	Response	Conc (Units
System M	onitoring	Compounds				
1) S 4-B	romofluoro	benzene	2.83		23.914 47.83%	
Spiked Amount	erphenyl		5.51		25.946	
Spiked Amount 3) S Tria	acontane		7.65	27278	24.964	
Spiked Amou		O	Reco	overy =	49.93%	
Target Co	ompounds C12ex GRO	NW	2.25	114065	296.150	ppm
		Arcadis	3.07	784859	742.895	ppm
6) H C10			3.17		757.019	
7) H C10- 8) H C12-			3.27 3.72	880648	822.805 748.574	
· ·	C25ex DRO		3.82	721462		
· ·	C23ex DRO		4.00		748.757	
11) H C23-	C32in RRO	AZ_{i}	6.22	200865	438.586	ppm
		T&R/Arcadis	6.40		415.883	
•	C36in RRO		6.58		408.102	
		Motor Oil			409.551	
	C36in RRO C40in RRO	Stratus Premier	7.36 7.46	171773 241076	403.013 402.880	

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\060811F\0608F021.D Vial: 10

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

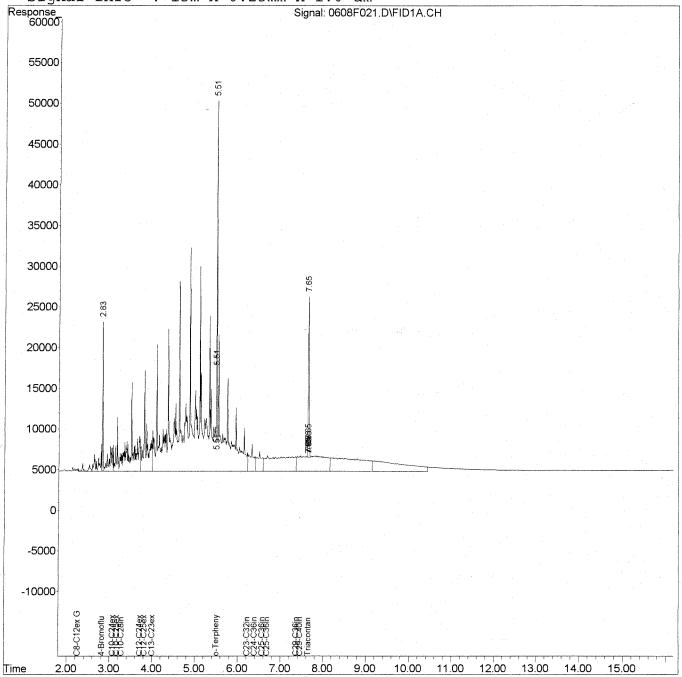
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1



Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u> Validation Package

Standards Data

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client:

Η

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104656

Calibration Date: 03/14/2011

Initial Calibration Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID:

CAL10358

J:\GC21\DATA\031311F\0313F134.D

Instrument ID:

GC21

Column: ZB-1

Level ID	File ID		Level ID	File ID
Level 1D	ruc ID		Level 113	rue ID
A	J:\GC21\DATA\031311F\0313F110.D		I	J:\GC21\DATA\031311F\0313F136.D
В	J:\GC21\DATA\031311F\0313F112.D		J	J:\GC21\DATA\031311F\0313F138.D
C	J:\GC21\DATA\031311F\0313F114.D		K	J:\GC21\DATA\031311F\0313F140.D
D	J:\GC21\DATA\031311F\0313F116.D	`	L	J:\GC21\DATA\031311F\0313F142.D
E	J:\GC21\DATA\031311F\0313F118.D		M	J:\GC21\DATA\031311F\0313F144.D
F	J:\GC21\DATA\031311F\0313F120.D		N	J:\GC21\DATA\031311F\0313F146.D
G	J:\GC21\DATA\031311F\0313F132.D			

	Level			Level			Leve	l ·		Level			Level		
Analyte Name	ID	Amt	RF	ID	Amt	RF	ID	Amt	RF	ID	Amt	RF	ID	Amt	RF
Diesel Range Organics (DRO)				1			:			-					
				G	20	914	Н	50	923	I	200	981	J	500	971
	K	2000	936	L	5000	999	M	20000	902	N	50000	923			
Residual Range Organics (RRO)		·····		В	50	695	С	200	587	D	500	618	E	2000	559
	F	5000	594	; ; ; ;											
o-Terphenyl	-						1								
				G	1.0	1260	Н	2.5	1240	I	10	1310	J	25	1250
	K	100	1230	L	250	1260									
n-Triacontane													-		
				G	1.0	1130	Н	2.5	1090	I	10	1120	J	25	1060
	K	100	1080	L	250	1080									

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

Printed: 06/10/2011 08:26:58

Form 6A - Organic

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1 of 2 Page

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104656

Calibration Date: 03/14/2011

Initial Calibration Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration ID:

CAL10358

Instrument ID:

GC21

Column: ZB-1

			Calibration Evaluation				
Analyte Name	Compound Type	Fit Type	Eval.	Eval. Result	Q	Control Criteria	
Diesel Range Organics (DRO)	MS	AverageRF	% RSD	3.8	,	≤ 20	
Residual Range Organics (RRO)	MS	AverageRF	% RSD	8.4		≤ 20	
o-Terphenyl	SURR	AverageRF	% RSD	2.4		≤ 20	
n-Triacontane	SURR	AverageRF	% RSD	2.4		≤ 20	

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

Printed: 06/10/2011 08:26:58

u:\Stealth\Crystal.rpt\Form6iNew.rpt

Form 6A - Organic

Page 2 of 2

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Calibration Date: 03/14/2011

Service Request: K1104656

Date Analyzed: 03/14/2011

Second Source Calibration Verification Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type:

External Standard

Calibration ID: CAL10358

Analysis Method:

NWTPH-Dx

Units: ppm

File ID:

J:\GC21\DATA\031311F\0313F150.D

J:\GC21\DATA\031311F\0313F152.D

Column ID: ZB-1

Analyte Name	Expected	Result	Average RF	SSV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	961	2	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	616	1	NA	± 15 %	AverageRF

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

† SPCC Compound

‡ CCC Compound

Printed: 6/10/2011 08:27:08 $u:\Stealth\Crystal.rpt\Form6SS.rpt$

Form 6B - Organic

Page 1 of 1

Injection Log

Directory:

J:\GC21\DATA\031311F

03/3/1FSRO.M/CAL/0358

Line	Vial	FileName	Multiplier	SampleName	Misc Info		Injected
1 2 3 4 5 6 7 8 9		0313F002.D 0313F004.D 0313F006.D 0313F008.D 0313F010.D 0313F012.D 0313F014.D 0313F016.D 0313F018.D	1. 1. 1. 1. 1. 1. 1.	IB IB IB IB IB IB			03/13/22011 6:05 03/13/22011 6:27 03/13/22011 6:45 03/13/22011 7:11 03/13/22011 7:56 03/13/22011 8:15 03/13/22011 8:41 03/13/22011 9:03
10 11 12 13 14 15 16 17 18	90 90 90	0313F020.D 0313F022.D 0313F024.D 0313F026.D 0313F030.D 0313F030.D 0313F032.D 0313F034.D 0313F036.D 0313F038.D	1. 1. 1. 1. 1. 1. 1. 1.	IB IB IB IB IB IB IB IB IB			03/13/22011 9:26 03/13/22011 9:48 03/13/22011 10:11 03/13/22011 10:5: 03/13/22011 10:5: 03/13/22011 11:11 03/13/22011 11:3! 03/14/22011 12:2: 03/14/22011 12:4!
20 21 22 23 24 25 26 27 28 29	90 90 90 90 90 90 99	0313F040.D 0313F042.D 0313F044.D 0313F046.D 0313F050.D 0313F102.D 0313F104.D 0313F106.D 0313F108.D	1. 1. 1. 1. 1. 1. 1. 1.	IB IB IB IB IB OCM SHC MARKER SVF01-04E AROMATICS MARKER DV			03/14/22011 1:08 03/14/22011 1:30 03/14/22011 1:52 03/14/22011 2:14 03/14/22011 2:37 03/14/22011 2:59 03/14/22011 3:42 03/14/22011 4:04 03/14/22011 4:26 03/14/22011 4:48
32 33 34 35 36	2 3 4 5 6 89	0313F110.D 0313F112.D 0313F114.D 0313F116.D 0313F118.D 0313F120.D 0313F122.D 0313F124.D 0313F126.D	1. 1. 1. 1. 1. 1. 1.	GRO/RRO @ 20ppm SVFGRO/RRO @ 50ppm SVFGRO/RRO @ 200ppm SVFGRO/RRO @ 500ppm SVFGRO/RRO @ 2000ppm SVFGRO/RRO @ 5000ppm SVFGRO/RRO SVFGRO/R	01-06B F01-06C F01-06A VF01-05P VF01-05O		03/14/22011 5:10 03/14/22011 5:33 03/14/22011 5:55 03/14/22011 6:17 03/14/22011 7:01 03/14/22011 7:23 03/14/22011 7:45
39	89	0313F128.D	1.	DCM			03/14/22011 8:07 03/14/22011 8:30
41 42 43 44 45 46 47 48 49	8 9 10 11 12 13 14 15 89	0313F130.D 0313F132.D 0313F134.D 0313F136.D 0313F138.D 0313F140.D 0313F142.D 0313F144.D 0313F146.D 0313F148.D	1. 1. 1. 1. 1. 1. 1. 1.	DCM DRO @ 20/1.0ppm SVF01 DRO @ 50/2.5ppm SVF01 DRO @ 200/10ppm SVF01 DRO @ 500/25ppm SVF01 DRO @ 2000/100ppm SVF01 DRO @ 5000/250ppm SVF01 DRO @ 20000ppm SVF01 DRO @ 50000ppm SVF01 DRO @ 50000ppm SVF01	1-06J 1-06K 1-06I F01-06H F01-06G -06F -06E	, Ju	03/14/22011 8:52 03/14/22011 9:14 03/14/22011 9:37 03/14/22011 9:59 03/14/22011 10:20 03/14/22011 10:40 03/14/22011 11:20 03/14/22011 11:20 03/14/22011 11:50 03/14/22011 12:11
		0313F150.D 0313F152.D	1.	DRO ICV @ 1000ppm SVF GRO/RRO ICV @ 1000ppm	-01-01B // // /	7/1	03/14/22011 12:3
							03/14/22011 12:5

Response Factor Report GC21

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics Last Update : Mon Mar 14 14:08:46 2011

Calibration Files

DRO =0309F104.D RRO =0309F104.D 20 =0313F132.D 50 =0313F112.D 200 =0313F136.D 500 =0313F138.D

pers was	 Compound	DRO	RRO	20	50	200	500	Avg		%RSD	
1) 2) 3) 4) 5) 6) 7) 8) 9) 11) 12) 13) 14) 15) 16) 17) 18) 20) 21) 22)	 4-Bromofluoroben o-Terphenyl Triacontane C8-C12ex GRO NW C10-C24ex DRO Ar C10-C25ex DRO AK C10-C28in DRO 80 C12-C24ex DRO T& C12-C25ex DRO NW C13-C23ex DRO AZ C23-C32in RRO AZ C24-C36in RRO T& C25-C36in RRO NW C25-C36in RRO Mo C29-C36in RRO Pr Ethylbenzene p,m-Xylenes o-Xylene a-Pinene 1,2,3-Trimethylb	DRO	RRO	5.630 1.261 1.132 3.781 1.017 1.026 1.066	5.408 1.240 1.090 4.258 1.033 1.037 1.049 9.191 9.233 8.280 5.121 7.227 6.949 6.841 4.870	5.924 1.312 1.115 3.481 1.099 1.102 1.107 9.778 9.814 8.797 4.424 6.204 5.874	5.640 1.246 1.063 3.808 1.088 1.091 1.095 9.677 9.715 8.704 4.652 6.533 6.184 6.184	5.668 1.258 1.093 3.852 1.056 1.061 1.070 9.393 9.438 8.452 4.580 6.434 6.108 6.086 4.262 5.984 0.000 0.000 0.000 0.000 0.000	E3 E2 E3 E3 E2 E2 E2 E2 E2 E2 E2 E2	3.30 2.37 2.38 7.01 3.85 3.77 3.44 3.85 3.76 3.79 7.29 7.68 8.43 7.74 8.81 7.29 -1.00 -1.00 -1.00	
23) 24) 25)	Fluoranthene Pyrene 2,6,10-Trimethyl							0.000 0.000 0.000		-1.00 -1.00 -1.00 -1.00	
26) 27) 28) 29)	2,6,10-Trimethyl Norpristane Pristane Phytane							0.000 0.000 0.000 0.000		-1.00 -1.00 -1.00 -1.00	

^{(#) =} Out of Range ### Number of calibration levels exceeded format ### 031311FSRO.M Mon Mar 14 20:51:19 2011 Page 1

DATA ANALYSIS PARAMETERS

Method Name: J:\GC21\METHODS\031311FSRO.M

Percent Report Settings

Sort By: Signal

Output Destination

Screen: No Printer: Yes File: No

Integration Events: Meth Default

Generate Report During Run Method: No

Signal Correlation Window: 0.020

Quantitative Report Settings

Report Type: Summary

Output Destination

Screen: Yes Printer: No File: No

Generate Report During Run Method: No

8015/NWTPH Semivolatile Range Organics Calibration Last Updated: Mon Mar 14 14:08:46 2011

Reference Window: 10.00 Minutes Non-Reference Window: 5.00 Minutes Correlation Window: 0.02 minutes

Default Multiplier: 1.00

Default Sample Concentration: 0.00

Compound Information

Lvl ID Conc (ppm) Response

^{1) 4-}Bromofluorobenzene ()
Ret. Time 2.86 min., Extract & Integrate from 2.81 to 2.91 min.

```
RRO-
           not used for this compound
             1.000 563
                  2.500
                                      1352
 50

      50
      2.500
      1352

      200
      10.000
      5924

      500
      25.000
      14101

      2000
      100.000
      55652

      5000
      250.000
      145967

      20K
      not used for this compound

      50K
      not used for this compound

 Curve Fit: Avg. RF
 ______
  2) o-Terphenyl
 Ret. Time 5.54 min., Extract & Integrate from 5.49 to 5.59 min.
Lvl ID Conc (ppm) Response
DRO 50.000 -1
RRO
             not used for this compound
1.000 1261
50 2.500 3100
200 10.000 13120
500 25.000 31146
2000 100.000 122565
5000 250.000 315197
20K not used for this compound
50K not used for this compound
Curve Fit: Avg. RF
3) Triacontane
Ret. Time 7.69 min., Extract & Integrate from 7.64 to 7.74 min.
Lvl ID Conc (ppm) Response
DRO 50.000 -1
RRO not used for this compound
RRO
20
50
1.000 1132
1.000 2725
2.500 2725
200 10.000 11152
500 25.000 26575
2000 100.000 107822
5000 250.000 269457
20K not used for this compound
50K not used for this compound
Curve Fit: Avg. RF
4) C8-C12ex GRO NW
Ret. Time 2.29 min., Extract & Integrate from 2.29 to 3.74 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
           1000.000 -1
20.000 7561
50.000 21292
200.000 69621
RRO
20
50

      200
      200.000
      69621

      500
      500.000
      190407
```

DRO

50.000

```
2000 2000.000
5000 5000.000
                                   745963
2025853
            20000.000
 20K
                                     -1
 50K
             50000.000
                                             -1
 Curve Fit: Avg. RF
 5) C10-C24ex DRO Arcadis
 Ret. Time 3.10 min., Extract & Integrate from 3.10 to 6.43 min.
 Lvl ID Conc (ppm) Response
           1000.000 -1
 DRO
 RRO
              not used for this compound
 20
              20.000 20338
 50
                  50.000
                                        51639
          200.000 219749

500.000 543854

2000.000 2097592

5000.000 5603471

20000.000 20218042

50000.000 51768726
 200
 500
 2000
 5000
 20K
 50K
 Curve Fit: Avq. RF
 6) C10-C25ex DRO AK102
                                                                        . ( )
Ret. Time 3.20 min., Extract & Integrate from 3.10 to 6.61 min.
Lvl ID Conc (ppm) Response
DRO 1000.000 -1
            not used for this compound
RRO
20
            20.000 20518

      50
      50.000
      51846

      200
      200.000
      220475

      500
      500.000
      545727

      2000
      2000.000
      2105071

      5000
      5000.000
      5623433

      20K
      20000.000
      20290541

      50K
      50000.000
      51954781

                                       51846
50
                 50.000
Curve Fit: Avg. RF
7) C10-C28in DRO 8015
Ret. Time 3.30 min., Extract & Integrate from 3.10 to 7.39 min.
Lvl ID
           Conc (ppm) Response
DRO
             1000.000 -1
RRO
              not used for this compound
20
50
             20.000 21323
50.000 52434

      20
      20.000
      21323

      50
      50.000
      52434

      200
      200.000
      221300

      500
      500.000
      547653

      2000
      2000.000
      2112456

      5000
      5000.000
      5643290

      20K
      20000.000
      20362250

      50K
      50000.000
      52137935
```

11) C23-C32in RRO AZ () Ret. Time 6.25 min., Extract & Integrate from 6.25 to 8.20 min.

```
Lvl ID Conc (ppm) Response
   DRO not used for this compound
                                      1000.000 -1
20.000 -1
50.000 25607
200.000 88472
500.000 232608
   RRO
   20
   50
   200
                                                                                                   232608
851342
   500
                                          2000.000
   2000
  5000 5000.000 2222647
20K 20000.000 -1
50K 50000.000 -1
   Curve Fit: Avg. RF
   12) C24-C36in RRO T&R/Arcadis ( )
  Ret. Time 6.43 min., Extract & Integrate from 6.43 to 9.20 min.
  Lvl ID Conc (ppm) Response
  DRO not used for this compound
DRO not used for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed for this composed
 Curve Fit: Avg. RF
  _____
 13) C25-C36in RRO NW
 Ret. Time 6.61 min., Extract & Integrate from 6.61 to 9.20 min.
 Lvl ID Conc (ppm) Response
 DRO not used for this compound
                               not used for this composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of the composition of
 RRO
 20
 50
 200
500
 2000
 5000
                          20000.000
 20K
 50K
 Curve Fit: Avg. RF
 14) C25-C36in RRO Motor Oil
                                                                                                                                                                                                                       ( )
 Ret. Time 6.71 min., Extract & Integrate from 6.61 to 9.20 min.
 Lvl ID Conc (ppm) Response
 DRO
                    not used for this compound
                                   1000.000 -1
20.000 -1
50.000 34205
RRO
                                        20.000
50.000
 20
 50 50.000 34205
200 200.000 117489
```

```
500.000 309195
2000.000 1118711
5000.000 2969740
20000.000 -1
   500
                            2000.000
   2000
   5000
                             5000.000
                        20000.000
   20K
                                                                        -1
-1
   50K
                          50000.000
   Curve Fit: Avg. RF
   15) C29-C36in RRO Stratus ( )
  Ret. Time 7.39 min., Extract & Integrate from 7.39 to 9.20 min.
  Lvl ID Conc (ppm) Response
  DRO not used for this compound
                         1000.000 -1
20.000 -1
50.000 24348
200.000 81895
  RRO
  20
  50
                            200.000
  200
                                                                   215821
774184

      500
      500.000
      215821

      2000
      2000.000
      774184

      5000
      5000.000
      2079701

      20K
      20000.000
      -1

      50K
      50000.000
      -1

  Curve Fit: Avg. RF
   16) C29-C40in RRO Premier ( )
 Ret. Time 7.49 min., Extract & Integrate from 7.39 to 10.53 min.
 Lvl ID Conc (ppm) Response
 DRO not used for this compound
DRO not used for this component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the component of the c
 Curve Fit: Avg. RF
17) Ethylbenzene
                                                                                                                                              ( )
 Ret. Time 2.63 min., Extract & Integrate from 2.58 to 2.68 min.
 Lvl ID Conc (ppm) Response
DRO not used for this compound not used for this compound
20 20.000

50 50.000

200 200.000

500 500.000

2000 2000.000

5000 5000.000

5000 5000.000

50K 20000.000
                                                              -1
                                                                                       -1
                                                                                     -1
                                                                                      -1
                                                                                        - 1
                                                                                 -1
```

```
Curve Fit: Avg. RF
18) p,m-Xylenes
Ret. Time 2.67 min., Extract & Integrate from 2.62 to 2.72 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO
        not used for this compound
        20.000
20
                      -1
         50.000
200.000
500.000
50
                          -1
-1
-1
-1
200
500
       2000.000
2000
5000
                          -1
       20000.000
20K
50K
       50000.000
                             -1
Curve Fit: Avg. RF
19) o-Xylene
Ret. Time 2.77 min., Extract & Integrate from 2.72 to 2.82 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound RRO not used for this compound
       20.000 -1
50.000 -1
200.000 -1
500.000 -1
2000.000 -1
5000.000 -1
20
50
200
500
2000
5000
         5000.000
                         -1
-1
       5000.000
20000.000
20K
50K
       50000.000
                             -1
Curve Fit: Avg. RF
20) a-Pinene
Ret. Time 2.98 min., Extract & Integrate from 2.93 to 3.03 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO not used for this compound
       20.000 -1
50.000 -1
20
50
                          -1
         200.000
200
       500.000 -1
2000.000 -1
5000.000 -1
20000.000 -1
500
2000
5000
         20000.000
20K
        20000.000
                             -1
50K
                           - 1
Curve Fit: Avg. RF
21) b-Pinene
                                            ( )
Ret. Time 3.14 min., Extract & Integrate from 3.09 to 3.19 min.
```

```
Lvl ID Conc (ppm) Response
 DRO not used for this compound
 RRO
        not used for this compound
           20.000 -1
50.000 -1
 20
 50
            200.000
 200
                                     -1
 500
                                      -1
2000 2000.000 -1
5000 5000.000 -1
20K 20000.000 -1
20K 20000.000
50K 50000.000
                                     -1
Curve Fit: Avg. RF
 22) 1,2,3-Trimethylbenzene ()
Ret. Time 3.26 min., Extract & Integrate from 3.21 to 3.31 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound RRO not used for this compound
20
50
         20.000 -1
50.000 -1

      50
      50.000

      200
      200.000

      500
      500.000

      2000
      2000.000

      5000
      5000.000

      20K
      20000.000

      50K
      50000.000

                                  -1
-1
-1
-1
                                 -1
                                      -1
Curve Fit: Avg. RF
23) Fluoranthene
Ret. Time 5.92 min., Extract & Integrate from 5.87 to 5.97 min.
Lvl ID Conc (ppm) Response

DRO not used for this compound

RRO not used for this compound

20 20.000 -1

50 50.000 -1

200 200.000 -1

500 500.000 -1

2000 2000.000 -1

2000 2000.000 -1

5000 5000.000 -1

50K 20000.000 -1

50K 50000.000 -1
          50000.000
50K
                                 - 1
Curve Fit: Avg. RF
24) Pyrene
Ret. Time 6.03 min., Extract & Integrate from 5.98 to 6.08 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO
           not used for this compound
20
           20.000 -1
50
               50.000
                                      -1
```

```
200 200.000
500 500.000
                                          - 1
                                           - 1
                                         -1
 2000 2000.000
          5000.000
5000
                                          -1
20K
                                          - 1
50K
           50000.000
                                           -1
Curve Fit: Avg. RF
 _______
25) 2,6,10-Trimethyldodecane ()
Ret. Time 4.35 min., Extract & Integrate from 4.30 to 4.40 min.
Lvl ID Conc ( ) Response
DRO not used for this compound
RRO not used for this compound
20 20.000 -1
50 50.000 -1
            200.000
200
                                          -1

    500
    500.000

    2000
    2000.000

    5000.000
    5000.000

                                          -1
                                          -1
5000 5000.000
20K 20000.000
50K 50000.000
                                          - 1
                                          - 1
                                           - 1
Curve Fit: Avq. RF
26) 2,6,10-Trimethyltridecane ( )
Ret. Time 4.57 min., Extract & Integrate from 4.52 to 4.62 min.
Lvl ID Conc ( ) Response
DRO not used for this compound RRO not used for this compound
20
50
           20.000 -1
50.000 -1

      50
      50.000

      200
      200.000

      500
      500.000

      2000
      2000.000

      5000
      5000.000

      20K
      20000.000

      50K
      50000.000

                                          -1
                                          -1
                                          -1
                                          - 1
                                          - 1
                                           -1
Curve Fit: Avg. RF
27) Norpristane
Ret. Time 5.03 min., Extract & Integrate from 4.98 to 5.08 min.
Lvl ID Conc ( ) Response
DRO not used for this compound
          not used for this compound
RRO
20 20.000 -1
50 50.000 -1
                                          - 1

      50
      50.000

      200
      200.000

      500
      500.000

      2000
      2000.000

      5000
      5000.000

      20K
      20000.000

      50K
      50000.000

200
                                   -1
-1
                                   -1
-1
                                          -1
                                       -1
                                           -1-
```

```
Curve Fit: Avg. RF
28) Pristane
                                    ( )
Ret. Time 5.16 min., Extract & Integrate from 5.11 to 5.21 min.
Lvl ID Conc (ppm) Response
DRO not used for this compound
RRO
      not used for this compound
20
      20.000
                 -1
                    -1
-1
50
        50.000
       200.000
500.000
200
                    -1
-1
-1
-1
500
       2000.000
2000
5000
       5000.000
20K
      20000.000
50K
      50000.000
                      - 1
Curve Fit: Avg. RF
______
29) Phytane
Ret. Time 5.39 min., Extract & Integrate from 5.34 to 5.44 min.
Lvl ID Conc (ppm) Response
     not used for this compound
DRO
      not used for this compound
RRO
       20.000
                -1
20
50
                      - 1.
       200.000
200
                      -1
500
                      -1
      2000.000
5000.000
2000
5000
                      - 1
     20000.000
20K
                      -1
50K 50000.000
                       -1
```

END OF DATA ANALYSIS PARAMETERS

Curve Fit: Avg. RF

Mon Mar 14 20:49:51 2011

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\031311F\0313F104.D
Acq On : 14 Mar 2011 4:04 am

Vial: 99 Operator: JMSmith Inst : GC21

Sample Misc

: SHC MARKER | SVF01-04E

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 13:39 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

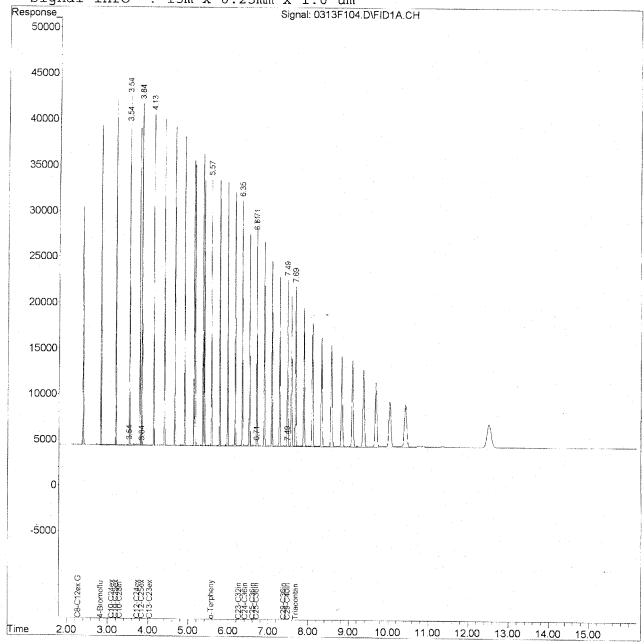
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

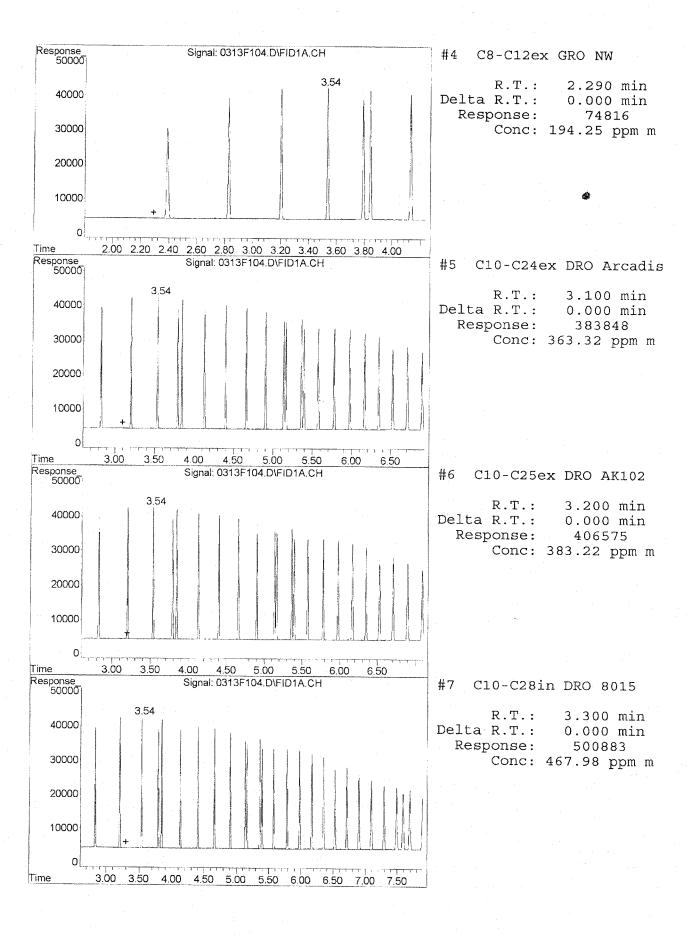
Signal Info : 15m x 0.25mm x 1.0 um

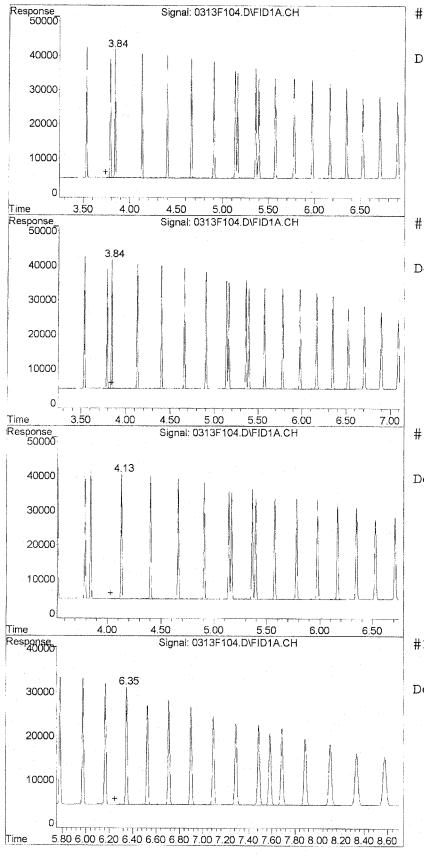


0313F104.D 031311FSRO.M

Mon Mar 14 13:39:59 2011

Page 2





#8 C12-C24ex DRO T&R

R.T.: 3.740 min
Delta R.T.: 0.000 min
Response: 334501

Conc: 356.10 ppm m

#9 C12-C25ex DRO NW

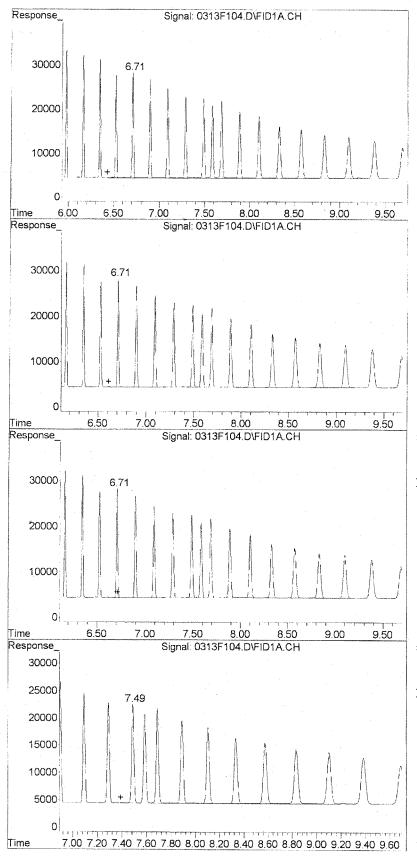
R.T.: 3.840 min
Delta R.T.: 0.000 min
Response: 357227
Conc: 378.50 ppm m

#10 C13-C23ex DRO AZ

R.T.: 4.030 min
Delta R.T.: 0.000 min
Response: 263031
Conc: 311.20 ppm m

#11 C23-C32in RRO AZ

R.T.: 6.250 min
Delta R.T.: 0.000 min
Response: 233270
Conc: 499.67 ppm m



#12 C24-C36in RRO T&R/Arcadi

R.T.: 6.430 min
Delta R.T.: 0.000 min
Response: 298385
Conc: 452.21 ppm m

33.21 pp. ...

#13 C25-C36in RRO NW

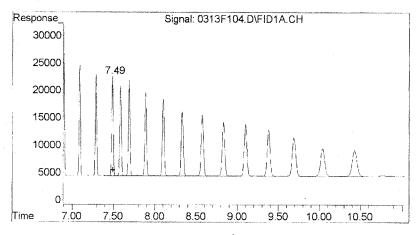
R.T.: 6.610 min
Delta R.T.: 0.000 min
Response: 275659
Conc: 441.32 ppm m

#14 C25-C36in RRO Motor Oil

R.T.: 6.710 min
Delta R.T.: 0.000 min
Response: 275659
Conc: 441.32 ppm m

#15 C29-C36in RRO Stratus

R.T.: 7.390 min
Delta R.T.: 0.000 min
Response: 181351
Conc: 414.40 ppm m



#16 C29-C40in RRO Premier

R.T.: 7.490 min

Delta R.T.: 0.000 min Response: 265103

Conc: 423.03 ppm m

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\031311F\0313F110.D

Vial: 1

Acq On : 14 Mar 2011 5:10 am Operator: JMSmith Sample : GRO/RRO @ 20ppm | SVF01-06D

Misc

Inst : GC21

IntFile : rteint.p

Multiplr: 1.00

Quant Time: Mar 14 11:43:05 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

	Compound	R.T.	Response	Conc Units
Syst	em Monitoring Compounds			
4) H 11) H	cet Compounds C8-C12ex GRO NW C23-C32in RRO AZ C24-C36in RRO T&R/Arcadis C25-C36in RRO NW C25-C36in RRO Motor Oil C29-C36in RRO Stratus	2.29 6.25 6.43 6.61 6.71 7.39	7561 12115 18184 17342 17342 12644	29.615 ppm 18.699 ppm 22.582 ppm 22.831 ppm 22.139 ppm 24.409 ppm
16) H	C29-C40in RRO Premier	7.49	19911	27.448 ppm

Quantitation Report (Not Reviewed)

Data File : J:\GC21\DATA\031311F\0313F110.D

Vial: 1

Acq On : 14 Mar 2011 5:10 am Operator: JMSmith Sample

Misc

: GRO/RRO @ 20ppm | SVF01-06D

: GC21 Inst

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:48 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

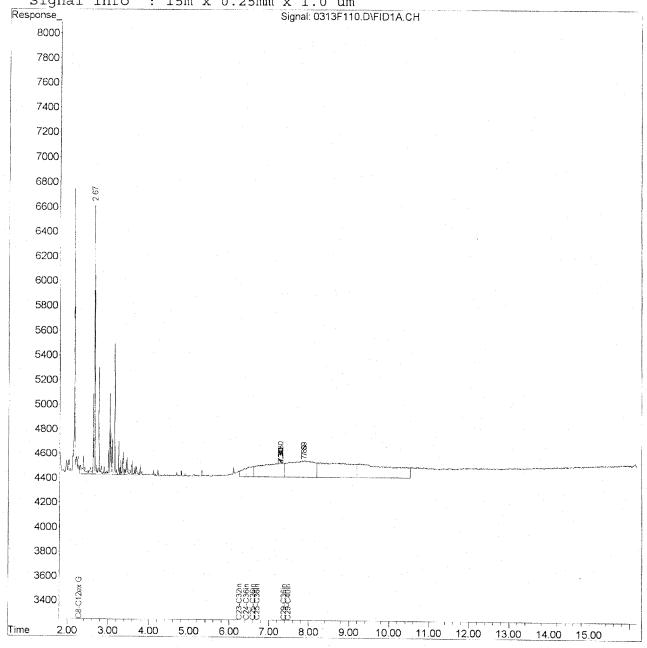
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F110.D 031311FSRO.M

Mon Mar 14 13:30:55 2011

Quantitation Report (QT Reviewed)

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 Acq On : 14 Mar 2011 5:33 am Sample : GRO/RRO @ 50ppm | SVF01-06B Operator: JMSmith Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:43:06 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics Last Update : Mon Mar 14 11:41:53 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc Units
System Monitoring Compou	nds		
Target Compounds			
4) H C8-C12ex GRO NW	2.29	21292	83.397 ppm
11) H C23-C32in RRO AZ	6.25	25607	68.243 ppm
12) H C24-C36in RRO T&R/A	rcadis 6.43	36133	66.778 ppm
13) H C25-C36in RRO NW	6.61	34745	67.973 ppm
14) H C25-C36in RRO Motor		34205	65.895 ppm
15) H C29-C36in RRO Strat	us 7.39	24348	66.224 ppm
16) H C29-C40in RRO Premi	er 7.49	33196	59.863 ppm

Quantitation Report (QT Reviewed)

Data File : J:\GC21\DATA\031311F\0313F112.D Vial: 2

Acq On : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 14:08 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

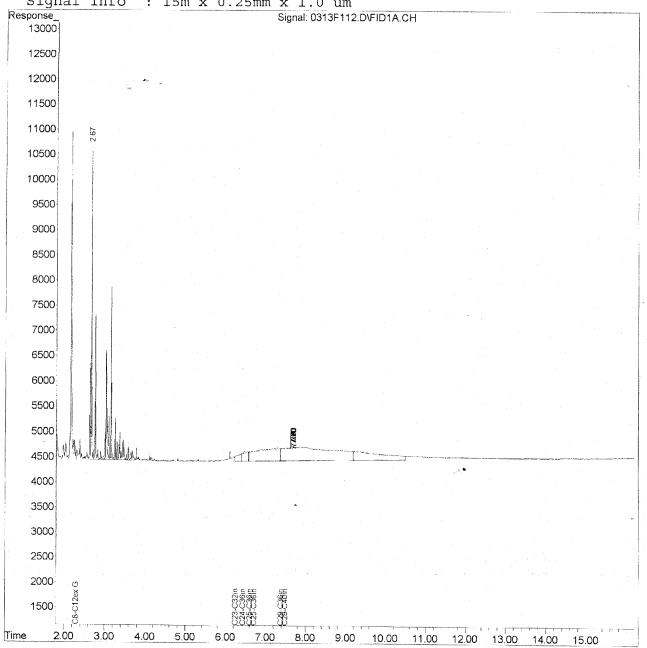
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via: Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F112.D 031311FSRO.M

Mon Mar 14 14:09:17 2011

Page 2

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Operator: JMSmith : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Acq On

Sample

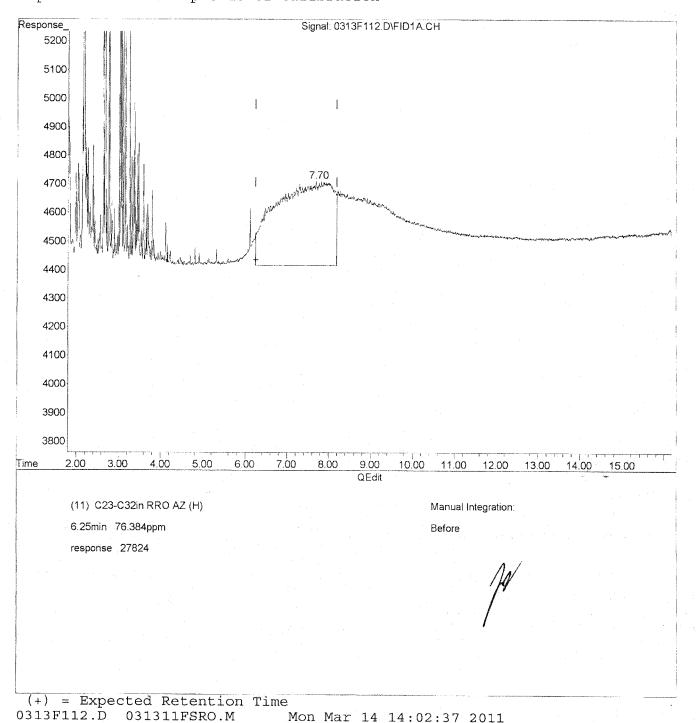
Misc

Quant Time: Mar 14 11:49 2011 Quant Results File: 031311FSRO.RES

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via: Multiple Level Calibration



Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2

Acq On

: 14 Mar 2011 5:33 am

Operator: JMSmith

Sample Misc

: GRO/RRO @ 50ppm | SVF01-06B

Inst

: GC21 Multiplr: 1.00

IntFile

: rteint.p

Quant Time: Mar 14 11:49 2011 Quant Results File: 031311FSRO.RES

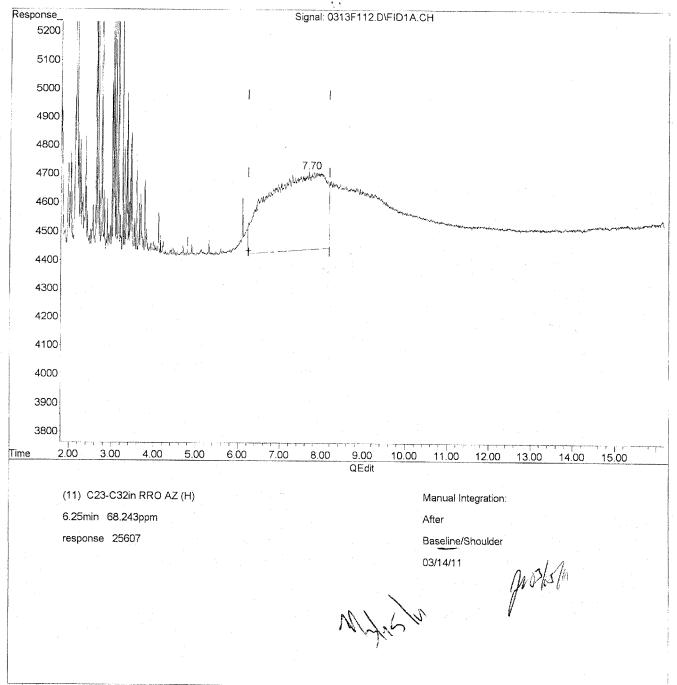
Method

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title

: 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time

0313F112.D 031311FSRO.M

Mon Mar 14 14:03:15 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2

 Acq On
 : 14 Mar 2011 5:33 am
 Operator: JMSmith

 Sample
 : GRO/RRO @ 50ppm | SVF01-06B
 Inst : GC21

 Misc
 : Multiplr: 1.00

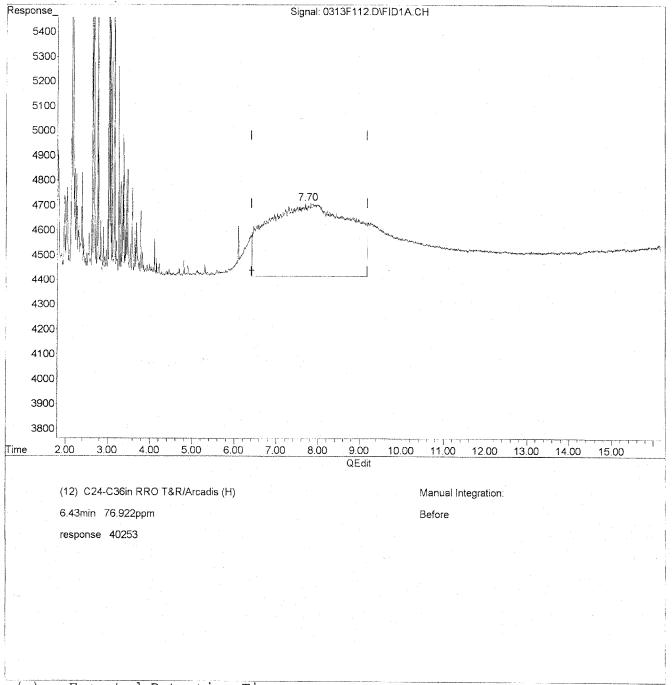
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time

0313F112.D 031311FSRO.M

Mon Mar 14 14:04:08 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 Acq On : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Misc Multiplr: 1.00

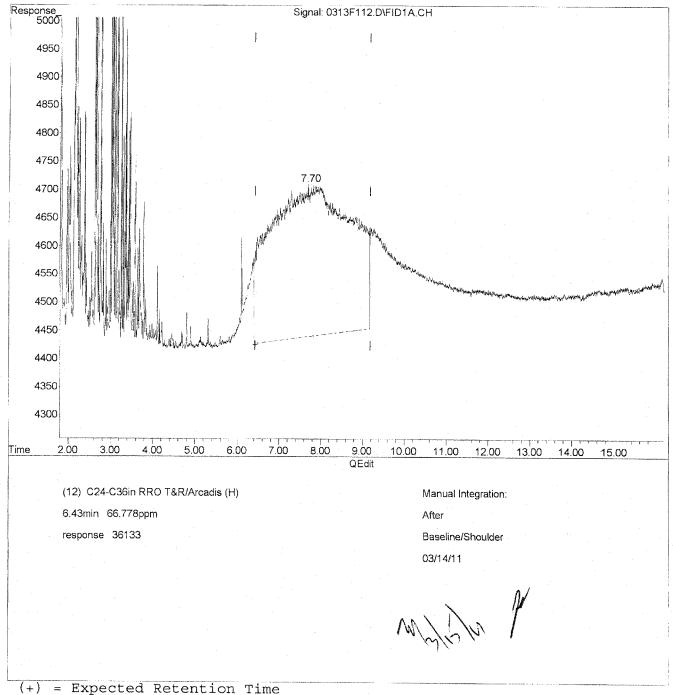
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via: Multiple Level Calibration



0313F112.D 031311FSRO.M

Mon Mar 14 14:04:38 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Misc Multiplr: 1.00

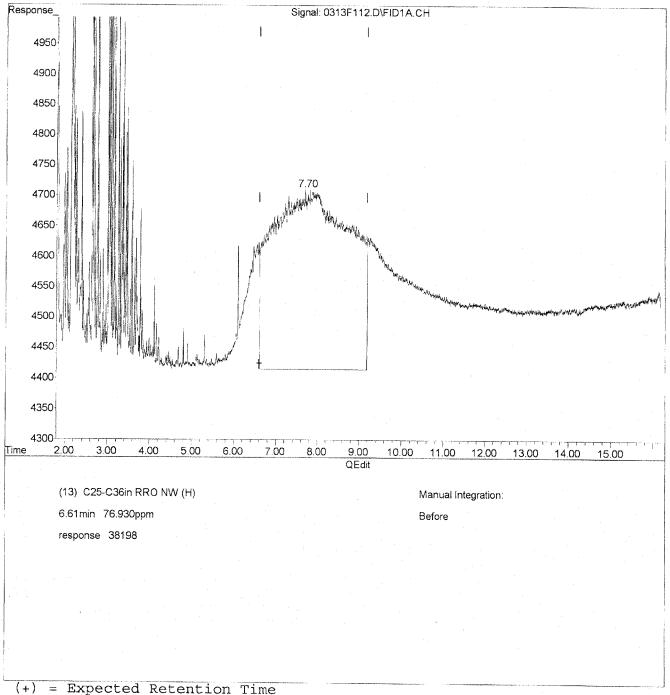
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Method

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M

Mon Mar 14 14:04:49 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B : GC21 Misc Multiplr: 1.00

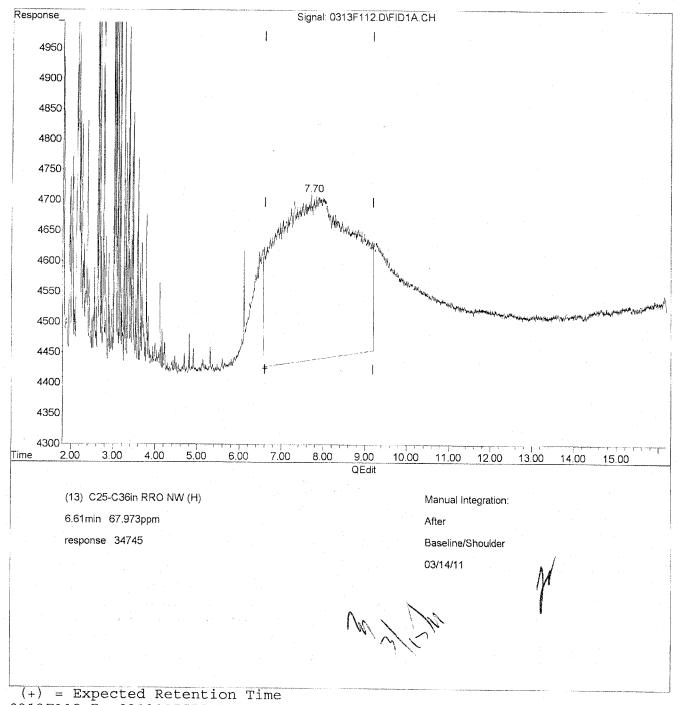
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



0313F112.D 031311FSRO.M

Mon Mar 14 14:05:17 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 Acq On : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Misc Multiplr: 1.00

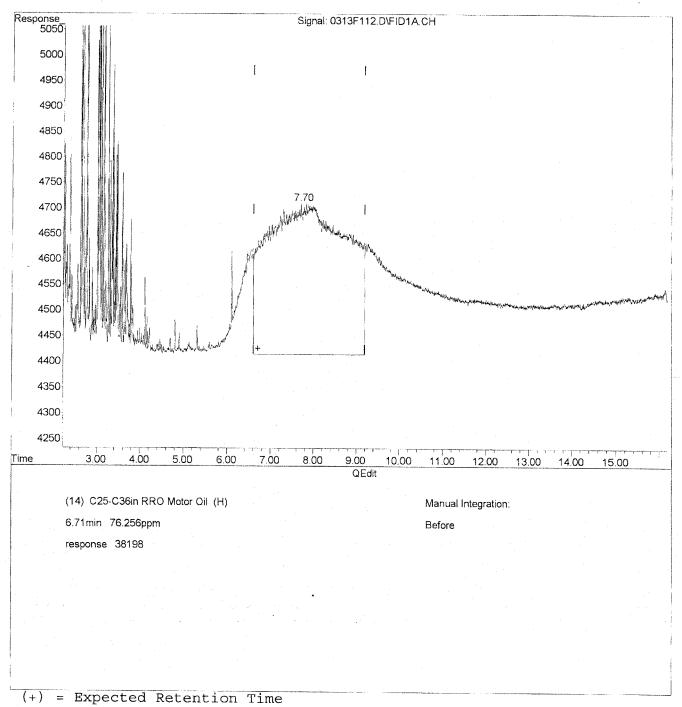
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via: Multiple Level Calibration



0313F112.D 031311FSRO.M

Mon Mar 14 14:05:32 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B : GC21 Inst Misc Multiplr: 1.00

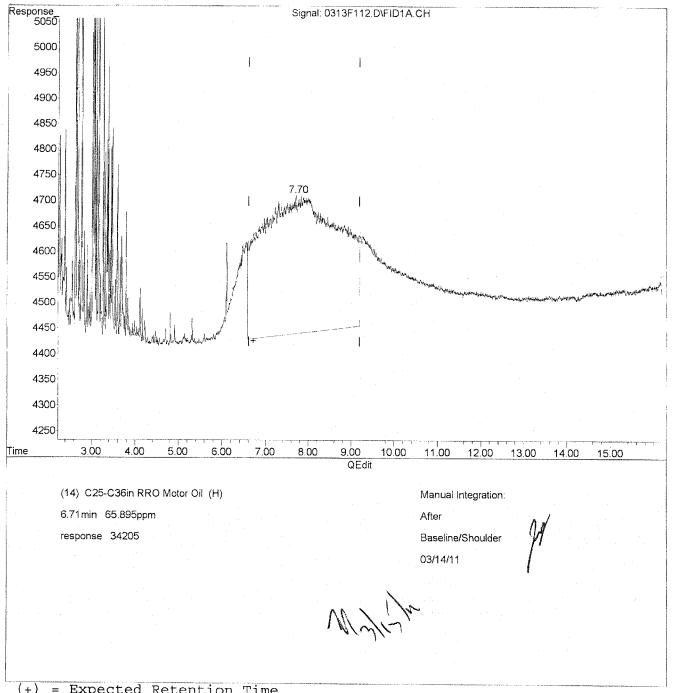
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via: Multiple Level Calibration



(+) = Expected Retention Time

0313F112.D 031311FSRO.M Mon Mar 14 14:06:09 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Acq On Operator: JMSmith Sample : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Misc Multiplr: 1.00

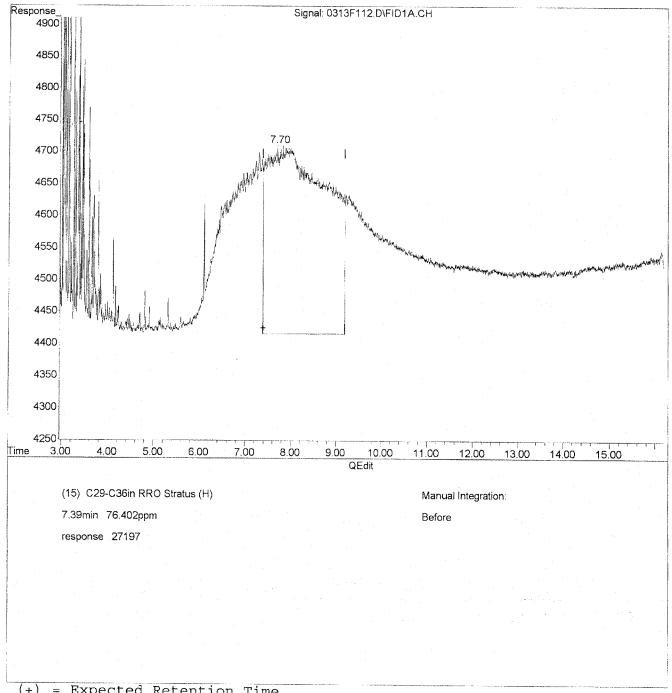
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

: J:\GC21\METHODS\031311FSRO.M (RTE Integrator) Method

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Multiple Level Calibration



(+) = Expected Retention Time

0313F112.D 031311FSRO.M

Mon Mar 14 14:07:08 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Acq On Operator: JMSmith : GRO/RRO @ 50ppm | SVF01-06B Sample Inst : GC21 Misc Multiplr: 1.00

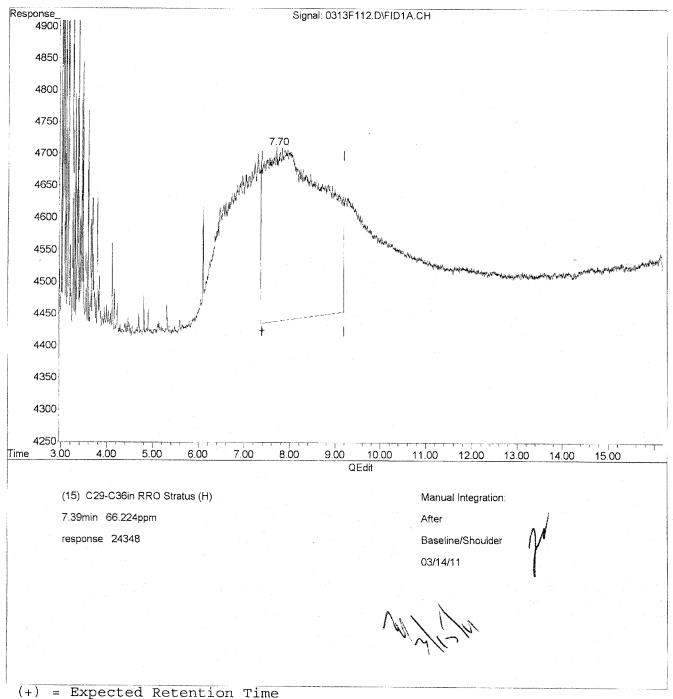
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via: Multiple Level Calibration



0313F112.D 031311FSRO.M Mon Mar 14 14:07:50 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 Acq On : 14 Mar 2011 5:33 am Operator: JMSmith

Sample : GRO/RRO @ 50ppm | SVF01-06B Inst : GC21 Misc Multiplr: 1.00

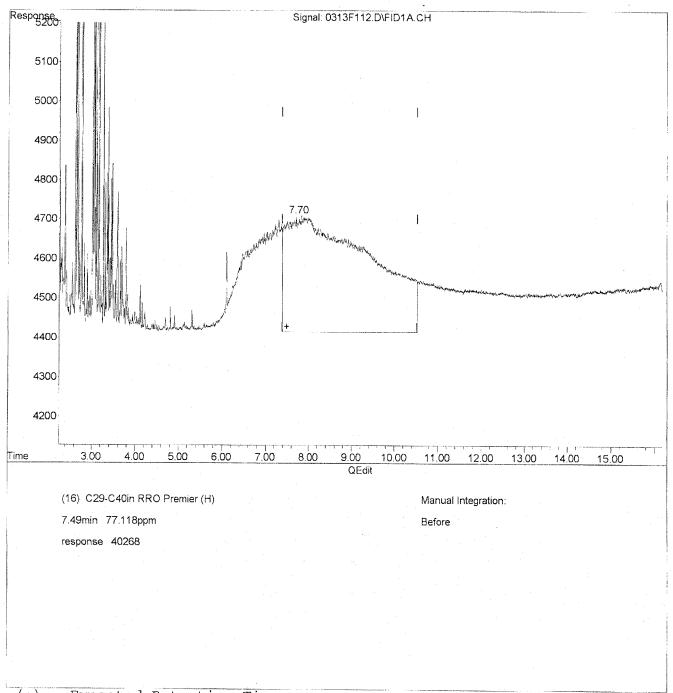
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via: Multiple Level Calibration



(+) = Expected Retention Time

0313F112.D 031311FSRO.M Mon Mar 14 14:08:04 2011

Data File : J:\GC21\DATA\031311F\0313F112.D

Vial: 2 : 14 Mar 2011 5:33 am Acq On Operator: JMSmith : GRO/RRO @ 50ppm | SVF01-06B Sample Inst : GC21 Misc Multiplr: 1.00

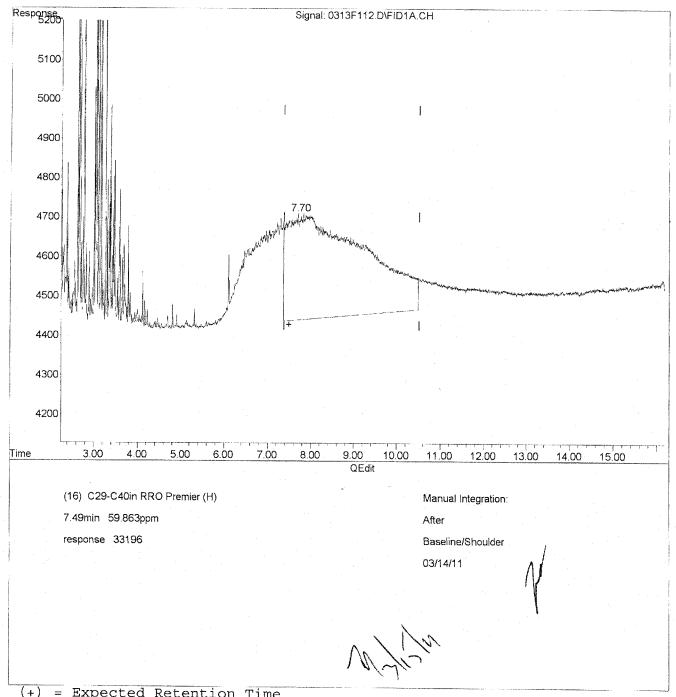
IntFile : rteint.p

Quant Time: Mar 14 14:02 2011 Quant Results File: 031311FSRO.RES

Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via: Multiple Level Calibration



(+) = Expected Retention Time

0313F112.D 031311FSRO.M

Mon Mar 14 14:08:28 2011

Quantitation Report (QT Reviewed)

Data File : J:\GC21\DATA\031311F\0313F114.D

Acq On : 14 Mar 2011 5:55 am Vial: 3 Acq On : 14 Mar 2011 5:55 am
Sample : GRO/RRO @ 200ppm | SVF01-06C
Misc :
IntFile : rteint.p Vial: 3 Operator: JMSmith Inst : GC21 Multiplr: 1.00

Quant Time: Mar 14 11:43:07 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics Last Update : Mon Mar 14 11:41:53 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound R.T. Response Conc Units

System Monitoring Compounds

Target Compounds

	_	±				
4)	H	C8-C12ex GRO NW	2.29	69621	272.692	maa
11)	Н	C23-C32in RRO AZ	6.25		299.090	
12)	Н	C24-C36in RRO T&R/Arcadis	6.43		283.346	
13)	H	C25-C36in RRO NW	6.61		282.605	
14)	H	C25-C36in RRO Motor Oil	6.71		282.000	
15)	Н	C29-C36in RRO Stratus	7.39		271.819	
16)	H	C29-C40in RRO Premier	7.49		262.365	

(f)=RT Delta > 1/2 Window (m)=manual int. 0313F114.D 031311FSRO.M Mon Mar 14 13:30:58 2011 Page 1

 Acq On
 : 14 Mar 2011 5:55 am
 Operator: JMSmith

 Sample
 : GRO/RRO @ 200ppm | SVF01-06C
 Inst : GC21

 Misc
 : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:51 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um Response_ Signal: 0313F114.D\FID1A.CH 32000 30000 28000 26000 24000 22000 20000 18000 16000 14000 12000 10000 8000 6000 4000 2000 0 -2000 -4000 C12ex G 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00 14.00 15.00

0313F114.D 031311FSRO.M

Mon Mar 14 13:30:59 2011

Data File : J:\GC21\DATA\031311F\0313F116.D

Vial: 4 Acq On : 14 Mar 2011 6:17 am Operator: JMSmith Sample : GRO/RRO @ 500ppm | SVF01-06A Misc : IntFile : rteint.p Inst : GC21 Multiplr: 1.00

Quant Time: Mar 14 11:43:08 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011

Response via : Initial Calibration DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

*** *** *** ***	Compound	R.T.	Response	Conc Units	
Syst	em Monitoring Compounds				
Targ	et Compounds				
4) H	C8-C12ex GRO NW	2.29	190407	745.788 ppm	
11) H	C23-C32in RRO AZ	6.25	232608	828.373 ppm	
12) H	C24-C36in RRO T&R/Arcadis	6.43	326671	782.158 ppm	
13) H	C25-C36in RRO NW	6.61	309195	779.874 ppm	
14) H	C25-C36in RRO Motor Oil	6.71	309195	779.437 ppm	
15) H	C29-C36in RRO Stratus	7.39	215821	750.290 ppm	
16) H	C29-C40in RRO Premier	7.49	303213	718.702 ppm	

Data File : J:\GC21\DATA\031311F\0313F116.D

Vial: 4 Acq On : 14 Mar 2011 6:17 am Operator: JMSmith : GRO/RRO @ 500ppm | SVF01-06A Sample : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:53 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

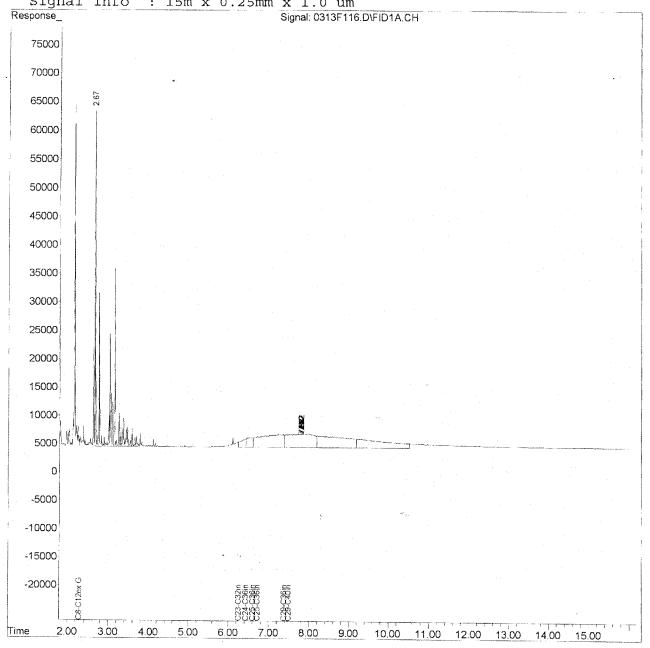
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F116.D 031311FSRO.M

Mon Mar 14 13:31:00 2011

Data File : J:\GC21\DATA\031311F\0313F118.D

Vial: 5 Acq On : 14 Mar 2011 6:39 am
Sample : GRO/RRO @ 2000ppm | SVF01-05P
Misc :
IntFile : rteint.p Operator: JMSmith

Inst : GC21 Multiplr: 1.00

Quant Time: Mar 14 11:43:10 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Initial Calibration DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound R.T. Response Conc Units

System Monitoring Compounds

	1 U. 9 C	c compounds					
		C8-C12ex GRO N		2.29	745963	2921.794	ppm
		C23-C32in RRO		6.25		3100.432	
12)		C24-C36in RRO		6.43		2893.432	
13)		C25-C36in RRO		6.61		2879.692	
14)	H	C25-C36in RRO	Motor Oil	6.71		2879.964	
15)	Н	C29-C36in RRO	Stratus	7.39		2745.126	
16)	H	C29-C40in RRO	Premier	7.49		2633.979	

Quantitation Report

(QT Reviewed)

Data File : J:\GC21\DATA\031311F\0313F118.D Vial: 5

 Acq On
 : 14 Mar 2011 6:39 am
 Operator: JMSmith

 Sample
 : GRO/RRO @ 2000ppm | SVF01-05P
 Inst : GC21

 Misc
 : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 11:54 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

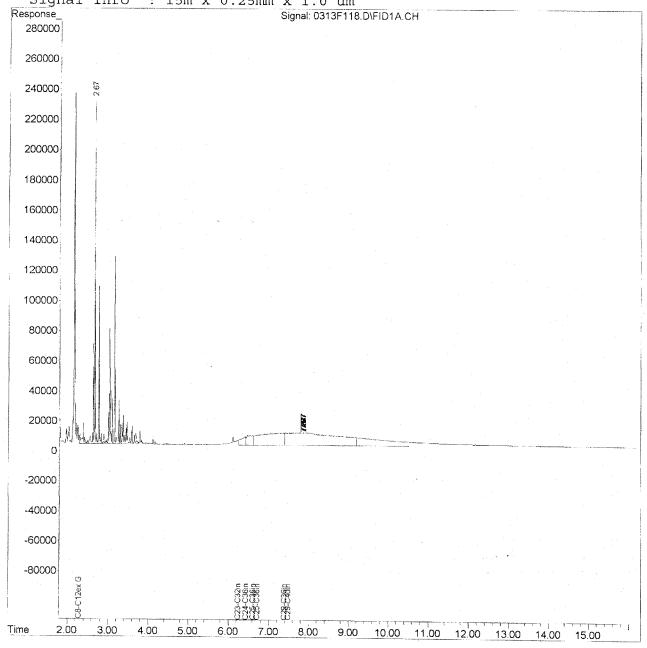
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F118.D 031311FSRO.M

Mon Mar 14 13:31:01 2011

Acq On : 14 Mar 2011 7:01 am

Sample : GRO/RRO @ 5000ppm | SVF01-050

Misc :
IntFile : rteint.p Multiplr: 1.00

Quant Time: Mar 14 11:43:11 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics
Last Update : Mon Mar 14 11:41:53 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound R.T. Response Conc Units

System Monitoring Compounds

Target Compounds

		1					
4)		C8-C12ex GRO NW		2.29	2025853	7934.877	mqq
11)	H	C23-C32in RRO A	λZ	6.25		8136.013	
12)	H	C24-C36in RRO T	C&R/Arcadis	6.43		7712.853	
13)	H	C25-C36in RRO N	W	6.61		7681.109	
14)	H	C25-C36in RRO M	Motor Oil	6.71		7683.000	
15)	H	C29-C36in RRO S	Stratus	7.39		7409.283	
16)	H	C29-C40in RRO F	Premier	7.49		7256.577	

(f)=RT Delta > 1/2 Window (f) = RT Delta > 1/2 Window (m) = manual int. 0313F120.D 031311FSRO.M Mon Mar 14 13:31:02 2011 Pa

Data File : J:\GC21\DATA\031311F\0313F120.D Vial: 6

IntFile : rteint.p

Quant Time: Mar 14 11:55 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

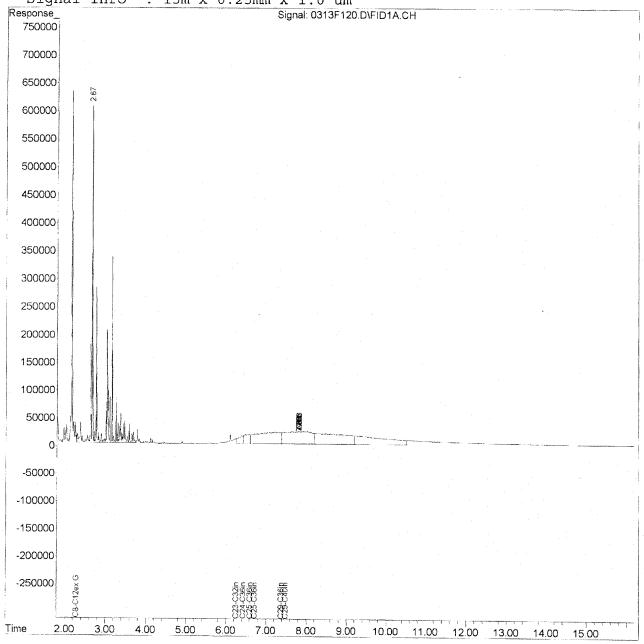
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 11:41:53 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F120.D 031311FSRO.M

Mon Mar 14 13:31:02 2011

Data File : J:\GC21\DATA\031311F\0313F132.D Vial: 8

Acq On : 14 Mar 2011 9:14 am Sample : DRO @ 20/1.0ppm | SVF01-06L Misc : IntFile Operator: JMSmith Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:43:25 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics
Last Update : Mon Mar 14 12:31:35 2011
Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T. Re	esponse	Conc Units	
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000	2.86 Recovery 5.53 Recovery	1261	1.470 ppm 2.94% 1.495 ppm 2.99%	
3) S Triacontane Spiked Amount 50.000	7.69 Recovery	1132	1.632 ppm 3.26%	
Target Compounds 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.10 3.20 3.30 3.74 3.84 4.03	20338 20518 21323 18103 18283 16285	29.045 ppm 29.067 ppm 28.988 ppm 30.253 ppm 30.281 ppm 30.368 ppm	

Data File : J:\GC21\DATA\031311F\0313F132.D

Vial: 8

Acq On : 14 Mar 2011 9:14 am Operator: JMSmith : DRO @ 20/1.0ppm | SVF01-06L Sample

Misc

Inst : GC21

Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:43 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

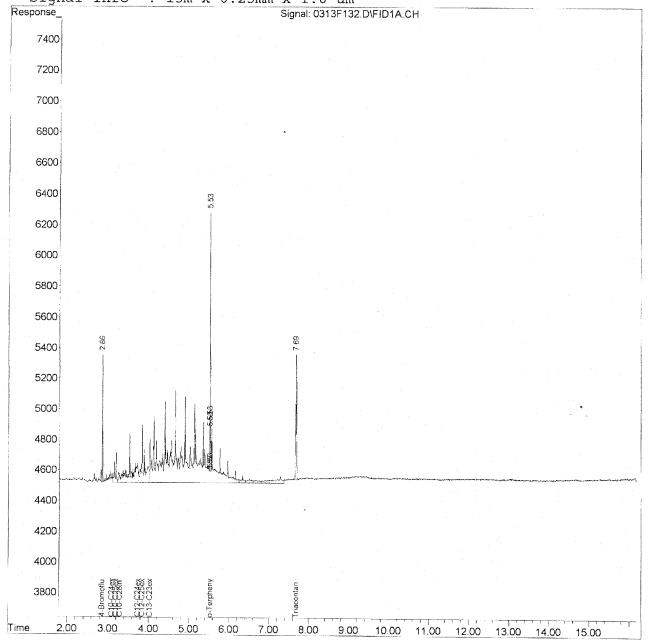
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F132.D 031311FSRO.M Mon Mar 14 13:31:03 2011

Data File : J:\GC21\DATA\031311F\0313F134.D Vial: 9

Acq On : 14 Mar 2011 9:37 am Operator: JMSmith Sample : DRO @ 50/2.5ppm | SVF01-06J Misc : Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:42:54 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)
Title : 8015/NWTPH Semivolatile Range Organics
Last Update : Mon Mar 14 12:31:35 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T.	Response	Conc Units
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	2.86 Recover 5.54 Recover 7.69 Recover	3100 ry = 2725	3.530 ppm 7.06% 3.676 ppm 7.35% 3.928 ppm 7.86%
Target Compounds 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.10 3.20 3.30 3.74 3.84 4.03	51639 51846 52434 45957 46163 41399	73.745 ppm 73.447 ppm 71.282 ppm 76.801 ppm 76.456 ppm 77.200 ppm

Data File : J:\GC21\DATA\031311F\0313F134.D

Vial: 9 Acq On : 14 Mar 2011 9:37 am Operator: JMSmith Sample : DRO @ 50/2.5ppm | SVF01-06J Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:44 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

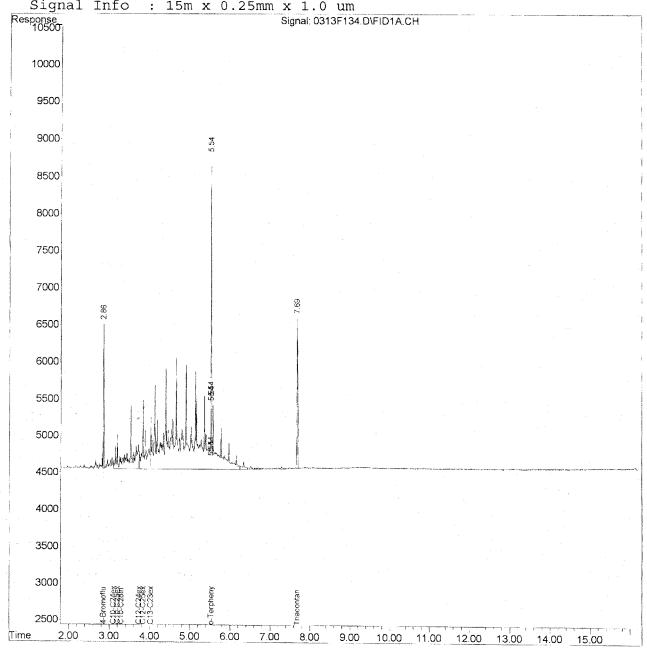
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0313F134.D 031311FSRO.M

Mon Mar 14 13:31:04 2011

Data File : J:\GC21\DATA\031311F\0313F136.D

Vial: 10 Acq On : 14 Mar 2011 9:59 am Operator: JMSmith Sample : DRO @ 200/10ppm | SVF01-06K Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:42:55 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics Last Update : Mon Mar 14 12:31:35 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	5.54	very = 11152	15.559 ppm 31.12% 16.076 ppm	
Target Compounds 5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ .	3.10 3.20 3.30 3.74 3.84 4.03	219749 220475 221300 195563 196289 175948	312.335 ppm 300.848 ppm 326.815 ppm 325.099 ppm	

Data File : J:\GC21\DATA\031311F\0313F136.D

Vial: 10

Acq On : 14 Mar 2011 9:59 am Operator: JMSmith Sample : DRO @ 200/10ppm | SVF01-06K Inst : GC21 Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:44 2011 Quant Results File: 031311FSRO.RES

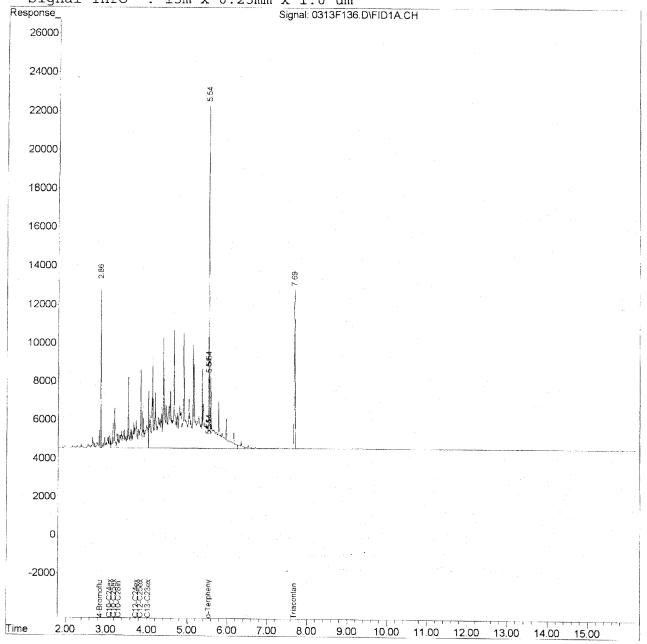
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1



0313F136.D 031311FSRO.M

Mon Mar 14 13:31:04 2011

Data File : J:\GC21\DATA\031311F\0313F138.D Vial: 11

Acq On : 14 Mar 2011 10:21 am
Sample : DRO @ 500/25ppm | SVF01-06I
Misc :
IntFile : rteint.p Operator: JMSmith Inst : GC21 Multiplr: 1.00

Quant Time: Mar 14 12:42:56 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds 1) S 4-Bromofluorobenzene Spiked Amount 50.000 2) S o-Terphenyl Spiked Amount 50.000 3) S Triacontane Spiked Amount 50.000	2.86 Recove 5.54 Recove 7.69 Recove	31146 ery = 26575	73.64% 36.936 ppm 73.87% 38.308 ppm	
Target Compounds				
5) H C10-C24ex DRO Arcadis 6) H C10-C25ex DRO AK102 7) H C10-C28in DRO 8015 8) H C12-C24ex DRO T&R 9) H C12-C25ex DRO NW 10) H C13-C23ex DRO AZ	3.10 3.20 3.30 3.74 3.84 4.03	543854 545727 547653 483873 485746 435205	744.512 ppm 808.623 ppm 804.506 ppm	

Data File : J:\GC21\DATA\031311F\0313F138.D

Vial: 11 Acq On : 14 Mar 2011 10:21 am Operator: JMSmith

Sample : DRO @ 500/25ppm | SVF01-06I : GC21 Inst Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:45 2011 Quant Results File: 031311FSRO.RES

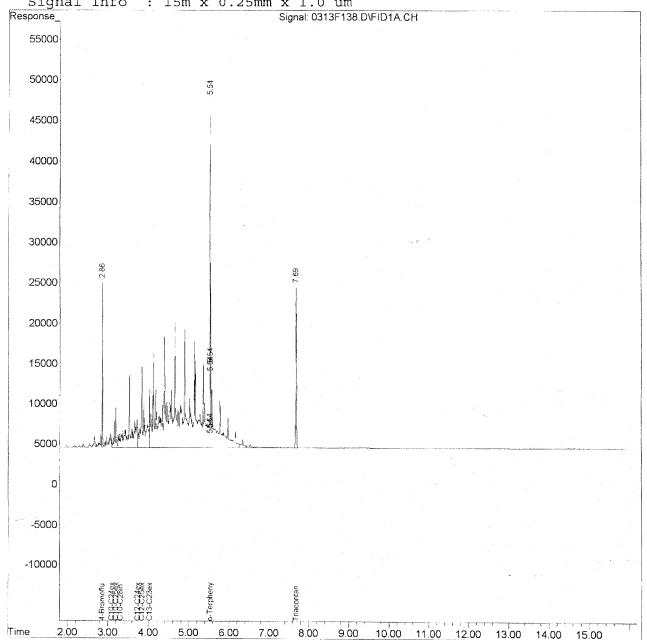
Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1



0313F138.D 031311FSRO.M

Mon Mar 14 13:31:05 2011

Page 2

IntFile : rteint.p

Quant Time: Mar 14 12:42:57 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T. Response	Conc Units
System Monitoring Compounds		· ·
1) S 4-Bromofluorobenzene	2.86 55652	145.325 ppm
Spiked Amount 50.000	Recovery =	
2) S o-Terphenyl	5.54 122565	145.348 ppm
Spiked Amount 50.000	Recovery =	290.70%
3) S Triacontane	7.69 107822	155.427 ppm
Spiked Amount 50.000	Recovery =	310.85%
Target Compounds		
5) H C10-C24ex DRO Arcadis	3.10 2097592	2995.552 ppm
6) H C10-C25ex DRO AK102		2982.139 ppm
7) H C10-C28in DRO 8015		2871.798 ppm
8) H C12-C24ex DRO T&R		3116.514 ppm
9) H C12-C25ex DRO NW		3101.076 ppm
10) H C13-C23ex DRO AZ		3129.315 ppm
		a. 47

Data File : J:\GC21\DATA\031311F\0313F140.D

Vial: 12 Acq On : 14 Mar 2011 10:43 am Operator: JMSmith Sample : DRO @ 2000/100ppm | SVF01-06H Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:46 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

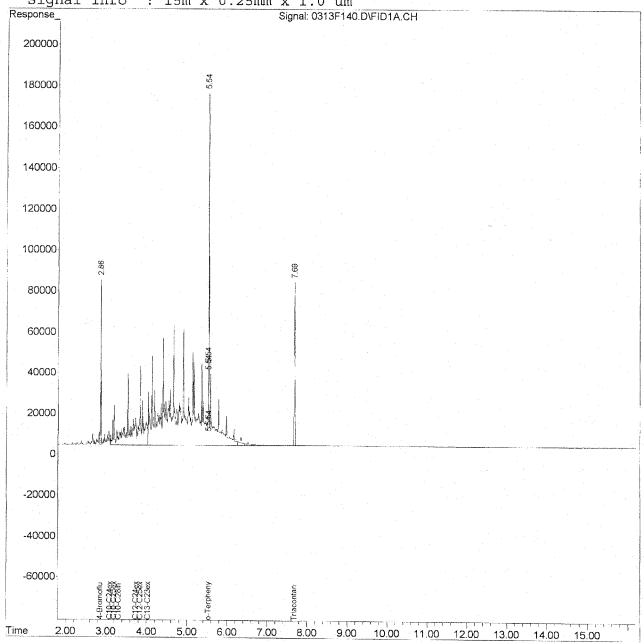
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F140.D 031311FSRO.M

Mon Mar 14 13:31:06 2011

Data File : J:\GC21\DATA\031311F\0313F142.D

Vial: 13 Operator: JMSmith Acq On : 14 Mar 2011 11:06 am Sample : DRO @ 5000/250ppm | SVF01-06G Misc : Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:42:59 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Compound	R.T.	Response	Conc (Units
		ter term with term made over most more made made take we		
System Monitoring Compounds				
1) S 4-Bromofluorobenzene	2.86	145967	381.166	ppm
Spiked Amount 50.000		overy =		
2) S o-Terphenyl	5.54	315197	373.788	ppm
Spiked Amount 50.000		overy =		
3) S Triacontane		269457		ppm
Spiked Amount 50.000	Reco	overy =	776.85%	
Target Compounds				
5) H C10-C24ex DRO Arcadis	3.10	5603471	8002.267	mag
6) H C10-C25ex DRO AK102	3.20		7966.411	
7) H C10-C28in DRO 8015	3.30	5643290	7671.822	ppm
8) H C12-C24ex DRO T&R	3.74		8315.830	
9) H C12-C25ex DRO NW	3.84		8274.648	
10) H C13-C23ex DRO AZ	4.03	4471273	8337.959	ppm

Data File : J:\GC21\DATA\031311F\0313F142.D

Vial: 13 Acq On : 14 Mar 2011 11:06 am Operator: JMSmith : DRO @ 5000/250ppm | SVF01-06G Sample Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:46 2011 Quant Results File: 031311FSRO.RES

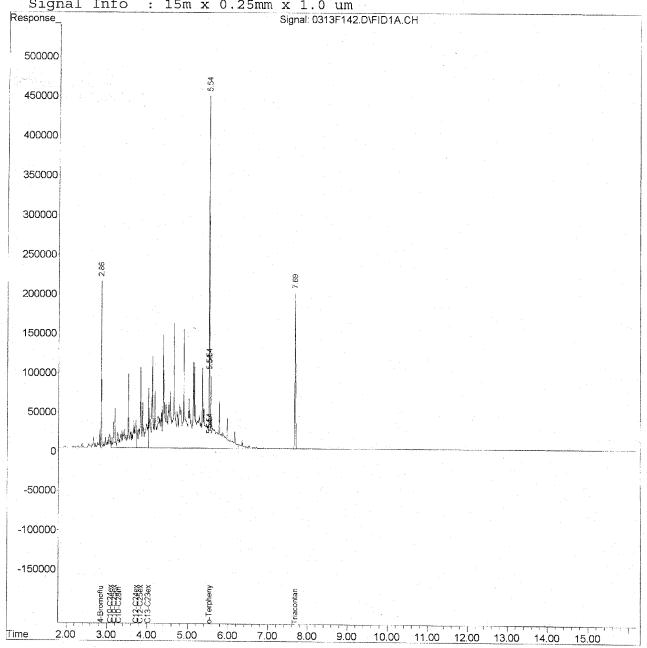
Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics Title

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1



0313F142.D 031311FSRO.M

Mon Mar 14 13:31:07 2011

Data File : J:\GC21\DATA\031311F\0313F144.D

Vial: 14

Acq On : 14 Mar 2011 11:28 am Operator: JMSmith Sample : DRO @ 20000ppm | SVF01-06F Inst : GC21

Misc

16166393 30146.832 ppm

IntFile : rteint.p

Multiplr: 1.00

Quant Time: Mar 14 12:43:00 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

10) H C13-C23ex DRO AZ

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds				
Target Compounds				
5) H C10-C24ex DRO Arcadis	3.10	20218042 2	28873.206 ppm	
6) H C10-C25ex DRO AK102	3.20	20290541 2		
7) H C10-C28in DRO 8015	3.30	20362250 2		
8) H C12-C24ex DRO T&R	3.74	17966592 3		
9) H C12-C25ex DRO NW	3.84	18039091 2	29876.844 ppm	

4.03

Data File : J:\GC21\DATA\031311F\0313F144.D

Vial: 14

 Acq On
 : 14 Mar 2011 11:28 am
 Operator: JMSmith

 Sample
 : DRO @ 20000ppm | SVF01-06F
 Inst : GC21

 Misc
 : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:47 2011 Quant Results File: 031311FSRO.RES

Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

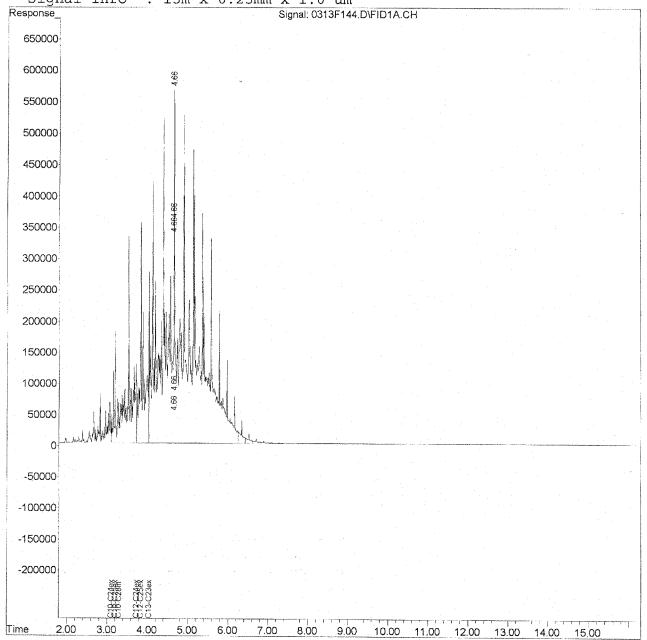
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F144.D 031311FSRO.M

Mon Mar 14 13:31:08 2011

Data File : J:\GC21\DATA\031311F\0313F146.D

Vial: 15

Acq On : 14 Mar 2011 11:50 am : DRO @ 50000ppm | SVF01-06E

Operator: JMSmith

Sample Misc Misc

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:43:01 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	Conc Units	
System Monitoring Compounds			- M. C. C. C. C. C. C. C. C. C. C. C. C. C.	
Target Compounds				

	5	oo oompount						
5)	H	C10-C24ex	DRO	Arcadis	3.10	51768726	73930.457	mqq
6)	H	C10-C25ex	DRO	AK102	3.20		73601.506	
7)	H	C10-C28in	DRO	8015	3.30		70879.393	
8)	H	C12-C24ex	DRO	T&R	3.74		76783.860	
9)	H.	C12-C25ex	DRO	NW	3.84		76406.486	
10)	Н	C13-C23ex	DRO	AZ	4.03		77173.262	

Data File : J:\GC21\DATA\031311F\0313F146.D Vial: 15

Acq On : 14 Mar 2011 11:50 am Operator: JMSmith Sample : DRO @ 50000ppm | SVF01-06E Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:47 2011 Quant Results File: 031311FSRO.RES

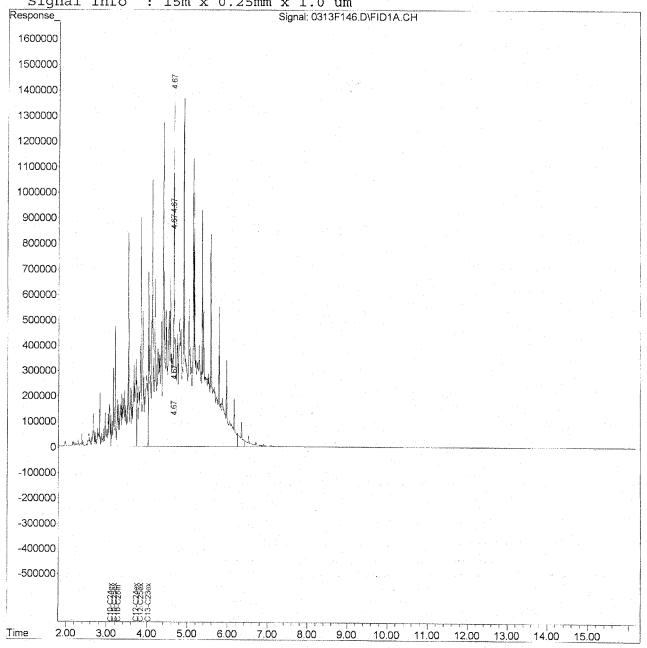
Quant Method: J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:31:35 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1



0313F146.D 031311FSRO.M

Mon Mar 14 13:31:08 2011

Data File : J:\GC21\DATA\031311F\0313F150.D

Vial: 16

Acq On : 14 Mar 2011 12:35 pm

Operator: JMSmith

Sample : DRO ICV @ 1000ppm | SVF01-01B Misc :

Inst : GC21 Multiplr: 1.00

961252 1018.496 ppm

864621 1022.963 ppm

IntFile : rteint.p

Quant Time: Mar 14 12:51:40 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Initial Calibration DataAcq Meth : SVF_FB.M

Volume Inj. : 1 uL

Signal Phase : ZB-1

10) H C13-C23ex DRO AZ

Signal Info : $15m \times 0.25mm \times 1.0$ um

Con	pound	R.T.	Response	Conc Units	
System Mo	nitoring Compounds				
Target Co	mpounds				
5) H C10-	C24ex DRO Arcadis	3.10	1066507	1009.484 ppm	
6) H C10-	C25ex DRO AK102	3.20		1012.858 ppm	
7) H C10-	C28in DRO 8015	3.30		1011.873 ppm	
8) H C12-	C24ex DRO T&R	3.74		1014.726 ppm	
9) H C12-	C25ex DRO NW	3.84		1018.496 ppm	

4.03

Data File : J:\GC21\DATA\031311F\0313F150.D Vial: 16

Acq On : 14 Mar 2011 12:35 pm Operator: JMSmith Sample : DRO ICV @ 1000ppm | SVF01-01B : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 12:51 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

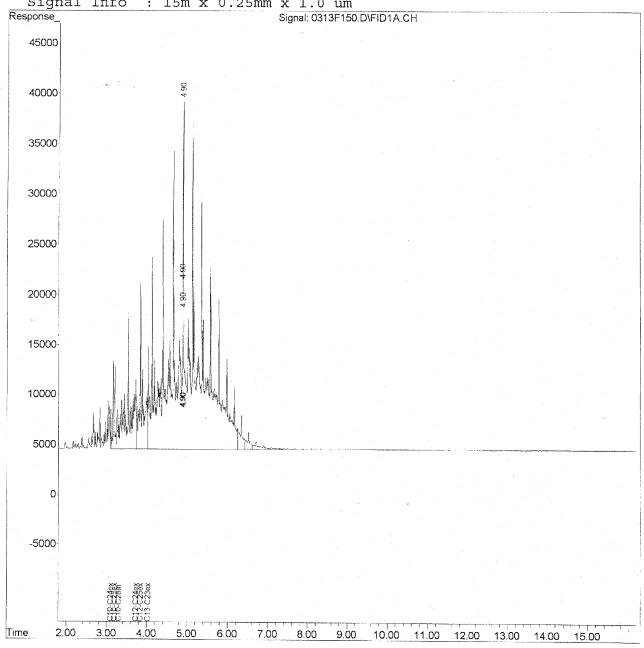
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 12:49:08 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



0313F150.D 031311FSRO.M

Mon Mar 14 13:31:09 2011

Data File : J:\GC21\DATA\031311F\0313F152.D

Vial: 7 Acq On : 14 Mar 2011 12:57 pm Operator: JMSmith

Sample : GRO/RRO ICV @ 1000ppm | DWSTD04-93H Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 14:09:28 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 14:08:46 2011

Response via : Initial Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

	Compound	R.T.	Response	Conc Units	
		The same and the same same and the same and			
	System Monitoring Compounds				* :
4	Target Compounds 1) H C8-C12ex GRO NW	2.29	339118	880 460 nnm	

Target Compounds	
4) H C8-C12ex GRO NW 2.29 339118 880.	460 ppm
11) H C23-C32in RRO AZ 6.25 459913 1004.	
12) H C24-C36in RRO T&R/Arcadis 6.43 649359 1009.	
13) H C25-C36in RRO NW 6.61 615571 1007.	798 ppm
14) H C25-C36in RRO Motor Oil 6.71 615571 1011.	
15) H C29-C36in RRO Stratus 7.39 430532 1010.	112 ppm
16) H C29-C40in RRO Premier 7.49 604989 1011.	041 ppm

Data File : J:\GC21\DATA\031311F\0313F152.D

Vial: 7

Acq On : 14 Mar 2011 12:57 pm Operator: JMSmith Sample : GRO/RRO ICV @ 1000ppm | DWSTD04-93H Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Mar 14 14:09 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

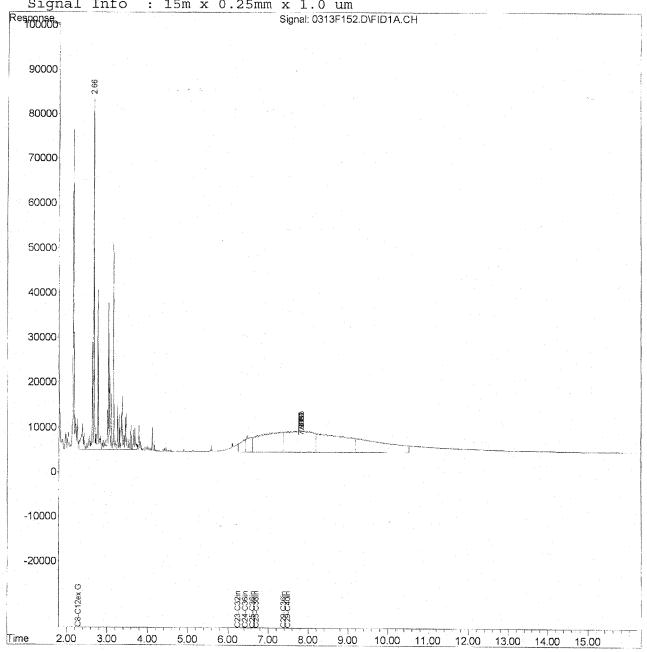
Title : 8015/NWTPH Semivolatile Range Organics

Last Update : Mon Mar 14 14:08:46 2011 Response via : Single Level Calibration

DataAcq Meth : SVF FB.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0313F152.D 031311FSRO.M

Mon Mar 14 14:09:54 2011

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104656

Date Analyzed: 06/08/2011

Continuing Calibration Verification Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type:

External Standard

Analysis Method:

Calibration Date: 03/14/2011

NWTPH-Dx

Calibration ID: CAL10358

Analysis Lot: KWG1105220

Units: ppm

File ID:

J\GC21\DATA\060811F\0608F018.D

J:\GC21\DATA\060811F\0608F019.D

Column ID: ZB-1

Analyte Name	Expected	Result	Averag RF	e CCV RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	970	3	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	990	611	604	1	NA	\pm 15 %	AverageRF
o-Terphenyl	50	52	1260	1300	4	NA	\pm 15 %	AverageRF
n-Triacontane	50	48	1090	1050	-4	NA	± 15 %	AverageRF

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

Printed: 6/10/2011 08:27:11

 $u:\Stealth\Crystal.rpt\Form7.rpt$

Form 7 - Organic

1 of 1 Page

150

SuperSet Reference: RR129758

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F018.D

Lab ID:

KWG1105220-2

RunType:

Matrix:

CCV

NOT APPLICABLE

Date Acquired:
Date Quantitated:

06/08/2011 22:10 06/09/2011 10:26

Batch ID:

KWG1105220

Analysis Method: MethodJoinID:

NWTPH-Dx MJ1081

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	x	
Second Source ICAL Verification	NA	NA	NA	х	
Analyte Co-elution	NA	NA NA	NA	х	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X .	

Primary Review:

Secondary Review:

Printed: 06/09/2011 14:05:12 u:Stealth\Crystal.rpt\except2.rpt

Page 1 of 1

Quantitation Report

Bottle ID:

Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

Analysis Lot:

KWG1105220

06/09/2011

Analysis Method:

NWTPH-Dx

Prep Lot:

Prep Method:

Prep Date:

Prep Ref:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

MB Ref:

Method ID:

MJ1081

Quant based on Method

Data File:

J:\GC21\DATA\060811F\0608F018.D

Acqu Date: Run Type:

Lab ID:

06/08/2011 22:10

KWG1105220-2

CCV

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

96

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	R	esponse	Solution Conc	%Rec	%Rec Limits	Rpt	?
o-Terphenyl	5.51			65193	51.84		50-150 N	NA .	
n-Triacontane	7.65			52309	47.87		50-150 1	NA	

Target Compounds

Final Conc. Units:

Parameter Name	RT	RT Dev	 Response	Solution Conc	Final Conc	Q	Rpt?
 Diesel Range Organics (DRO)	3.82	?	969969	1,028			
Residual Range Organics (RRO)	6.58	?	4604	7.54			NR

Printed: 06/09/2011 14:00:15 u:\Stealth\Crystal.rpt\quant1.rpt

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

D. Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{**:} Result falls acceptance criteria

**: Acceptance criteria not applicable

**: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report

Bottle ID:

Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Report Group:

Analysis Lot:

KWG1105220

Receive Date:

06/09/2011

Analysis Method:

NWTPH-Dx

Prep Lot:

Prep Method: Prep Date:

Prep Ref:

Ouant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

MB Ref:

Method ID:

MJ227

Quant based on Method

Data File:

J:\GC21\DATA\060811F\0608F018.D

Acqu Date: Run Type:

Lab ID:

06/08/2011 22:10

KWG1105220-2

Quant Date:

06/09/2011 10:26

Instrument:

GC21

CCV

Vial: Dilution: 96

Soln Conc. Units:

1.0 ppm

Surrogate Compounds

Parameter Name	RT RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51	65193	51.84		50-150 NA	
n-Triacontane	7.65	52309	47.87		50-150 NA	

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	 1095757	1,024			
Diesel Range Organics (DRO)	3.82	?	969969	1,028			
Residual Range Organics (RRO)	6.58	?	4604	7.54			NR

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

Printed: 06/09/2011 14:00:21

D: Result from dilution

m: Manual integration performed

d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance
e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060811F\0608F018.D Vial: 96

Acq On : 08 Jun 2011 10:10 pm Operator: JMSmith Sample : DRO @ 1000/50ppm | SVF01-09E Inst : GC21

Multiplr: 1.00 Misc

IntFile : rteint.p

Quant Time: Jun 09 10:26:03 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T.	Response	Conc (Jnits
System Monitoring Compounds				
1) S 4-Bromofluorobenzene	2.83	27809	49.066	ppm
Spiked Amount 50.000		very =		
2) S o-Terphenyl	5.51	65193	51.841	ppm
Spiked Amount 50.000		very =		
3) S Triacontane		52309		ppm
Spiked Amount 50.000	Reco	very =	95.74%	
Target Compounds				
4) H C8-C12ex GRO NW	2.25		407.295	
5) H C10-C24ex DRO Arcadis	3.07			
6) H C10-C25ex DRO AK102	3.17		1029.880	
7) H C10-C28in DRO 8015	3.27	1095757	1023.786	ppm
8) H Cl2-C24ex DRO T&R	3.72	966366	1028.762	ppm
9) H C12-C25ex DRO NW	3.82	969969	1027.733	ppm
10) H C13-C23ex DRO AZ	4.00		1031.699	
11) H C23-C32in RRO AZ	6.22		34.418	
12) H C24-C36in RRO T&R/Arcadis	6.40		12.875	
13) H C25-C36in RRO NW	6.58		7.538	
14) H C25-C36in RRO Motor Oil			7.564	
15) H C29-C36in RRO Stratus	7.36		4.528	
16) H C29-C40in RRO Premier	7.46	3070		

Data File: J:\GC21\DATA\060811F\0608F018.D

Vial: 96 Operator: JMSmith Acq On : 08 Jun 2011 10:10 pm : DRO @ 1000/50ppm | SVF01-09E Inst Sample

Misc

: GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

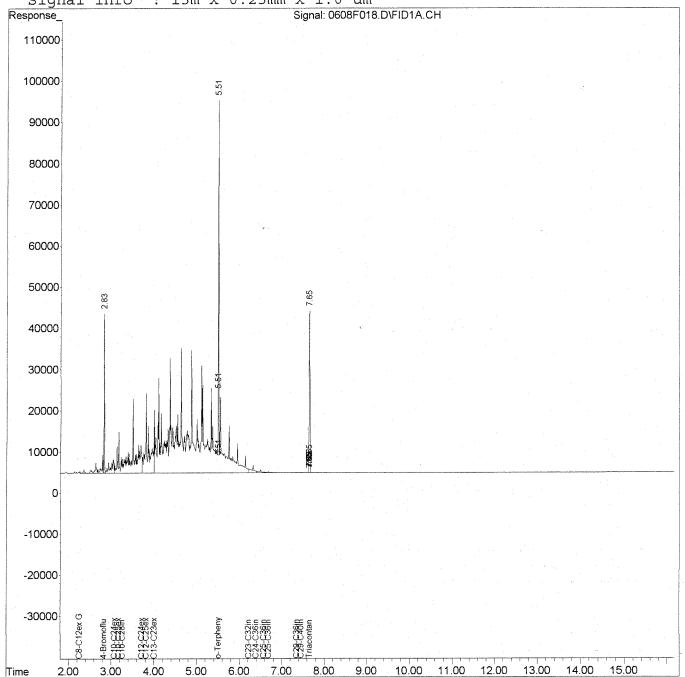
: 8015/NWTPH Semivolatile Range Organics | CAL10358 Title

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Exception Report

Data File:

J:\GC21\DATA\060811F\0608F019.D

Lab ID:

KWG1105220-2

RunType:

CCV

Matrix:

NOT APPLICABLE

Date Acquired:

Date Quantitated:

Batch ID:

06/08/2011 22:31 06/09/2011 10:26

KWG1105220 NWTPH-Dx

Analysis Method: MethodJoinID:

MJ1081

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA:	NA	Х	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	. X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	

Primary Review:

Secondary Review:

Page 1 of 1

Quantitation Report

Bottle ID:

Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/09/2011

Analysis Lot: Analysis Method: KWG1105220

NWTPH-Dx

Prep Lot:

Prep Method:

Prep Date:

Quant Method:

Prep Ref:

Title:

MB Ref:

J:\GC21\METHODS\031311FSRO.M

CAL10358

Method ID:

Calibration ID:

MJ1081

Quant based on Method

Data File:

J:\GC21\DATA\060811F\0608F019.D

Acqu Date: Run Type:

06/08/2011 22:31

CCV

Lab ID:

KWG1105220-2

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

97

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl			0			50-150 NA	NR
n-Triacontane	7.66		277	0.2530		50-150 NA	NR

Target Compounds

Final Conc. Units:

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	100541	106.53			NR
Residual Range Organics (RRO)	6.58	?	603541	988.10			

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL
N: Presumptive evidence of compound

Printed: 06/09/2011 14:00:27 u:\Stealth\Crystal.rpt\quant1.rpt

D: Result from dilution

m: Manual integration performed

d: Compound manually deleted
NR: Analyte not reported from this analysis

*: Result fails acceptance criteria

#: Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Quantitation Report

Bottle ID:

Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Analysis Lot:

KWG1105220

Prep Lot:

Receive Date:

Report Group:

06/09/2011

Analysis Method:

NWTPH-Dx

Prep Ref:

Prep Method:

Prep Date:

Calibration ID:

CAL10358

Quant Method:

Title:

Method ID:

MJ227

MB Ref:

Quant based on Method

Data File:

J.\GC21\DATA\060811F\0608F019.D

J:\GC21\METHODS\031311FSRO.M

Acqu Date: Run Type:

Lab ID:

KWG1105220-2

CCV

06/08/2011 22:31

Quant Date:

06/09/2011 10:26

Instrument:

GC21

97

Vial: Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	 RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl			0	,		50-150 N	ia nr
n-Triacontane	7.66		277	0.2530		50-150 N	ia nr

Target Compounds

arget Compounds	Final Conc. Units: ug/L						
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	401702	375.32			-
Diesel Range Organics (DRO)	3.82	?	100541	106.53			NR
Residual Range Organics (RRO)	6.58	?	603541	988.10			

Printed: 06/09/2011 14:00:33 u:\Stealth\Crystal.rpt\quantl.rpt

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

F. Analyte toeted aloo F. B. Hit above MRL also found in Method Blank
E. Analyte concentration above high point of ICAL
N: Presumptive evidence of compound

D: Result from dilution

m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*} Result fails acceptance criteria

^{*:} Result faus acceptance criteria
*: Acceptance criteria not applicable
*: Insufficient information to determine acceptance
e: Result >= MRL, but MRL less than low point of ICAL
c: check for co-elution

Data File : J:\GC21\DATA\060811F\0608F019.D Vial: 97

Acq On : 08 Jun 2011 10:31 pm Sample : GRO/RRO @ 1000ppm | SVF01-09F Operator: JMSmith Inst : GC21 Multiplr: 1.00

Misc IntFile : rteint.p

Quant Time: Jun 09 10:26:04 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Initial Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound R.T. Response Conc Units	
System Monitoring Compounds	
1) S 4-Bromofluorobenzene 2.84 494 0.872 ppm	
Spiked Amount 50.000 Recovery = 1.74%	
3) S Triacontane 7.66 277 0.253 ppm	
Spiked Amount 50.000 Recovery = 0.51%	
bpined imodife 50.000	
Target Compounds	
4) H C8-C12ex GRO NW 2.25 374826 973.169 ppm	
5) H C10-C24ex DRO Arcadis 3.07 189421 179.293 ppm	
6) H C10-C25ex DRO AK102 3.17 223172 210.354 ppm	
7) H C10-C28in DRO 8015 3.27 401702 375.317 ppm	
8) H C12-C24ex DRO T&R 3.72 67190 71.528 ppm	
9) H C12-C25ex DRO NW 3.82 100541 106.528 ppm	
10) H C13-C23ex DRO AZ 4.00 33949 40.166 ppm	
11) H C23-C32in RRO AZ 6.22 445768 973.328 ppm	
12) H C24-C36in RRO T&R/Arcadis 6.40 636892 989.949 ppm	
13) H C25-C36in RRO NW 6.58 603541 988.103 ppm	
14) H C25-C36in RRO Motor Oil 6.68 603541 991.610 ppm	
15) H C29-C36in RRO Stratus 7.36 425011 997.159 ppm	
16) H C29-C40in RRO Premier 7.46 602497 1006.877 ppm	

Data File : J:\GC21\DATA\060811F\0608F019.D Vial: 97

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

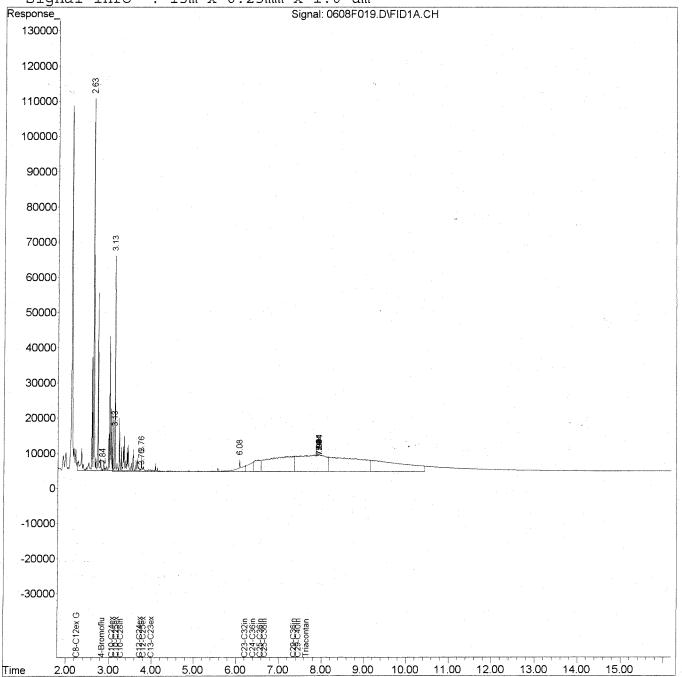
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Results

Client:

TEC, Inc. - The Environmental Company, In

Project:

PacifiCorp Investigation

Service Request: K1104656

Date Analyzed: 06/09/2011

Continuing Calibration Verification Summary Diesel and Residual Range Organics - Silica Gel Treated

Calibration Type:

External Standard

Analysis Method:

Calibration Date: 03/14/2011

NWTPH-Dx

Calibration ID: CAL10358

Analysis Lot: KWG1105220

Units: ppm

File ID:

J:\GC21\DATA\060811F\0608F034.D

J:\GC21\DATA\060811F\0608F035.D

Column ID: ZB-1

			Average	CCV				
Analyte Name	Expected	Result	RF	RF	%D	%Drift	Criteria	Curve Fit
Diesel Range Organics (DRO)	1000	1000	944	955	1	NA	± 15 %	AverageRF
Residual Range Organics (RRO)	1000	1000	611	616	1	NA	\pm 15 %	AverageRF
o-Terphenyl	50	50	1260	1270	1	NA	± 15 %	AverageRF
n-Triacontane	50	47	1090	1020	-7	NA	\pm 15 %	AverageRF

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

Printed: 6/10/2011 08:27:14

 $u:\Stealth\Crystal.rpt\Form7.rpt$

Form 7 - Organic

Page

1 of 1

RR129758 SuperSet Reference:

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F034.D

Lab ID: RunType: KWG1105220-3 CCV

Matrix:

NOT APPLICABLE

Date Acquired:

Date Quantitated:

06/09/2011 10:26 KWG1105220

Batch ID:

Analysis Method: MethodJoinID:

NWTPH-Dx MJ1081

06/09/2011 03:59

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	x	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA ·	NA.	X	
Below Lowest ICAL Level	NA	NA	NA	х	
Above Highest ICAL Level	NA	NA	NA	Х	
Enviroquant/Stealth Calibration Check	NA	NA	NA	х	

Primary Review:

Secondary Review:

Page 1 of 1

Printed: 06/09/2011 14:05:54

Bottle ID:

Tier:

Matrix:

NOT APPLICABLE

06/09/2011

Prod Code:

NWTPH-DX NW TPH

Collect Date:

Receive Date:

Analysis Lot:

KWG1105220

Analysis Method: NWTPH-Dx Prep Lot:

Prep Method:

Prep Date:

Report Group:

Quant Method:

Prep Ref:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

Method ID:

MB Ref:

MJ1081

Quant based on Method

Data File:

J:\GC21\DATA\060811F\0608F034.D

Acqu Date: Run Type:

06/09/2011 03:59

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

96

Dilution:

1.0

Soln Conc. Units:

ppm

Lab ID:

KWG1105220-3

CCV

Surrogate Compounds

		RT	The second second second second second second second second second second second second second second second se	Solution	%Rec	
Parameter Name	RT	Dev	Response	Conc %Rec	Limits	Rpt?
o-Terphenyl	5.51		63365	50.39	50-150 NA	
n-Triacontane	7.65		50863	46.55	50-150 NA	

Target Compounds

Final Conc. Units:

		RT		Solution	Final	•	
Parameter Name	RT	Dev	Response	Conc	Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	954758	1,012	· · · · · · · · · · · · · · · · · · ·	, _{pa} , .lu	
Residual Range Organics (RRO)	6.58	?	4630	7.58			NR

Printed:

U: Undetected at or above MDL J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria #: Acceptance criteria not applicable ?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL c: check for co-elution

Bottle ID: **Prod Code:**

NWTPH-DX NW TPH

Tier:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/09/2011

Analysis Lot: Analysis Method: KWG1105220

NWTPH-Dx

Prep Lot:

Prep Method:

Collect Date:

Prep Ref:

Prep Date:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

MB Ref:

Method ID:

MJ227

Quant based on Method

Data File:

J:\GC21\DATA\060811F\0608F034.D

Acqu Date:

Lab ID:

06/09/2011 03:59

KWG1105220-3

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Run Type:

CCV

Vial: Dilution:

96 1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl	5.51		63365	50.39		50-150 NA	-
n-Triacontane	7.65		50863	46.55		50-150 NA	

Target Compounds

Final Conc. Units:

ug/L

ci compounus					48/2		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	 1078535	1,008			
Diesel Range Organics (DRO)	3.82	?	954758	1,012			
Residual Range Organics (RRO)	6.58	?	 4630	7.58			NR

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable

^{?:} Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

Data File : J:\GC21\DATA\060811F\0608F034.D

Acq On : 09 Jun 2011 3:59 am Operator: JMSmith

: DRO @ 1000/50ppm | SVF01-09E Sample Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint p

Quant Time: Jun 09 10:26:21 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

: 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um

Compound	R.T.	Response	Conc 1	Units	
Craton Monitoning Company					
System Monitoring Compounds 1) S 4-Bromofluorobenzene	2.83	27201	10 160	nnm	
2) S o-Terphenyl	Recover 5.51	Y =	70.346	10.10.10	
	5.51	63365	50.388	ppm	
Spiked Amount 50.000	Recover	.À =	100.78%		
3) S Triacontane	7.65 Recover	50863	46.548	ppm	
Spiked Amount 50.000	Recover	.À =	93.10%		
Target Compounds					
	2.25	154880	402.118	mag	
	3.07		1015.031		
6) H C10-C25ex DRO AK102			1014.117		
7) H C10-C28in DRO 8015			1007.695		
	3.72		1012.631		
9) H C12-C25ex DRO NW			1011.616		
			1016.782		4
	6.22		33.322		
12) H C24-C36in RRO T&R/Arcadis			12.758		
	6.58		7.580		
14) H C25-C36in RRO Motor Oil			7.607		
15) H C29-C36in RRO Stratus		2126	4.988	PPm.	
16) H C29-C40in RRO Premier		2120	5.642	ppm	
TO 11 CAD CHOTH WWO LIGHTEL	/ . 40	33/6	5.042	բբա	

Vial: 96

Data File : J:\GC21\DATA\060811F\0608F034.D Vial: 96

Acq On : 09 Jun 2011 3:59 am Operator: JMSmith Sample : DRO @ 1000/50ppm | SVF01-09E Inst : GC21

Misc : DRO @ 1000/30ppm | Svr01-09E

Inst : GC21 Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

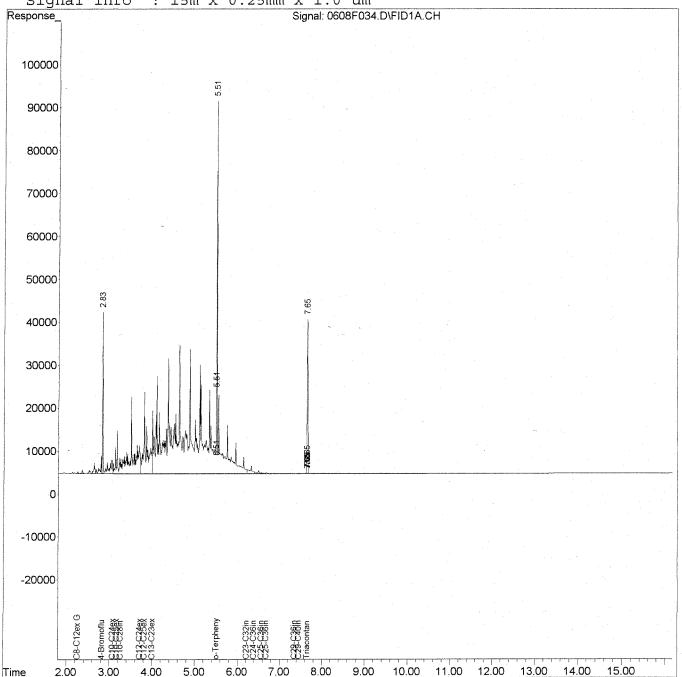
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF_F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Exception Report

Data File:

J:\GC21\DATA\060811F\0608F035.D

Lab ID:

KWG1105220-3

RunType:

CCV

Matrix:

NOT APPLICABLE

Date Acquired:

Date Quantitated: Batch ID:

06/09/2011 04:21 06/09/2011 10:26

KWG1105220 NWTPH-Dx

Analysis Method: MethodJoinID:

MJ1081

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	, NA	X	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	

Secondary Review:

Panted: 06/09/2011 14:05:57

Bottle ID: Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/09/2011

Analysis Lot:

KWG1105220

Analysis Method: NWTPH-Dx Prep Lot:

Prep Method:

Prep Date:

Prep Ref:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

Method ID:

MJ1081

MB Ref:

Quant based on Method

Data File: Acqu Date:

Run Type:

Lab ID:

J:\GC21\DATA\060811F\0608F035.D

CCV

06/09/2011 04:21

KWG1105220-3

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

97

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev		Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl				0			50-150 NA	NR
n-Triacontane				0			50-150 NA	NR

Target Compounds

Final Conc. Units:

irgei Compounus		RT		Solution	Final		70.40
Parameter Name	RT	Dev	Response	Conc	Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	 103724	109.90			NR
Residual Range Organics (RRO)	6.58	. ?	615576	1,008			

U: Undetected at or above MDL
J: Analyte detected above MDL, but below MRL
B: Hit above MRL also found in Method Blank
E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria #: Acceptance criteria not applicable

[&]quot;: Insufficient information to determine acceptance
e: Result >= MRL, but MRL less than low point of ICAL
c: check for co-elution

Bottle ID:

Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/09/2011

Analysis Lot:

KWG1105220

Analysis Method: NWTPH-Dx Prep Lot:

Prep Method:

Prep Ref:

Prep Date:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

Quant Method:

Method ID:

MJ227

MB Ref:

Quant based on Method

Data File: Acqu Date:

Run Type:

Lab ID:

J:\GC21\DATA\060811F\0608F035.D

CCV

06/09/2011 04:21

KWG1105220-3

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

97

Dilution: Soln Conc. Units: 1.0 ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	Response	Solution Conc %Rec	%Rec Limits	Rpt?
o-Terphenyl			0	,	50-150 NA	NR
n-Triacontane	**		0		50-150 NA	NR

Target Compounds

Final Conc. Units:

ug/L

argei Compounas					- 0		
Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	412710	385.60			
Diesel Range Organics (DRO)	3.82	. ?	103724	109.90			NR
Residual Range Organics (RRO)	6.58	?	615576	1,008			

u:\Stealth\Crystal.rpt\quant1.rpt

06/09/2011 14:03:17

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable

^{?:} Insufficient information to determine acceptance e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Data File : J:\GC21\DATA\060811F\0608F035.D Vial: 97

Acq On : 09 Jun 2011 4:21 am Operator: JMSmith

: GRO/RRO @ 1000ppm | SVF01-09F Inst : GC21 Sample Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 09 10:26:22 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

		Compound		4.1	R	.т.	Re	esponse	C	onc 1	Units		
1)	Ŝ	em Monitor: 4-Bromoflu Amount 50	ıorol	penzene	2	. 84 Recov	very	514	0 1		ppm	- - - -	
	_	et Compound		77.7	0	0.5		250000	000	E 0.4			
,	H	C8-C12ex (. 25			986				
		C10-C24ex C10-C25ex				.07 .17		194648 229066		.241			
		C10-C23ex				. 27		412710		.602			
		C12-C24ex				.72		69473					
•		C12-C25ex				. 82		103724					
10)	Н	C13-C23ex	DRO	AΖ	4	.00		35284					
11)	Н	C23-C32in	RRO	AZ	6	. 22		456753	997	.314	ppm		
	Н			T&R/Arcadis	6.	40		649827	1010				
13)		C25-C36in				58		615576					
14)				Motor Oil		68			1011				
15)		C29-C36in				36		432564					
16)	H	C29-C40in	RRO	Premier	7.	46		612343	1023.	.331	ppm		

Data File : J:\GC21\DATA\060811F\0608F035.D

Vial: 97 : 09 Jun 2011 4:21 am Operator: JMSmith

: GRO/RRO @ 1000ppm | SVF01-09F Sample Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

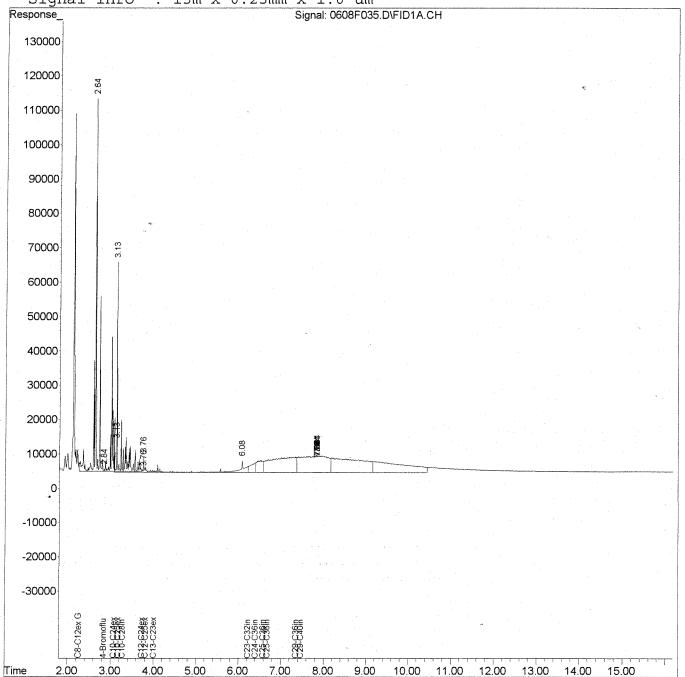
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



Organic Analysis: <u>Diesel and Residual Range Organics - Silica Gel</u> <u>Treated</u>

Validation Package

Sample Prep and Screen Data

Preparation Information

·		1 гериг	ation Info	manon			
Group ID: Department:	KWG1105150 Semivoa GC	Prep Method:	EPA 3550B		Prep Date:	06/06/11 00:00	
ab Code	Client ID	Product	Matrix	Amt. Ext.	Final Vol.		Soli
1104656-001	SG1-052511	NWTPH-Dx NW TP	H SOIL	30.34g	10mL	· · · · · · · · · · · · · · · · · · ·	
1104656-002	SG2-052511	SGT NWTPH-Dx NW TF	PH SOIL	30.03g	10mL		
1104656-003	SG3-052511	SGT NWTPH-Dx NW TF	H SOIL	30.27g	10mL		
1104689-001	SO001	SGT NWTPH-Dx NW_TI	PH SOIL	30.23g	10mL		
1104689-004	SO004	NWTPH-Dx NW_TI		30.24g	10mL		
1104689-005	SO005	NWTPH-Dx NW_TI		30.24g	10mL		
1104689-007	SO007	NWTPH-Dx NW_TI		30.29g	10mL		* •c 4
1104689-010	SO010	NWTPH-Dx NW_TI		30.23g	10mL		
1104743-001	SO013	NWTPH-Dx NW_TE		-			
1104743-001	SO016	-		30.02g	10mL		
		NWTPH-Dx NW_TI		30.24g	10mL		
1104743-007	SO019	NWTPH-Dx NW_TI		30.23g	10mL		
1104743-010	SO022	NWTPH-Dx NW_TI		30.05g	10mL		
1104743-011	SO023	NWTPH-Dx NW_TI		30.21g	10mL		
WG1105150-1	Duplicate	NWTPH-Dx NW TP SGT	H SOIL	30.31g	10mL	·	
WG1105150-2	Lab Control Sample	NWTPH-Dx NW TP SGT	H SOIL	30.00g	10mL		
WG1105150-3	Method Blank	NWTPH-Dx NW TP SGT	H SOIL	30.34g	10mL		
WG1105150-4	Duplicate	NWTPH-Dx NW_TF	PH SOIL	30.22g	10mL		
ab Code	Parent Lab Code	Comments	·				
CWG1105150-1	K1104656-001	KQ1105099-01					
KWG1105150-2		KQ1105099-02					
KWG1105150-3		KQ1105099-03	•				
KWG1105150-4	K1104689-001	KQ1105099-04					
							
Lab Code	Prep Event ID	Surrogate Solution ID	Amount Added	Spike Solution ID	Amoun		
X1104656-001	1024819					Witness	
						KCollins	
X1104656-002	1024820					KCollins	
X1104656-003	1024821					KCollins	
1104689-001	1024822					KCollins	
C1104689-004	1024823					KCollins	
(1104689-005	1024824					KCollins	
(1104689-007	1024825				* *	KCollins	
Comments:							
· · · · · · · · · · · · · · · · · · ·							
tarted By:	DWood	Assisted	By:				raining
ompleted By:	EErickso	Assisted				Yes	(No)
eviewed By:		Date:	(ö-8-11	Stor	rage:	Yes	No
Chain of Custody				***************************************			
Relinquished By:	EE	· · · · · · · · · · · · · · · · · · ·		Date:	10-7-11	***	
Received By:	11	0 11			, A		ts Examined
Received By:		ng		Date:	11/08/h	Yes Yes	No

Printed: 06/08/2011 09:31:19 Preparation Information

 $u:\Stealth\Crystal.rpt\prep1.rpt$

Page 1 of

Group ID: Department:

Printed:

06/08/2011

 $u:\Stealth\Crystal.rpt\prep1.rpt$

09:31:19

KWG1105150 Semivoa GC

Prep Method:

EPA 3550B

Prep Date:

06/06/11 00:00

Page

2 of

		Surrogate	Amount Added	Spike	Amount Added	
Lab Code	Prep Event ID	Solution ID		Solution ID		Witness
K1104689-010	1024826					KCollins
K1104743-001	1024827					KCollins
K1104743-004	1024828					KCollins
K1104743-007	1024829					KCollins
K1104743-010	1024830					KCollins
K1104743-011	1024831					KCollins
KWG1105150-1	1024832					KCollins
KWG1105150-2	1024833					KCollins
KWG1105150-3	1024834					KCollins
KWG1105150-4	1024835					KCollins

Comments:						
Started By:	DWood		Assisted By:			Training
Completed By:	EErickso		Assisted By:			Yes (No No No No No No No No No No No No No N
Reviewed By:			Date:		Storage:	
Chain of Custody	. · ·					
Relinquished B	y 6 E				Date: (0-7-11	 Extracts Examined
Received By:	3	Un &			Date: Boly	Yes No
Printed: 06/08/	2011 00-31-10	100		T. C		

Preparation Information

174

Columbia Analytical Services - Preparation Information Benchsheet

Prep Run: 134952 Prep Workflow:

OrgExtS **Status**:

Draft

Prep Date:

Team:

Semivoa

EPA

Current Step: Extraction

Analyst:

GC

DWOOD

Prep Method: Rush/NPDES:

3550B

N/A

Due Date: 05/31/2011

Lab Code **Client ID** Bottle Target Initial Inter. Final Spike Surr TestNo List Amt Amount Volume Volume Amt Amt K1104656-001 SG1-052511 .01 30 g NW TPH SGT 10ml Oml K1104656-002 SG2-052511 .01 30 a NW TPH SGT K1104656-003 SG3-052511 .01 30 g NW TPH SGT 30.27 K1104689-001 SO001 .01 30.00 g NW_TPH K1104689-004 S0004 .01 30.00 g NW_TPH K1104689-005 S0005 .01 30.00 a NW_TPH <u> 30.24</u> K1104689-007 S0007 30.00 g NW_TPH 30.29 K1104689-010 SO010 .01 30.00 g NW_TPH 30.03 K1104743-001 S0013 .01 30.00 g NW_TPH 30.0E K1104743-004 S0016 .01 30.00 g NW_TPH 30. DH K1104743-007 SO019 .01 30.00 g NW_TPH YO. 93 K1104743-010 S0022 .01 30.00 g NW_TPH 20.0X K1104743-011 S0023 .01 30.00 g NW_TPH 21 K1104656-001: Duplicate 30 g NW TPH SGT KQ1105099-01 KQ1105099-02 Lab Control Sample 30.00 a NW TPH SGT, NW_TPH 30,00 KQ1105099-03 Method Blank 30.00 g NW TPH SGT, 30.34 NW_TPH

associated with the current Prep Run.		iei s	SUIL NA	
Spiking Solutions	30, 22 10M	Witness: _	6/61	Transport
SUFOL-08D 500ppm 5	500. lexo	9.20.11		
SVF01-06M 16000/80001	ppm 50aule	2xp 9.44-1		
Preparation Stens		***************************************		

<u>Step</u>

Started

<u>Finished</u>

Assisted By

Training?

Comments

Extraction	6.6.11	Decood				
Final Volume	10-7-11	Æ				
Comments			*****************	*****************	***************************************	
***************************************				ř		

Additional Prep Information For Fuel Hydrocarbons In Soil By 3550

Service Request # K110 4656 4689 4743Work Group # K01105099
Extraction (3550):
Sulfate Lot #BA09a1 Matrix Sand Lot #07411
DCM Lot # 'D D U 83
Sonic Horns Tuned (Initial/Date): 6 6 10 00
Extraction Start Time: 1300 6-6-11 Extractions Stop Time: 1600 6-6-11
S-Evap Temp/Thermometer ID: TO SVH-OV
Cleanups: (Check paperwork to see if cleanups are necessary)
Sulfuric Acid Clean-up (3665) (Date/Time/Initials): 67-11 55 13:00 Acid Lot # 50280
Silica Gel Clean-up (3630) (Date/Time/Initials): 67-11 & 1600 Silica Gel Lot # 41 8094815
Archive:
Vial: White Vial Storage: Dw Prioley
Archived Extract Storage: Diversity
Comments/Observations:

Preparation Information

Group ID: KWG1105298 Prep Method: EPA 3580A Prep Date: 06/10/11 00:00

Department: Semivoa GC

	W						
Lab Code	Client ID	Product	Matrix	Amt. Ext.	Final Vol.		Solids
X1104627-011	PC-Min-052411	None MISC_S	VG1 NONAQ	10.3mg	10ml		
Lab Code	Parent Lab Code	Comments					
K1104627-011		Mineral oil refe	erence standard prov	ided by client (TEC) for FID fingerprint		
		1111.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	•		,		
Lab Code	Prep Event ID	Surrogate Solution ID	Amount Added	Spike Solution ID	Amount Added	Witness	
K1104627-011	1025929					**************************************	

Comments:						

***************************************					-	
Started By:	JMSmith	Assisted By:				Training
Completed By:	JMSmith	Assisted By:				Yes No
Reviewed By:	for an arms	Date: Aliola	Storage:			Yes No
Chain of Custody						
Relinquished By:	fr h. S		Date:	Block		Extracts Examined
Received By:			Date:	\\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		Yes No

Printed: 06/10/2011
u:\Stealth\Crystal.rpt\prep1.rpt

21:30:54

Preparation Information

Group ID:
Department:

KWG1105298 Semivoa GC

Prep Method:

EPA 3580A

Prep Date:

06/10/11 00:00

#	Lab Code	Client ID	В#	٧	Product	Matrix	Amt. Ext.	pН	Int. Vol.	Final Vol.	Surr. Added	Spike Added
1	K1104627-011	PC-Min-052411			None MISC_SVG1	NONAQ LIQUID	10.3mg	NA	NA	IONL	MA	NA

Comments:	Minaral oil reference Sphillerd provi	added by client (TER) for FID Fingerprint, for oblight
	DEM LA * ODZO	
	<u> </u>	
Surrogate ID:	1 / / / / / / / / / / / / / / / / / / /	
Spike ID:	$\Delta I/\Delta$	
Witness:	_/ //	
Started By:	JMSmith	Assisted By:
Completed By:	JMSmith	Assisted By:

Printed: 06/10/2011 u:\Stealth\Crystal.rpt\prep2.rpt

20:01:11

Preparation Information

Page 1 of 1

LAB ID 1and ALIQUOT FINAL 1000M DILUTION FACTOR 10% alish DATE ANALYST (B) DCM LOT mining

SVF DILUTION LOG

•

Data File : J:\GC21\DATA\061011F\0610F100.D Vial: 95 Acq On : 12 Jun 2011 5:10 am Operator: JMSmith

: TEC/PACIFICORP MINERAL OIL | K1104627-01 Inst : GC21 Sample Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 13 11:36 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

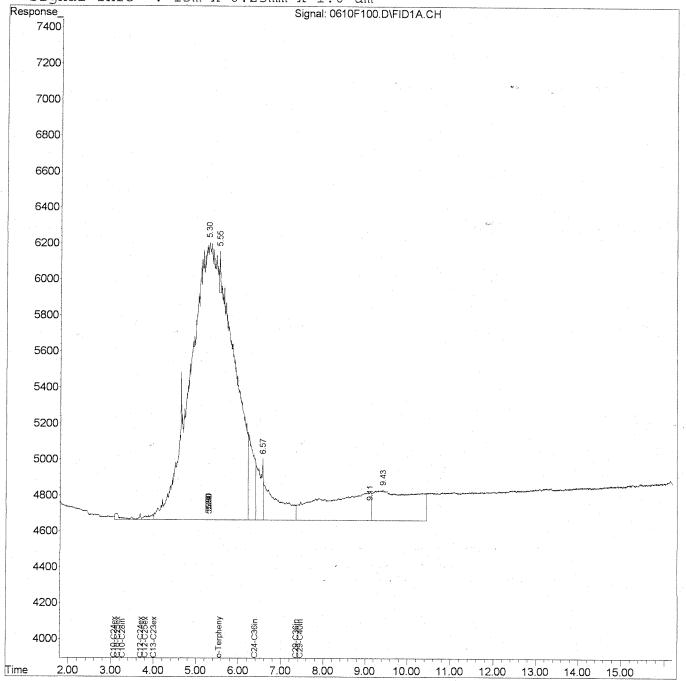
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Mon Jun 13 11:36:15 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

.Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um



File : J:\GC21\DATA\060811F\0608F023.D

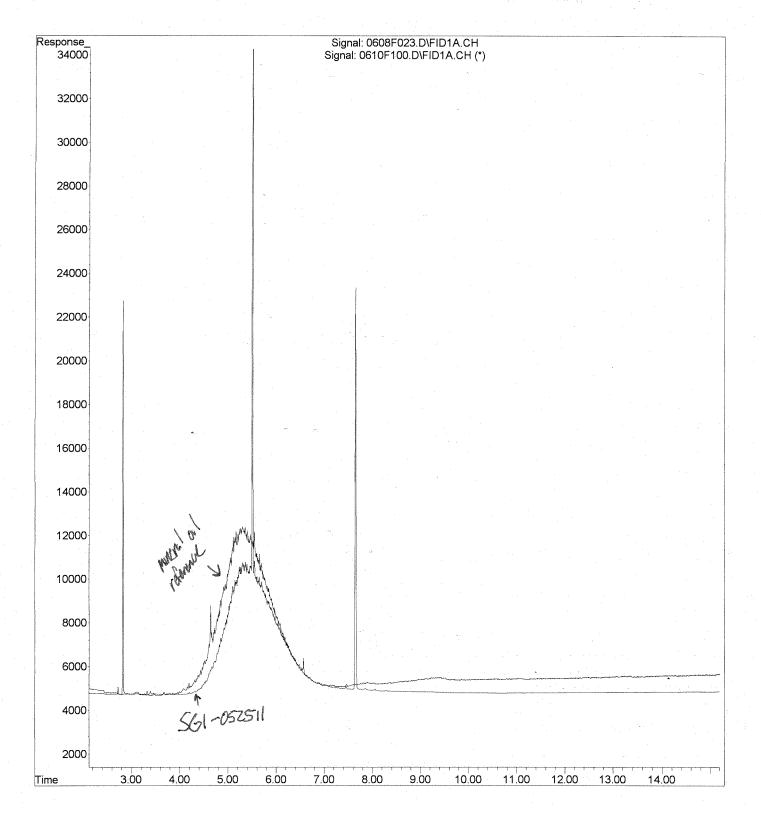
Operator : JMSmith

Acquired : 08 Jun 2011 11:59 pm using AcqMethod SVF F.M

Instrument: GC21

Sample Name: K1104656-001

Misc Info : Vial Number: 12



Injection Log

Directory: J:\GC21\DATA\060811F

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1 2 3 4 5 6 7 8 9	90 90 92 91 96 97 96 86	0608F001.D 0608F002.D 0608F003.D 0608F004.D 0608F005.D 0608F006.D 0608F007.D 0608F009.D	1. 1.	DCM DCM SHC MARKER SVF01-07 AROMATICS MARKER S' DRO @ 1000/50ppm SVF GRO/RRO @ 1000ppm S' DRO @ 1000/50ppm SVF IB' KQ1104821-01LCS-SGT	VF01-08C 01-09E-runjest VF01-09F	06/08/22011 3:49 06/08/22011 4:15 06/08/22011 4:38 06/08/22011 5:00 06/08/22011 5:22 06/08/22011 5:44 06/08/22011 6:06 06/08/22011 6:28 06/08/22011 6:50
10 11 12 13 14 15 16 17 18	2 3 4 5 6 7 8 9 96 97	0608F010.D 0608F011.D 0608F012.D 0608F013.D 0608F014.D 0608F015.D 0608F016.D 0608F017.D 0608F019.D	1.	KQ1104821-02DLCS-SGT KQ1104821-03MB-SGT K1104328-001-SGT K1104328-002-SGT K1104328-003-SGT K1104328-004-SGT K1104328-005-SGT K1104328-006-SGT DRO @ 1000/50ppm SVF GRO/RRO @ 1000ppm SVF	lu × 749198	06/08/22011 7:13 06/08/22011 7:34 06/08/22011 7:57 06/08/22011 8:19 06/08/22011 8:41 06/08/22011 9:03 06/08/22011 9:25 06/08/22011 9:48 06/08/22011 10:11 06/08/22011 10:3
20 21 22 23 24 25 26 27 28 29	86 10 11 12 13 14 15 16 17	0608F021.D 0608F021.D 0608F022.D 0608F023.D 0608F024.D 0608F025.D 0608F026.D 0608F027.D 0608F028.D 0608F029.D	1. 1. 1. 1. 1. 1. 1. 1. 1.	IB KQ1105099-02LCS KQ1105099-03MB K1104656-001 K1104656-001 K1104656-002 K1104656-003 K1104743-007 K1104689-001 K1104689-001DUP	KW61105220	06/08/22011 10:5: 06/08/22011 11:1: 06/08/22011 11:3: 06/08/22011 11:5: 06/09/22011 12:4: 06/09/22011 1:26: 06/09/22011 1:26: 06/09/22011 1:48: 06/09/22011 2:10
30 31 32 33 34 35 36 37 38 39	21	0608F030.D 0608F031.D 0608F032.D 0608F033.D 0608F034.D 0608F035.D 0608F036.D 0608F037.D 0608F038.D 0608F039.D	1. 1. 1. 1. 1. 1. 1. 1. 1.	K1104743-004 K1104689-007 DCM DCM DRO @ 1000/50ppm SVF(GRO/RRO @ 1000ppm SV IB K1104743-001 K1104743-011 K1104689-004	01-09E	06/09/22011 2:32 06/09/22011 2:54 06/09/22011 3:16 06/09/22011 3:37 06/09/22011 3:59 06/09/22011 4:21 06/09/22011 4:43 06/09/22011 5:05 06/09/22011 5:27 06/09/22011 5:49
40 41 42 43 44 45 46 47 48 49	26 90 90 90 96 97 86 90	0608F040.D 0608F041.D 0608F042.D 0608F043.D 0608F044.D 0608F045.D 0608F046.D 0608F047.D 0608F049.D 0608F050.D	1. 1. 1. 1.	K1104743-010 K1104689-005 K1104689-010 DCM DCM DCM DRO @ 1000/50ppm SVF0 GRO/RRO @ 1000ppm SV IB DCM		06/09/22011 6:11 06/09/22011 6:32 06/09/22011 6:54 06/09/22011 7:16 06/09/22011 7:38 06/09/22011 8:00 06/09/22011 8:22 06/09/22011 8:44 06/09/22011 9:06 06/09/22011 9:28

Exception Report

Batch Exceptions

Batch ID:

KWG1105220

Data Path:

J:\GC21\DATA\060811F\

File ID	Laboratory ID	Client ID	Btl ID	Type	Matrix	Date Acquired	Pass	Fail	ReAnalyze?
0608F006.D	KWG1105220-1	Continuing Calibration Verific		CCV	Not appl	06-08-2011 17:44	X		
0608F007.D	KWG1105220-1	Continuing Calibration Verific		CCV	Not appl	06-08-2011 18:06	Х		
0608F008.D	KWG1105220-5	Instrument Blank		IΒ	Not appl	06-08-2011 18:28	х		
0608F009.D	KWG1105219-1	Lab Control Sample		LCS	Water	06-08-2011 18:50	х		
0608F010.D	KWG1105219-2	Duplicate Lab Control Sample		DLCS	Water	06-08-2011 19:13	X		
0608F011.D	KWG1105219-3	Method Blank		MB	Water	06-08-2011 19:34	Х		
0608F012.D	K1104328-001	Oil Water Separator #1/#		SMPL	Water	06-08-2011 19:57	X		
0608F013.D	K1104328-002	Oil Water Separator #2/#		SMPL	Water	06-08-2011 20:19	Х		
0608F014.D	K1104328-003	Oil Water Separator #3/#		SMPL	Water	06-08-2011 20:41	X		
0608F015.D	K1104328-004	Oil Water Separator #4/#		SMPL	Water	06-08-2011 21:03	X		
0608F016.D	K1104328-005	Oil Water Separator #5/#		SMPL	Water	06-08-2011 21:25	X.		· · · · · · · · · · · · · · · · · · ·
0608F017.D	K1104328-006	Oil Water Separator #6/#		SMPL	Water	06-08-2011 21:48	х		
0608F018.D	KWG1105220-2	Continuing Calibration Verific		CCV	Not appl	06-08-2011 22:10	X		
0608F019.D	KWG1105220-2	Continuing Calibration Verific		CCV	1 **	06-08-2011 22:31	Х		
0608F020.D	KWG1105220-6	Instrument Blank		IΒ	Not appl	06-08-2011 22:53	X		
0608F021.D	KWG1105150-2	Lab Control Sample		LCS	Soil	06-08-2011 23:15	X		
0608F022.D	KWG1105150-3	Method Blank		MB	Soil	06-08-2011 23:37	X		
0608F023.D	K1104656-001	SG1-052511		SMPL	Soil	06-08-2011 23:59	X		
0608F024.D	KWG1105150-1	Duplicate		DUP	Soil	06-09-2011 00:21	X		
0608F025.D	K1104656-002	SG2-052511		SMPL	Soil	06-09-2011 00:43	X		
0608F026.D	K1104656-003	SG3-052511	ŀ	SMPL	Soil	06-09-2011_01:04	X		
0608F027.D	K1104743-007	SO019		SMPL	Soil	06-09-2011 01:26	X		
0608F028.D	K1104689-001	SO001		SMPL	Soil	06-09-2011 01:48	X		
0608F029.D	KWG1105150-4	Duplicate		DUP	Soil	06-09-2011 02:10	X		
0608F030.D	K1104743-004	SO016		SMPL	Soil	06-09-2011 02:32	X		
0608F031.D	K1104689-007	SO007		SMPL	Soil	06-09-2011 02:54	X		
0608F034.D	KWG1105220-3	Continuing Calibration Verific		CCV .		06-09-2011 03:59	X		
0608F035.D	KWG1105220-3	Continuing Calibration Verific		CCV		106-09-2011 04:21	X		
0608F036.D	KWG1105220-7	Instrument Blank		IB	Not app	06-09-2011 04:43	X		
0608F037.D	K1104743-001	SO013		SMPL	Soil	06-09-2011 05:05	X		
0608F038.D	K1104743-011	SO023		SMPL	Soil	06-09-2011 05:27	X		
0608F039.D	K1104689-004	SO004		SMPL	Soil	06-09-2011 05:49	X		
0608F040.D	K1104743-010	SO022		SMPL	Soil	06-09-2011 06:11	X		
0608F041.D	K1104689-005	SO005		SMPL	Soil	06-09-2011 06:32	X		
0608F042.D	K1104689-010	SO010		SMPL	Soil	06-09-2011 06:54	X		
0608F046.D	KWG1105220-4	Continuing Calibration Verific		CCV	1	106-09-2011 08:22	X		
0608F047.D	KWG1105220-4	Continuing Calibration Verific		CCV	Not app	06-09-2011 08:44	X		

Kev	le	w	3

Level 1:

uf

Date: 6 7/4

 $\begin{array}{lll} Printed: & 06/09/2011 & 14:04:30 \\ u:\Stealth\Crystal.rpt\exceptl.rpt & \end{array}$

Level 2:

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F020.D

Lab ID:

KWG1105220-6

RunType:

ΙB

Matrix:

NOT APPLICABLE

Date Acquired: Date Quantitated: 06/08/2011 22:53 06/09/2011 10:26

Batch ID:

KWG1105220

Analysis Method: MethodJoinID:

NWTPH-Dx MJ1081

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	X	
Second Source ICAL Verification	NA	NA	. NA	х	
Analyte Co-elution	NA	NA	NA	X	* .
Below Lowest ICAL Level	NA	NA	NA	х	
Above Highest ICAL Level	NA	NA	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	Х	

Primary Review:

Secondary Review:

Printed: 06/09/2011 14:05:18 u:\Stealth\Crystal.rpt\except2.rpt

Page 1 of 1

Bottle ID:

Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/09/2011

Analysis Lot: Analysis Method: KWG1105220

NWTPH-Dx

Prep Lot:

Prep Method:

Prep Ref:

Prep Date:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Title:

MB Ref:

Calibration ID:

CAL10358

Method ID:

MJ1081

Quant based on Method

Data File:

Lab ID:

J:\GC21\DATA\060811F\0608F020.D

Acqu Date: Run Type:

06/08/2011 22:53

KWG1105220-6

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

86

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT -	RT Dev	Ŷ.	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl				0			50-150 NA	
n-Triacontane				0			50-150 NA	

Target Compounds

Final Conc. Units:

Parameter Name	RT	RT Dev	-	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?		2322	2.46			
Residual Range Organics (RRO)	6.58	?		10776	17.64			

U: Undetected at or above MDL

J. Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted

NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL

c: check for co-elution

Bottle ID:

Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/09/2011

Analysis Lot:

KWG1105220

Analysis Method:

NWTPH-Dx

Prep Lot:

Prep Method:

Prep Date:

Prep Ref:

Quant Method:

Title:

MB Ref:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Method ID:

MJ227

Quant based on Method

Data File:

J:\GC21\DATA\060811F\0608F020.D

Acqu Date: Run Type:

06/08/2011 22:53

Lab ID:

KWG1105220-6

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

86

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT	RT Dev	 Response	Solution Conc	%Rec	%Rec Limits	Rpt?
 o-Terphenyl	, , , , , , , , , , , , , , , , , , ,		 . 0			50-150 NA	
n-Triacontane			0			50-150 NA	

Target Compounds

Final Conc. Units:

ug/L

2	Ser compounts					0		
	Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
	C10 - C28 DRO	3.27	?	5171	4.83			
	Diesel Range Organics (DRO)	3.82	?	2322	2.46			
	Residual Range Organics (RRO)	6.58	?	10776	17.64			

U: Undetected at or above MDL

J. Analyte detected above MDL, but below MRL
B. Hit above MRL also found in Method Blank
E. Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted
NR: Analyte not reported from this analysis

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance
e: Result >= MRL, but MRL less than low point of ICAL

Data File : J:\GC21\DATA\060811F\0608F020.D

\DATA\060811F\0608F020.D Vial: 86 2011 10:53 pm Operator: JMSmith

Acq On : 08 Jun 2011 · 10:53 pm Sample : IB

Inst : GC21

Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 09 10:26:05 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL

Signal Phase : ZB-1

Signal Info : $15m \times 0.25mm \times 1.0$ um

Compound	R.T.	Response	COLIC	Jnits

System Monitoring Compounds

Target Compounds

4) H	C8-C12ex GRO NW	2.25	1274	3.308 ppm
5) H	C10-C24ex DRO Arcadis	3.07	2562	2.425 ppm
6) H	C10-C25ex DRO AK102	3.17	2944	2.775 ppm
7) H	C10-C28in DRO 8015	3.27	5171	4.831 ppm
8) H	C12-C24ex DRO T&R	3.72	1929	2.054 ppm

April 1997 April 1997

8) H C12-C24ex DRO T&R 3.72 1929 2.054 ppm 9) H C12-C25ex DRO NW 3.82 2322 2.460 ppm 10) H C13-C23ex DRO AZ 4.00 1490 1.763 ppm 11) H C23-C32in RRO AZ 6.22 6163 13.457 ppm 12) H C24-C36in RRO T&R/Arcadis 6.40 11170 17.362 ppm

 12) H
 C24-C36in RRO T&R/Arcadis
 6.40
 11170
 17.362 ppm

 13) H
 C25-C36in RRO NW
 6.58
 10776
 17.642 ppm

 14) H
 C25-C36in RRO Motor Oil
 6.68
 10776
 17.705 ppm

 15) H
 C29-C36in RRO Stratus
 7.36
 8760
 20.553 ppm

16) H C29-C40in RRO Premier 7.46 16368 27.354 ppm

(f)=RT Delta > 1/2 Window (m)=manual int.

Data File : J:\GC21\DATA\060811F\0608F020.D Vial: 86

 Acq On : 08 Jun 2011 10:53 pm
 Operator: JMSmith

 Sample : IB
 Inst : GC21

 Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

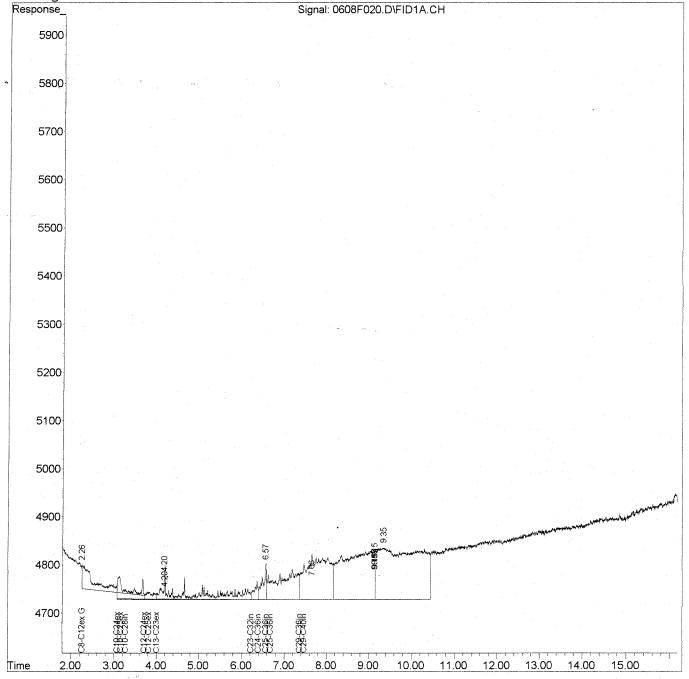
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



0608F020.D 031311FSRO.M

Exception Report

Data File:

J:\GC21\DATA\060811F\0608F036.D

Lab ID:

KWG1105220-7

RunType: Matrix:

IBNOT APPLICABLE Date Acquired:

Date Quantitated: Batch ID:

06/09/2011 04:43 06/09/2011 10:26 KWG1105220

Analysis Method: MethodJoinID:

NWTPH-Dx MJ1081

Sample Exceptions

Exception Categories	Result	Low Limit	High Limit	Pass	Fail
ICAL Analyte Recovery	NA	NA	NA	. X	
Second Source ICAL Verification	NA	NA	NA	X	
Analyte Co-elution	NA	NA	NA	X	4 .
Below Lowest ICAL Level	NA	NA	NA	X	
Above Highest ICAL Level	NA	NA.	NA	X	
Enviroquant/Stealth Calibration Check	NA	NA	NA	X	

Primary Review:

Secondary Review:

Bottle ID: Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/09/2011

Analysis Lot:

KWG1105220

Analysis Method: NWTPH-Dx Prep Lot:

Prep Method: Prep Date:

Prep Ref:

Quant Method:

J:\GC21\METHODS\031311FSRO.M

Calibration ID:

CAL10358

Title:

MB Ref:

Method ID:

MJ1081

Quant based on Method

Data File: Acqu Date: J:\GC21\DATA\060811F\0608F036.D

06/09/2011 04:43

 $^{\mathrm{IB}}$

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

86

Dilution:

1.0

Soln Conc. Units:

%Rec

ppm

Run Type: Lab ID:

KWG1105220-7

Surrogate Compounds

RT Parameter Name RT Dev

Solution Conc

Limits 50-150 NA

%Rec

o-Terphenyl n-Triacontane 0 0

Response

50-150 NA

Rpt?

Target Compounds

Final Conc. Units:

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
Diesel Range Organics (DRO)	3.82	?	2519	2.67			
Residual Range Organics (RRO)	6.58	?	11840	19.38			

NR: Analyte not reported from this analysis

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL B: Hit above MRL also found in Method Blank

E: Analyte concentration above high point of ICAL

N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted

^{*:} Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

c: check for co-elution

Bottle ID: Prod Code:

NWTPH-DX NW TPH

Tier:

Collect Date:

Matrix:

NOT APPLICABLE

Receive Date:

Report Group:

06/09/2011

Analysis Lot:

KWG1105220

06/09/2011 04:43

KWG1105220-7

 $^{\mathrm{IB}}$

Analysis Method: NWTPH-Dx

Prep Lot:

Prep Method: Prep Date:

Prep Ref:

Calibration ID:

CAL10358

Quant Method: Title:

J:\GC21\METHODS\031311FSRO.M

Method ID:

MJ227

Quant based on Method

Data File: Acqu Date:

Run Type:

Lab ID:

MB Ref:

J:\GC21\DATA\060811F\0608F036.D

Quant Date:

06/09/2011 10:26

Instrument:

GC21

Vial:

86

Dilution:

1.0

Soln Conc. Units:

ppm

Surrogate Compounds

Parameter Name	RT RT Dev	Response	Solution Conc	%Rec	%Rec Limits	Rpt?
o-Terphenyl		0			50-150 NA	
n-Triacontane		0			50-150 NA	

Target Compounds

Final Conc. Units:

ug/L

Parameter Name	RT	RT Dev	Response	Solution Conc	Final Conc	Q	Rpt?
C10 - C28 DRO	3.27	?	5622	5.25	,		
Diesel Range Organics (DRO)	3.82	?	2519	2.67			
Residual Range Organics (RRO)	6.58	?	11840	19.38			

u:\Stealth\Crystal.rpt\quant1.rpt

U: Undetected at or above MDL

J: Analyte detected above MDL, but below MRL

B: Hit above MRL also found in Method Blank E: Analyte concentration above high point of ICAL N: Presumptive evidence of compound

D: Result from dilution m: Manual integration performed d: Compound manually deleted
NR: Analyte not reported from this analysis

Result fails acceptance criteria

^{#:} Acceptance criteria not applicable
?: Insufficient information to determine acceptance

e: Result >= MRL, but MRL less than low point of ICAL c: check for co-elution

Data File : J:\GC21\DATA\060811F\0608F036.D Vial: 86

Acq On : 09 Jun 2011 4:43 am Operator: JMSmith Sample : IB Inst : GC21 Misc Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 09 10:26:23 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011

Response via : Initial Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

15) H C29-C36in RRO Stratus

16) H C29-C40in RRO Premier

Signal Info : 15m x 0.25mm x 1.0 um

	Compound		Response	Conc Units	
Syst	tem Monitoring Compounds				
	get Compounds				
4) H	C8-C12ex GRO NW	2.25	1328	3.448 ppm	
5) H	C10-C24ex DRO Arcadis	3.07	2660	2.518 ppm	
6) H	C10-C25ex DRO AK102	3.17	3082	2.905 ppm	
7) H	C10-C28in DRO 8015	3.27	5622	5.253 ppm	
8) H	C12-C24ex DRO T&R	3.72	2086	2.221 ppm	
9) H	C12-C25ex DRO NW	3.82	2519	2.669 ppm	
10) H	C13-C23ex DRO AZ	4.00	1603	1.897 ppm	
11) H	C23-C32in RRO AZ	6.22	6916	15.101 ppm	
12) H	C24-C36in RRO T&R/Arcadis	6.40	12274	19.078 ppm	
13) H	C25-C36in RRO NW	6.58	11840	19.384 ppm	
14) H	C25-C36in RRO Motor Oil	6.68	11840	19.453 ppm	

7.36

7.46

22.315 ppm

29.545 ppm

9511 17679

Data File : J:\GC21\DATA\060811F\0608F036.D Vial: 86

 Acq On : 09 Jun 2011 4:43 am
 Operator: JMSmith

 Sample : IB
 Inst : GC21

 Misc : Multiplr: 1.00

IntFile : rteint.p

Quant Time: Jun 9 10:26 2011 Quant Results File: 031311FSRO.RES

Quant Method : J:\GC21\METHODS\031311FSRO.M (RTE Integrator)

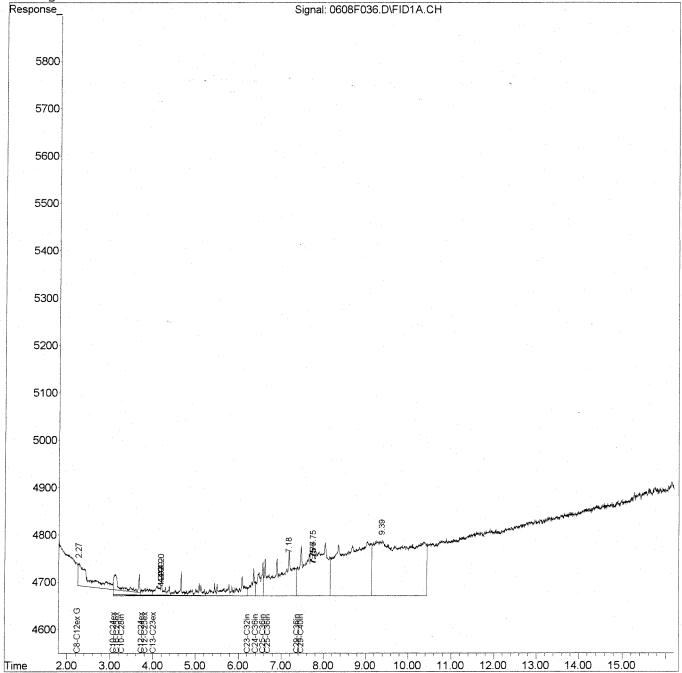
Title : 8015/NWTPH Semivolatile Range Organics | CAL10358

Last Update : Thu Jun 09 10:25:09 2011 Response via : Single Level Calibration

DataAcq Meth : SVF F.M

Volume Inj. : 1 uL Signal Phase : ZB-1

Signal Info : 15m x 0.25mm x 1.0 um



APPENDIX D GEOTECHNICAL BORING REPORT



(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

٠... حسنون

CURRENT

Notice of Intent No.

AE13340

Construction/Decommission	P11148	-5620	Type of Well					
x Construction		<u> </u>	.,					
x Decommission ORIGINAL INSTALLATION				X Geote	chnical :	Soil Bor	ing	
of Intent Number	EEO02025	Property Owne	er	1			America	<u>a</u>
Consulting Firm The Environme	intol Company	Site Address		- 1.	1813 E	Bishop F		
The Environme	ntai Company	City	Cheh	ialis		_ Coun	ty	Lewis EWM
Geotechnical Soil Boring		Location	1/4 SW	1/4 SE	Sec	10 T	wr. 13N	R 2W or
Hole # B-1				-				WWM
WELL CONSTRUCTION CERTIFICATION: I constructed and/	or accept responsibility for	Lat/Long (s,t,r					at Min/Se	с
construction of this well, and its compliance with all Washington v		still Required)	Long Deg		· · · · · ·	_ L	ong Min/S	Sec
Materials used and the information reported above are true to my b	_	Tax Parcel No.			017	74006005	5	
X Driller Trainee Name (Print) Driller/Trainee Signature	Tyler Day	Conned on Umana	d Diamastan		2.25		0.	
	396	Cased or Uncase	Diameter		2.25		St	atic Level 14'
		Work/Decommis	sion Start D	ate		5.	/24/2011	İ
If trainee, licensed driller's								
Signature and License No.		Work/Decommis	sion Comple	eted Date _		5	/24/2011	<u> </u>
Construction/Design					For	mation l	Descripti	on
	CONCRETE SUR BACKFILL 1 bag of b	0-1 1-15 Dentonite chips	FT_FT		Gı	-15' Clay		FT
	DEPTH OF BORING	15	FT					FT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No.

AE13340

Construction/Decommission	P11148	3-5620	Type of	Well		
x Construction		The state of the s				
x Decommission ORIGINAL INSTAL	LLATION Notice		X Geot	echnical So	il Boring	
	EEO02025	Property Owne	•		tes of Amer	ica
		Site Address		1813 Bis	hop Road	
Consulting Firm The Envi	ronmental Company	_ City	Chehalis		County	Lewis
Geotechnical Soil Boring		Location	1/4 SW 1/4 SE	Sec _	10 Twr_13	EWM N R 2W or
Hole #	B-2	_		_		wwm
WELL CONSTRUCTION CERTIFICATION: I cons	structed and/or accept responsibility for	Lat/Long (s,t,r	Lat Deg		Lat Min/	Sec
construction of this well, and its compliance with all V	Vashington well construction standards	still Required)	Long Deg		Long Mi	n/Sec
Materials used and the information reported above are	·	Tax Parcel No.		01774	006005	
X Driller Trainee Name (Print)	Tyler Day					
Driller/Trainee Signature	2006	_ Cased or <u>Uncase</u>	<u>d</u> Diameter	2.25		Static Level 14'
Driller/Trainee License No.	2896	- Work/Decommis	ssion Start Date		5/24/20	11
If trainee, licensed driller's					J. MATI AU	
Signature and License No.		Work/Decommis	sion Completed Date		5/24/20	11
Construction/Design		-		Form	ation Descrip	otion
	CONCRETE SUI	0-1 1-15	FT	0-2 Grav 2'-1 Cla	vel 5'	FT
	DEPTH OF BORING	bentonite chips	FT			_FT
Scale 1" =		Page 1	of 1		ECY	050-12 (Rec=v 2/01)

Page <u>1</u> of <u>1</u>

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. AE13340

P11148	3-5620		1 ype or	w en			
		•					
N Notice			X Geote	chnical	Soil Boring		
EEO02025	Property Own	er		United S	tates of An	nerica	
	Site Address			1813 I	Bishop Roa	d	
ental Company	City	Cheh	alis		_ County _	1	<u>_ewis</u>
	*	1/4 (788)	010	C	10 T	13N D	EWM
	Location	1/4_SW	1/4 SE	Sec	10 1 Wr	13N K	or wwm
4/	- Lat/Lang(str	Lat Dea			I at N	lin/Sec	W W IVI
	lax Parcel No.			01	774006005		**-
	- Cased or <u>Uncase</u>	d_Diameter		2.25		Statio	Level 14'
896	-						
	Work/Decommi	sion Start D	ate		5/24	/2011	
	_						
	Work/Decommis	sion Comple	eted Date _		5/24	/2011	
				Fo	rmation Des	scription	
BACKFILL 1 bag of	1-15 Sentonite chips	FT FT		G 2	ravel	F	T
	ental Company dor accept responsibility for a well construction standards best knowledge and belief Tyler Day Society Survey	Property Owner Site Address City Location Afor accept responsibility for a well construction standards or best knowledge and belief Tyler Day Cased or Uncase Work/Decommis Work/Decommis	Property Owner Site Address City Cheh Location L	N Notice EEO02025 Property Owner Site Address Location 1/4 SW 1/4 SE Location 1/4 SW 1/4 SE Advance tresponsibility for a well construction standards still Required) Long Deg Tax Parcel No. Cased or Uncased Diameter Work/Decommission Start Date Work/Decommission Completed Date CONCRETE SURFACE SEAL 0-1 FT I bag of bentonite chips	N Notice EEO02025 Property Owner Site Address City Chehalis Location I/4 SW 1/4 SE Sec Nor accept responsibility for vell construction standards of best knowledge and belief Tyler Day Cased or Uncased Diameter Work/Decommission Start Date Work/Decommission Completed Date Fo CONCRETE SURFACE SEAL 0-1 FT 1 bag of bentonite chips	Notice EEO02025 Property Owner Site Address Ista Address City Chehalis County Location I/4 SW I/4 SE Sec 10 Twr After accept responsibility for accept responsibility for aveel construction standards Tyler Day Cased or Uncased Work/Decommission Start Date CONCRETE SURFACE SEAL O-1 FT BACKFILL 1-15 FT Clay X Geotechnical Soil Boring Wild States of An 1813 Bishop Roa County County County County Lat/Long (s.t,r Lat Deg	Site Address

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No.

o. AE13340

Construction/Decommission	P11148	-5620	Type of Well				
x Construction			1				
x Decommission ORIGINAL INSTALLATION of Intent Number	Notice EEO02025	Property Own		Geotechnica United	l Soil Boring States of Amer	ica	
		Site Address		1813	Bishop Road		
Consulting Firm The Environme	ntal Company	City	Chehal	is	County	Lewis	
Geotechnical Soil Boring Hole # B-4		Location	1/4_SW_1/4	SE Sec	<u>10 Twr 13</u>	N R 2W or WWM	
WELL CONSTRUCTION CERTIFICATION: I constructed and	or accept responsibility for	Lat/Long (s,t,r	Lat Deg		Lat Min/	Sec	
construction of this well, and its compliance with all Washington		still Required)	Long Deg		Long Mi	n/Sec	
Materials used and the information reported above are true to my		Tax Parcel No.		(1774006005		
X Driller Trainee Name (Print)	Tyler Day						
Driller/Trainee Signature Driller/Trainee License No. 28	396	Cased or Uncase	<u>d</u> Diameter	2.25	<u> </u>	Static Level 14'	
Diffici Hamee License No. 28	990	Work/Decommis	sion Start Date		5/24/20	11	
If trainee, licensed driller's			on Start Date		3/24/20		
Signature and License No.		Work/Decommis	sion Completed	Date	5/24/20	11	
Construction/Design				C	ormation Descri	ation	
	CONCRETE SUR BACKFILL 1 bag of b	0-1 1-15 pentonite chips	FT		0-2' Gravel 2'-15' Clay	FT FT	
Scale I" =	DEPTH OF BORING	15	FT			_ FT	

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No.

AE13340

Construction/Decommission	P11148	3-5620	Type of Well		
x Construction					
x Decommission ORIGINAL INSTALLATIO	ON Notice		X Geote	echnical Soil Bo	ring
of Intent Number	EEO02025	Property Owner		United States o	f America
O N. E. W. T.		Site Address		1813 Bishop 1	
Consulting Firm The Environm	ental Company	City	Chehalis	Cour	nty <u>Lewis</u>
Geotechnical Soil Boring Hole # B-5		_	1/4 SW 1/4 SE		Twr 13N R 2W or www
WELL CONSTRUCTION CERTIFICATION: I constructed ar			Lat Deg		at Min/Sec
construction of this well, and its compliance with all Washingto		still Required)	Long Deg	I	Long Min/Sec
Materials used and the information reported above are true to m		Tax Parcel No.		0177400600	5
X Driller Trainee Name (Print)	Tyler Day	_			
Driller/Trainee Signature	2896	Cased or <u>Uncased</u>	LDiameter	2.25	Static Level 14'
Driller/Trainee License No.	2890	- Work/Decommiss	ion Start Date	2	5/24/2011
If trainee, licensed driller's]			724/2011
Signature and License No.		Work/Decommiss	ion Completed Date _	5	5/24/2011
Construction/Design			· · · · · · · · · · · · · · · · · · ·	Formation	Description
	BACKFILL 1 bag of	0-1 1-15 bentonite chips	FT	0-2' Gravel 2'-15' Clay	FT FT
	DEPTH OF BORING	15	FT		FT
Scale 1" =		Page 1 c	of		ECY 050-12 (Rec=v 2/01)

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Scale 1" =

CURRENT
Notice of Intent No.

AE13340

ECY 050-12 (Rec=v 2/01)

Construction/Decommission	P11148	-5620	Тур	e of Well	
x Construction	L				
x Decommission ORIGINAL INSTALLATION	V Notice		\mathbf{X} G	eotechnical S	Soil Boring
of Intent Number	EEO02025	Property Owne			tates of America
		Site Address		1813 B	ishop Road
Consulting Firm The Environme	ental Company	City	Chehalis		County Lewis
Geotechnical Soil Boring Hole # B-6		Location	1/4_SW_1/4_S	SE Sec	10 Twr 13N R 2W or WWM
WELL CONSTRUCTION CERTIFICATION: I constructed and	/or accept responsibility for	Lat/Long (s,t,r	Lat Deg		Lat Min/Sec
construction of this well, and its compliance with all Washington	well construction standards	still Required)			Long Min/Sec
Materials used and the information reported above are true to my X Driller Trainee Name (Print)	best knowledge and belief Tyler Day	Tax Parcel No.		017	74006005
Driller/Trainee Signature		Cased or Uncase	<u>d</u> Diameter	2.25	Static Level 14'
Driller/Trainee License No. 2	896	_	-		
If trainee, licensed driller's		Work/Decommis	sion Start Date		5/24/2011
Signature and License No.	. 14 M	Work/Decommis	sion Completed Da	ate	5/24/2011
Construction/Design		•		For	mation Description
	CONCRETE SUF BACKFILL 1 bag of DEPTH OF BORING	1-15 bentonite chips	FT	Gr 2'-	FT avel FT

Page <u>1</u> of <u>1</u>

APPENDIX E WASTEWATER DISPOSAL REPORT

WASTEWATER DISPOSAL REPORT

For:

CHEHALIS POWER PLANT CHEHALIS, WA



WASTEWATER DISPOSAL REPORT FOR:

CHEHALIS POWER PLANT

GENERATOR STEP-UP TRANSFORMER No. 1 (GSU #1) OIL SPILL

Prepared for: PacifiCorp Energy

Prepared by: KTA Associates, Inc. 800 Fifth Avenue, Suite 4100 Seattle, WA

August 2012

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1.0 INTRODUCTION

PacifiCorp Energy Chehalis Power Plant (Chehalis Power) electrical Transformer GSU#1 failed on January 20, 2011, releasing mineral oil and causing a fire. Firefighting operations generated a large quantity of potentially contaminated water. Impacts to the stormwater collection system resulted in storage of a great quantity of water for later disposal. This report describes the management, characterization and disposal of the water generated during the spill incident response and cleanup. Chehalis Power intends to complete remedial actions for the transformer oil spill Site through the Ecology Voluntary Cleanup Program (VCP). This report focuses on disposal of the water, completed in several stages in 2011.

1.1 OIL SPILL INCIDENT AND CLEAN UP

The Chehalis Power Plant Transformer GSU#1 failed at 4 am on January 20, 2011, releasing mineral oil and causing a fire. The large transformer contained 11,100 gallons of non-PCB oil; an estimated 2,000 gallons sprayed from the top of the transformer during the explosion. The automatic deluge fire suppression system and subsequent Fire Department operations generated a large volume of water contaminated with mineral oil. Firefighting water, foam and oil overflowed the transformer containment and flowed onto the ground and into stormwater ditches, as shown in Figure 1. During the fire response, the water flowed



Figure 1 - Cleanup Beginning after Transformer Fire

into the ditches, but not off-site; the on-site stormwater pond NPDES discharge outfall had been closed.

After the initial Fire Department response, Chehalis Power contracted with Cowlitz Clean Sweep (CCS) for spill response and remediation of contaminated soil and gravel. The area around the failed transformer and the stormwater ditches were saturated with water and oil. Groundwater four feet below the ground surface and in excavations near the transformer had a layer of oil. CCS gathered oily water and soil for off-site disposal.

Replacement of the transformer with an on-site spare required excavation for new foundations and enlarging the concrete containment. CCS also removed all contaminated soil and gravel from the stormwater ditches and stormwater pond banks. After the transformer replacement was complete, CCS removed all contaminated soil and gravel around the transformer to the extent of the oil spray, about 70-80 feet. Within a few weeks of the spill incident, all identified contaminated soil and gravel were removed for disposal and remediated. Details on the response and spill cleanup are provided in the **PacifiCorp Energy Chehalis Power Plant Transformer GSU#1 Oil Spill Status Report**, April 2011, (**Cleanup Action Report**, Appendix C)

The locations of the transformer, stormwater system and plant equipment are shown on the Facility Diagram in Figure 2.

1.2 WASTEWATER GENERATED DURING SPILL CLEANUP

Large quantities of water were generated during the incident response and subsequent cleanup, including oil contaminated wastewater and uncontaminated stormwater resulting from shutting down the plant stormwater pond discharge.

During the fire response, excess water flowed to the stormwater ditches and ultimately to the stormwater pond. After the fire response, CCS pumped contaminated water from the ditches and the surface of the stormwater pond. The mineral oil contaminated water was transported off-site by truck for disposal.

With the oil skimmed from the stormwater pond, the water was pumped to the large containment structure with two 1.7 million gallon fuel oil tanks in the southwest area of the plant. The water was pumped to lower the level of the pond for site stormwater and to store stormwater until discharge resumed.

In addition, in the days after cleanup started, potentially contaminated water was pumped into the 1.7 million gallon East Fuel Oil Tank. The fuel oil tanks were empty and had not been used since the initial startup of the facility, however, fuel oil residue remained in the tank. Once the stormwater pumped from the pond reached the maximum safe level in the containment, excess stormwater was pumped into the East Fuel Oil Tank.

In order to replace the transformer with an on-site spare and clean up the area, a sump was excavated to collect excess water and oil. Oil was collected with absorbents as possible. Dewatering groundwater for the excavation and excess water in the contamination area was collected in the sump and pumped to the East Fuel Oil Tank.

Proper disposal or discharge of the wastewater required a lengthy process and was finally completed several months after the spill incident.

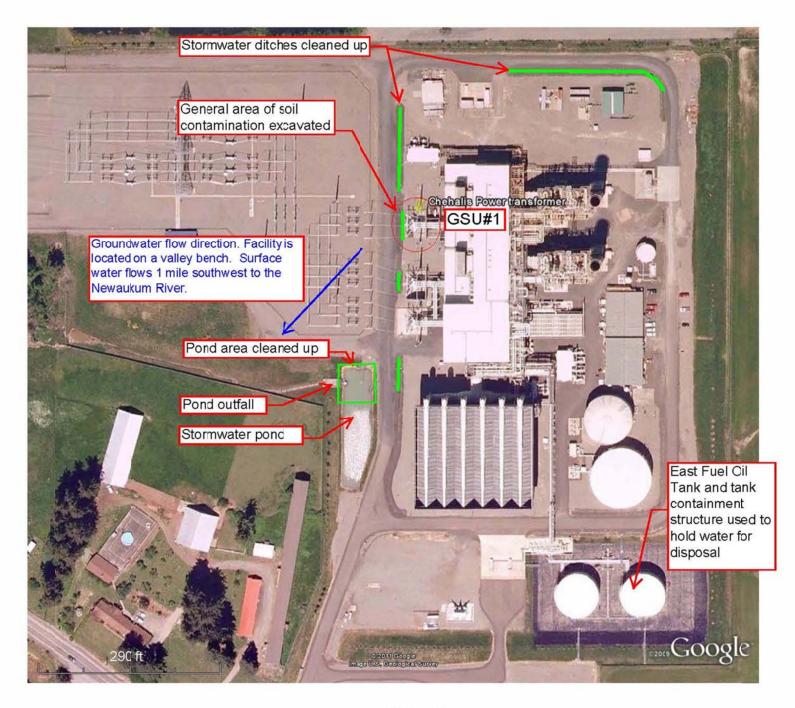


Figure 2 Chehalis Power Plant Facility Diagram Transformer Oil Spill

2.0 DISPOSAL OF OIL CONTAMINATED WATER DURING SPILL CLEANUP

Mineral oil and contaminated water from the spill cleanup were removed from the stormwater ditches and stormwater pond with oil skimmers and vacuum trucks by CCS. The waste, 8,869 gallons of emulsified oil and water was transported off-site by truck for disposal as non-hazardous waste. Details of the initial cleanup and waste disposal by CCS are described in **PacifiCorp Energy Chehalis Power Plant Transformer GSU#1 Oil Spill Status Report**, April 2011, (**Cleanup Action Report**, Appendix C)

3.0 DISCHARGE OF UNCONTAMINATED WATER FROM STORMWATER POND

Water was pumped from the stormwater pond to the fuel oil tank containment structure while the pond was remediated; no contaminated water had been discharged from the pond. A couple weeks after the spill incident, Chehalis Power made plans to discharge the water from the stormwater pond.

3.1 WASTE WATER CHARACTERIZATION

During and after the stormwater pond banks were remediated, any remaining oil sheen on the water was removed with absorbents. Also, the open water in the fuel oil tank containment structure showed minimal oil sheen, which was removed with absorbents.

The stormwater pond water was sampled by CCS for analysis. The laboratory analysis for NWTPH-Dx showed the pond water had non-detectable oil levels. The CCS sampling information and laboratory analysis are described in **PacifiCorp Energy Chehalis Power Plant Transformer GSU#1 Oil Spill Status Report**, April 2011, (**Cleanup Action Report**, Appendix C) The water in the containment was also sampled by CCS, the laboratory analysis report is included in Attachment A.

3.2 DISCHARGE APPROVAL

Shortly after the oil spill incident, Ecology representative, Kevin Hancock, Ecology SWRO Industrial Stormwater Facility Manager, visited the facility to determine if any oil spill contamination had impacted surface waters off-site.

Chehalis Power developed a plan with Mr. Hancock to discharge the stored excess stormwater from the pond once the pond cleanup was completed and a sample showed the water did not contain detectable oil levels or sheen.

After the tank containment water and stormwater pond sample analysis were completed, showing non-detectable oil levels, Mr. Hancock approved opening the pond outfall and resuming stormwater discharge, including the water stored in the fuel oil tank containment structure.

3.3 DISCHARGE OF UNCONTAMINATED WATER

The stormwater pond outfall was opened and water discharge resumed. The water was drained from the tank containment in February, 2011. The water would be discharged through the normal pond outfall to waterways flowing to Berwick Creek and Newaukum River.

4.0 DISPOSAL OF WATER STORED IN EAST FUEL OIL TANK

Chehalis Power contracted with KTA Associates, Inc. (KTA), for environmental services assistance with remediation planning. The 1.7 million gallon tank was approximately 25% full of contaminated water. A water sample from the bottom of the tank had shown no detectable levels of oil; it was believed that an oil layer was floating on top of the water. The East Fuel Oil Tank contained only a residual amount of fuel as the facility has not operated on or received delivery of fuel oil since plant commissioning. The oil layer probably contained both residual diesel fuel oil, in addition to mineral oil from the transformer. KTA recommended sampling the tank to determine the extent of oil contamination of the water in the tank. This was done in conjunction with a planned groundwater investigation. The plan to dispose of the water stored in the East Fuel Oil Tank included discharging the uncontaminated water to the stormwater pond and disposing of the oily water at the top of the tank to the sanitary sewer through the plant drains system which includes an in-line oil-water separator tank.

4.1 WASTE WATER CHARACTERIZATION

4.1.1 Tank Sampling by CCS

Two weeks after the oil spill incident, the water at the bottom of the East Fuel Oil Tank (outlet pipe) was sampled by CCS for analysis. The sample of the water at the bottom of the storage tank was non-detectable for NWTPH-Dx. The CCS sampling information and laboratory analysis are described in **PacifiCorp Energy Chehalis Power Plant Transformer GSU#1 Oil Spill Status Report**, April 2011, (**Cleanup Action Report**, Appendix C)

4.1.2 Tank Sampling Contractor

In order to obtain samples of the water in the tank and determine the thickness of the oil layer, Chehalis Power contracted with TEC, Inc. (TEC) to conduct the sampling and coordinate the sample analysis. The Tank was sampled on May 23, 2011, in conjunction with a groundwater investigation.

4.1.3 Tank Water Sample Analysis Results

The details of the sampling procedures and analytical reports are included in the TEC report, **Site Investigation PacifiCorp Chehalis Plant**, July 2011 (**Cleanup Action Report**, Appendix D)

In order to collect the two individual samples, TEC began by taking measurements of the 1.7 million gallon tank using an Interface Probe. A thin product layer (0.05 tenths of a foot), was discovered floating on top of the water located inside the tank. The depth to product, depth to water and total depth were recorded and are provided in Table 4-1.

Table 4-1 East Fuel Oil Tank Measurements							
Depth to product (feet from top of	Depth to water (feet from top of flange plate)	Amount of Measurable product	Total depth of tank (feet from top of flange	Upper tank sample depth (feet from top of	Lower tank sample depth (feet from top of		
flange plate)			plate)	flange plate)	flange plate)		
33.05	33.10	0.05	41.03	35.5	38.5		

Two water samples from varying depths within the large AST were conducted. Samples were analyzed for mineral oil using TPH-Dx and total petroleum hydrocarbon – gasoline extended range (TPH-Gx) methods. To collect a sample without contaminating the sampling pump, a drop tube sampling system was devised to collect the water samples. Samples were collected at 2.5 feet and 5.5 feet below the surface oil layer; the total water depth in the tank was 8.0 feet. The sample laboratory analysis results for the two samples are provided in Table 4-2.

Table 4-2 Water Sample Results and Screening Levels								
Location Type	Sample ID	TPH-Gx Results (ug/L)	TPH-Dx Results (ug/L)	TPH-Gx MTCA A Screening Level (ug/L)	TPH-Dx MTCA A Screening Level (ug/L)			
Tank Sample	TS1-052311	ND	ND	NA	NA			
Tank Sample	TS2-052311	ND	440	NA	500			
ND = Non Dete	ct NA = Not A	vailable						

From the tank sampling, the quantity of oil and of waste water was calculated. Figure 3 below characterizes the water and oil in the tank.

East Tank – 85' diameter, 40' high – 1.7 million gallons.

Water stored in Tank = $8.0' \times (85')^2 \times \pi/4 = 45,396 \text{ cu. ft.} = 339,562 \text{ gallons}$

Oil layer volume = $0.05' \times (85')^2 \times \pi/4 = 283 \text{ cu. ft.} = 2,122 \text{ gallons}$

Of the three water samples, only one indicated TPH concentrations above the detection level. TPH-Dx was measured at 440 μ g/L, which is slightly above the MRL of 270 μ g/L.

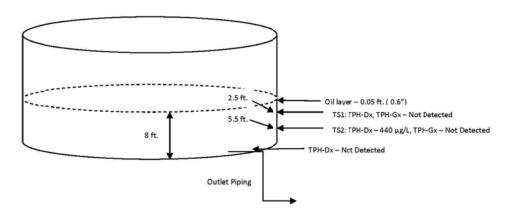


Figure 3 - Water and Oil in East Fuel Oil Tank

4.2 DISPOSAL/DISCHARGE APPROVAL

Chehalis Power provided the analysis results for the water stored in the tank to Ecology SWRO Industrial Stormwater personnel for review. Ecology determined the disposal plan was reasonable, provided addition wastewater tests were completed.

Chehalis Power worked with a technician from a contracted laboratory, Libby Environmental, Inc., on July 26, 2011 to collect a representative sample of the water in the tank proposed to be discharged as stormwater for analysis with the following parameters. The parameters listed were specified by Kevin Hancock, Ecology SWRO Industrial Stormwater Facility Manager, using the MTCA method A for lead. Table 4-3 summarizes the results:

Table 4-3 Water Analysis for Water in East Tank						
Parameter	Analysis Result	Unit of Measure				
рН	6.41	-				
TPH-G	ND	μg/L				
TPH-D	ND	μg/L				
Total Lead	ND	μg/L				
BTEX	ND	μg/L				
Benzene	ND	μg/L				
Toluene	ND	μg/L				
Ethylbenzene	ND	μg/L				
Xylene	ND	μg/L				

The results were provided to Mr. Hancock on July 29, 2011 for his review. Based on the results, Mr. Hancock granted approval to discharge the water portion (all but approximately a $\frac{1}{2}$ inch layer of mineral oil) through the facility's stormwater system. The oily water would meet criteria for waste water acceptable to the City of Chehalis sewer system.

The email summary with Ecology concerning additional testing and disposal approval included in Attachment B.

The analytical results for the waste water in the tank in July 2011, is included in Attachment C.

4.3 PLAN TO DISPOSE OF WATER REMAINING IN TANK AND MINERAL OIL/FUEL OIL LAYER

The tank was essentially a separation column and the mineral oil/fuel oil component had formed a half-inch layer on top of the water. Chehalis Power planned to discharge most of the waste water from the tank to the stormwater pond through an oil-water separator. The remaining water, floating oil layer and oil-water separator waste would be disposed to the sanitary sewer.

4.3.1 Disposal of Water to Stormwater System

A three-compartment oil-water separator tank was utilized in-line with the water discharge so it could be monitored for oil and/oil sheen prior to discharge to the stormwater trenches. Best management practices included the use of oil absorbent mats in the three compartments so any oil could be readily detected.

The fuel oil storage tank was designed with the discharge pipe suction located in a sump so the level is below the floor of the tank. Water level in the tank was continuously monitored and the water discharge was discontinued at a level well above



Figure 4 - Drain Connection for East Fuel Oil Tank



Figure 5 - Oil-water separator for Water in Tank

the floor of the tank to prevent any oil discharge.

Prior to discharging any water from the fuel oil storage tank, best management practices and procedures were developed to prevent discharge of any mineral oil. Water from the tank was pumped to the oil-water separator; a three compartment, 9,000 gallon open-top rectangular tank (approximately 8'wide x 25' long). Water was discharged from the bottom of the third compartment to a stormwater trench and flowed to the stormwater retention pond. The fuel oil storage tank has a volume of approximately 1.7 million gallons, with a height of approximately 40 feet. During sampling of the water, the water depth in the tank was determined to be approximately eight feet. Note that the initial data used to monitor the process, obtained from display of the DCS data in the control room, differs slightly from the measurement taken during the water sampling. The fuel oil tanks have not been utilized since commissioning of the

plant, therefore the level transmitters have not been regularly calibrated. Consequently, the level, indicated as a percentage had inconsistencies.

As a best management practice, to account for the possibility the level transmitter data could be slightly incorrect; it was decided to terminate the discharge when the indicated level was approximately 12 inches above the height of the tank discharge pipe connection.

Discharge of the water began on August 29, 2011 and concluded on September 12, 2011. Discharges were only

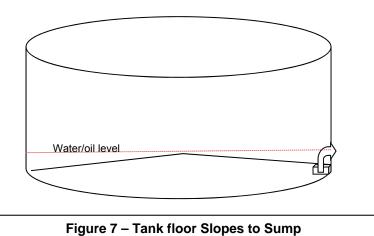


Figure 6 - Discharge of Tank Water to Stormwater Pond

conducted during daylight hours when staff was available to monitor the process and conduct frequent observations for oil or oil sheen. Table 4-4 summarizes the discharge process.

Table 4-4 Tank Water Discharge Data								
Date	Tank level Start/End	Volume Start/End	Volume discharged (gal.)					
	(%)	(gal.)						
8/29/2011	20.8 / 20.3	336,600 / 327,800	8,800					
8/30/2011	20.1 / 18.8	324,700 / 300,900	23,800					
8/31/2011	18.7 / 17.7	300,100 / 286,232	13,868					
9/1/2011	17.6 / 16.7	284,733 / 269,362	15,371					
9/2/2011	16.4 / 14.7	264,508 / 237,808	26,700					
9/3/2011	14.5 / 14.1	236,614 / 228,105	8,509					
9/4/2011	14.1 / 13.2	228,505 / 213,511	14,994					
9/6/2011	13.0 / 11.5	210,275 / 185,975	24,300					
9/7/2011	11.0 / 9.7	185,975 / 154,898	31,077					
9/8/2011	9.6 / 6.9	155,020 / 111,603	43,417					
9/9/2011	6.4 / 5.0	103,918 / 81,670	22,248					
9/12/2011	5.1 / 4.1	81, 510 / 66,299	15,211					
Total volume of water	discharged (336,600 -	66,299) = 270,301 gall	ons					

The floor of the fuel oil storage tank slopes from the middle of the tank to the edge. The discharge pipe suction is located in a sump situated lower than the tank floor as shown in Figure 7. At the termination of the water discharge, the mineral oil layer was estimated to be two feet above the tank floor.



4.3.2 Discharge of Remaining Water & Mineral Oil Stored In East Tank

Discharge of the majority of the water in the tank was concluded on September 12, 2011. Approximately 1.5 - 2 feet of water remained in the tank with the mineral oil layer on top, as shown in the diagram in Figure 8.

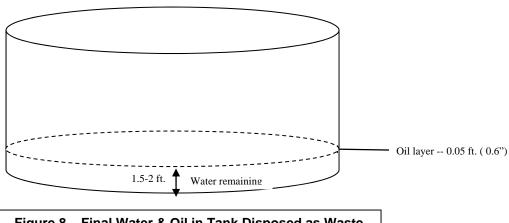


Figure 8 – Final Water & Oil in Tank Disposed as Waste

On October 11, 2011 Chehalis Power began discharge of the remaining water-mineral oil [estimated at 60,000 gal. with 0.5 in of mineral oil (based on calculations - approx. 2000 gal.) on top] from the east fuel oil storage tank through the plant waste water system with the permanent oil/water separator as part of the in-line process. The procedure followed the approved plan with Ecology Industrial Stormwater and the City of Chehalis Wastewater Department.

On October 11, 2011, the equipment and hoses were set up and staff worked with the control room operators to test run each part of the drain sump system that would be involved in this discharge and to check for leaks prior to transferring water from the storage tank.

The hose from the storage tank directly to the plant Storage Area Drain Sump. Staff monitored the discharge frequently with the intent of stopping the discharge as soon as mineral oil was observed at the storage area sump.

Water from the discharge process was transferred through the plant's drain system and disposed of through the plant's waste water system to the City of Chehalis Wastewater Treatment Plant.

An environmental services contractor CCS was contracted to get a vacuum truck scheduled to respond to the plant when oil was observed in order to capture and remove all of the mineral oil at the storage area drain sump. Therefore, mineral oil would not be moved through the entire plant drain sump system, requiring additional cleaning. This also avoided exceeding the volume limit of the oil/water separator (where the services of a vacuum truck would be required).

Discharges were only conducted during daylight hours when staff was available to monitor the process and conduct frequent observations for oil at the sump. An oil absorbent pad was placed directly below the discharge flow into the sump so any oil could be readily detected.

Table 4-5 lists data for the discharge process. (Note that the level indications are somewhat inconsistent, due to the level transmitters not being calibrated.) Water level values were only used to approximate the discharge and determine when observation of the discharge stream should be monitored continuously for oil.

Table 4-5 Tank Waste Discharge Data								
Date	Date Tank level V start/end st		Volume discharged (gal.)					
10/11/2011	3.6 / 3.4	58,612 / 53,510	5,102					
10/13/2011	3.3/ 2.2	52,499 / 36,321	16,178					
10/14/2011	2.2 / 1.5	35,823 / 24,591	11,232					
10/17/2011	1.2 / 0.4	23,125 / 6,390	16,735					
10/18/2011	0.4 / 0.3	6,279 / 3,971	2,308					
10/19/2011	0.2 / 0.0	3,728 / 0	3728					
10/24/2011	0.0	0	Unknown					
10/25/2011	0.0	0	Unknown					

As described in Section 4.3.1, the floor of the tank has a slope from the center of the tank to the edges. The level transmitter is set with "0" depth representing the height of the center of the floor of the tank. Therefore, water could continue to be pumped from the tank even though the level indicated "0". Also, the suction point of the discharge pipe on the fuel oil tank is in a sump below the level of the floor at the edge of the tank.

Beginning on 10/18/2011 the air pump being used for the discharge was throttled to produce the minimum flow possible. On 10/24/2011, the discharge was monitored at 15 minute intervals to check for oil. Oil was first observed on 10/25/2011 and the discharge process was terminated.

4.3.3 Disposal of Tank Residual Waste

Collection of the tank residue waste, including the mineral oil, was completed by pumping the remaining material directly to the storage area sump where the inflow could be monitored for oil by use of an oil absorbent mat. The storage area sump is part of the plant drain system which includes an oil-water separator tank. On 10/25/ 2011 mineral oil was observed on the absorbent pad located at the Storage Area Drain Sump. The Storage Area Drain Sump pumps were taken out of service so no oil would be pumped through the plant drain system. The discharge from the fuel oil storage tank was terminated and the environmental services contractor was contacted.

On 10/26/2011, the environmental services contractor CCS used a vacuum truck to remove the remaining oil in the east fuel oil storage tank. A decision was made to have the contractor clean both the east and west fuel oil storage tanks as well as vacuuming the mineral oil that was transferred to the storage area drain sump. Note that the volumes on the waste disposal manifests for this portion of the mineral oil spill remediation include the water/soap mixture used to clean the tanks. Waste disposal manifests are included in Attachment D.

No mineral oil was processed through the wastewater system.

4.4 FUEL OIL STORAGE TANK CLOSURE

CCS, an environmental services contractor, was utilized to clean both East and West Fuel Oil Tanks, clean the storage area sump and dispose of the material.

In 2012, the fuel oil tanks have been labeled "EMPTY" and the NFPA fire diamonds have been revised.

The tanks will not be used again and are designated "CLOSED". Removal of the tanks is planned in the future.

5.0 REFERENCES

PacifiCorp Energy, April 2011, I Status Report	PacifiCorp Energy C	hehalis Power Plant	Transformer GSU#1	Oil Spill

ATTACHMENT A

DRAGON LABORATORY TANK CONTAINMENT WATER SAMPLE ANALYTICAL REPORT



DRAGON ANALYTICAL LABORATORY





CCS 55 International Way Longview, WA 98632

Sampled By: Unkown

DAL Project No.: 110127-01

Hazardous Waste, Microbiology, NPDES, Potable and Non-potable Water Mobile Environmental Laboratory

> Project Name: Pac Power Project No.: 9311021 P.O. No.: 9311021

Date Collected: 1/27/2011; 0820 Date Received: 1/27/2011; 0905

Temperature Received (°C): 16

Report Date: 1/27/2011

Units: mg/L

Matrix: Waste Water Reporting Limits: Standard

Injection Volume: 2 uL

Instrument ID: Shimadzu GC-14A

Preparation Method: US EPA 3510C Analytical Method: NWTPH-Dx

> Date Prepared: 1/27/2011 Date Analyzed: 1/27/2011

Analyst: JH

Data Reviewed By:

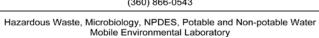
ANALYTICAL RESULTS

Sample Identification	CAS No.	MRL	Method Blank	Tank	Tank Duplicate
Diesel Fuel #2	68334-30-5	10.0	nd	nd	nd
Dilution Factor				1.0	1.0
Data Flags					





530 A1 Ronlee Ln, Olympia, WA 98502 (360) 866-0543





CCS

DAL Project No.: 110127-01

Project Name: Pac Power Project No.: 9311021

QUALITY CONTROL RESULTS

SURROGATE RECOVERY

			Method		Tank
	Surrogate	Limits (%)	Blank	Tank	Duplicate
2-FBP		50-150	82.2	51	117

LABORATORY CONTROL SAMPLE AND MATRIX SPIKE

QC Batch ID: 1100127-01

	MS/MSD	MS/MSD	Sample	MS	MS	MSD	MSD	MS/MSD		LCS	LCS	LCS	LCS
	Limits	Level	Conc.	Recovery	Percent	Recovery	Percent	RPD		Limits	Level	Recovery	Percent
Analyte	(%)	(mg/L)	(mg/L)	(mg/L)	Recovery	(mg/L)	Recovery	Limits	RPD	(%)	(mg/L)	(mg/L)	Recovery
Diesel Fuel #2	65-135	500	nd	432	86.4	445	89.0	≤ 50%	1.48	65-135	500	363	72.3

WA-DOE-Laboratory Certification No.: C2013

Comments and Explanations: None.

page 2 of 2

[&]quot;nd" indicates the analyte was not detected at or above the listed Method Reporting Limit.

[&]quot;n/a" indicates not applicable

ATTACHMENT B

CORRESPONDENCE WITH ECOLOGY INDUSTRIAL STORMWATER STAFF ON DISCHARGING WATER FROM TANK

From: Hancock, Kevin (ECY) [KHAN461@ECY.WA.GOV]

Sent: Monday, August 01, 2011 9:07 AM

To: Sanchez, Patrick

Cc: Miller, Mark A.; Lenora Westbrook; Lucke, Craig; Doak, James; Tucker, Jeff; Ross,

Robert; Mahar, Azizullah (ECY)

Subject: RE: Proposed Plan for Discharge of Storage Tank Stormwater

Follow Up Flag: Follow up Flag Status: Completed

Categories: Red Category

Patrick.

The sampling looks good, so you are ok to implement your plan.

Let me know how it went, and when you are finished.

Sincerely,

Kevin Hancock

Department of Ecology

SWRO Industrial Stormwater Facility Manager

phone: (360) 407-6298 cell: (360) 485-2122 fax: (360) 407-6305

email: Kevin.Hancock@ecy.wa.gov

From: Sanchez, Patrick [mailto:Patrick.Sanchez@PacifiCorp.com]

Sent: Friday, July 29, 2011 3:40 PM

To: Hancock, Kevin (ECY)

Cc: Miller, Mark A.; Lenora Westbrook; Lucke, Craig; Doak, James; Tucker, Jeff; Ross, Robert

Subject: RE: Proposed Plan for Discharge of Storage Tank Stormwater

Hello Kevin,

We worked with a technician from our contracted laboratory, Libby Environmental, Inc., on July 26, 2011 to collect a representative sample of the portion water in the tank we are proposing to discharge as stormwater for analysis for the parameters you listed, using the MTCA method A for lead.

Below is a table summarizing the results:

<u>Parameter</u>	Analysis Result	<u>Unit of Measure</u>
рН	6.41	-
TPH-G	ND	ug/L
TPH-D	ND	ug/L
Total Lead	ND	ug/L
BTEX	ND	ug/L
Benzene	ND	ug/L
Toluene	ND	ug/L
Ethylbenzene	ND	ug/L
Xylene	ND	ug/L

If you prefer to see the lab report, I can provide the chain of custody record and analysis report.

Please review the results of our additional monitoring. Let me know if you have any questions or comments.

I look forward to receiving your decision on our request for this one-time discharge.

T. Patrick Sanchez

Environmental Analyst

Chehalis Power - PacifiCorp Energy 1813 Bishop Road Chehalis, WA 98532

Office: 360.748.1300 ext 8 Mobile: 360.742.2366

From: Hancock, Kevin (ECY) [mailto:KHAN461@ECY.WA.GOV]

Sent: Thursday, July 21, 2011 1:38 PM

To: Sanchez, Patrick

Cc: Miller, Mark A.; Ross, Robert; Lucke, Craig; Doak, James; Tucker, Jeff; Mahar, Azizullah (ECY)

Subject: RE: Proposed Plan for Discharge of Storage Tank Stormwater

Patrick.

You will need to perform the additional tests for the following parameters.

- Level one requirement applies when the contaminant wastewater is discharged to the surface water, like a stormwater ditch.
- Level two applies when they discharge to the City's wastewater treatment plant.

This is from the permit writers manual:

A facility manager may require a permit in a situation that otherwise may be exempted if monitoring and reporting is required. Table C Discharge Quality Maximum Concentration Levels

Parameter	Level 1 (Surface water discharge)	Level 2 (Discharge
		to POTW)
pH	6.0 -9.0	6.5 -8.5
TPH-G	1 ppm	1 ppm
TPH-D	10 ppm	1 ppm
Total Lead	5.0 ppb	5.0 ppb
BTEX	100 ppb	N/A
Benzene	5.0 ppb	1.0 ppb
Toluene	N/A (see BTEX)	40 ppb
Ethylbenzene	N/A (see BTEX)	30 ppb
Xylene	N/A (see BTEX)	20 ppb
T1 1 1::4-4:		1 A f 1 1\

Level 1 limitations are performance and technology based (MTCA method A for lead).

So, for Ecology to authorize this one time discharge, you must provide Ecology the results from this additional monitoring. Once we get it, we will review it then give you our decision.

Please let me know if you have other questions.

Sincerely, Kevin Hancock Department of Ecology SWRO Industrial Stormwater Facility Manager

phone: (360) 407-6298 cell: (360) 485-2122 fax: (360) 407-6305

email: Kevin.Hancock@ecy.wa.gov

From: Sanchez, Patrick [mailto:Patrick.Sanchez@PacifiCorp.com]

Sent: Monday, July 18, 2011 4:02 PM

To: Hancock, Kevin (ECY)

Cc: Miller, Mark A.; Ross, Robert; Lucke, Craig; Doak, James; Tucker, Jeff

Subject: Proposed Plan for Discharge of Storage Tank Stormwater

Kevin,

Per your request following our conversation this afternoon, I am providing the information discussed regarding our proposed plan of action for remediation of the mineral oil contaminated stormwater, which was transferred to our East fuel oil storage tank during the construction work which resulted from the January 20, 2011 Generator Step-up (GSU) Transformer #1 failure.

The remediation of the mineral oil in the stormwater ditches and retention pond, and the soil and groundwater around the GSU #1 containment basin has been previously provided to your office in our Status Report. You visited the plant site shortly after the transformer incident. At that time, you reviewed and approved our plan of action for discharging the stormwater that was transferred from the retention pond to the fuel oil storage tank containment basin, back to the retention pond if sample test results were "non-detectable" for mineral oil.

On Monday, May 23, 2011 the water in the East fuel oil tank was sampled by TEC, Inc.. In order to collect the two individual samples, TEC began by taking measurements of the 1.7 million gallon AST using an Interface Probe (IFP). A thin product layer (0.05 tenths of a foot), was discovered floating on top of the water located inside the AST. Due to the amount of time between the transfer of the water and the sampling, the tank had essentially acted as an oil-water separator. To collect a sample without contaminating the sampling pump, a drop tube sampling system was devised to collect the water samples. A pump and the IFP were both slowly lowered down the drop tube until the expandable end plug was reached. The plug was knocked out using the weight of the pump, which was then lowered to the desired depth which were two and five feet below the product line, respectively. Please reference the attached document for a graphic description of the sample process and the results.

As noted on the description only one of the three water samples contained detectable levels of TPH-Dx. TPH-Dx for the middle sample was very low, 440 ug/L which is just over the analytical MRL of 270 ug/L. Compare this to the Groundwater MTCA A Cleanup Level of 500 ug/L which is protective for human consumption (drinking water).

Based on these results, Chehalis Power is proposing the following twp step plan for remediation of the water in the storage tank:

1. Utilize a temporary oil-water separator from two tanks and temporary piping, the system will be comparable to simple oil-water separators in the Ecology Stormwater Management Manual, to

- run most of the water (7' of 8' depth) through the oil-water separator, then into the stormwater ditches to discharge to the pond.
- 2. Dispose of the remaining water in the tank, floating oil layer and oil-water separator waste to the sanitary sewer. This would be accomplished by connecting directly to the waste water discharge line connection inside the fuel oil containment basin. The waste water system has a functioning oil-water separator included in the system design. It should be noted that we communicated with the City of Chehalis Public Works wastewater department, which receives our sanitary waste, shortly after the January 20th incident and they asked only that they be notified when we were about to begin the discharge so their department was aware of it.

Please review our proposed plan of action and contact me if you have any questions or comments.

Also, I look forward to a response from you prior to proceeding with any discharge from the tank.

T. Patrick Sanchez

Environmental Analyst Chehalis Power - PacifiCorp Energy 1813 Bishop Road Chehalis, WA 98532

Office: 360.748.1300 ext 8 Mobile: 360.742.2366

ATTACHMENT C

LIBBY ENVIROMENTAL TANK WATER SAMPLE ANALYTICAL REPORT



Libby Environmental, Inc.

4139 Libby Road NE • Olympia, WA 98506-2518

July 27, 2011

RECEIVED

T. Patrick Sanchez Chehalis Power 1813 Bishop Road Chehalis, WA 98532 AUG - 1 2011

CHERALIS POWER PLANT

Dear Mr. Sanchez:

Please find enclosed the analytical data report for the Stormwater Discharge Project located in Chehalis, Washington. A water sample was analyzed for pH by EPA Method 150.1, Diesel by NWTPH-Dx, Gasoline by NWTPH-Gx and BTEX by EPA Method 8260C and Total Lead by EPA Method 7421.

The results of the analyses are summarized in the attached tables. Applicable detection limits and QA/QC data are included. An invoice for this analytical work is enclosed.

Libby Environmental, Inc. values the opportunity to have provided analytical services for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Sherry L. Chilcutt

President

Libby Environmental, Inc.

STORMWATER DISCHARGE PROJECT Chehalis, Washington Chehalis Power Libby Project No.L110726-3

Analyses of Diesel (NWTPH-Dx) in Water

Sample	Date	Surrogate	Diesel		
Number	Analyzed	Recovery (%)	(ug/l)		
Method Blank	7/26/11	100	nd		
East F.O.T.	7/26/11	109	nd		
Practical Quantitation Limit			200		

[&]quot;nd" Indicates not detected at the listed detection limits. "int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (2-F Biphenyl): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke

STORMWATER DISCHARGE PROJECT Chehalis, Washington Chehalis Power Libby Project No.L110726-3

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8260C) in Water

Sample	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline	Surrogate
Number	Analyzed			(ug/l)	(ug/l)	Recovery (%)	
Method Blank	7/26/11	nd	nd	nd	nd	nd	97
LCS	7/26/11	90%	101%				94
East F.O.T.	7/26/11	nd	nd	nd	nd	nd	98
L110725-2 MS	7/26/11	89%	108%				97
L110725-2 MSD	7/26/11	92%	110%				96
RPD		3%	2%				
Practical Quantitat	ion Limit	1	2	1	3	100	

[&]quot;nd" Indicates not detected at the listed detection limits.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Trifluorotoluene): 65% TO 135%

ANALYSES PERFORMED BY: Sherry Chilcutt

[&]quot;int" Indicates that interference prevents determination.

STORMWATER DISCHARGE PROJECT Chehalis, Washington Chehalis Power Libby Project No.L110726-3

Analysis of pH in water

Sample Number	Date	рН
Number	Analyzed	
Method Blank	7/26/2011	nd
East F.O.T.	7/26/2011	6.41

ANALYSES PERFORMED BY: Ramses Osorio

STORMWATER DISCHARGE PROJECT Chehalis, Washington Chehalis Power Libby Project No.L110726-3

Analyses of Total Lead in Water by EPA Method 7421

Sample	Date	Lead
Number	Analyzed	(ug/l)
Method Blank	7/27/11	nd
East F.O.T.	7/27/11	nd
East F.O.T. Dup	7/27/11	nd
-		
Practical Quantitation Limit		0.5

[&]quot;nd" Indicates not detected at the listed detection limits.

ANALYSES PERFORMED BY: Sherry Chilcutt

STORMWATER DISCHARGE PROJECT Chehalis, Washington Chehalis Power Libby Project No.L110726-3

QA/QC for Lead in Water by EPA Method 7421

Sample	Date	Lead
Number	Analyzed	(ug/l)
LCS	7/27/11	100%
East F.O.T. MS	7/27/11	90%
East F.O.T. MSD	7/27/11	85%
RPD	7/27/11	5.7

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135% ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Sherry Chilcutt

	of		Discharge test Fort	Oate of Collection:	Field Notes	X Level 1 MTCP A FOR IKAD								×	Record pH here:			ASAP
ord	Page:	77	STORM EPTROPE DIS	OSSRIG Date	1 to 1 00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1										Sample Receipt:	Good Condition?	Cold?	Total Number of Containers
Chain of Custody Record	Date: 7 2%	ē	Project Name: STOR	Collector: Rannes											Date / Time	Date / Time	Date / Time	
Chain			Chemilis with 18052		Container Type	Ambara 2007-1									Received by:	Received by:	Received by:	
nental, Inc.	x: 3	S Dover	CAR Fav.	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Sample Depth Time Type	7,00									Date / Time	Date / Time	Date / Time	- Originator
Libby Environmental, Inc.		西山田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田田	Address: (815 865h)	Client Project #	Sample Number	EAST F.O.T	2	8	4	ಎ	9	7	ω	თ	Relinquished by:	Relinquished by:	Relinquished by:	Distribution: White - Lab, Yellow - File, Pink - Originator

ATTACHMENT D WASTE DISPOSAL MANIFESTS

WASTE MATERIAL PROFILE SHEET Expires one year after acceptance Profile #					
STEP 1: GENERATOR & SITE INFORMATION Generator Name: Pacificorp Location Generated: 1813 Bishop Road, Chehalis WA 98532 EPA ID#: CEG Generator Status: LQG SQG CEG					
STEP 2: WHAT IS THIS MATERIAL? Used Oil DIY Used Oil Machine Lubricating Oil Brake Fluid Hydraulic Oil Refrigeration Oil Machine Tool Cutting Oils/Machine Coolant (*MSDS) Solvent Oil Water Mixture Spent Fuel (Specify Type): Tank Sludge Sump Sludge Spent Fuel & Water (Specify): Contaminated Soil Spill Clean Up Material Water with Less Than 1% Petroleum Product Fats, Oils, & Grease Spent Anti-Freeze Oil Filters Other (Specify): DriverOils identified as having a higher potential of PCB contamination					
STEP 3: CATEGORIZING THE MATERIAL - IS THIS MATERIAL Corrosive: YES NO Reactive: YES NO Toxic: YES NO Mixed With Hazardous Waste? YES NO					
STEP 4: FIELD TEST RESULTS by ORRCO Employee Water Test:					
STEP 5: OTHER INFORMATION – HOW WAS THIS MATERIAL GENERATED? The Generator must explain All pertinent information in detail. Attach all documentation, such as MSDS and analytical results. Transformer failure. Spill clean up of non-regulated mineral oil. See analytical.					
STEP 6: CERTIFICATION AND GUARANTEE — PLEASE READ & SIGN BELOW As the generator of the material described above, I certify that the information contained in this document is accurate and complete. I further certify that this material has NOT been mixed with any chlorinated solvents or any other contaminants including, without limitation, PCB's, pesticides, and hazardous wastes. In the event that the material described in this document is in fact a hazardous waste, or contains PCB's rendering it as a TSCA regulated material, I guarantee to pay all costs necessary for proper analysis, transportation, storage, and disposal.					
Printed, Full Name: Patrick Sanchez Sized: T. Patrick Sanchez Title: Environmental Date: (2/24/24)1					

Signed: T	Para II	tle: Environmental	Date: /8/24/2011	
RECEIVING FACILITY SECTION				
Accepted	Signed By:		Date:	
Rejected:	Tests/Explanation:	-4		

			-
For	Internal	1100	Only'
	1116C4 51CH	U3 C	VIIIV.

Fate: Landfill Disposal Burned for Energy Recovery Re-Refined

A	NON-HAZARDOUS WASTE MANIFEST 1. Generator ID Number 2. Page 1 of 888-423-631						
		1731					
	5. Generator's Name and Mailing Address Pacificorp Checks, Shower Generator's Site Address (if different to the following Address) Fower Generator's Phone:	pent than maning address)					
	6. Transporter 1 Company Name	U.S. EPA ID Number					
	CCS A DIVISION OF PNE CORP	WAH000014944					
	7. Transporter 2 Company Name	U.S. EPA ID Number					
	8. Designated Facility Name and Site Address ORRCO N Suttle Rcl. Facility's Phone: Portland, DTZ	U.S. EPA ID Number					
7	Facility's Phone: Portland, D7Z 10. Containers						
	9. Waste Shipping Name and Description No. Typ	ne Quantity Wt./Vol.					
GENERATOR -	HOLE Material Not Regulated by OOT 01 77	7,950 6					
ENEF	2.						
Ĭ							
	3.						
	4.						
	13. Special Handling Instructions and Additional Information						
	PERMIT/APPROVAL/RECEIPT # CCS TRUCK # 308 CCS JOB #						
	14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described at marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national gov	bove by the proper shipping name, and are classified, packaged,					
8	Generator's/Offerer's Printed/Typed Name	Month Day Year					
1	T. Patrick Sanchez T. Patrick	10 26 2011					
INT'L	15. International Shipments Import to U.S. Export from U.S. Port of entry/exit.						
$\overline{}$		i:					
TER	16. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name Signature	Month Day Year					
POR	Collin Algrahamson	110126 11					
TRANSPORTER	Transporter 2 Printed/Typed Name Signature	Month Day Year					
TH.							
A	17. Discrepancy Indication Space						
	Quantity Type L Residue	Partial Rejection					
	Manifest Reference Number: ≥ 17b. Alternate Facility (or Generator)	: U.S. EPA ID Number					
ILIT.	F I The Allemate Facility (of Generator)	S.S. El Albination					
FAC	Facility's Phone:						
ATED	17c. Signature of Alternate Facility (or Generator)	Month Day Year					
DESIGNATED FACILITY	DESIGN						
ī							
	18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as note in Item 17a	Month Day Vers					
$ \psi $	Printed/Typed Name Signature	Month Day Year					

A	NON-HAZARDOUS WASTE MANIFEST 1. Generator ID Number WASTE MANIFEST 2. Page 1 of 888-423-6316 4. Waste Tracking No. 10 of 10							
	5. Generator's Name and Mailing Address O Control of Co							
	5. Generator's Name and Mailing Address Pacifical - Chehalis Power Generator's Site Address (if different than mailing address) Some Chehalis Was 9333							
	1000 0,500 00	10.000						
	Generator's Phone:							
	6. Transporter 1 Company Name		U.S. EPA ID Number					
	CCS A DIVISION OF PNE CORP	was a second	WAH0000	14944				
ı	7. Transporter 2 Company Name		U.S. EPA ID Number					
	8. Designated Facility Name and Site Address		U.S. EPA ID Number					
	8. Designated Facility Name and Site Address OFFICE N. Suffer Rd Part House Negon 97217		oro. Er / r.b / rambor					
	Q. W. of Meson 97217							
	Facility's Phone:		ORDABO9-	751092				
	Waste Shipping Name and Description	10. Containers	11. Total 12. Unit					
	4 1	No. Type	Quantity Wt./Vol.					
- HC	1. Not Regulated & dot Minual on 2 wish water	A) ++ 1	1277					
ATC	Minual oil I wash water	01 1	1580 G					
GENERATOR	2.							
g	-							
П	3.							
	4.							
П								
П	13. Special Handling Instructions and Additional Information							
П	PERMIT/APPROVAL/RECEIPT # CCS TRUCK #		000 100 #					
Ш	PERMIT/APPROVAL/RECEIPT # CCS TRUCK #	08	CCS JOB #					
Ш	2							
Ш								
П	14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully an			d are classified, packaged,				
	marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable interr Generator's/Offeror's Printed/Typed NameSignature	national and national government	tal regulations.	Month Day Year				
1	Generator's/Offeror's Printed/Typed Name Signature	- Poth		Month Day Year				
_	<u> </u>			27 2011				
INT	Import to U.S. Export from U.S. Transporter Signature (for exports only):	Port of entry/exit: Date leaving U.S.:						
_		Date leaving 0.0.						
TRANSPORTER	Transporter 1 Printed/Typed Name Signature			Month Day Year				
SPC	Collin Abrahangen			10 27 11				
RAN	Transporter 2 Printed/Typed Name Signature			Month Day Year				
F								
1	17. Discrepancy	7						
	Quantity L Type L	Residue	Partial Rejection	Full Rejection				
П	Mar	ifest Reference Number:						
≥	17b. Alternate Facility (or Generator)	moot Holoronoo Humbon	U.S. EPA ID Number					
CI								
FA	Facility's Phone:							
Ë	17c. Signature of Alternate Facility (or Generator)			Month Day Year				
S		and the same of th						
DESIGNATED FACILITY								
1								
H	18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted	in Item 17a						
1	Printed/Typed Name Signature	2 2		Month Day Year				
*	Curtis W Walker Cu	to wh	alter	10 27 11				