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### CHROSTOWSKI, PEARSALL & FOSTER

SCIENTIFIC RESEARCH AND CONSULTING

March 13, 2008

Ms. Mary Blevins
Ecological Risk Assessor/Permit Official
U.S. Environmental Protection Agency Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Re: Risk Assessment for the Siemens Water Technologies Corp. Carbon Reactivation Facility in Parker, Arizona

Dear Mary:

Please find attached one hard copy of the Response to U.S. Environmental Protection Agency Region IX Comments on the Siemens Water Technologies Corp. Carbon Regeneration Facility Risk Assessment, Parker, Arizona, dated March 13, 2008. The enclosed binder also includes the Executive Summary of the Risk Assessment for the Siemens Water Technologies Corp. Carbon Reactivation Facility in Parker, Arizona, also dated March 13, 2008.

In addition, you should have received electronic versions of the enclosed materials which were sent to you from Monte McCue via email on March 13, 2008.

If you have any questions, please feel free to call me at (301) 657-2686.

Sincerely,

Sarah Foster

CPF Associates, Inc.

Saran Fosta

Attachment

cc: M. McCue, Siemens Water Technologies Corp. w/enclosure

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Westates ( Part B 1C-1 (03/2008 - 0):

# RESPONSE TO U.S. ENVIRONMENTAL PROTECTION AGENCY REGION IX COMMENTS ON THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REGENERATION FACILITY RISK ASSESSMENT PARKER, ARIZONA

#### Prepared by:

CPF Associates, Inc. 7708 Takoma Avenue Takoma Park, MD

#### Prepared for:

Siemens Water Technologies Corp. 2523 Mutahar Street Parker, Arizona



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#### **EXECUTIVE SUMMARY**

# SIEMENS WATER TECHNOLOGIES CORP. CARBON REGENERATION FACILITY RISK ASSESSMENT PARKER, ARIZONA

#### Prepared by:

CPF Associates, Inc. 7708 Takoma Avenue Takoma Park, MD

#### **Prepared for:**

Siemens Water Technologies Corp. 2523 Mutahar Street Parker, Arizona



# EXECUTIVE SUMMARY RISK ASSESSMENT FOR THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REACTIVATION FACILITY IN PARKER, ARIZONA

The Siemens Water Technologies Corp. facility (SWT facility) is a carbon reactivation plant located within the 269,000 acre Colorado River Indian Tribes (CRIT) Reservation just outside of the Town of Parker in La Paz County, Arizona. The facility is located in an industrial park established by CRIT on Tribal land and is operated pursuant to a lease between the company and CRIT. The facility reactivates spent carbon which has been previously used to remove pollutants from water and air. The spent carbon is reactivated by heating it to very high temperatures under controlled conditions in a carbon reactivation furnace. The newly reactivated carbon is then reused as an activated carbon product.

A human health and ecological risk assessment of the facility was conducted as part of the facility's permitting activities for the carbon reactivation furnace under the Resource Conservation and Recovery Act permitting regulations at 40 CFR §270.10. A risk assessment is a scientific study that is used to help evaluate risks associated with exposure to chemicals in the environment. This risk assessment represents one of the final steps in a process that has extended over a seven year period beginning with the U.S. Environmental Protection Agency's (USEPA's) request to develop a Risk Assessment Workplan. The risk assessment was conducted by a team of scientists and engineers from independent consulting firms with expertise in risk assessment, toxicology, environmental engineering and air dispersion modeling.

This risk assessment was performed according to a USEPA-approved Risk Assessment Workplan ("Workplan") developed in 2003, updated by agreement with the USEPA to include elements of more recent 2005 USEPA guidance for risk assessments of waste combustion facilities. The USEPA approvals were received prior to the initiation of this study which included evaluations of potential human health and ecological risks associated with both furnace stack air emissions and fugitive air emissions from spent carbon unloading. At USEPA's request, the assessment also included evaluations of potential risks associated with exposure to the facility's effluent discharge to the Colorado River Sewage System Joint Venture (CRSSJV) publicly owned sewage treatment plant and with exposure to airborne chemicals in the workplace at the facility.

The risk assessment for this project is presented in two documents. The first document is the *Draft Risk Assessment for the Siemens Water Technologies Corp. Carbon Reactivation Facility in Parker, Arizona* which was submitted to USEPA on July 30, 2007. The second document is the *Response To USEPA Region IX Comments on the Draft Siemens Water Technologies Corp. Carbon Regeneration Facility Risk Assessment* which was submitted to USEPA on March 13, 2008, to respond to comments on the draft risk assessment that were received from the Agency in late 2007.

The risk assessment used a large amount of site-specific data, including but not limited to:

- comprehensive testing of emissions from the furnace stack, with analysis for site-specific chemicals of potential concern;
- data on spent carbon characteristics, the facility configuration, and facility operations;
- local land use and demographic information;
- water resources data available from the U.S. Geological Survey and the U.S. Bureau of Reclamation; and
- meteorological data from Parker, Arizona.

In the absence of site-specific information, health-protective default values recommended by the USEPA were used. Chemical-specific toxicological data and chemical properties for the compounds selected for evaluation were obtained from the USEPA or from other public health agencies, organizations or databases primarily recommended by the USEPA. In addition, many mathematical models developed by the USEPA and presented in the Agency's guidance documents were applied to perform the risk assessment calculations. Overall, the models and input data used in the risk assessment are expected to provide conservative (i.e., health protective) estimates of potential risks.

Potential risks from stack emissions into the air were evaluated for over 170 compounds selected for detailed assessment based on a comprehensive performance demonstration test (PDT) approved in advance by the USEPA and conducted at the facility by an independent testing firm. The PDT involved several days of stack gas sampling and sophisticated chemical analysis. The list of chemicals selected for evaluation included compounds that were detected in stack emissions and also over 80 compounds that were not detected but were included in the calculations as a conservative measure to ensure that risks would not be underestimated. Stack emission rates for the selected compounds were calculated based on either PDT results, proposed permit limits or, for a few chemicals, long-term average chemical feed rates and a conservative value for the furnace's destruction and removal efficiency. Potential risks from fugitive air emissions were evaluated for 23 compounds selected for evaluation based on their concentrations in spent carbon, the number of deliveries and amounts delivered to the facility, chemical toxicity, and volatility. Air dispersion and deposition modeling was conducted using a model developed and approved by the USEPA to allow calculation of chemical concentrations in air and deposition rates onto the earth's surface within a 154 square mile study area surrounding the facility. The mathematical equations used to calculate the fate and transport of each chemical in the environment, environmental concentrations for each chemical, and human exposures and risks, were based on current USEPA guidance and solved using the Industrial Risk Assessment Program software.

#### **Human Health Risk Assessment**

The stack emissions human health risk assessment calculated exposures for several different types of individuals who could hypothetically be exposed to emissions from the plant: adult and child residents, adult and child farmers, adults and children assumed to eat fish caught from the Colorado River or the Main Drain, and a nursing infant. In risk assessment terminology, these groups of individuals are known as "receptors". Each adult or child receptor was assumed to be exposed through a variety of pathways (e.g., the adult farmer receptor was assumed to be exposed via inhalation, soil ingestion, homegrown produce ingestion, and ingestion of home-raised or locally-raised beef, pork, poultry, and eggs). Each adult receptor was also conservatively assumed to be the mother of a breast-fed infant with the potential for transmission of chemicals from the mother through nursing. The fugitive emissions human health risk assessment evaluated inhalation exposures for adult and child residents, and adult and child farmers.

A variety of risk evaluations were performed in the human health risk assessment, as summarized below:

• Chronic long-term excess lifetime cancer risks from stack emissions were lower than USEPA's combustion risk assessment target level of 1x10<sup>-5</sup> (one in 100,000) over a 70-year lifetime when all compounds were included. The excess lifetime cancer risks were reduced to 30 or more times lower than the target risk level when just one compound (that was not detected in the stack gases and has not been received at the facility in spent carbon) was

removed from the analysis. Excess lifetime cancer risks due to inhalation of fugitive emissions were at least 200 times below the USEPA target risk level. When excess lifetime cancer risks from both stack and fugitive emissions are considered together, the cancer risk estimate remains below the USEPA target risk level.

- An analysis of chronic long-term non-cancer effects from exposure to stack and fugitive
  emissions showed that adverse chronic non-cancer effects would not occur. Calculated
  exposures were at least five times lower for stack emissions, and 250 times lower for fugitive
  emissions, than the conservative non-cancer target level of 0.25 used by USEPA for
  combustion sources.
- An analysis of short-term acute inhalation exposures showed that adverse acute effects would not occur at assessed residential locations and also at maximum impact points beyond the facility boundary as a result of both stack and fugitive emissions.
- The calculated air and soil concentrations for residential receptors were determined to be below conservatively-derived preliminary remediation goals that have been developed by USEPA Region 9.

#### **Ecological Risk Assessment**

An ecological risk assessment was also conducted to evaluate potential effects of stack emissions on selected representative ecological receptors within the facility area. The ecological analysis evaluated potential impacts to wildlife that was considered to be at greatest risk based on habitat use, exposure potential, ecological significance, and population status. The habitat types that were considered consisted of crossote bush scrub, agricultural areas, riparian corridors and backwaters, the Colorado River, and the Main Drain. The species selected for evaluation consisted of aquatic life, plants, the badger, Gambel's quail, the great horned owl, the burrowing owl, the southwestern willow flycatcher, the double-crested cormorant, the Yuma clapper rail and mule deer. Potential risks were evaluated by comparing calculated concentrations or exposures to toxicity reference values (TRVs) derived to be protective of these receptor groups. The TRVs were obtained from a variety of sources, including the USEPA, the State of Arizona, ecological databases and the published literature.

The calculated environmental concentrations and exposures to animals and birds were not only below the TRVs but also below the conservative ecological target risk level specified by USEPA Region 9 for this project (i.e., a hazard index value of 0.25). These site-specific results indicate that adverse ecological effects from exposure to stack emissions are not expected to occur for the evaluated receptors. Concentrations in surface water and sediment were found to be more than 800 times lower than the 0.25 target hazard index level. Concentrations in plants ranged from just below the 0.25 target level to more than 400 times lower than the 0.25 target level. Exposures to selected bird species were found to be at least five times lower than the 0.25 target level. Finally, exposures to the evaluated mammal species were determined to be at least 5,000 times below the 0.25 target level.

#### Wastewater Discharge from the Facility to the Wastewater Treatment Plant

The risk assessment also evaluated the potential incremental impact of the facility's wastewater effluent on chemical concentrations discharged from the publicly owned treatment plant into the Main Drain. The analysis also evaluated potential fish tissue concentrations and associated potential human health fish ingestion risks in the Main Drain downstream of the treatment plant's discharge point. This

evaluation focused on 19 compounds selected based on measurements obtained from the facility's effluent discharge.

This evaluation showed that the incremental contribution of the facility's effluent on the treatment plant discharge and the Main Drain does not pose unacceptable risks to either aquatic life or human health. The modeled discharge concentrations were below or equivalent to the most stringent applicable state water quality standards and criteria and the treatment plant's discharge permit limits for all evaluated compounds. Semi-annual toxicity tests performed on the treatment plant's discharge since 2000 have consistently shown no toxicity to aquatic organisms. Additionally, potential risks due to ingestion of fish caught from the Main Drain associated with the incremental contribution of the SWT facility effluent were all below USEPA target risk levels for both cancer and non-cancer effects.

#### **Evaluation of Fugitive Emissions in the Workplace**

The risk assessment included an evaluation of workplace air concentrations associated with spent carbon unloading using methods consistent with those adopted by the U.S. Occupational Safety and Health Administration and the National Institute of Occupational Safety and Health. This analysis compared modeled on-site ambient air concentrations for the 23 selected compounds due to fugitive emissions, and measured industrial hygiene worker breathing zone concentrations, to workplace permissible exposure limits. The workplace evaluation indicated that modeled ambient air concentrations due to fugitive emissions during spent carbon unloading, and measured worker breathing zone concentrations, did not exceed occupational exposure limits within the property boundary.

#### Conclusion

In conclusion, the risk assessment demonstrates that, using conservative assumptions:

- the potential risks associated with air emissions from the Siemens Water Technologies Corp. carbon reactivation furnace and from spent carbon unloading are below regulatory and other target risk levels for both human health and ecological receptors;
- the incremental contribution of the facility effluent on the CRSSJV wastewater treatment plant discharge and the Main Drain does not pose unacceptable risks to either aquatic life or human health; and
- modeled on-site air concentrations due to fugitive emissions during spent carbon unloading at the facility, and measured worker breathing zone concentrations, do not exceed occupational exposure limits.

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# RESPONSE TO U.S. ENVIRONMENTAL PROTECTION AGENCY REGION IX COMMENTS ON THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REGENERATION FACILITY RISK ASSESSMENT PARKER, ARIZONA

### Prepared by:

CPF Associates, Inc. 7708 Takoma Avenue Takoma Park, MD

#### Prepared for:

Siemens Water Technologies Corp. 2523 Mutahar Street Parker, Arizona



# RESPONSE TO U.S. ENVIRONMENTAL PROTECTION AGENCY REGION IX COMMENTS ON THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REGENERATION FACILITY RISK ASSESSMENT, PARKER, ARIZONA

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#### LIST OF ABBREVIATIONS

AZDEQ Arizona Department of Environmental Quality

BOD Biological oxygen demand
COD Chemical oxygen demand
COPC Chemical of potential concern
CPT Comprehensive Performance Test
CRIT Colorado River Indian Tribes

CRSSJV Colorado River Sewage System Joint Venture

CrVI Hexavalent Chromium

CWT Centralized Waste Treatment
DRE Destruction and removal efficiency

Exponent in the presentation of numerical results (e.g.,  $3E-4 = 3x10^{-4}$ )

HCl Hydrogen chloride

HHRAP Human Health Risk Assessment Protocol published in 2005 by USEPA

HI Hazard index HQ Hazard quotient

IEUBK Integrated Exposure Uptake Biokinetic Model

IH Industrial hygiene

IRAP Industrial Risk Assessment Program

ISCST3 Industrial Source Complex Short-Term 3 air model NIOSH National Institute on Occupational Safety and Health

NOx Nitrogen oxides

OSHA Occupational Safety and Health Administration

PCBs Polychlorinated biphenyls

PDT Performance Demonstration Test

PCDDs/PCDFs Polychlorinated dibenzo-p-dioxins and polychlorinated dibenzo-furans

POTW Publicly Owned Treatment Works

ppm parts per million RA Risk assessment

RCRA Resource Conservation and Recovery Act

SWT Siemens Water Technologies Corp.

TWA Time-weighted-average

USEPA U.S. Environmental Protection Agency

USGS U.S. Geological Survey

# RESPONSE TO U.S. ENVIRONMENTAL PROTECTION AGENCY REGION IX COMMENTS ON THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REGENERATION FACILITY RISK ASSESSMENT, PARKER, ARIZONA

#### I. INTRODUCTION

This document provides responses to comments received from the U.S. Environmental Protection Agency (USEPA) Region IX on the *Draft Risk Assessment for the Siemens Water Technologies Corp. Carbon Reactivation Facility in Parker, Arizona.* The Risk Assessment (RA) was prepared on behalf of Siemens Water Technologies Corp. (SWT) by CPF Associates, Inc. and was submitted to USEPA on July 30, 2007. USEPA provided comments on the document to Siemens on December 7, 2007 (USEPA 2007a) and November 26, 2007 (USEPA 2007b).

The SWT facility is a carbon reactivation plant located within the 269,000 acre Colorado River Indian Tribes ("CRIT") Reservation just outside of the Town of Parker in La Paz County, Arizona. The facility is located in an industrial park established by CRIT on Tribal land and is operated pursuant to a lease between the company and CRIT. The facility reactivates spent carbon which has been previously used to remove pollutants from water and air. The spent carbon is reactivated by heating it to very high temperatures under controlled conditions in a carbon reactivation furnace. The newly reactivated carbon is then reused as an activated carbon product.

The RA, consisting of a human health and ecological risk assessment of the facility, was conducted as part of the facility's permitting activities under the Resource Conservation and Recovery Act (RCRA). A risk assessment is a scientific study that is used to help evaluate risks associated with exposure to chemicals in the environment. The risk assessment represents one of the final steps in an evaluation process that has extended over a seven year period. The study was performed in accordance with a USEPA-approved Risk Assessment Workplan and was conducted by a team of scientists and engineers from independent consulting firms with expertise in risk assessment, toxicology, environmental engineering and air dispersion modeling.

The RA demonstrated that the potential risks associated with air emissions from the SWT carbon reactivation furnace and from spent carbon unloading are below regulatory and other target risk levels for both human health and ecological receptors. Additionally, the study showed that the incremental contribution of the facility effluent on the wastewater treatment plant discharge and the Main Drain does not pose unacceptable risks to either aquatic life or human health. Finally, fugitive emissions in ambient air during spent carbon unloading activities were demonstrated not to exceed occupational exposure limits that are established to protect facility employees.

USEPA's review of the ecological risk assessment portion of the RA (USEPA 2007a) concluded that "the methods and strategies used to quantify the likelihood and magnitude of environmental impacts from Siemens' releases are consistent with the recommended procedures and strategies articulated in EPA's guidance reference. The methods which were used are largely consistent with the 2003 Agency-approved risk assessment workplan. The

results of the evaluation of putative ecological risk from facility operations to ecological receptors were below ecotoxicologically based levels and below a conservative target level of Hazard Quotient = 0.25." USEPA's comments on the ecological risk assessment were generally favorable and do not require additional discussion or analysis.

USEPA's review of the human health risk assessment (USEPA 2007b) concluded that "the methods and strategies used to quantify the likelihood and magnitude of environmental impacts from SWT releases are consistent with the recommended procedures and strategies articulated in EPA's guidance reference. In addition, the methods employed are largely consistent with the 2003 Agency-approved risk assessment workplan. All estimates of chronic human health impact fall well below the health-based regulatory thresholds with adequate margins of uncertainty." USEPA also provided both general comments and page-specific comments on the human health risk assessment.

The remainder of this document provides responses to the USEPA comments on the human health risk assessment. Responses are provided in the same order as presented by USEPA (2007b), with General Comments addressed first and Specific Comments addressed second. In the following sections, USEPA's comments are presented in italics.

Responding to the wide range of comments provided by USEPA has resulted in a lengthy and complex response to comment document. It is recommended, therefore, that the entire risk assessment for this project be comprised of three documents: the original July 2007 draft risk assessment report, this response to comment document, and one inclusive executive summary that reflects and incorporates conclusions from both documents. The executive summary is provided as a stand-alone companion to this document.

#### II. RESPONSE TO GENERAL COMMENTS

# Comment 1: Quality of Data Used to Support Analysis of Human and Ecological Impacts.

#### Comment:

This comment notes that the Comprehensive Performance Test (CPT) "was conducted and results tabulated in accordance with an Agency-approved CPT test plan." It also states that "All data subject to qualification review [from the CPT] was deemed sufficiently reliable to support quantitative estimations of the magnitude and likelihood of human or ecological impact."

Response: No response necessary.

#### Comment 2: Fugitive Impact Analysis and Occupational Dosimetry.

#### Comment:

"A predicted ambient air concentration was modeled from a high-end fugitive release scenario in support of the short-term or acute risk analysis. The location of maximum impact from fugitive releases was identified via the air dispersion and deposition model. This location was identified as about 10 meters north of hopper H-1. The risk assessment has compared model-predicted airborne contaminant concentrations with constituent-specific occupational standards and recommendations from various government and non-governmental organizations. It would be useful to complement this level of analysis of on-site worker impact by conducting a retrospective comparison of model-predicted, on-site fugitive release air estimates with historical facility air monitoring results or occupational dosimetry data. Results from this level of comparison would provide additional data and further inform the overarching weight of evidence regarding the likelihood and magnitude of facility impacts on proximate, on-site receptors."

#### Response:

#### Introduction

Siemens conducts industrial hygiene (IH) surveys annually in which occupational dosimetry data are collected by measuring breathing zone air concentrations for organic compounds and dust. In response to this comment, historical IH survey data were compared to the risk assessment's model-predicted on-site air concentrations associated with fugitive releases. It is important to recognize, however, that these two data sets (measured IH breathing zone concentrations versus modeled outdoor ambient air concentrations) differ substantially in a number of important aspects and thus they should not be directly compared. Rather, as suggested in USEPA's comment, the two data sets together can help provide additional complementary information regarding the potential for impacts on proximate, on-site receptors.

Modeled chemical air concentrations on site were calculated in the risk assessment by combining chemical emission rates with air dispersion modeling results. Emission rates resulting from fugitive releases during spent carbon unloading at the outdoor hopper (H-1) were calculated using mathematical emission models developed for USEPA; these models

are described in detail in Section 4.3 of the risk assessment (USEPA 1997, 2004, 2006). Concentrations of compounds in spent carbon, a key input to the emission models, were determined based on detailed spent carbon composition data measured over a four-year period from 2003 through 2006. The chemical emission rates were then combined with output from the USEPA-approved Industrial Source Complex Short-Term 3 (ISCST3) air dispersion model to calculate outdoor ambient air concentrations on site. The highest on-site concentrations identified for this emission source were determined to occur 10 meters (roughly 30 feet) from the outdoor hopper.

Occupational dosimetry data collected during IH surveys are very different from ambient air concentrations calculated in the risk assessment. The IH surveys measure concentrations in the breathing zone of workers by placing samplers on the workers themselves (e.g., on a lapel close to the worker's breathing zone). Collection of dosimetry data from the breathing zone is preferred over modeled concentrations for monitoring potential worker exposures (Chrostowski 1994, NAS 1991) and is an important element in the Siemens' facility worker health and safety program. IH surveys often intentionally focus on workers whose potential exposures may be high based on the activities they perform during the workday. Consistent with this approach, many of the workers sampled at the carbon regeneration facility are engaged in activities in the immediate vicinity of spent carbon (e.g., handling, unloading and/or sampling spent carbon containers received at the facility). This means that the locations at which breathing zone concentrations are measured during IH surveys differ from the on-site location modeled in the risk assessment. Moreover, the workers are likely to be much closer to potential emission sources than the modeled location addressed in the risk assessment. Further, air quality models like ISCST are based on the concept of Gaussian dispersion which assumes that time-averaged concentration profiles at any distance in the crosswind direction are well represented by a normal distribution. This may not be the case for very short distances between sources and receptors (Turner 1994)<sup>1</sup> which introduces an element of uncertainty not associated with dosimetry or personnel monitoring. Because of these types of differences, the measured and modeled concentrations are not directly comparable.

Keeping in mind these fundamental differences, the measured and modeled concentrations were compared as recommended by USEPA Region IX in its comment. The following discussion presents the measured IH data and describes how on-site air concentrations were modeled in response to this comment. Finally, this section examines these two datasets in comparison with occupational exposure limits.

#### Industrial Hygiene Data

This response to comment focused on historical IH data measured over the same four-year time period that was evaluated in the risk assessment (i.e., 2003-2006) and addressed those compounds that were both reported in the IH surveys and also modeled as fugitives in the risk assessment. The IH data were compiled from survey reports provided to CPF Associates by Siemens<sup>2</sup>, and include worker measurements collected over time periods

<sup>&</sup>lt;sup>1</sup> Note also that the Pasquill-Gifford dispersion parameters have not been reliably measured for distances less than 0.1 km and the prediction of concentrations at receptors less than 0.1 km from a source is thus uncertain. <sup>2</sup> Zurich Services Corporation. Industrial Hygiene Report – Parker, Arizona. Submitted to D. Eisner, US Filter Westates. February 26, 2004; Liberty Mutual Insurance Group. Industrial Hygiene Report. Submitted to D. Eisner, US Filter. January 5, 2005; Liberty Mutual Insurance Group. Industrial Hygiene Report. Submitted

ranging from roughly 140 minutes (2.3 hours) to 480 minutes (8 hours). Table 1 presents the reported IH results for the subset of compounds reported in the surveys and also modeled in the risk assessment. As can be seen, most of the organic compounds in Table 1 were not present at detectable concentrations. Those that were present at detectable concentrations were well below the associated Occupational Health and Safety Administration (OSHA) and National Institute of Occupational Safety and Health (NIOSH) occupational exposure limits.<sup>3</sup>

#### Modeled On-Site Chemical Air Concentrations

Modeled on-site chemical air concentrations associated with fugitive releases during spent carbon unloading were calculated by multiplying chemical emission rates with unitized ISCST3 air dispersion modeling results (i.e., air concentrations calculated for a unit 1 g/sec emission rate). This approach for calculating chemical air concentrations directly follows standard USEPA procedures and more specifically USEPA's Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (HHRAP) guidance. Section 3.8.1 of HHRAP explains how air concentrations are calculated, stating "you can derive COPC-specific<sup>4</sup> air concentrations by multiplying as follows:"

#### COPC-

Specific air concentration ( $\mu g/m^3$ ) \* COPC-specific emission rate (g/sec) (Equ 1) Unit emission rate (1 g/sec) ( $\mu g/m^3$ )

As illustrated by this equation, the two key inputs for calculating chemical air concentrations are the chemical-specific emission rates and the air dispersion modeling outputs. Section 4.3 of the risk assessment describes the mathematical models that were used to calculate these two key inputs. The following discussion provides additional details about the chemical emission rates and the air dispersion modeling in response to this comment.

#### Chemical Emission Rates

Two sets of chemical emission rates were considered in this response, in order to reflect different assumptions about chemical concentrations in spent carbon.

• One set of modeled emission rates was obtained directly from the risk assessment; these emission rates were derived using average concentrations in spent carbon received at the facility from 2003 through 2006.

to D. Eisner, US Filter. January 2006; Liberty Mutual Insurance Group. Industrial Hygiene Report. Submitted to D. Eisner, US Filter. December 28, 2006.

<sup>&</sup>lt;sup>3</sup> The IH surveys analyzed breathing zone samples for more than 30 organic compounds. Most compounds were below the limits of quantitation. Those compounds that were detected were present at levels well below occupational exposure limits.

<sup>&</sup>lt;sup>4</sup> COPC = chemical of potential concern.

Table 1

Results from Carbon Regeneration Facility Industrial Hygiene (1H) Surveys Conducted from 2003 Through 2006

	Breathing Zone Air Concentrations (a) (concentrations for organic compounds in parts per million (ppm); concentrations for dust in mg/m3)												
Year	1,4-Dichloro- benzene	Benzene	Chloroform	Cyclohexane	Ethylbenzene	n-Hexane	Styrene	Tetrachloro- ethylene	Toluene	Trichloro- ethylene	Total dust	Respirable dust	
2003	. 0.07	-: 0.06	< 0.2	< 0.05	< 0.05	0.05	< 0.06	< 0.08	< 0.05	+ 0.1	0.12	1.2	
	+ 0.07	< 0.06	< 0.2	< 0.06	< 0.06	0.05	- 0.06	< 0.09	< 0.05	0.1	0.42	0.24	
	0.07	< 0.06	< 0.2	< 0.06	< 0.06	- 0.05	< 0.06	< 0.09	< 0.05	- 0.1	0.41		
	. 0.07	< 0.06	< 0.2	< 0.06	< 0.06	0.05	- 0.06	< 0.09	< 0.05	+ 0.1	1.4		
	- 0.09	< 0.08	< 0.3	< 0.07	< 0.07	- 0.07	< 0.08	< 0.1	< 0.07	0.1			
2004	~ 0.0009	< 0.002	< 0.0083		< 0.00066	0,0094	< 0.002	< 0.003	< 0.001	+ 0.0024			
	- 0,0013	<: 0,0029	< 0.012		< 0.00096	0.014	< 0.003	< 0.0044	< 0.0015	- 0.0035			
	0.00084	<: 0.0018	< 0.0077		< 0.00061	0.0089	< 0.0019	< 0.0028	- 0.00094	- 0.0022			
	- 0.0017	< 0.0038	< 0.016		< 0.0013	. 0.018	~ 0.004	< 0.0058	< 0.002	0.0046			
	- 0.00063	-: 0.0014	< 0.0058		< 0.00046	+ 0.0066	- 0.0014	< 0.0021	~ 0.0007	- 0.0017	·		
	- 0,00086	-: 0.0019	< 0.0079		< 0.00063	0.0091	< 0.002	< 0.0029	< 0.00097	0.0023			
	- 0.0013	< 0.0028	< 0.012	-	< 0.00094	- 0.014	- 0.0029	< 0.0043	0.0014	< 0.0034			
	- 0,00086	-: 0.0019	< 0.008		- 0.00063	0.0091	0.002	< 0.0029	< 0.00097	- 0.0023	0.35	I	
	0.0014	< 0.003	< 0.013		< 0.001	0.014	< 0.0031	< 0.0046	< 0.0015	- 0.0036	0.26		
	- 0.00097	< 0.021	< 0.0089	1	< 0.00071	0.01	< 0.0022	< 0.0032	< 0.0011	0.0026	2.57	i — —	
	0.0013	< 0.0028	< 0.012		< 0.00092	0.013	- 0.0028	< 0.0042	0.0014	0,0033	1.49		
2005	- 0.012	< 0.022	< 0.046		< 0.012	0.046	< 0.014	< 0.027	~ 0.015	- 0.045	0.2		
	- 0.011	0.021	< 0.045		< 0.012	0.045	~ 0.014	< 0.026	< 0.014	0.044	0.39	-	
	- 0.011	0.021	< 0.045		< 0.012	0.045	< 0.014	< 0.026	< 0.014	0.044	0.93		
	- 0.013	< 0.025	< 0.052	-	< 0.014	0.052	< 0.016	< 0.03	0.025	0.051	< 0.15		
	< 0.011	< 0.021	< 0.045		< 0.012	0.044	- 0.014	< 0.026	0.014	0.044	0.079		
2006		-: 0.0062	< 0.091		< 0.012	0.15	0.028	< 0.05	0.03	- 0.034	5.23		
	<u> </u>	0.0097	< 0.14		< 0.018	0.016	~ 0.016	0.78	0.034	0.054	2.9		
		< 0.016	< 0.24		< 0.031	0.029	0.027	2.7	< 0.027	0.09	0.25	·	
		0.0063	< 0.092		< 0.012	0.11	0.027	0.07	0.015	+ 0.035	0.65		
		< 0.007	< 0.1	-	< 0.013	- 0.012	0.039	< 0.056	0.012	- 0.038			
Summary of IH S	Survey Data				-								
≠ samples	21	26	26	5	26	26	26	26	26	26	17	2	
# non-detects	21	26	26	5	26	23	23	23	21	26	] i	(1	
% detected	()0 o	0° o	(1° o	0° o	()° 0	12%	12%	12%	19%	0%	94" "	100° o	
Occupational Ex	posure Limits (8-	hour TWA)					_						
OSHA PEL	75	1	NA	305	100	511	101	100	199	100	15	- 5	
NIOSH REL	10	0.1	10	305	100	51	50	25	100	25	10	3	

Source: IH survey reports provided by Siemens.

<sup>&</sup>lt;= Compound was not detected at the listed detection limit.</p>

OSHA PEL - Occupational Safety and Health Administration 8-hour time-weighted average Permissible Exposure Limit

NIOSH REL = National Institute for Occupational Safety and Health 8-hour time-weighted average Reference Exposure Limit

<sup>(</sup>a) The listed compounds include those that were selected for detailed evaluation in the spent earhon fugitive emissions analysis in the risk assessment and also were analyzed for during industrial hygiene monitoring programs conducted at the facility. Compounds that were evaluated in the fugitive emissions risk assessment but were not analyzed for in the IHI surveys consisted of inorganics, 1.3-butadiene, acrylonitrile, naphthalene and vinyl chloride.

• The second set of modeled emission rates was evaluated to respond to another USEPA comment (Region IX Specific Comment 10, see below) which recommended that maximum rather than average spent carbon concentrations be used to model fugitive releases for the acute risk analysis. Accordingly, the second set of modeled emission rates was derived using the maximum concentration reported in any spent carbon load that was unloaded at the outdoor hopper over the four-year 2003-2006 period, rather than the average concentration. Table 2 presents the maximum concentrations in spent carbon unloaded at the outdoor hopper, the number of deliveries with this maximum concentration relative to the total number of deliveries, and the mathematically modeled fugitive chemical emission rates.

#### Air Dispersion Modeling

Equation 1, presented above, shows the HHRAP method for calculating chemical-specific air concentrations. In this method, unitized ISCST3 dispersion model output air concentrations are multiplied by chemical-specific emission rates. The unitized ISCST3 air concentration used in the risk assessment and in this response was the maximum modeled 8-hour average air concentration based on a unit 1 g/sec emission rate (i.e.,  $\mu g/m^3$  per 1 g/sec). The chemical-specific emission rates were calculated as described above.

The ISCST3 model, using 5 years of input meteorological data, calculated more than 5,400 unitized 8-hour average concentrations at each of the more than 60 on-site receptor locations that were modeled.<sup>5</sup> The maximum impact receptor point was located about 10 meters from the outdoor hopper. At this location, the highest unitized ISCST3 8-hour average concentration, from among the more than 5,400 modeled output concentrations, was 16,426 µg/m³ per 1 g/sec (see Section 4.4.4.1 and Appendix D in the risk assessment for more detail on the ISCST3 modeling). All the other 8-hour average air concentrations modeled 10 m from the outdoor hopper, and at all the other modeled on-site receptor locations, were lower than this highest value.

#### Presentation of Measured Industrial Hygiene Data and Modeled On-Site Air Concentrations

Figure 1 presents the IH survey data and the modeled on-site air concentrations along with available occupational exposure limits. This comparison indicates that both the modeled ambient air concentrations and the measured worker breathing zone concentrations for the four-year period from 2003 through 2006 did not exceed the OSHA permissible exposure limits and the NIOSH reference exposure limits.

The highest modeled air concentration relative to an occupational exposure limit in Figure 1 was the maximum modeled on-site concentration of benzene. The maximum modeled

<sup>&</sup>lt;sup>5</sup> Three 8-hour averages are calculated by ISCST3 for each modeled day (i.e., midnight – 8 AM, 8 AM-4 PM, and 4 PM-midnight). With 5 years of input meteorological data, including one leap year, this produces more than 5,400 8-hour average ambient air concentrations at each modeled receptor location (e.g., 5 years \* 365 days/year \* 3 8-hour averages/day).

Table 2

Maximum Modeled Fugitive Compound Emission Rates During
Spent Carbon Unloading at the Outdoor Hopper (a)

	Loads Unloaded at Outdoor Hopper H-1 (Based on 2003-2006 Spent Carbon Data)						
Compound	CAS#	Maximum Concentration (ppm)	Number of Deliveries with Maximum	Total Number of Deliveries over 4-Year Period	on Maximum Concentration (loads unloaded at H-1) (g/sec) (b)		
1,2-Dibromoethane	106-93-4	0.025	1	11	6.38E-10		
1.3-Butadiene	106-99-0	NΛ	0	1	NA		
1,4-Dichlorobenzene	106-46-7	34,500	9	59	4.27E-04		
Acrylonitrile	107-13-1	11,500	9	9	2.08E-03		
Arsenic	7440-38-2	73.4	3	145 (c)	4.31E-09		
Benzene	71-43-2	70,000	15	3,443	2.02E-02		
Beryllium	7440-41-7	9.8	1	52	5.73E-10		
Cadmium	7440-43-9	79.3	2	63	4.65E-09		
Chloroform	67-66-3	5,579	2	634	1.25E-03		
Chromium	7440-47-3	294	2	310	1.73E-08		
Chromium VI	18540-29-9	170			9.98E-09		
Cobalt	7440-48-4	798	2	171	4.68E-08		
Copper	7440-50-8	91	1	256	5.37E-09		
Cyclohexane	110-82-7	46,000	3	16	5.87E-02		
Ethylbenzene	100-41-4	25,932	13	888	3.19E-03		
Naphthalene	91-20-3	3,600	5	57	4.62E-06		
n-Hexane	110-54-3	2.220	1	1	8.46E-03		
Nickel	7440-02-0	279	2	226	1.64E-08		
Styrene	100-42-5	84,784	8	107	7.98E-04		
Tetrachloroethylene	127-18-4	91,000	3	1,562	1.96E-02		
Toluene	108-88-3	35,837	35	1,145	5.37E-03		
Trichloroethylene	79-01-6	16.667	1	2,114	5.61E-03		
Vinyl Chloride	75-01-4	6,100	1	375	3.29E-02		

<sup>-- =</sup> no data. Chromium VI concentrations were calculated from total chromium data (see text).

NA - not applicable. Only one spent carbon load containing this compound was received and it was unloaded at H-2.

<sup>(</sup>a) Emission rates were modeled using maximum spent carbon concentrations for loads unloaded at H-1.

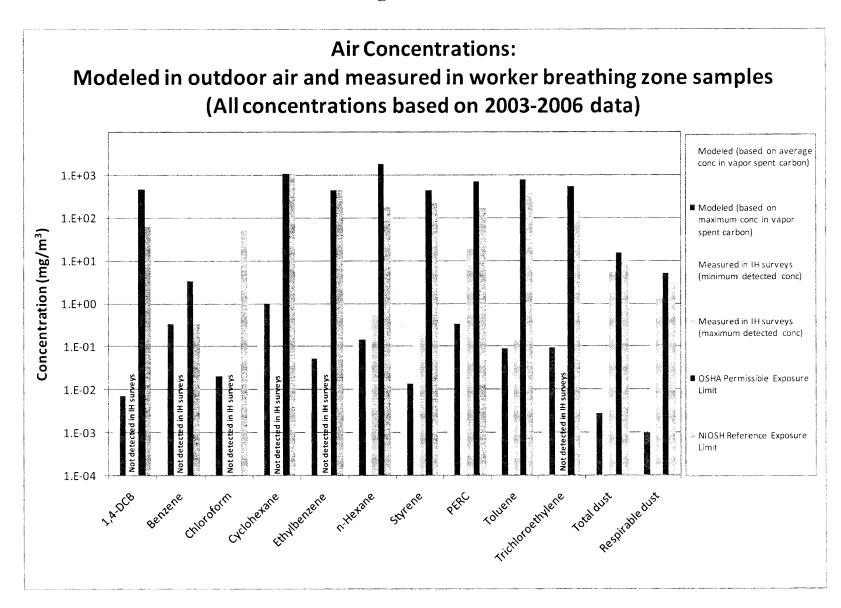
<sup>(</sup>b) Methods for calculating emission rates:

<sup>-</sup> Emission rates for inorganic compounds (g/sec) = PM10 dust emission rate (g/sec) \* concentration in spent carbon (g/g), where the PM10 dust emission rate is 5.87E-5 g/sec (see Section 4.3.3.2 in the risk assessment for a description of the PM10 emission rate calculation).

<sup>-</sup> See Section 4.3.3.1 in the risk assessment for information on the methods used to calculate emission rates for organic compounds. As described in Section 4.3.3.1 of the risk assessment, emission rates for organic compounds were calculated for two different types of spent carbon received at the facility, aqua spent carbon and vapor spent carbon. Emission rates for unloading vapor spent carbon are shown here and used to evaluate potential risks since these emission rates are higher than those for unloading aqua spent carbon.

<sup>(</sup>c) Table 4.3-1 of the risk assessment indicated there were 10 deliveries over the 4-year period. The correct number of deliveries is shown here.

Figure 1



8-hour average benzene air concentration, calculated using the maximum spent carbon benzene concentration and the maximum ISCST3 dispersion result, was equal to the NIOSH reference exposure limit and about 10 times lower than the OSHA permissible exposure limit. This scenario has a very low probability of occurrence, however, since it assumed that the maximum benzene concentration would be unloaded during a workday also characterized by meteorological conditions that produced the maximum 8-hour average air concentration. The likelihood of this situation occurring is less than 4 in 100,000,000 per year.<sup>6</sup>

As described in more detail in response to Specific Comment #10 below, the facility has a protective worker health and safety program which has been developed to meet the requirements of OSHA. In addition to the IH surveys, the program includes training, medical monitoring, provision and use of personal protective equipment, and hazard communication. Specifically with respect to this response to comment, it is important to recognize that all workers involved in spent carbon unloading operations wear respirators in addition to protective clothing. When handling any spent carbon (whether it is classified as non-hazardous or hazardous), a half-face respirator with organic and dust control cartridges is worn by workers. Workers also wear company-supplied shorts, pants, steel-toed boots, hard hat and safety glasses.

Thus, the results of the dosimetry corroborate the conclusions of the risk assessment model that unacceptable risks to workers associated with chemical exposures from spent carbon are not likely to occur.

#### Comment 3: Clean Air Act MACT.

#### Comment:

In this comment, USEPA discusses the Maximum Achievable Control Technology (MACT) standards under the U.S. Clean Air Act and concludes that "While the MACT standards are not risk-based per se, this level of analysis is consistent with the overall weight of evidence suggesting a de minimus level of human and ecological impact from stack emissions on proximate receptors."

Response: No response necessary.

#### **Comment 4: Upset Conditions (Stack Emissions)**

#### Comment:

"Non-cancer or systemically toxic chemicals evaluated in this analysis were assessed by the Agency's threshold strategy which produces a constituent-specific, yet cumulative hazard index. The potential for acute health impacts associated with facility stack release upsets

<sup>&</sup>lt;sup>6</sup> The probability of the maximum benzene concentration occurring in spent carbon is 15 in 3,443 (i.e., 15 deliveries with the maximum concentration were received over the 4-year period out of a total of 3,443 spent carbon deliveries containing benzene). The probability of meteorological conditions producing the maximum 8-hour air concentration is less than 1 in 5,400 over 5 years (i.e., 1 maximum 8-hour concentration out of more than 5,400 calculated 8-hour average concentrations at the receptor location). The overall probability of the maximum modeled benzene concentration occurring is, thus, [(15/3443)/4 years] \* [(<1/5400)/5 years] = <4E-8 or less than 4 in 100,000,000 per year.

were subject to this level of scrutiny. Discrete locations subject to the maximum levels of contaminant deposition were identified by the computerized air dispersion and deposition model. These discrete locations, irrespective of their relationship to known human receptors, were then used to determine media-specific exposure point concentrations - and the concomitant estimate of hazard incurred by a hypothetical receptor.

The acute or short-term hazard estimates associated with upset stack releases should be clearly detailed on pg 42. The cumulative acute hazard index associated with grid locations  $(A_1)$  and  $(A_2)$  should be clearly provided either in a table or a revised narrative. Further, the acute or short-term upset stack release concentration should be consistent with the 1-hr maximum upset emission rate rather than the 1-hr average upset emission rate.

Moreover, the relationship between the 10x increased emission rate associated with a hypothetical facility upset condition and the acute hazard index is not clear based upon the data provided. That is, the contention that acute hazard quotients are uniformly and linearly increased by a factor of 10 is not supported by any data, as the air dispersion and deposition model is based on a gaussian distribution, plume-depleted, mass balance algorithm."

#### Response:

#### Introduction

In response to this comment, a more detailed explanation and presentation of acute, short-term hazard estimates associated with upset stack releases is provided. This section first explains how the acute inhalation risk assessment for upset conditions was performed in response to this comment. Then the results of this assessment are presented. In the course of this discussion, USEPA's comments noted above are addressed.

An acute inhalation risk assessment for upset stack emissions is performed using three key pieces of information: 1) chemical stack emission rates under upset conditions, 2) unitized air dispersion model output concentrations calculated using a unit 1 g/sec emission rate, and 3) short-term acute inhalation reference exposure concentrations. The short-term reference exposure concentrations were identified and compiled according to USEPA's HHRAP guidance and are addressed in Section 4.1.2 of the risk assessment. In this section, an expanded discussion of the remaining two items, upset emission rates and air model outputs, is provided.

#### **Upset Stack Emission Rates**

Upset stack emission rates were calculated in two steps. First, maximum measured emission rates from the performance demonstration test (PDT) were compiled<sup>7</sup> and then, second, these maximum values were increased by USEPA's default upset multiplication factor.

The approach used in this response to comment is even more conservative than that provided for in the risk assessment, in that maximum measured emission rates from the PDT were used in this response whereas the risk assessment, in accordance with the project Workplan, used

<sup>&</sup>lt;sup>7</sup> Stack measurements for nitrogen oxides and sulfur dioxide were obtained from miniburn data since these compounds were not measured in the PDT.

average emission rates derived across the three PDT test runs. This change was made to respond to USEPA's comment to use the "maximum upset emission rate." These maximum measured emission rates are presented in Table 3 along with the stack emission rates that were used in the risk assessment. As described in Section 4.5.2 of the risk assessment, and as shown in Table 3, the differences between the average and maximum measured stack emission rates for those compounds with emission rates based on stack test data were not substantial, and ranged from a factor of 1.0 (i.e., no change) to a factor of 3.0.

Upset emission rates were calculated from the maximum measured values according to the USEPA guidance presented in Section 2.2.5 of HHRAP which, as a default and in the absence of site-specific data, assumes that "emissions during process upsets are 10 times greater than emissions measured during the trial burn." USEPA indicates in HHRAP that the multiplicative default factor of 10 is based on a method presented in 1990 by the California Air Resources Board for non-hazardous municipal waste combustors; HHRAP has extrapolated this to hazardous waste incinerators. An activated carbon regeneration facility is not a hazardous waste incinerator and is intrinsically easier to control than an incinerator due to homogeneity in the feedstock (consisting of only spent carbon), thereby ensuring that the default assumption is likely to be overly conservative when applied to carbon regeneration facilities. In addition, peer review comments received by USEPA on the hazardous waste incinerator methodology pointed out that "available technical information indicates that upset emissions are not close to 10 times normal emissions" (USEPA 2005). Nonetheless, in keeping with USEPA's HHRAP default approach, and because site-specific emissions data during upsets were not available, the upset stack emission rates were calculated by multiplying the maximum measured stack emission rates by a factor of 10. These upset emission rates are also listed in Table 3.

Upset conditions occur at the facility very infrequently. Facility data describing the frequency and duration of upset conditions from 2000 and 2001, which were presented in the risk assessment, indicate that upset conditions occur for about 0.24% of the time the facility is operating. The facility operated under upset conditions for 16.1 hours out of a total of 6,745 operating hours in 2000 and for 18.4 hours out of a total of 7,844 operating hours in 2001 (see Table 4.2-2 in the risk assessment for more details).

#### Proportionality of Chemical Emission Rates to Air Concentrations and Hazard Quotients

USEPA's comment questions whether the relationship between acute hazard quotients (HQs) and emission rates is linear and the contention that a factor of 10 increase in emission rates will increase HQs by a factor of 10. This section responds to USEPA's comment, drawing directly from USEPA guidance.

Short-term chemical-specific air concentrations for the upset acute risk assessment, and in fact chemical-specific air concentrations throughout the risk assessment, were calculated in accordance with standard USEPA procedures and HHRAP guidance. USEPA's guidance in Section 3.8 of HHRAP (Using Model Output) states: "ISCST3 output (air concentrations and deposition rates) are usually provided on a unit emission rate (1.0 g/sec) basis from the combustor or emission source, and aren't COPC-specific. This is to preclude having to run the

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

		Asse	Rates Used in Risk ssment t Conditions)	Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments	
Compound	CAS Number	Emission Rate (g/sec) (a)	Basis for Emission Rate	from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)	
Inorganic Compounds			-1				
Aluminum	7429-90-5	1.15E-04	PDT	1.43E-04	1.2	1.43E-03	
Antimony	7440-36-0	3.89E-06	PDT	4.96E-06	1.3	4.96E-05	
Arsenic	7440-38-2	1.26E-04	permit limit	6.22E-06	not applicable (b)	6.22E-05	
Barium	7440-39-3	9.01E-06	PDT	1.10E-05	1.2	1.10E-04	
Beryllium	7440-41-7	1.26E-04	permit limit	3.13E-07	not applicable (b)	3.13E-06	
Cadmium	7440-43-9	3.12E-04	permit limit	1.31E-05	not applicable (b)	1.31E-04	
Chromium	7440-47-3	1.26E-04	permit limit	6.04E-05 (c)	not applicable (b)	6.04E-04	
Chromium, hexavalent	7440-47-3	5.80E-06	PDT	6.28E-06	1.1	6.28E-05	
Cobalt	7440-48-4	5.82E-07	PDT	9.38E-07	1.6	9.38E-06	
Copper	7440-50-8	1.19E-04	PDT	1.80E-04	1.5	1.80E-03	
1.ead	7439-92-1	3.12E-04	permit limit	5.60E-04 (c)	not applicable (b)	5.60E-03	
Manganese	7439-96-5	4.61E-05	PDT	7.10E-05	1.5	7.10E-04	
Mercuric chloride	7487-94-7	2.30E-05	permit limit	1.62E-06	not applicable (b)	1.62E-05	
Mercury, elemental	7439-97-6	1.34E-06	permit limit	9.48E-08	not applicable (b)	9.48E-07	
Nickel	7440-02-0	9.91E-06	PDT	1.29E-05	1.3	1.29E-04	
Selenium	7782-49-2	3.76E-06	PDT	4.85E-06	1.3	4.85E-05	
Silver	7440-22-4	2.73E-06	PDT	4.62E-06	1.7	4.62E-05	
Thallium	7440-28-0	9.24E-06	PDT	1.13E-05	1.2	1.13E-04	
Vanadium	7440-62-2	2.43E-06	PDT	3.23E-06	1.3	3.23E-05	
Zinc	7440-66-6	1.51E-04	PDT	2.36E-04	1.6	2.36E-03	
Organic Compounds							
1,1,1-Trichloroethane	71-55-6	2.78E-07	PDT	3.17E-07	1.1	3.17E-06	
1,1,2,2-Tetrachloroethane	79-34-5	1.32E-06	PDT	1.51E-06	1.1	1.51E-05	
1.1,2-Trichloroethane	79-00-5	8.02E-07	PDT	9.14E-07	1.1	9.14E-06	
1,1-Dichloroethane	75-34-3	3.09E-07	PDT	3.53E-07	1.1	3.53E-06	

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

			Rates Used in Risk sment Conditions)	Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments
Compound	CAS Number	Emission Rate (g/sec) (a)	Basis for Emission Rate	from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)
1,1-Dichloroethene	75-35-4	3.52E-07	PDT	4.01E-07	1.1	4.01E-06
1,1-Dichloropropene	563-58-6	2.15E-07	PDT	2.45E-07	1.1	2.45E-06
1,2,3-Trichlorobenzene	87-61-6	1.73E-06	PDT	1.97E-06	1.1	1.97E-05
1,2,3-Trichloropropane	96-18-4	1.25E-06	PDT	1.42E-06	1.1	1.42E-05
1,2,4-Trichlorobenzene	120-82-1	9.30E-07	PDT	1.06E-06	1.1	1.06E-05
1,2,4-Trimethylbenzene	95-63-6	6.26E-07	PDT	7.14E-07	1.1	7.14E-06
1,2-Dibromo-3-chloropropane	96-12-8	2.60E-06	PDT	2.97E-06	1.1	2.97E-05
Ethylene dibromide	106-93-4	1.32E-06	PDT	1.50E-06	1.1	1.50E-05
1,2-Dichlorobenzene	95-50-1	8.43E-07	PDT	9.73E-07	1.2	9.73E-06
1,2-Dichloroethane	107-06-2	5.05E-07	PDT	6.15E-07	1.2	6.15E-06
1,2-Dichloroethene (cis)	156-59-2	4.17E-07	PDT	5.17E-07	1.2	5.17E-06
1,2-Dichloroethene (trans)	156-60-5	2.89E-07	PDT	3.29E-07	1.1	3.29E-06
1,2-Dichloropropane	78-87-5	3.98E-07	PDT	4.49E-07	1.1	4.49E-06
1,2-Diphenylhydrazine	122-66-7	7.00E-07	PDT	8.02E-07	1.1	8.02E-06
1.3,5-Trimethylbenzene	108-67-8	4.05E-07	PDT	4.62E-07	1.1	4.62E-06
1,3-Dichlorobenzene	541-73-1	8.86E-07	PDT	1.01E-06	1.1	1.01E-05
1,3-Dichloropropane	142-28-9	3.77E-07	PDT	4.29E-07	1.1	4.29E-06
1,3-Dichloropropene	542-75-6	7.58E-07	PDT	8.46E-07	1.1	8.46E-06
1,3-Dinitrobenzene	99-65-0	1.08E-06	PDT	1.26E-06	1.2	1.26E-05
1,4-Dichlorobenzene	106-46-7	1.00E-06	PDT	1.16E-06	1.2	1.16E-05
1-Hexane (n-hexane)	110-54-3	7.98E-10	FR&DRE		not applicable (b)	8.0E-09
2,2'-oxybis (1-Chloropropane)	108-60-1	9.72E-07	PDT	1.11E-06	1.1	1.11E-05
2.2-Dichloropropane	594-20-7	2.79E-07	PDT	3.18E-07	1.1	3.18E-06
2.4,5-Trichlorophenol	95-95-4	1.61E-06	PDT	1.85E-06	1.1	1.85E-05
2,4,6-Trichlorophenol	88-06-2	1.27E-06	PDT	1.47E-06	1.2	1.47E-05
2,4-Dichlorophenol	120-83-2	1.30E-06	PDT	1.68E-06	1.3	1.68E-05

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

		Asses	Rates Used in Risk ssment Conditions)	Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments	
Compound	CAS Number	Emission Rate (g/sec) (a)	Basis for Emission Rate	from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)	
2,4-Dimethylphenol	105-67-9	3.09E-06	PDT	3.50E-06	1.1	3.50E-05	
2,4-Dinitrophenol	51-28-5	9.15E-06	PDT	1.04E-05	1.1	1.04E-04	
2,4-Dinitrotoluene	121-14-2	1.32E-06	PDT	1.52E-06	1.1	1.52E-05	
2.5-Dimethylfuran	625-86-5	8.43E-07	PDT	2.53E-06	3.0	2.53E-05	
2,5-Dimethylheptane	2216-30-0	1.68E-05	PDT	2.77E-05	1.6	2.77E-04	
2,5-Dione, 3-hexene	17559-81-8	9.53E-07	PDT	2.86E-06	3.0	2.86E-05	
2,6-Dinitrotoluene	606-20-2	1.06E-06	PDT	1.22E-06	1.2	1.22E-05	
Methyl ethyl ketone	78-93-3	4.51E-06	PDT	5.14E-06	1.1	5.14E-05	
2-Chloronaphthalene	91-58-7	6.53E-07	PDT	7.59E-07	1.2	7.59E-06	
2-Chlorophenol	95-57-8	8.60E-07	PDT	9.83E-07	1.1	9.83E-06	
2-Chlorotoluene	95-49-8	5.10E-07	PDT	5.77E-07	1.1	5.77E-06	
2-Hexanone	591-78-6	1.88E-06	PDT	2.14E-06	1.1	2.14E-05	
2-Methyl octane	3221-61-2	3.98E-06	PDT	8.58E-06	2.2	8.58E-05	
2-Methylnaphthalene	91-57-6	5.79E-08	PDT	8.13E-08	1.4	8.13E-07	
Cresol, o-	95-48-7	2.09E-06	PDT	2.38E-06	1.1	2.38E-05	
2-Nitroaniline	88-74-4	1.04E-06	PDT	1.21E-06	1.2	1.21E-05	
2-Nitrophenol	88-75-5	1.77E-06	PDT	2.01E-06	1.1	2.01E-05	
3.3'-Dichlorobenzidine	91-94-1	4.96E-06	PDT	5.68E-06	1.1	5.68E-05	
Cresol, m-	108-39-4	9.15E-07	PDT	1.04E-06	1.1	1.04E-05	
Cresol, p-	106-44-5	9.15E-07	PDT	1.04E-06	1.1	1.04E-05	
3-Ethyl benzaldehyde	34246-54-3	2.38E-06	PDT	3.89E-06	1.6	3.89E-05	
3-Hexen-2-one	763-93-9	1.14E-04	PDT	3.41E-04	3.0	3.41E-03	
3-Nitroaniline	99-09-2	2.91E-06	PDT	3.33E-06	1.1	3.33E-05	
Ethylidene acetone (3-penten-2-one)	625-33-2	4.83E-06	PDT	1.45E-05	3.0	1.45E-04	
3-Penten-2-one, 4-methyl	141-79-7	9.30E-05	PDT	2.14E-04	2.3	2.14E-03	

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

		Asses	Rates Used in Risk ssment t Conditions)	Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments
Compound	CAS Number	Emission Rate (g/sec) (a)	Basis for Emission Rate	from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)
4,4'-DDD	72-54-8	1.31E-07	PDT	2.01E-07	1.5	2.01E-06
4,4'-DDE	72-55-9	4.47E-08	PDT	5.64E-08	1.3	5.64E-07
4,4'-DDT	50-29-3	3.34E-08	PDT	6.63E-08	2.0	6.63E-07
4,6-Dinitro-2-methylphenol	534-52-1	4.37E-06	PDT	4.95E-06	1.1	4.95E-05
4-Bromophenyl-phenyl ether	101-55-3	6.71E-07	PDT	7.69E-07	1.1	7.69E-06
4-Chloro-3-methylphenol	59-50-7	2.17E-06	PDT	2.51E-06	1.2	2.51E-05
4-Chloroaniline	106-47-8	4.17E-06	PDT	4.78E-06	1.1	4.78E-05
4-Chlorophenyl-phenyl ether	7005-72-3	1.11E-06	PDT	1.29E-06	1,2	1.29E-05
4-Chlorotoluene	106-43-4	4.42E-07	PDT	5.03E-07	1.1	5.03E-06
4-Ethyl benzaldehyde	4748-78-1	1.30E-06	PDT	3.89E-06	3.0	3.89E-05
4-Nitroaniline	100-01-6	2.34E-06	PDT	2.57E-06	1.1	2.57E-05
4-Nitrophenol	100-02-7	2.92E-06	PDT	3.33E-06	1.1	3.33E-05
9-Octadecenamide	301-02-0	2.52E-06	PDT	7.57E-06	3.0	7.57E-05
Acenaphthene	83-32-9	4.48E-09	PDT	5.51E-09	1.2	5.51E-08
Acenaphthylene	208-96-8	8.11E-09	PDT	1.52E-08	1.9	1.52E-07
Acetone	67-64-1	6.14E-05	PDT	6.21E-05	1.0	6.21E-04
Acetophenone	98-86-2	3.41E-06	PDT	3.62E-06	1.1	3.62E-05
Acrylic Acid	79-10-7	1.80E-11	FR&DRE		not applicable (b)	1.8E-10
Acrylonitrile	107-13-1	1.10E-05	PDT	1.25E-05	1.1	1.25E-04
Aldrin	309-00-2	2.45E-08	PDT	2.77E-08	1.1	2.77E-07
Aniline	62-53-3	7.19E-06	PDT	8.33E-06	1.2	8.33E-05
Anthracene	120-12-7	1.28E-08	PDT	2.61E-08	2.0	2.61E-07
Benzaldehyde	100-52-7	4.90E-06	PDT	6.60E-06	1.3	6.60E-05
Benzene	71-43-2	2.59E-06	PDT	3.02E-06	1.2	3.02E-05
Benzidine	92-87-5	4.68E-05	PDT	5.35E-05	1.1	5.35E-04
Benzo(a)Anthracene	56-55-3	2.84E-09	PDT	4.82E-09	1.7	4.82E-08

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

		Asses	Rates Used in Risk ssment Conditions)	Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments	
Compound	CAS Number	Emission Rate (g/sec) (a) Basis for Emission Rate		from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)	
Benzo(a)pyrene	50-32-8	3.58E-09	PDT	5.45E-09	1.5	5.45E-08	
Benzo(b)fluoranthene	205-99-2	2.94E-08	PDT	3.28E-08	1,1	3.28E-07	
Benzo(e)pyrene	192-97-2	5.35E-09	PDT	9.18E-09	1.7	9.18E-08	
Benzo(g,h,i)perylene	191-24-2	1.13E-08	PDT	1.61E-08	1.4	1.61E-07	
Benzo(k)fluoranthene	207-08-9	5.43E-09	PDT	8.46E-09	1.6	8.46E-08	
Benzoie Acid	65-85-0	2.81E-05	PDT	3.19E-05	1.1	3.19E-04	
Benzoic acid, methyl ester	93-58-3	8.07E-07	PDT	2,42E-06	3.0	2.42E-05	
Benzonitrile	100-47-0	1.87E-06	PDT	2.14E-06	1.1	2.14E-05	
Benzyl alcohol	100-51-6	2.09E-05	PDT	2.37E-05	1.1	2.37E-04	
Bis(2-chloroethoxy) methane	111-91-1	8.34E-07	PDT	9.54E-07	1.1	9.54E-06	
Bis-(2-chloroethyl) ether	111-44-4	8.14E-07	PDT	9.31E-07	1.1	9.31E-06	
Bis(2-ethylhexyl) phthalate	117-81-7	1.69E-05	PDT	1.96E-05	1.2	1.96E-04	
Bromobenzene	108-86-1	5.00E-07	PDT	5.70E-07	1.1	5.70E-06	
Bromochloromethane	74-97-5	1.52E-06	PDT	1.74E-06	1.1	1.74E-05	
Bromodichloromethane	75-27-4	5.44E-06	PDT	8.53E-06	1.6	8.53E-05	
Bromoform (tribromomethane)	75-25-2	1.38E-05	PDT	1.60E-05	1.2	1.60E-04	
Bromomethane (methyl bromide)	74-83-9	4.72E-06	PDT	6.40E-06	1,4	6.40E-05	
Butylbenzene, n-	104-51-8	6.09E-07	PDT	6.90E-07	1.1	6.90E-06	
Butylbenzene, sec-	135-98-8	4.89E-07	PDT	5.58E-07	1.1	5.58E-06	
Butylbenzene, tert-	98-06-6	5.80E-07	PDT	6.61E-07	1.1	6.61E-06	
Butylbenzylphthalate	85-68-7	1.08E-06	PDT	1,26E-06	1.2	1.26E-05	
Carbazole	86-74-8	9.83E-07	PDT	1.12E-06	1.1	1.12E-05	
Carbon Disulfide	75-15-0	1.24E-06	PDT	1.62E-06	1.3	1.62E-05	
Carbon Tetrachloride	56-23-5	6.77E-07	PDT	8.61E-07	1.3	8.61E-06	
Chlorine	7782-50-5	3.60E-02	permit limit	2.25E-03 (c)	not applicable (b)	2,25E-02	
Chlorobenzene	108-90-7	2.58E-04	PDT	3.77E-04 (c)	1.5	3.77E-03	

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

	CAS Number	Stack Emission Rates Used in Risk Assessment (Non-Upset Conditions)		Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments
Compound		Emission Rate (g/sec) (a)	Basis for Emission Rate	from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)
Chlorobenzilate	510-15-6	1.17E-07	PDT	1.54E-07	1.3	1.54E-06
Chlorodibromomethane	124-48-1	1.08E-05	PDT	1.19E-05	1.1	1.19E-04
Chloroethane	75-00-3	1.32E-06	PDT	1.50E-06	1.1	1.50E-05
Chloroform	67-66-3	8.24E-06	PDT	1.91E-05	2.3	1.91E-04
Chloromethane (methyl chloride)	74-87-3	2.41E-05	PDT	4.91E-05	2.0	4.91E-04
Chrysene	218-01-9	1.10E-08	PDT	1.72E-08	1.6	1.72E-07
Cumene (Isopropylbenzene)	98-82-8	3.64E-07	PDT	4.01E-07	1.1	4.01E-06
Diallate	2303-16-4	6.27E-06	PDT	7.09E-06	1.1	7.09E-05
Dibenzo(a,h)anthracene	53-70-3	4.67E-10	PDT	4.82E-10	1.0	4.82E-09
Dibenzofuran	132-64-9	1.06E-06	PDT	1.23E-06	1.2	1.23E-05
Dibromomethane	74-95-3	1.28E-06	PDT	1.46E-06	1.1	1.46E-05
Dichlorodifluoromethane	75-71-8	3.83E-06	PDT	8.82E-06	2.3	8.82E-05
Dieldrin	60-57-1	1.17E-08	PDT	1.32E-08	1.1	1.32E-07
Diethyl phthalate	84-66-2	1.01E-06	PDT	1.16E-06	1.2	1.16E-05
Dimethylphthalate	131-11-3	6.71E-07	PDT	7.69E-07	1.1	7.69E-06
Di-n-butylphthalate	84-74-2	3.71E-06	PDT	4.23E-06	1.1	4.23E-05
Di-n-octyl phthalate	117-84-0	1.42E-06	PDT	1.64E-06	1.2	1.64E-05
Dioxane (1,4)	123-91-1	8.91E-11	FR&DRE		not applicable (b)	8.9E-10
Diphenylamine	122-39-4	1.05E-06	PDT	1.22E-06	1.2	1.22E-05
Endosulfan I	959-98-8	1.31E-08	PDT	1.48E-08	1.1	1.48E-07
Endosulfan II	33213-65-9	2.67E-08	PDT	5.02E-08	1.9	5.02E-07
Endosulfan sulfate	1031-07-8	1.52E-08	PDT	1.72E-08	1.1	1.72E-07
Endrin	72-20-8	4.79E-08	PDT	5.41E-08	1.1	5.41E-07
Endrin aldehyde	7421-93-4	5.83E-08	PDT	1.15E-07	2,0	1.15E-06
Endrin ketone	53494-70-5	1.72E-08	PDT	1.95E-08	1.1	1.95E-07

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

Compound		Stack Emission Rates Used in Risk Assessment (Non-Upset Conditions)		Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments
	CAS Number	Emission Rate (g/sec) (a)	Basis for Emission Rate	from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)
Ethylbenzene	100-41-4	3.13E-07	PDT	4.51E-07	1.4	4.51E-06
Ethylene Glycol	107-21-1	1.25E-07	FR&DRE		not applicable (b)	1.3E-06
Fluoranthene	206-44-0	4.90E-08	PDT	1.00E-07	2.0	1.00E-06
Fluorene	86-73-7	1.26E-08	PDT	1.92E-08	1.5	1.92E-07
Freon 113	76-13-1	3.33E-07	PDT	3.79E-07	1.1	3.79E-06
Heptachlor	76-44-8	4.31E-08	PDT	6.85E-08	1.6	6.85E-07
Heptachlor epoxide	1024-57-3	2.46E-08	PDT	3.66E-08	1.5	3.66E-07
Hexachlorobenzene	118-74-1	1.00E-06	PDT	1.14E-06	1.1	1.14E-05
Hexachlorobutadiene	87-68-3	1.12E-06	PDT	1.30E-06	1.2	1.30E-05
Hexachlorocyclo-pentadiene	77-47-4	7.53E-06	PDT	8.58E-06	1.1	8.58E-05
Hexachloroethane	67-72-1	1.39E-06	PDT	1.60E-06	1.1	1.60E-05
Hydrogen chloride	7647-01-0	1.60E-01	permit limit	1.36E-02 (c)	not applicable (b)	1.36E-01
Indeno(1,2,3-cd)pyrene	193-39-5	5.08E-09	PDT	7.74E-09	1.5	7.74E-08
lodomethane	74-88-4	1.97E-06	PDT	2.01E-06	1.0	2.01E-05
Isophorone	78-59-1	7.96E-07	PDT	9.11E-07	1.1	9.11E-06
Isopropyl toluene, p-	99-87-6	5.10E-07	PDT	5.82E-07	1.1	5.82E-06
Methoxychlor	72-43-5	5.38E-08	PDT	6.10E-08	1.1	6.10E-07
Methyl Isobutyl ketone (4-methyl-2-pentanone)	108-10-1	2.25E-06	PDT	3.22E-06	1.4	3.22E-05
Methyl methacrylate	80-62-6	5.50E-09	FR&DRE		not applicable (b)	5.5E-08
methyl tert-butyl ether	1634-04-4	8.16E-08	FR&DRE		not applicable (b)	8.2E-07
Methylene chloride	75-09-2	1.74E-05	PDT	3.12E-05 (c)	1.8	3.12E-04
Naphthalene	91-20-3	3.58E-06	PDT	9.11E-06 (c)	2.5	9.11E-05
Nitrobenzene	98-95-3	7.87E-07	PDT	9.01E-07	1.1	9.01E-06
N-nitrosodimethylamine	62-75-9	9.21E-07	PDT	1.06E-06	1.2	1.06E-05
N-Nitroso-di-n-propylamine	621-64-7	9.63E-07	PDT	1.10E-06	1.1	1.10E-05

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

Compound	CAS Number	Stack Emission Rates Used in Risk Assessment (Non-Upset Conditions)		Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments
		Emission Rate (g/sec) (a)	Basis for Emission Rate	from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)
N-Nitrosodiphenylamine	86-30-6	7.90E-07	PDT	9.14E-07	1.2	9.14E-06
Pentachlorobenzene	608-93-5	8.83E-07	PDT	1.03E-06	1.2	1.03E-05
Pentachloronitrobenzene	82-68-8	1.04E-06	PDT	1.21E-06	1.2	1.21E-05
Pentachlorophenol	87-86-5	1.55E-05	PDT	1.76E-05	1.1	1.76E-04
Perylene	198-55-0	1.34E-08	PDT	3.59E-08	2.7	3.59E-07
Phenanthrene	85-01-8	1.51E-07	PDT	3.14E-07	2.1	3.14E-06
Phenol	108-95-2	1.14E-06	PDT	1.32E-06	1.2	1.32E-05
Phosphine imide, P,P,P-triphenyl	2240-47-3	1.06E-06	PDT	3.17E-06	3.0	3.17E-05
PCBs as Aroclor 1254 (d)	11097-69-1	2.34E-08	PDT	4.18E-08	1.8	4.18E-07
Propylbenzene, n-	103-65-1	4.15E-07	PDT	4.74E-07	1.1	4.74E-06
Propylene oxide	75-56-9	1.00E-09	FR&DRE		not applicable (b)	1.0E-08
Pyrene	129-00-0	4.93E-08	PDT	1.02E-07	2.1	1.02E-06
Pyridine	110-86-1	1.85E-06	PDT	2.15E-06	1.2	2.15E-05
Styrene	100-42-5	2.89E-07	PDT	3.29E-07	1.1	3.29E-06
Tetrachlorobenzene, 1,2,4,5-	95-94-3	9.55E-07	PDT	L.11E-06	1.2	1.11E-05
Tetrachloroethane, 1,1,1,2-	630-20-6	2.68E-07	PDT	3.62E-07	1.4	3.62E-06
Tetrachloroethylene	127-18-4	1.12E-04	PDT	2.18E-04 (c)	1.9	2.18E-03
Tetrahydrofuran	109-99-9	4.59E-06	PDT	5.23E-06	1.1	5.23E-05
Toluene	108-88-3	1.18E-05	PDT	2.98E-05 (c)	2.5	2.98E-04
Trichloroethylene	79-01-6	2.63E-06	PDT	4.87E-06	1.9	4.87E-05
Trichlorofluoromethane (Freon 11)	75-69-4	1.27E-06	PDT	2.62E-06	2.1	2.62E-05
Vinyl Acetate	108-05-4	1.52E-06	PDT	1.74E-06	1.1	1.74E-05
Vinyl Chloride	75-01-4	6.75E-07	PDT	8.81E-07	1.3	8.81E-06
Xylene, o-	95-47-6	3.70E-07	PDT	4.90E-07	1.3	4.90E-06
Xylene, m-	108-38-3	5.80E-07	PDT	1.44E-06	2.5	1.44E-05

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

		Stack Emission Rates Used in Risk Assessment (Non-Upset Conditions)		Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments
Compound	CAS Number	Emission Rate (g/sec) (a)	Basis for Emission Rate	from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)
Xylene, p-	106-42-3	5.80E-07	PDT	1.44E-06	2.5	1.44E-05
BHC, alpha-	319-84-6	2.14E-08	PDT	2.59E-08	1.2	2.59E-07
Chlordane	57-74-9	5.97E-08	PDT	1.23E-07	2.1	1.23E-06
BIIC, beta-	319-85-7	5.53E-08	PDT	6.79E-08	1.2	6.79E-07
BHC, gamma- (lindane)	58-89-9	1.17E-08	PDT	1.32E-08	1.1	1.32E-07
BHC, delta-	319-86-8	4.97E-08	PDT	6.99E-08	1.4	6.99E-07
PCDDs/PCDFs (Dioxins and Fur	rans)					
2,3,7,8-TCDD	1746-01-6	4.37E-11	permit limit	1.20E-11	not applicable (b)	1.20E-10
2,3,7,8-TCDF	51207-31-9	4.20E-10	permit limit	1.47E-11	not applicable (b)	1.47E-10
1,2,3,7,8-PeCDD	40321-76-4	1.16E-10	permit limit	1.05E-11	not applicable (b)	1.05E-10
1,2,3.7,8-PeCDF	57117-41-6	4.29E-10	permit limit	5.49E-12	not applicable (b)	5.49E-11
2,3,4,7,8-PeCDF	57117-31-4	4.45E-10	permit limit	6.11E-11	not applicable (b)	6.11E-10
1,2,3,6,7,8-HxCDD	57653-85-7	7.99E-11	permit limit	6.08E-13	not applicable (b)	6.08E-12
1,2,3,4,7,8-HxCDD	39227-28-6	7.91E-11	permit limit	6.97E-13	not applicable (b)	6.97E-12
1,2,3,7,8,9-HxCDD	19408-74-3	9.35E-11	permit limit	1.01E-12	not applicable (b)	1.01E-11
1,2,3,6,7,8-HxCDF	57117-44-9	2.76E-10	permit limit	6.57E-12	not applicable (b)	6.57E-11
1,2,3,4,7,8-HxCDF	70648-26-9	5.07E-10	permit limit	1.30E-11	not applicable (b)	1.30E-10
1,2,3,7,8,9-HxCDF	72918-21-9	7.33E-11	permit limit	4.48E-13	not applicable (b)	4.48E-12
2,3,4,6,7,8-HxCDF	60851-34-5	1.55E-10	permit limit	3.15E-12	not applicable (b)	3.15E-11
1,2,3,4,6,7,8-HpCDD	35822-46-9	8.20E-11	permit limit	1.94E-13	not applicable (b)	1.94E-12
1,2,3,4,6,7,8-HpCDF	67562-39-4	3.98E-10	permit limit	1.00E-12	not applicable (b)	1.00E-11
1,2.3,4,7,8,9-HpCDF	55673-89-7	9.52E-11	permit limit	1.12E-13	not applicable (b)	1.12E-12
Total OCDD	3268-87-9	1.05E-10	permit limit	3.10E-14	not applicable (b)	3.10E-13
Total OCDF	39001-02-0	5.81E-11	permit limit	1,45E-14	not applicable (b)	1.45E-13

Table 3

Maximum Measured Stack Emission Rates, Emission Rates Used in the Risk Assessment, and Upset Condition Stack Emission Rates

		Asses	tates Used in Risk sment Conditions)	Maximum Measured Stack Emission Rate	Ratio: Maximum Measured Emission Rate /	Upset Condition Stack Emission Rates Used in Response to Comments	
Compound	CAS Number	Emission Rate   Basis for Emission		from PDT (g/sec)	Average Measured Emission Rate Used in Risk Assessment	(maximum measured emission rate * 10) (g/sec) (d)	
Combustion Gases							
Sulfur dioxide	7446-09-5	8.69E-02	miniburn data	1.79E-01	2.1	1.79E+00	
Nitrogen dioxide	10102-44-0	3.28E-01	minibum data	3.53E-01	1.1	3.53E-00	

<sup>--=</sup> This compound was not measured in the Performance Demonstration Test.

FR&DRE = Emission rate based on annual average feed rate and 99.99% destruction and removal efficiency (DRE), because emission rates for this compound were not measured during the PDT. See Section 4.2.1 of the Risk Assessment for additional discussion.

PDT = Performance Demonstration Test.

- (a) For compounds measured in the PDT, without proposed permit limits, the emission rate was calculated as the average across the three PDT test runs.
- (b) Not applicable is listed because the emission rate used in the risk assessment was either based on a proposed permit limit or was calculated based on feed rate and DRE.
- (e) This compound was spiked into the feed materials used during the PDT.
- (d) If a compound was not measured in the PDT, and its emission rate was based on feed rate and DRE, its upset emission rate was calculated by increasing the feed rate & DRE based emission rate by a factor of 10.

model for each individual COPC." USEPA further explains that chemical-specific emission rates are used to adjust the ISCST3 unitized output to calculate chemical-specific air concentrations and deposition rates, noting that "concentration and deposition are directly proportional to the unit emission rate used in the ISCST3 modeling."

USEPA also states in Section 3.8.1 of HHRAP, "We advocate using a unit emission rate in the air modeling because you can develop a common ratio relationship between the unit emission rate and the COPC-specific emission rate. The ratio is based on the fact that both individual relationships are linear in the air model. This ratio relationship is expressed by the following equation:"

$$\frac{\text{COPC-specific air concentration } (\mu g/m^3)}{\text{COPC-specific emission rate } (g/\text{sec})} = \frac{\text{Modeled output air concentration } (\mu g/m^3)}{\text{Unit emission rate } (1 \text{ g/sec})}$$
(Equ 2)

In addition, the relationship between chemical air concentration and the acute hazard quotient is also linear. Section 7.4.3 of HHRAP presents the equation used to calculate the hazard quotient as follows:

Acute hazard = 
$$\frac{\text{COPC-specific air concentration (acute 1-hour average) ( $\mu g/m^3$ )}}{\text{Acute inhalation reference exposure concentration ( $\mu g/m^3$ )}}$$
 (Equ 3)

If Equation 2 is solved for COPC-specific air concentration, and this result is substituted into Equation 3, the resulting solution demonstrates that the acute hazard quotient is linearly proportional to emission rate:

Acute hazard = Modeled output air concentration 
$$(\mu g/m^3)$$
 \* COPC-specific emission rate  $(g/sec)$  (Equ 4) quotient Unit emission rate  $(1 g/sec)$  \* Acute inhalation exposure concentration  $(\mu g/m^3)$ 

In essence, when following HHRAP guidance, air concentrations are linearly proportional to emission rates and hazard quotients are linearly proportional to air concentrations, therefore, hazard quotients are also proportional to emission rates at any given receptor location. As a result, a factor of 10 increase in chemical emission rates will produce a factor of 10 increase in HQs for a given modeled emission source and receptor location when HHRAP acute risk assessment guidance is followed.

#### ISCST3 Modeling of Air Concentrations for Acute Risk Assessment Under Upset Conditions

USEPA's comment mentions the terms "1-hour average" and "1-hour maximum" as they relate to the "upset stack release concentration." This section clarifies the basis and meaning of the term "1-hour average" air concentration and how it relates to the air concentrations used in the risk assessment.

The HHRAP guidance recommends evaluating risks due to acute exposure based on maximum 1-hour average air concentrations calculated using a dispersion model. The shortest time step that the ISCST3 dispersion model can predict is a 1-hour average period. The term "1-hour average" thus commonly refers to the averaging time associated with this ISCST3 output.

When the ISCST3 model is run to produce results for an acute inhalation risk assessment, it calculates a 1-hour average air concentration for every hour of input meteorological data at each modeled receptor location. The five years of hourly meteorological data input to ISCST3 for the risk assessment, therefore, produced more than 40,000 1-hour average air concentrations at each of the more than 5,200 individual modeled receptor locations beyond the property boundary. The highest of these more than 40,000 1-hour average concentrations at each location was then selected and used to evaluate potential acute inhalation risks in the risk assessment. This means that, for any given receptor location, the 1-hour average air concentrations for all other hours modeled by ISCST3 were lower than the one result used in the risk assessment. This very conservative approach is recommended in HHRAP and was used in the risk assessment and in this response to USEPA's comment.

As indicated in Equation 1 above, chemical air concentrations are calculated by combining unitized ISCST3 model output air concentrations with chemical emission rates. The modeled output air concentrations used to evaluate potential acute risks (both in the risk assessment and in this section) were, as described above, the maximum modeled 1-hour average air concentrations based on a unit 1 g/sec emission rate calculated at each assessed receptor location. The chemical emission rates used to evaluate upset conditions were based on maximum measured values multiplied by USEPA's default factor of 10.

# Potential Acute Inhalation Risks Under Upset Conditions

The potential for acute inhalation risks under stack upset conditions, using the inputs described above, was evaluated by re-running the Industrial Risk Assessment Program (IRAP) software in the same manner as applied in the risk assessment, except that in this case the upset emission rates were based on maximum measured values rather than average measured values multiplied by USEPA's upset default factor of 10.

The resulting hazard quotients are presented in Table 4 for the same set of receptor locations already evaluated in the risk assessment. The detailed chemical-specific acute hazard quotient results for this upset stack emissions scenario are included in Attachment A. The cumulative acute hazard index (HI) values, based on exposure to all compounds evaluated regardless of the type of potential health effects, were 0.59 at grid location A\_1 and 0.56 at grid location A\_2. Summing all hazard quotients regardless of type of health effect is not recommended in HHRAP, but was performed here in response to USEPA Region IX's comment. HHRAP recommends instead that acute hazard quotients from individual compounds be summed if they have similar effects. Given that the cumulative HI across all compounds is less than 1, the sum for subsets with similar types of health effects will also be less than 1.

The likelihood of this upset acute inhalation risk scenario occurring at any given receptor location is expected to be less than 1 in 100,000,000 (one in one hundred million) per year, because it presumes that a stack upset occurs simultaneously with meteorological conditions that produce the maximum 1-hour average air concentration. As noted earlier, detailed facility data from 2000 and 2001 indicate that upset conditions have occurred very infrequently, for only about 0.24% of the time the facility is operating. Also, as described above, the maximum air concentration evaluated in the acute inhalation risk analysis for each location was based on the

Table 4
Acute Inhalation Results - Upset Stack Emissions (a)

Receptor Name	Description	Minimum Hazard Quotient (b)	Maximum Hazard Quotient (b)	
Residential Receptors (develo	pped area within and around Town of Parker)	÷ gg i a ga pi s	#	
R_1 resident	Closest residential location to facility and residential area in town with highest hourly modeled impacts	<1E-10	0.2	
R_2 resident	Residential area in town with highest annual modeled impacts	<1E-10	0.1	
Farmer Receptors (residentia	ıl area with access to irrigation water and with	in modeling domain)	44 .	
R_3 resident farmer	Residential area with access to irrigation water with highest annual modeled impacts	<1E-10	0.1	
R_4 resident farmer	Residential area with access to irrigation water with highest hourly modeled impacts	<1E-10	0.2	
Maximum Impact Point (und	leveloped land area)	1. 万分,是一块一块。A	新····································	
A_1 max hourly	Maximum impact location for hourly concentrations.  There is no residential or commercial land use in the vicinity of the maximum impact location (SW of facility).	<1E-10	0.4	
Non-Residential Areas	to be the second of the second		# <u> </u>	
A_2 closest business (c)	Closest developed location beyond property boundary (non-residential) with highest hourly modeled impacts	<1E-10	0.4	

<sup>(</sup>a) These results are conservatively based on both maximum upset emission rates and maximum modeled ISCST3 air concentrations. For each specific receptor location, the maximum modeled ISCST3 concentration was the highest 1-hour average result out of the more than 40,000 1-hour averages calculated at that location (i.e., based on input to ISCST3 of 5 years of hourly meteorological data from Parker, Arizona). This means that at each location the concentrations for all other hours were lower than those used to calculate these hazard quotients.

<sup>(</sup>b) The minimum and maximum results are the lowest and highest hazard quotients, respectively, calculated among all of the evaluated compounds. The typical target hazard quotient value used by regulatory agencies is 1.

<sup>(</sup>c) The County Agricultural Extension Office and CRIT Realty are located at receptor A\_2. Maximum 1-hour average air concentrations at all other non-residential developed land use locations were lower than at receptor A\_2.

highest ISCST3 model output calculated out of more than 40,000 hours modeled over a 5-year period. As a result, the probability per year of the maximum 1-hour average modeled concentration occurring during an upset condition is less than 1 in 100,000,000 per year.<sup>8</sup>

#### Conclusion

These results indicate that short-term acute health effects are not expected to occur in areas near the reactivation facility as a result of inhalation of stack emissions under hypothetical upset conditions.

# **Comment 4. Upset Conditions (continued)**

#### Comment:

"Finally, the mitigating contention that the constituent-specific emission rates associated with the acute upset scenario are overestimations of the emission rates optimized in the performance demonstration test (PDT) is germane only to the extent that the facility subscribes to a series of permitable conditions which limits constituent-specific emission rates to those exclusively used in the PDT. Other results, and lines of reasoning in this risk assessment suggest that the differences between "evaluated versus measured emission rates" remain a basis for supporting the proposed de minimus level of public health and ecological impact from facility operations."

Response: No response required.

# Comment 5. Fate & Transport Air Dispersion Modeling

#### Comment:

In this comment, USEPA Region IX discusses the "application of Agency-approved air dispersion and deposition computerized fate and transport models" in the risk assessment, explains that the "Data inputs and air dispersion and deposition results were reviewed by air modeling experts in U.S. EPA Region IX's Air Division" and concludes "that the air dispersion and deposition analysis was conducted consistent with the Agency's recommended procedures, and that the results from the modeling exercise are useful to support risk-based analysis."

Response: No response required.

 $<sup>^{8}</sup>$  [(<1/40,000) / 5 years] \* (0.24/100) = <1E-8

#### HL RESPONSE TO SPECIFIC COMMENTS

# 1. Executive Summary, pg. xii.

#### Comment:

"The final sentence of the first paragraph should be revised to: 'When excess lifetime cancer risks from both stack and fugitive emissions are considered together, the cancer risk estimate remains below the U.S. EPA target risk level.'

Response: The executive summary has been revised to incorporate this comment and to reflect the other responses to USEPA's comments. As noted in the Introduction to this document, it is recommended that the entire risk assessment for this project be comprised of three documents: the original July 2007 draft risk assessment report, this response to comment document, and one inclusive executive summary that reflects and incorporates conclusions from both documents. The executive summary is included as a stand-alone companion to this document.

## 2. Upset Scaling Factors – Section 4.2.1.2, pg. 20 (Stack Emissions)

This comment includes two related items, each of which are addressed below.

#### 2a. Start-up and Shut-down Procedures

#### Comment:

"The risk assessment concludes that contaminant releases do not occur from the facility's stack during start-up and shut-down procedures. This conclusion is supported by the fact that spent or contaminated carbon is not processed during this operation. Please detail or document all efforts made, or any monitoring data or modeled studies pursued, to characterize the emission profile during start-up or shut-down procedures. The de minimus impact contention from emissions resulting from natural gas initiated start-up, should be well characterized prior to concluding that unit start-up and shut-down procedures do not substantively contribute to either acute or chronic-level human or ecological impact."

#### Response:

With respect to start-up and shut-down procedures, the risk assessment states that "under these conditions, emissions associated with spent carbon [emphasis added] will not occur." The focus of the RCRA permitting activity for this facility, and accordingly the risk assessment, is on potential environmental releases associated with the management and treatment of spent carbon, not emissions from natural gas.

The carbon regeneration facility, like waste combustion facilities, requires fuel for combustion to create heat and ensure stable operating conditions when spent carbon is being heated in the furnace. Among the fuel options available, natural gas is the only fuel used for the furnace and is the preferred fuel choice from an emissions perspective because it emits lower quantities of greenhouse gases, nitrogen oxides, sulfur dioxide, particulates and mercury when compared to other options such as oil and coal. During typical start-up and shut-down procedures, spent carbon is not present in the furnace and, therefore, there are no emissions associated with spent

carbon. Start-up and shut-down conditions account for less than 3% of the total facility operating time.<sup>9</sup>

In response to this comment, potential emission rates associated with natural gas combustion when no spent carbon is in the furnace were calculated and compared to those when spent carbon is being heated in the furnace. Table 5 shows that the natural gas emission rates are consistently lower than those used in the risk assessment and measured during the stack test, generally by several orders of magnitude. Emission rates associated with combustion of natural gas were calculated from typical constituent concentrations reported by the Gas Research Institute (GRI 2000), the natural gas fuel use rate at the facility (approximately 250,000 cubic feet per day), and the reactivation facility system removal efficiencies determined from the PDT (Focus 2006). The calculated emission rates are shown in Table 5 for those compounds with reported natural gas concentrations in GRI (2000) that were also evaluated in the risk assessment. The facility's destruction and removal efficiency (DRE) for organic compounds present in natural gas was conservatively assumed to be 99.99%. The removal efficiencies demonstrated in the PDT for low-volatile and semi-volatile metals were 99.92% and 97.05% for chromium and lead, respectively (Focus 2006). These REs were applied to the other metals in natural gas using USEPA (2001) metal volatility groupings. Emission rates of chlorine and hydrogen chloride (HCl) associated with chlorine present in natural gas were determined based on the PDT test results, which showed that for every pound of chlorine fed into the combustion system, 1.08x10<sup>-3</sup> pounds of HCl and 1.93x10<sup>-4</sup> pounds of chlorine would be emitted. 11

The measured nitrogen oxides (NOx) emission rate that was used in the risk assessment is considered to be a reasonable reflection of potential NOx emissions during periods when the facility is burning natural gas and there is no spent carbon in the furnace. Nitrogen oxides (NOx) generated by combustion include thermal NOx and fuel NOx. Fuel NOx comes from direct oxidation of nitrogen in the fuel or nitrogen present in spent carbon that is being heated. Thermal NOx is generated through high temperature bonding of nitrogen and oxygen in the combustion air and predominantly occurs at the auxiliary fuel burner, which is where natural gas is fired. Considering that the spent carbon contains very little nitrogen, the primary source of NOx in emissions would be natural gas.

In conclusion, potential emissions from the combustion of natural gas at the facility during startup and shut-down conditions have a negligible impact compared to emissions when spent carbon is being treated and would not substantively contribute to the acute or chronic-level risks calculated in the risk assessment.

<sup>&</sup>lt;sup>9</sup> Each start-up and shut-down condition requires about 30 hours and typically there are three start-up and shut-down conditions each year. This amounts to roughly 180 hours per year under start-up and shut-down conditions or about 3% of the total facility operating time.

<sup>&</sup>lt;sup>10</sup> Metal system removal efficiencies were calculated from data provided in Tables 3-5, 4-9, 4-10, 4-11, and 6-2 in the PDT report (Focus 2006).

<sup>&</sup>lt;sup>11</sup> See Tables 3-5, 4-6, 4-7, and 4-8 in the PDT report (Focus 2006).

Table 5
Evaluation of Natural Gas Emissions During Start-Up and Shut-Down Procedures

Compound		Typical Concentrations in Natural Gas (a)			Stack Emission Rates (spent carbon plus natural gas) (g/sec) (e)			
	1			Emission Rate for Natural Gas Only (g/sec) (d)	Emission Rates Used in Risk Assessment	Maximum Measured Stack Emission Rate from PDT		
Arsenic (LV)	< 0.2	μg/m3	0.9992	< 1.31E-11	1.26E-04	6.22E-06		
Barium (SV)	< 0.05	μg/m3	0.9705	< 1.21E-10	9.01E-06	1.10E-05		
Cadmium (SV)	< 0.01	μg/m3	0.9705	< 2.42E-11	3.12E-04	1.31E-05		
Chromium (LV)	< 0.01	μg/m3	0.9992	< 6.55E-13	1.26E-04	6.04E-05		
Cobalt (LV)	< 0.1	μg/m3	0.9992	< 6.55E-12	5.82E-07	9.38E-07		
Copper (LV)	< 0.3	μg/m3	0.9992	< 1.97E-11	1.19E-04	1.80E-04		
Lead (SV)	< 0.05	μg/m3	0.9705	< 1.21E-10	3.12E-04	5.60E-04		
Manganese (LV)	< 0.2	μg/m3	0.9992	< 1.31E-11	4.61E-05	7.10E-05		
Mercury	< 0.01	μg/m3	0	< 8.19E-10	1.34E-06	9.48E-08		
Nickel (LV)	< 0.5	μg/m3	0.9992	< 3.28E-11	9.91E-06	1.29E-05		
Vanadium (LV)	< 0.2	 μg/m3	0.9992	< 1.31E-11	2.43E-06	3.23E-06		
Benzene	57,500	μg/m3	0.9999	4.71E-07	2.59E-06	3.02E-06		
Chlorine	< 1.6	μg/m3 (c)	NA (c)	< 2.53E-11	3.60E-02	2.25E-03		
Ethylbenzene	3,040	μg/m3	0.9999	2.49E-08	3.13E-07	4.51E-07		
Hydrogen chloride	< 1.6	μg/m3 (c)	NA (c)	< 1.42E-10	1.60E-01	1.36E-02		
PCBs as Aroclor 1254	< 0.13	μg/m3	0.9999	< 1.09E-12	2.34E-08	4.18E-08		
Toluene	37,700	μg/m3	0.9999	3.09E-07	1.18E-05	2.98E-05		
Xylene, o-	3,500	μg/m3	0.9999	2.87E-08	3.70E-07	4.90E-07		
Xylene, m-	10,400		0.9999	8.52E-08	5.80E-07	1.44E-06		
Xylene, p-	2,600	μg/m3	0.9999	2.13E-08	5.80E-07	1.44E-06		

LV = low volatile metals (USEPA 2001).

SV = semi-volatile metals (USEPA 2001).

<sup>(</sup>a) Source: Gas Research Institute (GRI). 2000. Analysis of Trace Level Compounds in Natural Gas. GRI-99/0111. February 2000.

<sup>(</sup>b) Facility removal efficiencies were based on Performance Demonstration Test results (Focus 2006).

<sup>(</sup>c) The listed concentration is for total chlorine/chloride in natural gas (GRI 2000). Emission rates of chlorine and hydrogen chloride associated with chlorine present in natural gas were determined based on the PDT test results (Focus 2006), which showed that for every pound of chlorine fed into the combustion system,  $1.08 \times 10^{-3}$  pounds of hydrogen chloride (HCl) and  $1.93 \times 10^{-4}$  pounds of chlorine would be emitted.

<sup>(</sup>d) Emission rate (g/sec) = concentration ug/m3 \*  $g/10^6$  ug \* flow rate m3/day \* day/86,400 sec \* (1 - removal efficiency). The typical natural gas flow rate at facility is 250,000 cubic feet/day (7.079 cubic meters/day).

<sup>(</sup>e) See Table 3 in Response to Comment Document for stack emission rates.

# 2b. Upset Scaling Factors

#### Comment:

"The narrative supporting the analysis of upset scaling factors is not clear. An upset scaling factor of 1.02 was developed from historical analysis of the frequency of facility upsets having the potential to increase stack emissions from study years 2001-2002. In essence then, approximately 2% of operational time during the period of interest was interrupted by some level of facility upset. These upsets potentially increase stack emissions by up to 10%. It is not clear from this review why the upset scaling factor has a negligible numerical impact on the chronic stack emission rates as determined by equation 4-1. The basis and data for this conclusion has not been made clear in the narrative. The narrative should be revised to reflect that the increased stack emissions would only occur approximately 220 days out of a total of 10,950 operational days. A similar illustration detailing the magnitude of emission rate differences would also be useful and offer consistency in support of this line of reasoning."

# Response:

In response to this comment, the following discussion clarifies the method used to derive the upset scaling factor for the risk assessment, the frequency of time the facility operates under upset conditions, and the impacts of the upset scaling factor on the risk assessment results.

# USEPA's Default Scaling Factors

Upset scaling factors were developed for the risk assessment by directly applying HHRAP guidance. Section 2.2.5 of HHRAP recommends "that the stack emission rates estimated from trial burn data be multiplied by an upset factor" and that "when available, site-specific emissions or process data can be useful to estimate the upset factor."

HHRAP provides a default upset scaling factor for metals "by assuming that emissions during process upsets are 10 times greater than emissions measured during the trial burn" and that the facility operates under upset conditions 5% of the year. This produces a default upset scaling factor for metals of 1.45, as follows:

Scaling factor<sub>(metals)</sub> \* ER = 
$$(95/100)$$
\*ER +  $(5/100)$ \* $10$ \*ER =  $1.45$ <sub>(metals)</sub> \* ER

where ER = emission rate under on non-upset stack conditions.

Similarly, HHRAP provides a default upset scaling factor for organics "by assuming that emissions during process upsets are 10 times greater than emissions measured during the trial burn" and that the facility operates under upset conditions 20% of the year. This produces a default upset scaling factor for organics of 2.8, as follows:

Scaling factor<sub>(organics)</sub> \* ER = 
$$(80/100)$$
\*ER +  $(20/100)$ \*10\*ER =  $2.8_{(organics)}$  \* ER

As discussed earlier in response to General Comment 4, USEPA indicates that these default assumptions are based on a method presented in 1990 by the California Air Resources Board for non-hazardous municipal waste combustors that HHRAP has extrapolated to hazardous waste incinerators. Due to heterogeneity of the feedstock, MSW combustors typically have a more variable range of emissions than hazardous waste incinerators, thus it is anticipated that MSW incinerators will experience upsets resulting in an increase of emissions at a greater frequency than hazardous waste incinerators. An activated carbon regeneration facility is not a hazardous waste incinerator and is intrinsically easier to control than an incinerator due to homogeneity in the feedstock (consisting of only spent carbon). As a result, a carbon regeneration facility should experience a much lower frequency of upsets resulting in an increase in emissions than at an incinerator, thereby ensuring that the default assumptions are likely to be overly conservative when applied to carbon regeneration facilities. In addition, peer review comments received by USEPA on the hazardous waste incinerator methodology pointed out that the default upset factors are "excessively conservative" for those facilities, noting not only that no facility would be allowed to operate under upset conditions for the durations assumed by USEPA but also that upset emissions are not close to 10 times non-upset emissions (USEPA 2005).

In the absence of site-specific information, USEPA's approach assumes that emissions increase by a factor of 10 during upset conditions. A factor of 10 increase in emission rates equates to a 900% increase in emissions, as follows: ((ER\*10) - ER) / ER) \* 100 = 900%.

# Scaling Factors Used in the Risk Assessment: Chronic Risks

In HHRAP, USEPA recommends generating a site-specific upset factor where possible. For example, USEPA explains that site-specific information on the percentage of time, on an annual basis, that the facility operates under upset conditions can be used to estimate the upset scaling factor. In the carbon regeneration facility risk assessment, site-specific information on the percentage of time, on an annual basis, that the facility operates under upset conditions was presented in Table 4.2-2. This information, which was discussed earlier in response to General Comment 4, indicates that the facility operates under upset conditions very infrequently, representing about 0.24% of the total operating time. Based on the annual 2000 and 2001 data where were used in the risk assessment, the facility operated under upset conditions for 16.1 hours out of a total of 6,745 operating hours in 2000<sup>12</sup> and for 18.4 hours out of a total of 7,844 operating hours in 2001.

This site-specific information was used in place of USEPA's defaults in the scaling factor equations shown above to calculate a site-specific scaling factor for both metals and organics of 1.02, as follows:

Scaling factor<sub>(site-specific)</sub> \* ER = (99.76/100)\*ER + (0.24/100)\*10\*ER = 1.02<sub>(site-specific)</sub> \* ER

<sup>&</sup>lt;sup>12</sup> In 2000, the total operating hours were 6,745 hours, not 7,844 hours as noted in footnote (a) on Table 4.2-2. The hours listed in footnote (a) on Table 4.2-2 for 2000 was a typographical error. The scaling factor for 2000 was, however, calculated using the correct number of operating hours (i.e., 6,745 hours). The total operating hours for 2001 was 7,844 hours.

Note that this calculation incorporates USEPA's conservative default assumption that emission rates increase by a factor of 10 during an upset. This default was used because emissions data during actual facility upsets was not available.

As directed in HHRAP, emission rates for a chronic risk assessment are then calculated by multiplying the non-upset emission rates by the upset scaling factor, as follows:

$$ER_{RA} = ER * USF$$
 (Equ 5)

where  $ER_{RA}$  = emission rate for input to risk assessment (g/sec), ER = emission rate based on non-upset stack conditions (g/sec), and USF = upset scaling factor (unitless).

This equation was also shown in the risk assessment (see Equation 4-1 in Section 4.2.1.2).

The upset scaling factor had a negligible numerical impact on the chronic stack emission rates because its value was 1.02, that is, essentially equal to a value of 1. As a result, in the chronic facility risk assessment, the emission rates under non-upset conditions were used without adjustment for the scaling factor.

# Scaling Factors Used in the Risk Assessment: Acute Risks

The approach used to identify emission rates for the acute risk assessment differed from that described above for the chronic risk assessment, and was consistent with HHRAP guidance. Potential acute inhalation risks associated with upset conditions were evaluated using upset stack emission rates, combined with maximum unitized air modeling results from ISCST3, as described earlier in response to General Comment 4. The upset stack emission rates were calculated, in according with HHRAP guidance, by assuming that stack emissions would increase by a factor of 10 during upsets. This approach also assumes that the duration of an upset condition would be at least one hour. As noted in response to General Comment 4 above, the likelihood of the acute inhalation scenario occurring is expected to be less than 1 in 100,000,000 (less than one in one hundred million), because it presumes that a stack upset occurs simultaneously with meteorological conditions that produce maximum 1-hour average air concentrations.

# 2c. Upset Scaling Factors - Dates of data

#### Comment:

"The narrative supporting this section is not clear and appears inconsistent with graphical representations of the data. Historical upset data is provided for calendar years 2000 & 2001 in table 4.2-2 rather than years 2001 & 2002 as claimed in section 4.2.1.2. Please reconcile this discrepancy."

# Response:

The upset data used in the risk assessment were from 2000 and 2001, not 2001 and 2002. The revised narrative therefore reads as follows (edits shown in italics): "SWT identified upset

conditions that have the potential to affect stack emission rates, and compiled data on historical upsets at the facility that occurred for these conditions during 2000 and 2001."

# 3. Calculation of environmental concentrations – Section 4.2.5, pg. 27

#### Comment:

"This section of the analysis details the environmental media for which exposure point concentrations will be developed. Please supplement this section by adding "air" to the list of media that will be subject to development of media-specific exposure point concentrations."

#### Response:

Air is one of the media for which exposure point concentrations were developed. The revised narrative reads as follows (edits shown in italics): "The next step in the exposure assessment was the calculation of chemical concentrations in each environmental medium of interest. These are referred to as exposure point concentrations. For example, concentrations were calculated in *air*, soil, homegrown produce, fish, animal products, and human breast milk."

# 4. Calculation of human exposures – Section 4.2.6, pg.28

This comment includes two items, each of which are addressed below.

# 4a. Calculation of human exposures – subsistence scenarios

#### Comment:

"EPA's guidance reference for conducting risk assessments of combustion facilities recommends impact analysis of several differing human receptor exposure scenarios. Subsistence fishers and subsistence farmers are considered potentially high-end receptors from a contaminant exposure and impact standpoint because, in addition to directly inhaling contaminants released to air, their sources of food and water may also be secondarily impacted by facility releases. To the extent these impacts result from indirect pathways of exposure (ingestion of an impacted food source), potential combined exposures impacting these human receptors is considered high-end, and unlikely to be exceeded by those receptors incurring exposure exclusively from the direct pathways of contaminant exposure."

#### Response:

#### Introduction

The following discussion expands on the subsistence exposure scenarios that were addressed in the risk assessment in order to more fully explore potential risks to hypothetical subsistence fisher and subsistence farmer receptors in the facility vicinity. Specifically, this discussion summarizes the hypothetical, high-end subsistence exposure scenarios that were evaluated in the risk assessment and presents additional evaluations in response to Region IX's comment.

#### Subsistence Exposure Scenarios Addressed in the Risk Assessment

In the risk assessment, fish ingestion risks were calculated for a subsistence scenario and were determined to be below USEPA's target risk levels. Potential risks for the adult and child fisher exposure scenarios incorporated USEPA's default subsistence assumption that 100% of fish ingested were obtained from either the Main Drain or the Colorado River. As shown in Table 4.4-1 of the risk assessment, these receptors were designated as "R\_only\_fish\_drain" and "R\_only\_fish\_river", respectively. The highest excess lifetime cancer risk for the subsistence fisher scenarios was 2E-08 (2 in 100 million), 500 times below USEPA's target cancer risk level of 1E-05 (1 in 100 thousand). The highest non-cancer hazard index for the subsistence fisher scenarios was 0.01, 25 times lower than USEPA's target level of 0.25.

Subsistence farmer exposure scenarios were also addressed in the Discussion of Uncertainties section of the risk assessment (Section 4.5.9) and were determined to be below USEPA's target risk levels. As noted in the risk assessment, site-specific information received from Ms. Linda Masters of the La Paz County Agricultural Extension Office (see response to Specific Comment 4b below) indicated that subsistence (i.e., 100%) reliance on locally-grown produce and locally raised animal products is not applicable to the facility area. The Discussion of Uncertainties Section of the risk assessment, however, nonetheless evaluated potential risks incorporating subsistence assumptions. The subsistence scenarios assumed that 100% of all produce, beef, poultry, eggs and pork ingested by a receptor was locally-grown or locally-raised, compared to the 20% assumption used in the risk assessment (see Table 4.4-1 in the risk assessment). The subsistence evaluation in the Discussion of Uncertainties (Section 4.5.9) addressed the resident and farmer receptors with the highest risks (i.e., receptors R 2 and R 3, respectively, as noted in Table 4.2-7) and focused on all compounds evaluated in the risk assessment, both detected and not detected, except for benzidine (these were referred to as "Group 2" compounds in the risk assessment). As presented in Section 4.5.9, the excess lifetime cancer risks for these subsistence scenarios were 3E-07 for receptor R 2 and 1E-07 for receptor R 3, more than 30 times below USEPA's target cancer risk level of 1E-05.

#### Additional Subsistence Exposure Scenarios

In response to Region IX's comment, the risk assessment results associated with hypothetical subsistence assumptions were further evaluated in this document. This additional evaluation addressed the three different groups of chemical compounds that were evaluated in the risk assessment:<sup>13</sup>

• Group 1 - All detected compounds. This group includes 95 compounds that were detected in the PDT in addition to several compounds that were not measured during the PDT but which were evaluated based on emission rates derived from feed rates.

<sup>&</sup>lt;sup>13</sup> The list of chemicals selected for evaluation included compounds that were detected in stack emissions and also over 80 compounds that were not detected. Compounds that were not detectable in stack emissions were included in the risk assessment at the request of USEPA, according to the chemical-selection method in the USEPA-approved 2003 Workplan. This method ensures that risks are likely to be overestimated, and would not be underestimated.

- Group 2 All evaluated compounds, both detects and compounds that were not detected, except for benzidine. This group includes 177 compounds, 82 of which were not detected in the PDT. This group does not include benzidine which was not detected in the PDT in stack gases and for which there is no evidence from waste profile reports and analytical spent carbon data that it has ever been accepted in spent carbon received at the facility. In addition, benzidine is a chemically unstable hetero-nitrogen compound that is not a product of incomplete combustion. Benzidine was singled out because it was found to be a significant risk driver, accounting for most of the total cancer risk when included in the risk calculations.
- *Group 3 All evaluated compounds.* This group includes 178 compounds, of which 83 were not detected in the PDT, including benzidine.

A summary of the hypothetical subsistence results, in comparison with those presented in Table 4.4-1 of the risk assessment (i.e., the results calculated in the risk assessment using site-specific assumptions), is shown below in Table 6. As can be seen from this table, the risks using subsistence assumptions, even when all selected compounds are evaluated (i.e., Group 3 compounds), remain below USEPA's target levels for both cancer risks (1E-05 target) and non-cancer health effects (0.25 target). When only detected compounds are included, the risks are reduced significantly below USEPA's target risk levels.

Table 7 expands on the subsistence results by presenting cumulative risks for the hypothetical subsistence scenarios. This table shows the combined risks for a subsistence town resident who is also assumed to be a subsistence fisher, and a subsistence farmer who is also assumed to be a subsistence fisher, as compared to the results from Table 4.4-1 in the risk assessment. The potential risks even when added across all subsistence exposure pathways remain below USEPA's target risk levels for both cancer and non-cancer health effects. These potential combined risks for subsistence receptors reflect high-end scenarios that are highly unlikely to be exceeded.

#### 4b. Calculation of human exposures – site-specific exposure information

#### Comment:

"The current analysis makes use of site-specific exposure assumptions which essentially serve to diminish the concentration of impacted local food sources ingested in support of the subsistence farmer exposure scenario. These community or site-specific intake values were derived from a personal communication reference provided by the La Paz County Agricultural Extension Office (Masters 2007). Please provide reference to any and all data or surveys conducted by the extension office in support of this site-specific value."

#### Response:

The site-specific information from the La Paz County Agricultural Extension Office was

<sup>&</sup>lt;sup>14</sup> Benzidine was used in the past mostly to produce dyes, however, it has not been produced for sale in the U.S. since the mid-1970's. Major U.S. dye companies no longer make benzidine-based dyes, and benzidine is no longer used in medical laboratories or in the rubber or plastics industries (ATSDR 2001).

Table 6
Evaluation of Hypothetical Subsistence Scenarios for Receptors with the Highest Risk Results

	Excess Lifetime	Cancer Risk	Total Haza	ard Index	
Receptor and Group of Evaluated Compounds	Risk assessment results in Table 4.4-1 Subsistence scenario (a)		Risk assessment results in Table 4.4-1	Subsistence scenario (a)	
To Receptor in town residential area	wn resident receptor ( with highest potential	-	est annual modeled i	mpacts	
Group 1 all detected compounds (95 compounds)	6E-08	1E-07	5E-02	5E-02	
Group 2 all compounds except benzidine (177 compounds)	2E-07	3E-07	5E-02	5E-02	
Group 3 all compounds (178 compounds) (c)	2E-06	9E-06	5E-02	5E-02	
Farmer in residential area	Farmer receptor (R with access to irrigati I highest annual mod	on water with h	ighest potential risks		
Group 1 - all detected compounds (95 compounds)	3E-08	6E-08	1E-02	1E-02	
Group 2 all compounds except benzidine (177 compounds)	6E-08	1E-07	2E-02	2E-02	
Group 3 all compounds (178 compounds) (c)	5E-07	2E-06	2E-02	2E-02	
<b>■</b>	ngestion pathway reco stion evaluation for t		_		
Group 1 all detected compounds (95 compounds)	1E-08	3	1E-	02	
Group 2 all compounds except benzidine (177 compounds)	1E-08	}	1E-	02	
Group 3 all compounds (178 compounds) (c)	2E-08 1E-02				
	USEPA Target Risk	Levels			
Target risk levels for combustion source risk assessment	1E-05	5	0.25		

<sup>(</sup>a) The subsistence scenarios assume that 100% of all produce, beef, eggs, chicken, and pork ingested by a receptor would be locally-grown or locally-raised. The risk assessment results in Table 4.4-1 assumed, based on site-specific input, that 20% of all produce, beef, eggs, chicken and pork ingested by a receptor would be locally-grown or locally-raised.

<sup>(</sup>b) The risk assessment evaluated a subsistence fish ingestion scenario, assuming that 100% of all fish ingested would be caught locally. Thus, the results in Table 4.4-1 already reflect a subsistence scenario.

<sup>(</sup>c) The stack emissions risk results for Group 3 compounds (which includes 83 compounds that were not detected in stack emissions) were dominated by one compound, benzidine, which was not detected stack gases and for which there is no evidence that it has ever been accepted in spent carbon received at the facility.

Table 7
Combined Potential Risks for Hypothetical Subsistence Receptors

	Excess Lifetime	Cancer Risk	Total Haza	rd Index	
Receptor and Group of Evaluated Compounds	Risk assessment results in Table 4.4-1	Subsistence scenario	Risk assessment results in Table 4.4-1	Subsistence scenario	
Town F Exposure pathways: inhalation	Resident + Subsistence n + soil ingestion + pr	` /	fish ingestion (c)		
Group 1 – all detected compounds (95 compounds)	7E-08	1 E-07	6E-0	)2	
Group 2 - all compounds except benzidine (177 compounds)	2E-07	3E-07	6E-02		
Group 3 – all compounds (178 compounds) (d)	2E-06	9E-06	6E-02		
Far Exposure pathways: inhalation beef ingestion + poulti	•	roduce ingestion -	•		
Group 1 – all detected compounds (95 compounds)	4E-08	9E-08	2E-0	)2	
Group 2 – all compounds except benzidine (177 compounds)	7E-08	1E-07	3E-0	02	
Group 3 – all compounds (178 compounds) (d)	5E-07	2E-06	3E-02		
	USEPA Target Risk L	evels			
Target risk levels for combustion source risk assessment	1E-0	)5	0.25		

<sup>(</sup>a) Adult receptors "R 2" + "R only fish drain".

<sup>(</sup>b) Adult receptors "R 3" + "R only fish drain".

<sup>(</sup>c) The results in Table 4.4-1 of the risk assessment assumed that 20% of a person's diet from the following food items was locally grown or raised and ingested - produce, beef, poultry, eggs and pork. It was also assumed that 100% of a person's fish diet was provided by locally caught fish. The subsistence results assume 100% of a person's diet from all evaluated food items are locally grown or raised, and ingested.

<sup>(</sup>d) The stack emissions risk results for Group 3 compounds (which includes 83 compounds that were not detected in stack emissions) were dominated by one compound, benzidine, which was not detected stack gases and for which there is no evidence that it has ever been accepted in spent carbon received at the facility.

obtained via telephone interviews with Ms. Masters conducted by S. Foster of CPF Associates on June 26, 2007 and July 2, 2007. A summary of the information obtained during these interviews is provided below.

#### June 26, 2007 interview

Homegrown produce: Not many vegetables are raised in the northern part of the CRIT reservation; there are some backyard gardens in Parker but these won't get much produce; water bill may triple for a town residence with a home garden because of watering needs of crops grown in town; produce can only be grown seasonally, a few months in spring and fall; most produce (e.g., tomatoes, onions, melons) is grown in the southern part of the CRIT reservation near Poston, not near Parker; most crops grown on CRIT reservation are commercial and are shipped out and are not marketed locally. A reasonable estimate for someone living on the CRIT reservation is that 10% of the annual diet could be obtained from home grown produce, and 5% or less for someone living in town. Ms. Masters indicated she would follow up with colleagues on this topic and respond back.

Animal products: CRIT reservation residents buy their meat at the store; animals are raised through 4-H program, perhaps 70 pigs per year, and these animals have to be sold to someone else; people do not butcher their own animals for meat; 1 farmer has 50 head of cattle located beyond 10 km from the facility which are sold; there are no dairy cows and no locally-produced dairy milk on the CRIT reservation; there are no slaughter facilities in the vicinity that she is aware of; people may raise chicken and eggs, and might have pigs or beef cattle; not many chickens raised in the area, though kids might raise chickens sometimes; alfalfa feed for animals is available locally; grain is not grown locally; chickens probably don't have locally grown feed because grain is not grown locally; there is a feed store in the area where animal feed can be purchased.

#### July 2, 2007 interview

Ms. Masters indicated that she had spoken with many colleagues since the 6/26/07 phone interview and was providing additional information based on this broader input.

Homegrown produce: The types of produce grown in Parker and the irrigated valley are similar but it is very difficult due to climate and soil. Based on the input she received, she estimates that 10% of produce diet may be from home grown produce and cannot see this number being higher than 20%, especially considering there are not extended growing seasons.

Animal products: All feed used for pigs is not local; people may raise lamb and goat, feed for these animals is not obtained locally; no feed for chickens is locally-grown; hay for cattle is obtained locally, but grain not local; among people who might raise animals, they might butcher I animal/year and only 20% of their meat diet would be from locally-raised animals; a small number of people raise animals, expects no more than 10% to raise animals for home consumption.

# 5. Selection of Chemicals for Evaluation – Section 4.3.2, pg. 29 & Tables 4.3.1, 4.3.2 (Fugitive Emissions)

#### Comment:

"It is not clear from this review the basis for exclusion of chrome as a constituent in the assessment of potential fugitive releases and impacts. Chrome (valence-specific) is considered carcinogenic via the inhalation exposure pathway by several government regulatory agencies and international scientific bodies, and while an inorganic constituent, the metal does enjoy limited volatility under terrestrial conditions. Please reconsider the criteria used for selection of constituents subject to this level of analysis and modify the list of constituents with the stated criteria."

#### Response:

#### Introduction

In response to this comment, both total and hexavalent chromium were selected for evaluation in the assessment of potential fugitive emissions from spent carbon unloading. The remainder of this response describes the approaches used to evaluate the two chromium compounds and the risk assessment results. Chromium is generally not considered to be volatile in the environment. The vapor pressure of chromium at 298K calculated from Antoine coefficients is approximately 10E-50 mm Hg. Some specific chromium compounds such as chromium carbonyl and chromium oxychloride are somewhat volatile at ambient temperatures (Yaws 1999), however these compounds are unstable under environmental conditions. Due to these properties, this analysis focuses on the particulate phase rather than the vapor phase.

#### **Chromium Emission Rates**

Fugitive emission rates for the two chromium compounds were calculated using the methodology presented in Section 4.3.3.2 and Equation 4-8 in the risk assessment. In this method, inorganic compound emission rates were calculated by multiplying the emission rate of PM10 particles (particles < 10 microns in diameter) in g/sec by the inorganic compound concentration in spent carbon in g/g.

Based on 2003-2006 spent carbon data from the facility, the average concentration of total chromium in spent carbon was 12 parts per million (ppm) or  $1.2 \times 10^{-5}$  g/g (see Table 4.3.1 in the risk assessment). The PM10 emission rate was calculated to be  $5.87 \times 10^{-5}$  g/sec in Table 4.3-6 in the risk assessment. Using these inputs, a total chromium emission rate of  $7.0 \times 10^{-10}$  g/sec was calculated (i.e., PM10 emission rate \* total chromium spent carbon concentration). 15

From a thermodynamic standpoint, activated carbon will reduce chromium and maintain it in a stable chromium III form which will predominate over the unstable hexavalent form. The hexavalent chromium (CrVI) concentration in spent carbon was, however, calculated by

<sup>&</sup>lt;sup>15</sup> For example, total chromium emission rate (g/sec) based on average spent carbon concentration = PM10 emission rate of  $5.87 \times 10^{-5}$  g/sec from Table 4.3-6 in the risk assessment \* total chromium average concentration in spent carbon of  $1.2 \times 10^{-5}$  g/g =  $7.0 \times 10^{-10}$  g/sec.

assuming that 13% of the total chromium was present as CrVI<sup>16</sup> based on an evaluation of 137 concurrent CrVI and total chromium measurements in monthly composite spent carbon samples from 1994-2006 that were provided to CPF by Siemens. Although CrVI was not detected in 134 of the 137 samples, these data showed that, on average, 13% of the total chromium could potentially be CrVI if all non-detected CrVI results were conservatively assumed to be present at their reported detection limits. If the more commonly employed assumption of one-half the detection limit were used for samples in which CrVI was not detected, roughly 7% of the total chromium could be CrVI; this would produce lower spent carbon concentrations, lower air concentrations, and lower risks than calculated in response to this Region IX comment. Based on a conservatively assumed CrVI concentration in spent carbon of 1.6x10<sup>-6</sup> g/g (13% of the total chromium), the CrVI emission rate was calculated to be 9.4x10<sup>-11</sup> g/sec.<sup>17</sup>

#### Ambient Air Concentrations

Ambient air concentrations of total chromium and CrVI were calculated using the standard USEPA method described in HHRAP guidance and used in the risk assessment. In this method, as discussed previously in response to General Comment 2 and indicated in Equation 1 shown earlier in this document, air concentrations are calculated by multiplying unitized ISCST3 air dispersion modeling results (i.e., unitized concentrations in  $\mu g/m^3$  based on a 1 g/sec emission rate) by the chemical emission rates in g/sec.

Potential ambient air concentrations associated with fugitive emissions in the risk assessment were modeled both on site, at the maximum on-site impact location, and off site, at a variety of receptor locations, using the same approaches applied in the risk assessment. The off-site locations are described in Table 4.3-8 in the risk assessment and include four residential receptor locations, two farmer receptor locations, two maximum off-site impact points on undeveloped land, and the closest maximally impacted non-residential business receptor location.

#### Risk Characterization

Potential risks associated with the chromium ambient air concentrations were evaluated using the same methods applied in the risk assessment. For off-site receptors, off-site ambient air concentrations and associated risks were calculated using the IRAP software program. For the on-site worker analysis, on-site ambient air concentrations and their comparison to occupational exposure limits were calculated using an excel spreadsheet.

Inclusion of the chromium compounds in the off-site fugitives risk assessment did not change the risk assessment conclusions. The numerical risk results for the fugitive evaluation were presented in the risk assessment in Table 4.4-4 (chronic inhalation risks) and Table 4.4-5 (acute inhalation risks); these results are all well below USEPA target risk levels and are unchanged by the addition of chromium. The detailed chemical-specific results from the revised off-site fugitives risk assessment, now including total chromium and CrVI, are presented in Attachment B. This attachment provides the same data that were included in the risk assessment in Appendix J (chronic inhalation risks) and Appendix K (acute inhalation risks), with the addition

<sup>&</sup>lt;sup>16</sup> CrVI concentration  $(g/g) = 1.2x10^{-5} g/g$  total Cr \*  $0.13 = 1.6x10^{-6} g/g$  CrVI.

<sup>&</sup>lt;sup>17</sup> CrVI emission rate (g/sec) = PM10 emission rate of  $5.87 \times 10^{-5}$  g/sec \* CrVI concentration in spent carbon of  $1.6 \times 10^{-6}$  g/g =  $9.4 \times 10^{-11}$  g/sec.

of the two chromium compounds. The total chromium and CrVI results in Attachment B are many orders of magnitude below the chronic and acute USEPA target risk levels.

The conclusions of the on-site workplace evaluation also did not change after total chromium and CrVI were added to the fugitives risk assessment in that the on-site concentrations were well below occupational exposure limits. The calculated on-site maximum 8-hour average chromium air concentrations and associated occupational exposure limits are presented in Table 8. As can be seen, the on-site air concentrations were significantly lower than the 8-hour average OSHA and NIOSH exposure limits.

# 6. Fugitive Organic Vapor Emissions & Hazard – Section 4.3.3.1, pg.30

#### Comment:

"The human health and ecological impacts assessed from fugitive releases were determined from facility activities (spent carbon unloading) or sources with the potential for maximum or highend contaminant releases. Non-cancer or systemically toxic compounds are assessed in this analysis by a cumulative approach which considers the total concentration of those compounds in an exposure scenario germane to the impacted receptor. It is not clear from this review why the non-cancer or systemically-toxic hazard potentially incurred from fugitive releases was not considerate of the combined exposures from both the outdoor spent-carbon unloading hopper (H-1) operations, in addition to the source and activity generating fugitive emissions from other facility operations (hopper H-2)? This estimate of cumulative hazard would more closely capture the entire range of potential exposures incurred by human receptors."

# Response:

A detailed review of facility operations was conducted during the Workplan stage of this risk assessment process, in 2003, in order to select a potential fugitive emissions source most likely to impact ambient air. This review, which is presented in Section 4.3 of the 2003 Workplan and reprinted here as Attachment C, provided an overview of potential sources of fugitive emissions related to spent carbon at the facility in addition to a discussion of regulatory requirements, and engineering and institutional controls that are in place to minimize potential fugitive emissions. Based on this review, the Workplan (which was approved by USEPA prior to performing the risk assessment) indicated that the potential fugitive emission source related to spent carbon considered most likely to impact ambient air is the unloading of spent carbon at the outdoor hopper (H-1) and that this emission source would be addressed in the risk assessment.

In addition to the reasons outlined in Attachment C for selecting the outdoor hopper (H-1) for detailed evaluation in the risk assessment, potential fugitive emissions from H-1 were considered more likely to impact outdoor ambient air for a number of reasons. First, most of the spent carbon received at the facility is unloaded at H-1. For example, between 82%-86% of the spent carbon received at the facility annually during 2005 and 2006 was unloaded into the outdoor hopper from a variety of different bulk container types (e.g., roll-off containers, slurry trucks). The remainder of spent carbon received at the facility was unloaded indoors inside the spent carbon storage and warehouse building into hopper H-2 (e.g., drums, supersacks). Second, while

Table 8
On-Site Air Concentrations Associated with Fugitive Chromium Emissions and Comparison to Occupational Exposure Limits

		Occupational E (mg/m	*	Comparison of Maximum Modeled 8-Hour Average Concentrations to Occupational Exposure Limits			
Compound	Maximum On-Site 8-Hour Average Air Concentration (mg/m³) (a)	NIOSH Reference Exposure Limit	OSHA Permissible Exposure Limit (8-hr TWA PEL)	Ratio - Air Concentration/ NIOSH REL	Ratio - Air Concentration/ OSHA PEL		
Total Chromium (c)	1.2E-08	0.5	0.5	2E-08	2E-08		
Chromium VI (d)	1.5E-09	0.001	0.005	2E-06	3E-07		

TWA = time-weighted average.

<sup>(</sup>a) Air concentration (mg/m3) = emission rate (g/sec) \* maximum 8-hour average unit air concentration (16,426 ug/m3 per 1 g/sec) \* mg/1,000 ug.

<sup>(</sup>b) Sources: OSHA PELS - www.osha.gov/pls/oshaweb. NIOSH RELs - www.cdc.gov/niosh/npg.

<sup>(</sup>c) The listed OSHA PEL for chromium is based on CrIII and CrII. The value for chromium metals and insoluble salts is slightly higher, at 1 mg/m3.

<sup>(</sup>d) The listed NIOSH REL for CrVI is a 10-hr TWA.

both hoppers are equipped with an air exhaust system, which directs collected air to a fabric filter baghouse and carbon adsorber, potential fugitive emissions to outdoor air are considered more likely to occur from H-1 due to its outdoor location and its configuration. The outdoor hopper is an enclosed three-walled free standing building with a fixed roof and heavy long plastic sheeting on the fourth side where spent carbon is unloaded. At the face of hopper H-1 where unloading occurs, fugitive emissions have the potential to occur during unloading operations.

Additionally, the method used to calculate fugitive emissions from hopper H-1 in the risk assessment did not take into account the beneficial effect of the air exhaust system. The calculated emission rates assumed, instead, that all fugitive emissions during unloading were directly released to outdoor ambient air. This approach assumed that no fugitive emissions were captured by the exhaust system and thus none were directed through the particulate and organic vapor pollution control systems. This unrealistic, albeit conservative, assumption is expected to overestimate potential ambient air concentrations, and thus potential risks, associated with fugitive emissions.

Finally, as discussed above in response to General Comment 2, it is important to recognize that all workers involved in spent carbon unloading operations wear respirators in addition to protective clothing. When handling any spent carbon (whether it is classified as non-hazardous or hazardous), a half-face respirator with organic and dust control cartridges is worn by workers. Workers also wear company-supplied shorts, pants, steel-toed boots, hard hat and safety glasses. The facility's worker health and safety program additionally includes training, medical monitoring, and hazard communication.

#### 7. Risk Characterization – Section 4.4.1.1, pg.39 (Stack Emissions)

#### Comment:

"It would be useful to provide a table supporting this narrative which detailed those constituents which significantly influenced the receptor-specific risk estimates, but whose rate of emission was not consistent with the emission rate optimized in the performance demonstration test (PDT). Cadmium and benzidine are illustrative of this phenomenon."

#### Response:

Table 9 was prepared to detail those constituents which significantly influenced the receptor-specific excess lifetime cancer risk estimates. This table focuses on the receptors with the highest risk results, indicating the dominant compounds affecting the results and providing background on the basis of each compound's emission rate used in the risk assessment. The risks are presented for the three groups of compounds addressed in the risk assessment, as described earlier in response to Specific Comment 4. The results, which are discussed in Section 4.4.1.1 of the risk assessment, are all below USEPA's target cancer risk level of 1E-5 (one in 100,000) over a 70-year lifetime.

A similar table was not prepared for the non-cancer risk results because the non-cancer hazard index values, and the dominant compounds, were essentially the same across the three groups of

# Table 9 Dominant Compounds Contributing to Excess Lifetime Cancer Risks Associated with Stack Emissions

Receptor and Group of Evaluated Compounds	Excess Lifetime Cancer Risks (a)	Dominant Compounds (% Contribution to Risk Result)
Receptor in town r	Town Residential area with hig	lent receptor (R_2 Adult):  thest potential risks and highest annual modeled impacts
Group 1 – all detected compounds (95 compounds)	6E-08	- Cadmium (94%) (b)
Group 2 – all compounds except benzidine (177 compounds)	2E-07	- Cadmium (36%) (b) - Arsenic (38%) (c) - Beryllium (17%) (d)
Group 3 – all compounds (178 compounds)	2E-06	- Benzidine (92%) (e)
Farmer in residential area with		receptor (R_3 Adult); tter with highest potential risks and highest annual modeled impacts
Group 1 – all detected compounds (95 compounds)	3E-08	- Cadmium (75%) (b) - PCDDs/PCDFs (23%) (f)
Group 2 – all compounds except benzidine (177 compounds)	6E-08	- Cadmium (33%) (b) - PCDDs PCDFs (10%) (f) - Arsenic (36%) (c) - Beryllium (16%) (d)
Group 3 – all compounds (178 compounds)	5E-07	- Benzidine (87%) (e)
Su		pathway receptor (R_only_fish_drain): valuation for the Main Drain
Group 1 – all detected compounds (95 compounds)	1E-08	- PCDDs/PCDFs (88%) (f)
Group 2 – all compounds except benzidine (177 compounds)	1E-08	- PCDDs/PCDFs (71%) (f)
Group 3 – all compounds (178 compounds)	2E-08	- PCDDs/PCDFs (53%) (f) - Benzidine (36%) (e)

PDT Performance Demonstration Test.

PCDDs/PCDFs - polychlorinated dibenzo-p-dioxins and polychlorinated dibenzo furans.

- (a) The cancer risks were obtained from Table 4.4-1 in the risk assessment. They reflect the additional excess lifetime cancer risks from exposure to all potential carcinogens evaluated. These risk results are all lower than the regulatory target cancer risk level used by USEPA for combustion sources of 1E-05 (1 in 100,000).
- (b) Cadmium was evaluated using an emission rate based on a proposed permit limit that was >30 times higher than measured during the PDT.
- (c) Arsenic was not detected in the PDT but was evaluated in the risk assessment using an emission rate based on a proposed permit limit.
- (d) Beryllium was not detected in the PDT but was evaluated in the risk assessment using an emission rate based on a proposed permit limit.
- (e) Benzidine was not detected in the PDT and there is no evidence from waste profile reports and analytical spent carbon data that it has ever been accepted in spent carbon received at the facility. It was evaluated using an emission rate based on its PDT-reported detection limit.
- (f) PCDDs PCDFs were evaluted using an emission rate based on a proposed permit limit that was about 4 times higher than measured during the PDT. The feed used during the PDT was spiked to maximize production of combustion by-products such as PCDDs PCDFs.

compounds evaluated (i.e., Groups 1, 2 and 3). The hazard index values for stack emissions were lower than the conservative non-cancer target level of 0.25 used by USEPA for evaluating combustion sources. As described in Section 4.4.1.1 of the risk assessment, the dominant compounds affecting the hazard index results were chlorine, for the resident and farmer receptors, and methyl mercury for the fish ingestion pathway. Chlorine was evaluated in the risk assessment using an emission rate based on a proposed permit limit that was much higher than measured in the PDT, even though many chlorine-containing compounds were spiked into the feed during the PDT. Similarly, mercury was evaluated using a permit limit-based emission rate that was higher than measured in the PDT. These results indicate that chronic non-cancer adverse health effects would not occur due to stack emissions from the carbon reactivation facility.

# 8. Acute Short-term Risks – Section 4.4.1.4, pg.41 (Stack Emissions)

This comment includes two items, each of which are addressed below.

#### 8a. Acute Short-term Risks – Calculation of Maximum Concentrations

#### Comment:

"The current assessment evaluated the impact from acute or short-term inhalation exposures from stack emissions by comparing the 1-hr average air concentrations (model derived) with acute reference thresholds. Results from this comparison demonstrated that the non-cancer or systemically toxic hazard thresholds were not exceeded. Determination of acute inhalation impacts should be derived from comparison of the 1-hr maximum stack concentrations with acute thresholds rather than 1-hr average maximum stack concentrations. Results from this level of analysis would better inform and therefore reduce the level of uncertainty inherent in the acute level impact characterization."

#### Response:

The acute risk assessment evaluation for stack emissions was modified, in response to this comment, by using maximum measured stack emission rates. This approach differs from the risk assessment which, as described in the Workplan, used average emission rates derived across the three PDT test runs. As noted earlier in response to General Comment 4, and as described in Section 4.5.2 of the risk assessment, the differences between the average and maximum measured stack emission rates for those compounds with emission rates based on stack test data were not substantial, and ranged from a factor of 1.0 (i.e., no change) to a factor of 3.0. The maximum measured emission rates are listed in Table 2 in response to General Comment 4.

In this analysis, the maximum measured emission rates were used for those compounds with emission rates based on stack test data. For the remaining compounds (i.e., those with emission rates based on proposed permit limits or calculated based on feed rate and destruction and removal efficiency), the emission rates for this acute analysis were the same as those used in the chronic risk assessment (see Table 2).

The potential acute inhalation risks were evaluated by re-running the IRAP software program in the same manner as applied in the risk assessment. The resulting hazard quotients are presented in Table 10 for the same set of receptor locations evaluated in the risk assessment. The detailed chemical-specific acute hazard quotients for this stack emissions scenario are included in Attachment D.

All of the hazard quotients (HQs) at all receptor locations were well below the target level of 1.0, indicating that adverse acute health effects would not occur due to stack emissions at locations beyond the property boundary. The highest HQ values were calculated at grid location A\_1 (0.08) and A\_2 (0.04). These results were unchanged from the original risk assessment (see Table 4.4-3 in the risk assessment report).

The cumulative acute hazard index (HI) values, based on the sum of all hazard quotients and assuming exposure to all compounds evaluated regardless of the type of potential health effects, were 0.2 at grid location A\_1 and 0.1 at grid location A\_2, still well below a target of 1.0. The corresponding cumulative hazard index results from the risk assessment using average measured stack emission rates (see Appendix H of the risk assessment) were 0.1 at A\_1 and 0.09 at A\_2, only slightly lower than calculated here using maximum measured emission rates. These results confirm that the acute risk assessment results are negligibly different whether using average or maximum stack emission rates.

It should be noted that summing all hazard quotients together regardless of type of health effect is not recommended in HHRAP, but was performed here in response to General Comment 4. HHRAP recommends that acute hazard quotients from individual compounds be summed if they have similar effects. Given that the cumulative HI values across all compounds were less than 1, the sum for any subsets with similar types of health effects will also be less than 1.

#### 8b. Acute Short-term Risks – Acute Hazard Quotients

#### Comment:

"An acute hazard quotient above one may indicate and increased chance of developing health endpoints more profound than the mild transient adverse health effects described in the report. The specific health endpoint is constituent-specific and has been detailed in the reference documents used to support acute reference levels."

Response: No response necessary.

# 9. Evaluation of Lead – Section 4.4.1.5, pg. 43

#### Comment:

"EPA's Integrated Exposure Uptake Biokinetic Model (IEUBK) for lead in children is designed to predict a child's blood-lead concentration from multimedia exposure pathways. While EPA's combustion guidance reference for risk analysis recommends application of the model in the context of combustion-unit risk assessments when the lead in soil concentrations exceed health-based levels (400 mg/kg), it is not clear from this review the manner in which potential lead exposure and the resultant blood-lead level impact from the direct pathway of human exposure (inhalation) can be assessed without model application. The IEUBK model should be considered to reduce uncertainties associated with potential lead impacts on proximate receptors."

Table 10

Acute Inhalation Results Maximum Measured Stack Emissions (a)

Receptor Name	Description	Minimum Hazard Quotient (b)	Maximum Hazard Quotient (b)	
Residential Receptors (develop	oed area within and around Town of Parke	rr) - i e w	187	
R_I resident	Closest residential location to facility and residential area in town with highest hourly modeled impacts	<1E-10	0.02	
R_2 resident	Residential area in town with highest annual modeled impacts	<1E-10	0.01	
Farmer Receptors (residential	area with access to irrigation water and w	ithin modeling domain)	i≟. 11. 1	
R_3 resident farmer	Residential area with access to irrigation water with highest annual modeled impacts	<1E-10	0.01	
R_4 resident farmer	Residential area with access to irrigation water with highest hourly modeled impacts	<1E-10	0.02	
Maximum Impact Point (und	eveloped land area)		: : : : : : : : : : : : : : : : : : :	
A_1 max hourly	Maximum impact location for hourly concentrations. There is no residential or commercial land use in the vicinity of the maximum impact location (SW of facility).	<1E-10	0.08	
Non-Residential Areas				
A_2 closest business (c)	Closest developed location beyond property boundary (non-residential) with highest hourly modeled impacts	<1E-10	0.04	

<sup>(</sup>a) These results are conservatively based on both maximum measured stack emission rates and also maximum modeled unitized ISCST3 air concentrations. For each specific receptor location, the maximum modeled ISCST3 unitized concentration was the highest 1-hour average result out of the more than 40,000 1-hour averages calculated at that location (i.e., based on input to ISCST3 of 5 years of hourly meteorological data from Parker, Arizona). At each location the concentrations for all other hours were lower than those used to calculate these hazard quotients.

<sup>(</sup>b) The minimum and maximum results are the lowest and highest hazard quotients, respectively, calculated among all of the evaluated compounds. The typical target hazard quotient value used by regulatory agencies is 1.

<sup>(</sup>c) The County Agricultural Extension Office and CRIT Realty are located at receptor A\_2. Maximum 1-hour average air concentrations at all other non-residential developed land use locations were lower than at receptor A\_2.

# Response:

In response to this comment, potential lead exposures were evaluated using the IEUBK model (USEPA 2002, Version 1.0.264). Inputs to the IEUBK model include background exposures to lead in addition to lead exposures associated with facility stack emissions.

Background lead exposures were based on the USEPA defaults incorporated in the IEUBK model with the exception of background air and soil lead concentrations, for which data specific to Arizona were compiled. Background levels in air were based on ambient air measurements from Maricopa, Pima and Yavapai Counties reported in AZDEQ (1999) (no data were available for La Paz, Mohave or Yuma Counties). Note that lead is no longer routinely measured in ambient air by AZDEQ because concentrations have declined to very low levels in response to regulatory controls (AZDEQ 2007). Background soil levels were based on surface soil measurements from Yuma and Mohave Counties reported in USGS (1981) (data were not available for La Paz County in the USGS report).

Potential lead exposures associated with facility stack emissions were compiled for the resident child and farmer child receptors that were calculated to have the highest lead intakes in the risk assessment (referred to as receptors R\_2 and R\_3). The facility-specific IEUBK inputs for these receptors included air and soil lead concentrations at each receptor location, in addition to dietary lead intakes. These inputs were compiled from the risk assessment results calculated using the IRAP software program which, as described in the risk assessment, calculates lead exposures and risks using USEPA's HHRAP methods and inputs. Table 11 presents the lead concentrations and dietary intakes associated with stack emissions that were calculated using IRAP and used in the IEUBK model.

The IEUBK inputs and outputs are summarized in Table 12. The model outputs were compared to the USEPA target blood lead level of  $10~\mu g/dL$  (USEPA 2002). As shown in Table 12, the model predicted no blood lead elevation compared to that predicted by exposure to background. The predicted blood lead levels were all lower than those measured among children in Yuma County, Arizona as part of the Arizona/Sonora blood lead study (mean blood lead level =  $3.1~\mu g/dL$ ; 95% confidence interval = 2.9- $3.3~\mu g/dL$ ) (Cowan et al. 2006). The blood lead levels associated with background, and background plus potential facility impacts, were all below USEPA's target level. The probability of the target level being exceeded, which is an output of the IEUBK model, was 0.01% for all model runs. These results indicate that adverse health effects due to lead exposure would not occur as a result of facility stack emissions.

10. Acute Short-term Risks – Section 4.4.2.2, pg. 44 (Fugitive Emissions) This comment includes a number of items, each of which is addressed below.

10a. Acute Short-term Risks – Maximum Modeled Fugitive Emission Rates

#### Comment:

"An acute or short-term analysis of fugitive releases from the facility's spent-carbon hopper loading activities was conducted to assess the magnitude of acute impacts. Rather than applying the 1-hr average air concentration from modeled releases in support of this analysis, the 1-hr

Table 11
Potential Lead Concentrations and Dietary Intakes
Associated with Stack Emissions

Risk Assessment Results (a)	Resident child receptor (R_2) (b)	Farmer child receptor (R_3) (b)	Units	
Air Concentration	6.9E-05	2.0E-05	ug/m3	
Soil Concentration	2.7E-04	2.8E-05	ug/g	
Dietary intake (1-7 year old child)	<u> </u>			
Produce	1.95E-03	3.00E-04	ug Pb/day	
Beef	NA	6.30E-06	ug Pb/day	
Fish (Main Drain)	3.90E-10	3.90E-10	ug Pb/day	
Fish (Colorado River)	1.38E-09	1.38E-09	ug Pb/day	
Total	2.0E-03	3.1E-04	ug Pb/day	

NA = not applicable for this receptor.

<sup>(</sup>a) The reported results were calculated in the risk assessment using the IRAP software program (see Section 4.2 in the risk assessment report).

<sup>(</sup>b) Results are presented for the resident child and farmer child receptors with the highest intakes calculated in the risk assessment: R\_2 resident and R\_3 farmer.

Table 12
Lead Exposure Evaluation Using USEPA's IEUBK Model

Information	AZ background (a,b) + USEPA diet	Potential facility contribution + background (c)			
intormation	defaults	Resident child receptor (R_2)	Farmer child receptor (R_3)		
Model Inputs					
Air concentration (μg/m3)	0.01	0.010069	0.01002		
Soil concentration (µg/g)	27	27.00027	27.000028		
Dietary intake (µg/day)		• • • • •	•		
.5-1 years	5.53	5.532	5.5303		
1-2 years	5.78	5.782	5.7803		
2-3 years	6.49	6.492	6.4903		
3-4 years	6.24	6.242	6.2403		
4-5 years	6.01	6.012	6.0103		
5-6 years	6.34	6.342	6.3403		
6-7 years	7.00	7.002	7.0003		
Model Outputs					
Blood Pb Concentration (ug.	/dL)				
.5-1 years	2.0	2.0	2.0		
1-2 years	2.0	2.0	2.0		
2-3 years	1.9	1.9	1.9		
3-4 years	1.8	1.8	1.8		
4-5 years	1.6	1.6	1.6		
5-6 years	1.5	1.5	1.5		
6-7 years	1.4	1.4	1.4		
Probability of Pb blood conc	entration greater than US	EPA's 10 μg/dL ta	rget		
Probability	0.01%	0.01%	0.01%		

<sup>(</sup>a) Background levels in air were based on data in AZDEQ (1999).

<sup>(</sup>b) Background soil levels were based on Arizona surface soil measurements reported in USGS (1981).

<sup>(</sup>c) The facility contribution was evaluated for the resident child and farmer child receptors with the highest intakes calculated in the risk assessment: R\_2 resident and R\_3 farmer. Facility contribution for R\_2 included air, soil and diet (produce + fish). Facility contribution for R\_3 included air, soil and diet (produce + beef + fish).

maximum concentration should be applied to determine the magnitude of acute impacts associated with fugitive releases. Further, the cumulative hazard index for all compounds should be clearly detailed in the supporting narrative, and only when this value exceeds the target threshold, should a target-organ segregation approach be applied in the context of risk characterization."

#### Response:

In response to this comment, emission rates for the acute fugitives risk evaluation were recalculated using maximum rather than average spent carbon concentrations. These revised maximum emission rates were then input into the IRAP software program to recalculate potential acute risks associated with fugitive releases during unloading activities.

#### Maximum Modeled Fugitive Emission Rates

Table 2, shown earlier in this document, presents the mathematically modeled maximum fugitive chemical emission rates, as well as the maximum concentrations in spent carbon unloaded at the outdoor hopper, and the number of deliveries with this maximum concentration relative to the total number of deliveries.

#### ISCST3 Modeling of Short-Term Unitized Air Concentrations

Equation 1, presented earlier in this document, shows the HHRAP method for calculating chemical-specific air concentrations. In this method, unitized ISCST3 model output air concentrations are multiplied by chemical-specific emission rates. The unitized ISCST3 air concentration at each receptor location was the maximum modeled 1-hour average air concentration based on a unit 1 g/sec emission rate. The chemical-specific emission rates were calculated as described above.

HHRAP recommends evaluating risks due to acute exposure based on maximum 1-hour average air concentrations calculated using a dispersion model. The shortest time step that the ISCST3 dispersion model can predict is a 1-hour average period. The term "1-hour average" thus commonly refers to the averaging time associated with this ISCST3 output.

The ISCST3 model calculates a 1-hour average unitized air concentration (i.e.,  $\mu g/m^3$  per 1 g/sec) for every hour of input meteorological data at each modeled receptor location. The five years of hourly meteorological data input to ISCST3 for the risk assessment, therefore, produced more than 40,000 1-hour average air concentrations at each of the more than 5,200 individual modeled receptor locations beyond the property boundary. The highest of these more than 40,000 1-hour average concentrations at each location was then selected for use in evaluating potential acute inhalation risks in the risk assessment. This very conservative approach is recommended in HHRAP and was used in the risk assessment and in response to this Region IX comment.

The maximum 1-hour average unitized concentration modeled by ISCST3 at each location reflects a specific set of meteorological conditions that produce less dispersion and higher air concentrations than for any of the other more than 40,000 modeled hours. This means that the maximum short-term air concentrations, and thus the acute risks derived from them, have a very low probability of occurrence. It also means that the short-term air concentrations for every other hour modeled at each receptor location were lower than the maximum used in the risk assessment.

#### Potential Acute Inhalation Risks

The potential acute inhalation risks associated with the maximum modeled fugitive emission rates and the maximum unitized ISCST3 modeled short-term air concentrations were evaluated by re-running the IRAP software program in the same manner as applied in the risk assessment.

The resulting hazard quotients are presented in Table 13 for the same set of receptor locations evaluated in the risk assessment (see Table 4.4-5 in the risk assessment). The detailed chemical-specific acute hazard quotients for this fugitive emissions scenario are included in Attachment E.

All of the hazard quotients (HQs) at all receptor locations were below the target level of 1.0, indicating that adverse acute health effects are not expected to occur due to fugitive hopper emissions, even when spent carbon containing maximum concentrations are unloaded at the outdoor hopper. The highest HQ values were calculated at grid location A\_3 (0.4) and A\_2 (0.02). Note that grid location A\_3 is on the facility property boundary; beyond this location there is undeveloped land that is not used for residential or commercial purposes. The cumulative acute hazard index (HI) values, based on the sum of all hazard quotients and assuming exposure to all compounds evaluated regardless of the type of potential health effects, were 0.6 at grid location A\_3 and 0.03 at grid location A\_2, still below the target of 1.0.

These results corroborate the conclusions of the risk assessment. They indicate that short-term health effects are not expected to occur in areas near the facility as a result of inhalation exposure to fugitive emissions during spent carbon unloading at the outdoor hopper, individually or in combination with risks from stack emissions.

#### 10b. Acute Short-term Risks – On-Site Evaluation of Short-term Exposure Limits

# Comment:

"The fugitive release acute analysis suggests that on-site receptors incur maximal impacts from fugitive releases (hopper activities). While the narrative in this section identifies the location of maximal off-site impacts and the resultant hazard estimates, the magnitude of on-site impact associated with this exposure scenario should also be identified (10 m north of hopper) and discussed. A fugitive release, on-site acute analysis comparing short-term occupational standards (STELs) to maximum predicted air concentrations should also be considered."

Table 13
Acute Inhalation Results - Maximum Fugitive Emissions During Spent Carbon Unloading at the Outdoor Hopper (a)

Receptor Name	Description	Minimum Hazard Quotient (b)	Maximum Hazard Quotient (b)		
Residential Receptors (develop	ed area within and around Town of Parker)	4 開きに1			
R_1 resident	Closest residential location to facility, residential area in town with highest hourly modeled impacts for stack emissions	<1E-9	0.001		
R_2 resident	Residential area in town with highest annual modeled impacts for stack emissions	<1E-9	0.0009		
R_5 resident	Residential area in town with highest hourly modeled impacts for fugitive hopper emissions	<1E-9	0.001		
R_6 resident	Residential area in town with highest annual modeled impacts for fugitive hopper emissions	<1E-9	0.0005		
Farmer Receptors (residential	area with access to irrigation water and withi	n modeling domain)			
R_3 resident farmer	Residential area with access to irrigation water with highest annual modeled impacts (stack and fugitive hopper emissions)	<1E-9	0.0007		
R_4 resident farmer	Residential area with access to irrigation water with highest hourly modeled impacts (stack and fugitive hopper emissions)	<11:-9	0.0009		
Maximum Impact Point (unde	veloped land area)				
A_1 max hourly (stack)	Maximum stack emissions impact location for hourly concentrations.  There is no residential or commercial land use in the vicinity of the maximum impact location (SW of facility).	<1E-8	0.007		
A_3 max hourly (fugitives)	Maximum fugitive hopper emissions impact location for hourly concentrations. Occurs on northern facility property boundary. There is no residential or commercial land use in the vicinity of the maximum impact location.		0.4		
Non-Residential Areas		The state of the s	a nga sanja		
A_2 closest business (c)	Closest developed location beyond property boundary (non-residential) with highest hourly modeled impacts	<1E-9	0.02		

<sup>(</sup>a) These results are based on both maximum fugitive chemical-specific emission rates and maximum modeled ISCST3 unitized. 1-hour average air concentrations calculated for each specified receptor location. The ISCST3 air concentrations for all other hours were lower than those used to calculate these hazard quotients.

<sup>(</sup>b) The minimum and maximum results are the lowest and highest hazard quotients, respectively, calculated among all of the evaluated compounds. The typical target hazard quotient value used by regulatory agencies is 1.

<sup>(</sup>c) The County Agricultural Extension Office and CRIT Reality are located at receptor A\_2. Maximum 1-hour average air concentrations at all other non-residential developed land use locations were lower than at receptor A\_2.

#### Response:

Section 4.4.2.2 of the risk assessment addresses potential off-site impacts to public health. On-site impacts are addressed in Section 4.4.4 of the risk assessment and also in response to General Comment 2.

In response to this comment, an on-site acute analysis was conducted to compare short-term occupational exposure limits to maximum modeled on-site air concentrations. Short-term exposure limits (STELs) have been developed by NIOSH and OSHA for varying short-term durations. For example, STELs are defined as 15-minute time-weighted average concentrations that should not be exceeded at any time during a workday. Ceiling limits are maximum peak values not to be exceeded at any time.

Table 14 presents the available short-term exposure limits provided by OSHA and NIOSH, the approximate duration associated with each short-term limit, and the 8-hour time weighted average permissible exposure limits (PELs).

Table 14 also presents modeled maximum on-site air concentrations associated with maximum fugitive emissions. The maximum 8-hour average and 1-hour average air concentrations were calculated by combining ISCST3 unitized modeling results with maximum modeled chemical-specific emission rates. The air concentrations for averaging times less than 1 hour were calculated by scaling from the modeled maximum on-site 1-hour average concentrations using USEPA screening-level scaling factors that convert concentrations to different averaging times (USEPA 1992). The estimated short-term air concentrations were calculated for durations that corresponded to the short-term exposure limit durations indicated in Table 14. The screening-level scaling factors can only provide very rough approximations of air concentrations because of their inherent uncertainties (e.g., application at close distances from a source).

Table 14 shows that the modeled short-term on-site air concentrations are lower than the corresponding short-term exposure limits, in most cases by several orders of magnitude. This conclusion provides additional support that unacceptable risks to workers associated with chemical exposures from spent carbon unloading activities are not likely to occur.

#### 10c. Acute Short-term Risks – Risk Management Procedures

#### Comment:

"To the extent that on-site risk management procedures remain in place to mitigate these potential exposures and concomitant risks, and to the extent that these potential exposures are regulated by facility compliance with the Occupational Safety & Health Administration (OSHA) worker protection standards, the risk implications associated with this scenario can be deemed de minimus. This level of analysis should be clearly articulated in this section, and section 4.4.4 of the risk assessment report."

#### Response:

The facility has in place a protective worker health and safety program which has been developed to meet the requirements of OSHA and a set of comprehensive on-site risk

Table 14

Evaluation of Short-Term Occupational Exposure Limits And Modeled Maximum Ambient Air Concentrations On Site
Associated with Fugitive Emissions During Spent Carbon Unloading

		Maximum Mode	eled On-Site Air	Calculated Maximum On-Site Air Concentrations for			8-Hour Average Occupational Exposure		Short-Term Occupational Exposure Limits (mg/m3) (b)				
		Concentration		Short-Term Averaging Times (mg/m3) (scaled from maximum modeled 1-hour average concentration) (f)			Limits (mg/m3) (b)		OSHA Exposure Limits		NIOSH Exposure Limits		
Compound	CAS#	Maximum Modeled 8-Hour Average	Maximum Modeled 1-Hour Average	30-minute (1-hr)*1.1	15-minute (1-hr)*1.3	10-minute (1-hr)*1.4	5-minute (1-hr)*1.6	NIOSH Reference Exposure Limit (8-hr TWA REL)	OSHA Permissible Exposure Limit (8-hr TWA PEL)	Exposure Limit	Duration	Exposure Limit	Duration
1,2-Dibromoethane	106-93-4	1.0E-08	2.4E-08		3E-08		4E-08	0.35	150	230	5-minute	1.0	15-minute
1,3-Butadiene	106-99-0							4.4 (c)	2.2	30	15-minute		ŀ
1.4-Dichlorobenzene	106-46-7	7.0E-03	1.61:-02					60 (c)	450				
Acrylomtrile	107-13-1	3.4E-02	8.0E-02		115-04			2.2	4.3	20	15-minute	20	15-minute
Arsenic	7440-38-2	7.1E-08	1.7E-07		2E-07				0.01			0.002	15-minute
Benzene	71-43-2	3.3E-01	7.7E-01		1E+00			0.32	3.2	20	15-immite	3	15-minute
Beryllium	7440-41-7	9.4E409	2.2E-08	21:408			4[-08	-	0.002	0.005	30-minute	0.0005	ceiling
Cadmium	7440-43-9	7.6E-08	1.8E-07		21:-07		31;-07		0.005	9,6	cerling		. –
Chloroform	67-66-3	2.0E-02	4.8E-02		6F-02	Ī	8E-02	49 (c)		240	ceiling	9.78	60-minute
Chromum (e)	7440-47-3	2.8E-07	6.6E-07					0.5	0.5				
Chromum VI	18540-29-9	1.6E-07	3.8E-07			T	1	0.001 (e)	0.005			Ī	
Cobalt	7440-48-4	7.7E-07	1.8E-06					0.05	0.1		-		
Copper	7440-50-8	8.8E-08	2.1E-07			Ī		1	1			T	
Cyclohexane	110-82-7	9.6E-01	2.2E+00			l ·		1050	1050			1	-
Ethylbenzene	100-41-4	5.2E-02	1.21:-01	· <del></del>	21:-04	1		435	435			545	15-minute
Naphthalene	91-20-3	7.6E-05	1.81:-04		219-04			50	50			75	15-minute
n-Hexane	110-54-3	1.4E-01	3.2E-01					180	1800		-		-
Nickel	7440-02-0	2.71:-07	6.3E-417					0.015	1				
Styrene	100-42-5	1.3E-02	3.1F-02		4[-02		517-02	215	430	850	5-minute	425	15-minute
Tetrachloroethylene	127-18-4	3.2E-01	7.5E-01				IE : 00	170 (c)	680	1360	5-minute		
Toluene	108-88-3	8.8E402	2.1E-01		3E-01	3[740]		175	750	1130	10-minute	560	15-monute
Trichioroethylene	79-01-6	9.2E-02	2.1E-01			Ī	31:-01	134 (d)	540	1070	5-minute		T
Vinyl Chloride	75-01-4	5.4E-01	1.3E+00		2E:+00	1		2.6 (e)	2.6	13	15-minute		

TWA = time weighted average.

<sup>-- =</sup> not as adultic or not calculated

<sup>(</sup>a) The maximum modeled on-site 8-hour and 1-hour average air concentrations were based on: 1) the maximum modeled receptor location on site (about 10 meter from H-1); 2) the highest ISCST3-modeled unitized 8-hour average and 1-hour average are concentrations at the maximum receptor location: and 3) maximum fugitive chemical-specific emission rates calculated based on the maximum spent carbon concentrations unloaded at H-1 for vapor spent carbon. The highest ISCST3-modeled unitized 8-hour and 1-hour average concentrations at the maximum modeled receptor location were 16,426 up m3 per 1 g/sec, respectively.

<sup>(</sup>b) Sources: OSHA PELS - www.osha.gov/pls oshaweb. NIOSH RELs - www.cdc.gov/niosh/npg. ACGIII TLVs - www.osha.gov/dts.chemicalsampling-toc-toc-chemsamp.html.

<sup>(</sup>c) The ACGIH TWA-threshold limit value (TLV) was used, if available, if a NIOSH REL was not available.

<sup>(</sup>d) 10-hour FWA concentration.

<sup>(</sup>e) NIOSH RUI for CVU is a 10-bit TWA. The listed OSHA PEL for chromium is based on CrIII and CrII. The value for chromium metals and insoluble salts is slightly higher, at 1 mg m3.

<sup>(</sup>f) Short-term concentrations were calculated using screening-level scaling factors for durations that corresponded to available short-term occupational exposure limits. Source for screening-level scaling factors: USEPA, 1992. Workbook of Screening Techniques for Assessing Impacts of Toxic Air Pollutants (Revised). EPA-454 R-92-024.

management procedures. A detailed description of on-site risk management procedures and OSHA compliance programs is provided in the RCRA Part B permit application submitted to USEPA in February 2007 (Focus 2007). In addition, the risk assessment Workplan prepared in 2003 presented a summary of workplace practices implemented under OSHA.

In response to this comment, a summary of information related to these topics is provided below, with reference to pertinent sections of the RCRA Part B permit.

The facility's worker health and safety program includes training, medical monitoring, industrial hygiene sampling, hazard communication and use of personal protective equipment, as outlined in Table 15. This program includes an extensive training program to ensure worker safety in areas ranging from use of personal protective equipment to minimize potential chemical exposures, to fall and back protection to minimize the chance of accidental injury or muscle strain. All employees must undergo 40 hours of training related to hazardous waste operations when initially hired, plus an 8-hour refresher course each year. All employees are required to attend regularly scheduled safety meetings and are also required to pass an additional safety test each month. Section H and Appendix XIV of the RCRA Part B permit application provide more details on the facility's personnel training program, including an overall description of the personnel training program and requirements established for handling of hazardous wastes at the facility.

The facility's worker health and safety program includes provision and use of personal protective equipment. All workers involved in spent carbon unloading operations wear respirators in addition to protective clothing. Workers wear company-supplied shirts, pants and steel-toe boots, hard hat, and safety glasses. When handling any spent carbon (whether it is classified as non-hazardous or hazardous), a half-face respirator with organic and dust control cartridges is worn by workers. This practice has been followed since 1992. All employees also receive physicals prior to the start of work and annually thereafter, including the performance of blood testing, EKGs, hearing tests, and pulmonary function tests.

Industrial hygiene (IH) monitoring is conducted each year for a wide variety of organic compounds and dust in air to ensure that adequate personal protective equipment is being used at the facility. The IH monitoring also evaluates noise conditions at the plant. The annual IH surveys monitor workplace breathing zone concentrations of organic compounds and particulate matter among workers employed in a variety of tasks at the facility, for example workers unloading and sampling spent carbon containers, lab technicians and facility assistant managers. As described previously in response to General Comment 2, the IH monitoring includes workers whose potential exposures may be high based on the activities they perform during the workday.

The facility has a variety of safety, emergency and security devices and procedures in place to minimize the possibility of an explosion, fire, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. These devices and procedures are described in Section F of the RCRA Part B permit application. Section F also describes the security measures and devices that are used to prevent unauthorized site entry and minimize

# Table 15 Siemens Water Technologies Corp. Facility Worker Protection Program

#### 1. Corporate EH&S Manual

#### 2. Local Training Programs

40-Hour Hazwoper Training (new employees)

Hazard Communication (Computer)

Confined Space (Computer)

Lock Out/Tag Out (Computer)

Bloodborne Pathogens (Computer)

Fire Extinguisher

Contingency Plan

Personal Protection Equipment (Computer)

Back Safety (Computer)

Respiratory Protection (Computer)

Forklift Training (Computer)

Hot Work

First Aid (Every Other Year)

HM-181 (Computer)

Hearing Protection (Computer)

Electrical Safety (Computer)

Laboratory Safety (Computer)

Fall Protection

8-Hour Hazwoper Refresher

Hazardous Debris Management

**Burn Prevention** 

Acid and Caustic Handling

#### 3. Annual Employee Physicals

General Physical

Blood Workup

**EKG** 

**Hearing Test** 

Pulmonary Function Test

- 4. Annual Employee IH Monitoring (organics, dust, noise)
- 5. Annual Respirator Fit Test
- 6. Monthly Employee Safety Meetings
- 7. Monthly Safety Committee Meetings
- **8. Company Furnished Items:** Split Lockeroom, Showers, Soap, Towels, Work clothes, Steel-Toed Safety Shoes, Safety Glasses, Gloves, etc.

the possibility of livestock or persons contacting hazardous waste or hazardous waste management units. Additionally, the facility has a comprehensive inspection schedule and inspection procedures to ensure that all facility equipment is in proper operating condition and is being operated properly, as described in Appendix XII in the permit application.

The facility also has a Contingency Plan, presented in Section G and Appendix XIII of the permit application, which is designed to minimize hazards to human health or the environment in the event of a fire, explosion or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil or surface water.

# 11. Evaluation of Reactivation Facility Incremental Impact to CRSSJV Discharge – Section 4.4.3.3, pg. 47

#### Comment:

"The subsection regarding the "Compil(ation) of chemical concentrations in effluent and select compounds for evaluation" should be expanded to include additional levels of detail. Similar to the manner in which the waste stream was well characterized in preparation of the facility-specific PDT, this section should include general descriptions of the type and magnitude of waste treated while facility effluent data was being compiled. These waste characterization efforts should coincide with the window of time (2005-2006) which serves as the basis for effluent analysis. The subsection should also be expanded to include details regarding effluent monitoring or sampling frequency throughout the period used for analysis."

#### Response:

The facility performs routine effluent monitoring for a variety of constituents. The facility is required to monitor twice per month for total suspended solids, once per month for chemical oxygen demand (COD) and once per year for a comprehensive priority pollutant test in accordance with its discharge permit issued by the Colorado River Sewage System Joint Venture (CRSSJV) publicly owned treatment works (POTW). The annual comprehensive priority pollutant test samples effluent for more than 20 inorganic compounds, and more than 70 organic compounds, including volatile organics, semi-volatile organics, organochlorine pesticides, and polychlorinated biphenyls (PCBs). The facility's effluent that is discharged to the POTW is also continuously monitored for pH, total dissolved solids, flow, and temperature. The facility also conducts biannual sampling in compliance with USEPA's Centralized Waste Treatment (CWT) categorical pretreatment standards and its analytical results are submitted to both USEPA and CRIT every 6 months. The CWT analysis includes several organic compounds, metals, and oil and grease, in accordance with 40 CFR 437.46(b).

Effluent discharge data from 2005-2006 are provided in Table 4.4-6 in the risk assessment. These data encompass roughly 30 separate sampling events, and include results from several days of sampling conducted during the PDT, biannual sampling conducted in compliance with the CWT categorical pretreatment standards, one sampling event conducted for the facility's annual priority pollutants testing report, and monthly composite metals sampling

that was conducted for a limited time for internal Siemens reference. The submitted regulatory monitoring reports for these tests are provided in Attachment F.

In general, since the facility accepts spent carbon that has been used for a variety of different purposes (e.g., treating industrial and municipal wastewater, groundwater, surface water, process materials, or for removing pollutants from vent gases) and at a variety of different locations, the type and magnitude of the spent carbon treated at the facility varies. A detailed description of spent carbon treated during the PDT, and the spiked materials that were added to the feed during the test, is provided in the comprehensive PDT report (Focus 2006). The composition of the spent carbon was considered in establishing the feed for the PDT in order to develop test conditions that were illustrative of the variability of the carbon received by the facility, although to be conservative the feed during the PDT was more heavily loaded with compounds than is typical due to the addition of several spiked materials, and the feed rate was higher than is typical. Sections 3.2 and 3.3 of the PDT report contain information on the spent carbon and spiked material characteristics and constituent feed rates during the PDT. The spent carbon feed rate to the furnace during the PDT averaged 3,049 lbs/hour. During the 2005 priority pollutant testing, the average spent carbon feed rate to the furnace was 2,716 lbs/hour. The average spent carbon feed rate during the biannual CWT tests in 2005 and 2006 ranged from 2,473 lbs/hour to 2,707 lbs/hour. The amount of spent carbon fed to the furnace in 2005 and 2006 averaged 2,680 lbs/hour and 2,686 lbs/hour, respectively. In 2005 and 2006, the annual average total concentration in spent carbon received, calculated based on the sum of all organic and inorganic compound concentrations reported in spent carbon profiles, was approximately 2,100 ppm and 2,800 ppm, respectively. Overall, the 2005-2006 sampling data in Table 4.4-6 (other than the PDT data) are likely to represent a good cross-section of the wide range of spent carbon that is routinely received at the facility.

#### 12. Calculation of incremental facility concentrations resulting from water treatment

#### Comment:

"The subsection regarding the "Calculat(ion of) incremental facility concentrations resulting from water treatment" should provide additional detail on the relationship between the CRSSJV's removal efficiencies for BOD and suspended solids in treated waters with the removal efficiencies estimated for the range of constituents identified in the SWT effluent."

#### Response:

In response to USEPA's comment, the following discussion provides additional detail on the relationship between the CRSSJV's removal efficiencies for biological oxygen demand (BOD) and suspended solids in treated waters with the removal efficiencies estimated for the constituents identified in the SWT effluent.

Section 4.4.3.3 in the risk assessment describes the mathematical modeling used to calculate facility-related incremental concentrations in the CRSSJV discharge due to effluent from the carbon reactivation facility that enters the CRSSJV. This methodology took into account the effectiveness of water treatment at the CRSSJV in removing particulates and organics from water prior to discharge. The CRSSJV treatment plant's discharge records for 2005

documented 98% removal of suspended solids and 98% removal of BOD. For purposes of this analysis, suspended solids removal is assumed to correlate directly with particulate removal, and BOD removal is assumed to correlate directly with organics removal. Accordingly, the removal efficiencies for effluent from the facility treated at the CRSSJV were assumed to be 98% for particulates, based on the reported suspended solids removal efficiency, and 98% for organics, based on the facility's reported BOD removal efficiency.

Analysis for chemical material in water and wastewater is classified into two general types of measurements: those that quantify an aggregate amount of chemical matter comprising constituents with a common characteristic and those that quantify individual compounds (APHA/AWWA/WEF 1998). Two aggregate parameters, BOD and total suspended solids (TSS) have traditionally been used to assess the performance and efficacy of waste water treatment plants (Metcalf & Eddy 1991). The common characteristic measured by BOD is the ability of aggressive microorganisms to degrade organic constituents. The common characteristic measured by TSS is the amount of insoluble inorganic constituents.

Operationally, BOD measures the amount of oxygen consumed by heterotrophic microorganisms during the biochemical oxidation of organic matter over a period of 5 days under controlled conditions. Since most organic chemicals (including the priority pollutants) are biodegradable to some extent, BOD can be used as a surrogate for the overall destruction and removal efficiency of individual organics. As an example, we can look at the common priority pollutant toluene. Toluene is 98.6% biotransformed during secondary wastewater treatment (Verschueren 2001). The BOD reduction (as a percentage of the amount that can be rigorously chemically oxidized) corresponding to this treatment is about 86%. Thus the use of BOD is a plausible (albeit conservative) estimate for the destruction and removal of toluene.

Inorganics, particularly metals, in water are partitioned into two broad categories – dissolved and sorbed or chemical incorporated into particulate. Taken together, these categories constitute the aggregate parameter of total solids. Dissolved solids is determined by the residue remaining following evaporation while undissolved particulate is determined by the fraction of materials that is retained on a filter (APHA/AWWA/WEF 1998). The filters normally used to effect this separation have pore sizes between 1.0 and 1.2  $\mu$ m, thus, only extremely small particulate or colloidal matter can pass (Metcalf & Eddy 1991). The removal of TSS in a wastewater treatment plant is thus a surrogate for the removal of undissolved particulate which is primarily composed of insoluble inorganic matter.

13. Potential fish ingestion risks for the Main Drain – Section 4.4.3.5, pg. 50 This comment includes two items, each of which is addressed below.

13a. Potential fish ingestion risks for the Main Drain – Subsistence Scenario

#### Comment:

"The risk characterization of this subsistence receptor scenario (fisher), and all subsistence receptor scenarios evaluated, should include the likelihood and magnitude of the entire range of direct and indirect exposures that these receptors incur. EPA's HHRAP guidance is clear, the subsistence fisher exposure scenario assumes that the receptor is exposed to

contaminants emitted from the facility via direct inhalation of vapors and particles, via incidental ingestion of soil, via ingestion of drinking water from surface water sources, via ingestion of homegrown produce, via ingestion of fish, and via ingestion of breast milk. Therefore, please revise and supplement the subsistence receptor risk and hazard estimates with a comprehensive estimate of impact inclusive of the recommended pathways of contaminant exposure."

#### Response:

In response to this comment, the potential risks due to stack emissions for hypothetical subsistence receptors were expanded to explicitly add in the potential subsistence fish ingestion risks associated with the incremental impact of facility effluent discharged from the CRSSJV.

Table 16 presents the potential fish ingestion risks associated with the incremental impact of facility-effluent on the CRSSJV discharge. These results, which conservatively assume that an adult receptor obtains 100% of the fish they ingest from only the Main Drain over a 30-year period, are well below USEPA's target risk level. The evaluation of the potential incremental impact of facility effluent on the CRSSJV discharge is presented in the risk assessment in Section 4.4.3.5 and Table 4.4-12.

Table 16 also shows the potential risks associated with stack emissions for the receptor with the highest results calculated in the risk assessment (i.e., adult town resident "receptor R\_2" who is also assumed to be a subsistence fisher) (see Table 7 in response to Specific Comment 4).

The resulting combined risks shown in Table 16, inclusive of all pathways and reflecting potential impacts from both stack emissions and incremental effluent-related discharge from the CRSSJV, are below USEPA's target risk levels for both cancer and non-cancer health effects. As shown in Table 9, the stack emissions risk assessment results are dominated by one compound, benzidine, which was not detected in the PDT stack gases and which has never been accepted in spent carbon at the facility. When this one compound is removed from the calculations, the risks drop substantially below USEPA's target risk levels. When only detected compounds are included, the risks are reduced even further below target levels.

The likelihood of the subsistence scenario actually occurring is considered to be extremely small, because it incorporates a number of high-end assumptions that each are expected to have a low likelihood of occurrence (e.g., (i) assuming that 100% of a town resident's produce diet for a 30-year period is obtained from homegrown produce, even though the climate limits growing seasons to only selected months of the year, and (ii) assuming that 100% of a person's fish diet over a 30-year period is obtained solely from fish caught in the Main Drain). The potential combined risks for subsistence receptors are considered to reflect high-end scenarios that are highly unlikely to be exceeded.

HHRAP guidance (Chapter 4, Chapter 7 and Appendix C) recommends that infant exposure via breast-milk ingestion be evaluated separately from other exposure scenarios. The

Table 16
Combined Potential Risks for Hypothetical Subsistence Receptors:
Stack Emissions and Effluent-Related Discharge from the Joint Venture

December	Excess Lifetime Cancer Risk		Total Hazard Index	
Receptor and Group of Evaluated Compounds	Risk assessment results	Subsistence scenario	Risk assessment results	Subsistence scenario
	ffluent-Related Disc bsistence Fisher (Mo		V:	
All detected compounds in facility effluent	3E-0	07	1 E-(	)2
Adult Town Reside	Stack Emissions ent + Subsistence Fis	-	(a, b)	
Group 1 – all detected compounds in stack emissions (95 compounds)	7E-08	1E-07	6E-0	)2
Group 2 – all compounds in stack emissions except benzidine (177 compounds)	2E-07	3E-07	6E-(	)2
Group 3 – all compounds in stack emissions (178 compounds) (c)	2E-06	9E-06	6E-0	)2
Incremental Effluent-Ro Adult Town Resid	elated Discharge froi lent + Subsistence Fi			
Group 1 – all detected compounds in stack emissions (95 compounds)	4E-07	4E-07	7E-0	)2
Group 2 – all compounds in stack emissions except benzidine (177 compounds)	5E-07	3E-07	7E-0	)2
Group 3 – all compounds in stack emissions (178 compounds) (c)	2E-06	9E-06	7E-(	)2
· ·	SEPA Target Risk I	Levels		
Target risk levels for combustion source risk assessment	1E-(	05	0.23	5

<sup>(</sup>a) The subsistence fish ingestion pathway assumes 100% of a person's fish diet is provided by fish caught from the Main Drain.

<sup>(</sup>b) Results are shown for the receptor with the highest calculated potential risks associated with stack emissions (the adult town resident receptor "R\_2", who is also assumed to be a subsistence fisher receptor "R\_only\_fish\_drain"). Potential risks for all other evaluated receptors were lower than these values. The town resident receptor is assumed to be exposed via inhalation, soil ingestion, produce ingestion and fish ingestion. The risk assessment assumes that 20% of a person's produce diet is home grown. The subsistence scenario assumes 100% of a persons' produce diet is home grown.

<sup>(</sup>c) The stack emissions risk results for Group 3 compounds (which includes 83 compounds that were not detected in stack emissions) were dominated by one compound, benzidine, which was not detected stack gases and for which there is no evidence that it has ever been accepted in spent carbon received at the facility.

guidance does not recommend adding infant risks from ingestion of breast-milk to risks calculated for other receptors (adult or child) via other exposure pathways. Rather the guidance recommends calculating cumulative risks for each given receptor. Accordingly, potential risks from breast-milk ingestion by an infant receptor were not added into the combined risks shown in Table 16, which were based on an adult receptor. Rather, as described in Section 4.4.1.3 in the risk assessment, potential risks for a breast-fed infant were calculated using the recommended HHRAP method in which average daily doses of PCDDs/PCDFs from breast-milk ingestion are compared to a background level for a nursing infant. The risk assessment results demonstrated that potential exposure to PCDDs/PCDFs by a nursing infant would be far below background levels.

Potential exposures via drinking water were not evaluated in the risk assessment because drinking water is obtained from groundwater wells for both the CRIT area and for the Town of Parker. Drinking water for CRIT is provided by the CRIT Regional Water System. Drinking water for the Town of Parker is provided by the town water department.

#### 13b. Potential fish ingestion risks for the Main Drain – Exposure Duration

#### Comment:

"In addition, the details regarding the number of years of contaminant exposure incurred by each subsistence receptor is not clear as presented in table 4.4-12. Please revise the table and narrative in this section by replacing the term "many years", with the precise number of years assumed for determination of both subsistence and chronic-level health impact."

#### Response:

Footnote (f) in Table 4.4-12 in the risk assessment indicates that the exposure durations used in the fish ingestion exposure calculation were 30 years for an adult and 6 years for a child. These are the recommended default values from HHRAP. The revised narrative in the risk assessment reads as follows (edits in italics): "In the absence of site-specific data, it was conservatively assumed that 100% of the fish eaten by a person every year, for 30 years by an adult receptor and 6 years by a child receptor, would be caught only from the Main Drain."

#### 14. Evaluation of subsistence exposure pathways – Section 4.5.9, pg. 61

#### Comment:

"This assessment of facility-associated health and ecological impact has attempted to comprehensively characterize the range and magnitude of constituents released, and the settings or conditions under which potential exposure may occur. To the extent practicable, site-specific exposure conditions and assumptions were applied to the analysis in an attempt to reduce assessment uncertainty. Many tribal subgroups enjoy unique and culturally significant practices which may effectively serve to increase their exposure to toxic constituents released to the terrestrial environment. The use of sweat lodges and the use of plants and other agricultural products for cultural and/or traditional healing practices illustrate this concept.

This risk assessment report should be expanded to detail all efforts made to evaluate and assess potential impacts resulting from idiosyncratic and culturally-specific tribal practices with the potential to increase contaminant exposure. To the extent these efforts have been made, and the lack of exposure information from culturally-specific tribal practices results in significant datagaps, the influence of those exposure-related datagaps on the overall risk and hazard estimates should be described and characterized as an element of uncertainty."

#### Response:

The risk assessment aimed to incorporate as much site-specific information as available, including information from CRIT. In 2002, CRIT developed a protocol for obtaining all site-specific information relating to CRIT and tribal members for use in performing the risk assessment. This protocol is presented in Appendix A of the November 2003 Working Draft Risk Assessment Workplan and reprinted here in Attachment G. The protocol was approved as part of the Risk Assessment Workplan and was followed for the risk assessment project, as discussed recently in a phone call with USEPA. Adherence to this protocol is essential for both the integrity of the risk assessment process and for recognition of the unique status and role of CRIT in the permitting process.

The protocol ensures that the RCRA permitting process will provide appropriate respect and deference to Native religious and cultural practices. This has precluded the inclusion of a detailed assessment of these practices in the risk assessment. As with many variables in risk assessment methodology, this adds some uncertainty to the assessment. The potential exposures that were characterized, particularly for subsistence receptors, may provide insight into potential risks from other exposure pathways.

#### 15. Table 4.4-6, 2005-2006 Effluent Discharge Data from Facility

#### Comment:

"The subject table details the constituents discharged from the facility via the main drain. The primary compounds released via this pathway remain inorganic and metallic constituents. Please develop a supporting narrative for the table which better explains, from a facility-specific constituent fate and transport perspective, why so few organic constituents are subject to release in this aqueous discharge."

#### Response:

Every organic compound that was detected, even once, in the sampling programs noted in Table 4.4-6 in the risk assessment was evaluated in the risk assessment. As noted above, the facility monitors its effluent for a variety of organic parameters in accordance with its discharge permit and USEPA regulations. The annual comprehensive priority pollutant sampling analyzes the facility effluent for more than 70 organic compounds, including

<sup>&</sup>lt;sup>18</sup> Telephone conference call with Patrick Wilson, USEPA Region IX, Monte McCue, Siemens Water Technologies Corp. Plant Manager, and Sarah Foster, CPF Associates, Inc. January 14, 2008.

<sup>&</sup>lt;sup>19</sup> Organic compounds that were detected only in the PDT effluent testing and were also spiked into the feed materials during the PDT were not selected for evaluation (see Table 4.1-1 in the risk assessment for spiking information).

volatile organics, semi-volatile organics, organochlorine pesticides, and polychlorinated biphenyls (PCBs), in addition to more than 20 inorganic compounds. The biannual CWT sampling analyzes effluent for nine organic compounds, in addition to metals and oil and grease, in accordance with 40 CFR 437.46(b). Sampling conducted as part of the PDT analyzed effluent for over 100 volatile and semi-volatile organic compounds.

The small number of detected organic compounds in facility effluent is a reflection of the facility's carbon regeneration process. Effluent from the facility is discharged from Tank 11 which contains scrubber water blow down, cooling water blow down, boiler blow down, and excess recycle water. Two of these effluent water sources come into contact with compounds associated with spent carbon, the scrubber water that is used to scrub exhaust gases in the facility's air pollution control system, and the recycle water that is used to facilitate transport of spent carbon from the hoppers to the furnace. The presence of organic compounds in scrubber water blow down is limited because these compounds are largely destroyed in the combustion process. The destruction rate of the afterburner is designed to achieve a stringent destruction and removal efficiency (DRE) of 99.99%. The DREs actually achieved in the PDT, which was conducted under challenged operating conditions, were even higher, ranging on average from 99.9941% to 99.997% (see Table 4-1 in the PDT report) (Focus 2006). The transfer of organic compounds that are not destroyed in the afterburner to scrubber water may also be limited by their chemical-physical characteristics (e.g., highly volatile or poorly water soluble compounds will not tend to partition into the aqueous phase). Recycle water accounts for only about 0.1% of the water in Tank 11 and thus the recycle water has a negligible effect on organics in the effluent. The effectiveness of these procedures in limiting organic compounds in the facility effluent is evident in the results compiled for the risk assessment. Out of the more than 100 organic compounds tested for across the multiple sampling programs considered, less than 10 were detected and these were evaluated in the risk assessment.

# 16. Table 1, Compilation of Chronic Human Health Toxicity Criteria for Compounds not Included in USEPA's 2005 HHRAP

#### Comment:

"The source of toxicity information (rfd) for the element cobalt appears to be U.S. EPA's Provisional Peer-Reviewed Toxicity Value (PPRTV) database rather than from ATSDR datasource. Please review and confirm the source of all toxicity values to ensure the accuracy of table #1."

#### Response:

The sources of all toxicity values in Table 1 of Appendix B have been reviewed and confirmed. A check of USEPA's PPRTV database provided by the National Center for Environmental Assessment (NCEA), specifically the "PPRTV Status Table for Registered Users" for the 4<sup>th</sup> Quarter FY07, showed that cobalt is not on the list of compounds addressed. In the absence of values from USEPA's Integrated Risk Information System (IRIS) or the PPRTV database, toxicity values for cobalt were obtained from one of the other preferred sources recommended in HHRAP. The toxicity values for cobalt were based

on minimum risk levels (MRLs) developed by the Agency for Toxic Substances and Disease Registry (ATSDR).

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### **ATTACHMENTS**

#### ATTACHMENT A

# STACK EMISSIONS RISK ASSESSMENT: ACUTE INHALATION RISK RESULTS UNDER HYPOTHETICAL UPSET CONDITIONS

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
A_1 max hourly impact point (stack)		
Nitrogen dioxide	3.9E-01	
Sulfur dioxide	1.4E-01	
Arsenic Chlorine	4.1E-02	
Lead	5.6E-03 4.6E-03	
Hydrogen chloride	3.4E-03	
Nickel	2.7E-03	
Copper	2.2E-03	
Cadmium	5.4E-04	
Hexachlorobenzene Chlorophenyl-phenylether, 4-	9.9E-05 8.9E-05	
Beryllium	7.8E-05	
Chloroform (Trichloromethane)	6.6E-05	
Benzidine	6.0E-05	
Dibromo-3-chloropropane, 1,2-	5.1E-05	
Thallium (I)	4.7E-05	
Manganese Mercury	3.0E-05 2.7E-05	
Vanadium	2.7E-05	
Hexachlorocyclopentadiene	2.2E-05	
Silver	1.9E-05	
4,6-Dinitro-2-methylphenol Zinc	1.3E-05	
Barium	9.8E-06 9.1E-06	
Mercuric chloride	6.8E-06	
Pentachlorophenol	6.1E-06	
Aluminum	5.9E-06	
Tetrachloroethylene (Perchloroethylene	5.7E-06	
Chromium Chromium, hexavalent	5.2E-06 5.2E-06	
Selenium	4.1E-06	
Fluoranthene	3.5E-06	
Nitrosodipropylamine, n-	2.9E-06	
Antimony	1.7E-06	
Bromoform (tribromomethane Chlorobenzene	1.7E-06 1.6E-06	
Benzoic Acid	1.3E-06	
Dinitrotoluene, 2,4-	1.3E-06	
Benzene	1.2E-06	
Methylene chloride	1.2E-06	
3-Penten-2-one, 4-methyl Bromodichloromethane	1.1E-06	
Ethylhexyl phthalate, bis-2-	1.1E-06 1.1E-06	
Dinitrotoluene, 2,6-	1.1E-06	
Dibromochloromethane	1.0E-06	
Methyl bromide (Bromomethane)	8.5E-07	
Dinitrophenol, 2,4-	7.2E-07	
Nitrophenol, 4- Nitroaniline, 3-	6.9E-07	
Chloronaphthalene,2-	6.9E-07 6.6E-07	
Dichlorobenzidine, 3,3'-	5.1E-07	
Methylene bromide	5.1E-07	
PentaCDF, 2,3,4,7,8-	4.5E-07	
Pentachloronitrobenzene (PCNB)	4.2E-07	
Toluene Cobalt	4.2E-07 3.9E-07	
Chlorobenzilate	3.9E-07 3.2E-07	
Dimethylphenol, 2,4-	3.0E-07	
Acrylonitrile	3.0E-07	
Nitrophenol, 2-	2.6E-07	
Heptachlor Carbon Tetrachloride	2.4E-07	
Carbon Letrachionde Carbazole	2.4E-07 2.3E-07	
Benzaldehyde	2.3E-07	
Dinitrobenzene, 1,3-	2.2E-07	
Methyl ethyl ketone (2-Butanone)	2.1E-07	
Benzyl alcohol	2.1E-07	
Phenanthrene	1.6E-07	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Nitroaniline, 4-	1.5E-07	
Benzonitrile	1.5E-07	
<u>Di-n-butyl phthalate</u> Aniline	1.5E-07	
Carbon Disulfide	1.4E-07 1.4E-07	
Methyl chloride (Chloromethane)	1.4E-07	
Heptachlor epoxide	1.3E-07	
Phenol	1.2E-07	
Endrin	9.5E-08	
Chlorophenol, 2-	8.5E-08	
Chloroaniline, p- Trichlorobenzene, 1,2,3-	8.3E-08 6.8E-08	
Acetone	6.8E-08	
Bromophenyl-phenylether, 4-	6.7E-08	
Chloro-3-methylphenol, 4-	6.5E-08	
Hexachloro-1,3-butadiene (Perchlorobutadiene	6.3E-08	
Naphthalene	6.3E-08	
Acetophenone Cresol, o-	6.3E-08 6.2E-08	
N-nitrosodimethylamine	5.5E-08	
Butylbenzylphthalate	4.4E-08	
Chlordane	4.3E-08	
Dichlorobenzene, 1,3-	4.2E-08	
2,5-Dimethylheptane	4.1E-08	
Diethyl phthalate	4.0E-08	
Acenaphthylene Tetrachloroethane, 1,1,2,2-	4.0E-08 3.9E-08	
Vinyl Acetate	3.8E-08	
Dichloropropene, 1,3- (cis)	3.5E-08	
Xylene, p-	3.4E-08	
Xylene, m-	3.4E-08	
Bis(2-chloroethoxy) methane	3.3E-08	
Trichlorophenol, 2,4,5- Nitroaniline, 2-	3.2E-08 3.1E-08	
Nitrobenzene	3.1E-08	
Dichlorophenol, 2,4-	2.9E-08	
Benzo(b)fluoranthene	2.9E-08	
2-Hexanone	2.8E-08	
Hexachloroethane (Perchloroethane	2.8E-08	
Cresol, p- Cresol, m-	2.7E-08 2.7E-08	
Dimethyl phthalate	2.7E-08	
Endosulfan I	2.6E-08	
Trichlorophenol, 2,4,6-	2.5E-08	
BHC, beta-	2.4E-08	
Pyridine	2.2E-08	
<u>Dibenzofuran</u>	2.1E-08	
Diphenylamine Bromobenzene	2.1E-08	
Indeno(1,2,3-cd) pyrene	2.0E-08 1.9E-08	
Tetrachlorobenzene, 1,2,4,5-	1.9E-08	
Aldrin	1.9E-08	
Nitrosodiphenylamine, N-	1.9E-08	
Isophorone	1.9E-08	
<u>Pentachlorobenzene</u>	1.8E-08	
Di-n-octylphthalate	1.7E-08	
Trichlorobenzene, 1,2,4- Chrysene	1.6E-08 1.5E-08	
Aroclor 1254	1.4E-08	
Diphenylhydrazine,1,2-	1.4E-08	
3-Ethyl benzaldehyde	1.3E-08	
4-Ethyl benzaldehyde	1.3E-08	
Trichloropropane, 1,2,3-	1.2E-08	
DDT, 4-4'-	1.2E-08	
Butylbenzene, sec Xylene, o-	1.2E-08	
1,1-Dichloropropene	1.2E-08 1.0E-08	
Trichloroethane, 1,1,2-	9.5E-09	
Dieldrin	9.2E-09	
BHC, alpha-	9.0E-09	
Benzo(a)Anthracene	8.7E-09	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Styrene	8.1E-09	
Bis(2-chlorethyl)ether	8.1E-09	
Benzo(k)fluoranthene	7.8E-09	
2,2'-oxybis (1-Chloropropane)	7.7E-09	
lodomethane	7.2E-09	
Methyl isobutyl ketone	5.6E-09	
Benzo(a)pyrene	5.0E-09	
gamma-BHC (Lindane)	4.6E-09	
TetraCDD, 2,3,7,8-	4.3E-09	
Ethylene dibromide	3.9E-09	
TetraCDF, 2,3,7,8-	3.9E-09	
Trichloroethylene	3.6E-09	
Tetrahydrofuran	3.6E-09	
Pyrene	3.5E-09	
DDD, 4,4'-	3.5E-09	
Tetrachloroethane, 1,1,1,2-	3.1E-09	
1,3-Dichloropropane	3.0E-09	
Butylbenzene, n- Dichloroethylene 1,1-	2.9E-09 2.8E-09	
2,2-Dichloropropane	2.8E-09 2.8E-09	
Butylbenzene, tert	2.7E-09	
Vinyl Chloride	2.7E-09 2.5E-09	
Trichloroethane, 1,1,1-	2.4E-09	
PentaCDD, 1,2,3,7,8-	2.3E-09	
Anthracene	2.3E-09	
Acenaphthene	2.2E-09	
2-Methylnaphthalene	2.1E-09	
Trimethylbenzene, 1,3,5-	1.9E-09	
Dichlorobenzene, 1,2-	1.7E-09	
Dichloroethane, 1,2- (Ethylene Dichloride)	1.6E-09	
HexaCDF, 1,2,3,6,7,8-	1.5E-09	
HexaCDF, 2,3,4,6,7,8-	1.2E-09	
Methoxychlor	1.1E-09	
Dichlorobenzene,1,4-	1.0E-09	
DDE, 4,4'-	9.8E-10	
HexaCDF, 1,2,3,4,7,8-	9.8E-10	
Fluorene	8.6E-10	
Cumene (Isopropylbenzene)	8.5E-10	
2-Chlorotoluene	7.5E-10	
4-Chlorotoluene	7.5E-10	
Ethylene Glycol	6.5E-10	
Propylbenzene, n-	6.2E-10	
Trichlorofluoromethane (Freon 11)	5.4E-10	
1,2,4-Trimethylbenzene	5.4E-10	
Dichloroethylene, cis-1,2-	4.8E-10	
Ethylbenzene	4.7E-10	
Dichloropropane, 1,2-	4.7E-10	
PentaCDF, 1,2,3,7,8-	4.0E-10	
HexaCDD, 1,2,3,4,7,8-	3.1E-10	
Chloroethane	3.1E-10	
Dichlorodifluoromethane	3.1E-10	
Bromochloromethane	3.0E-10	
Benzo(g,h,i)perylene	3.0E-10	
methyl tert-butyl ether	2.4E-10	
Propylene oxide	1.7E-10	
Dichloroethylene-1,2 (trans)	1.5E-10	
Dichloroethane 1,1-	1.5E-10	
Methyl methacrylate	4.1E-11	
HexaCDD, 1,2,3,7,8,9-	3.8E-11	
HexaCDD, 1,2,3,6,7,8-	2.3E-11	
	2.0E-11	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	1.9E-11	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) Dibenz(a,h)anthracene		
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) Dibenz(a,h)anthracene Dioxane, 1,4-	1.5E-11	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)  Dibenz(a,h)anthracene  Dioxane, 1,4-  HeptaCDF, 1,2,3,4,6,7,8-	1.5E-11 3.8E-12	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) Dibenz(a,h)anthracene Dioxane, 1,4- HeptaCDF, 1,2,3,4,6,7,8- HexaCDF, 1,2,3,7,8,9-	1.5E-11 3.8E-12 2.0E-12	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) Dibenz(a,h)anthracene Dioxane, 1,4- HeptaCDF, 1,2,3,4,6,7,8- HexaCDF, 1,2,3,7,8,9- Acrylic Acid	1.5E-11 3.8E-12 2.0E-12 1.6E-12	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) Dibenz(a,h)anthracene Dioxane, 1,4- HeptaCDF, 1,2,3,4,6,7,8- HexaCDF, 1,2,3,7,8,9- Acrylic Acid OctaCDF, 1,2,3,4,6,7,8,9-	1.5E-11 3.8E-12 2.0E-12 1.6E-12 1.1E-12	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) Dibenz(a,h)anthracene Dioxane, 1,4- HeptaCDF, 1,2,3,4,6,7,8- HexaCDF, 1,2,3,7,8,9- Acrylic Acid OctaCDF, 1,2,3,4,6,7,8,9- 1-Hexane (n-hexane)	1.5E-11 3.8E-12 2.0E-12 1.6E-12 1.1E-12 2.8E-13	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) Dibenz(a,h)anthracene Dioxane, 1,4- HeptaCDF, 1,2,3,4,6,7,8- HexaCDF, 1,2,3,7,8,9- Acrylic Acid OctaCDF, 1,2,3,4,6,7,8,9-	1.5E-11 3.8E-12 2.0E-12 1.6E-12 1.1E-12	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)
Endosulfan sulfate	NC
2,5-Dione, 3-hexene	NC
Benzo(e)pyrene	NC
Perylene	NC NC
Phosphine imide, P,P,P-triphenyl Diallate	NC NC
9-Octadecenamide (oleamide)	NC NC
delta-BHC	NC NC
2-Methyl octane	NC
Endosulfan II	NC
Endrin ketone	NC NC
3-Penten-2-one (ethylidene acetone	NC NC
2,5-Dimethylfuran Endrin aldehyde	NC NC
3-Hexen-2-one	NC NC
Benzoic acid, methyl ester (methyl benzoate	NC NC
Isopropyl toluene, p-	NC NC
Total (b)	5.9E-01
A_2 closest business	
Nitrogen dioxide	3.9E-01
Sulfur dioxide	1.4E-01
Arsenic	1.6E-02
Chlorine	5.6E-03
Hydrogen chloride	3.4E-03
Lead Nickel	1.9E-03 1.1E-03
Copper	9.0E-04
Cadmium	2.2E-04
Hexachlorobenzene	9.9E-05
Chlorophenyl-phenylether, 4-	9.0E-05
Chloroform (Trichloromethane)	6.7E-05
Benzidine	5.8E-05
Dibromo-3-chloropropane, 1,2- Beryllium	5.2E-05
Mercury	3.1E-05 2.8E-05
Hexachlorocyclopentadiene	2.2E-05
Thallium (I)	1.9E-05
4,6-Dinitro-2-methylphenol	1.3E-05
Manganese	1.2E-05
Vanadium	1.1E-05
Silver Mercuric chloride	7.7E-06
Pentachlorophenol	6.8E-06 6.1E-06
Tetrachloroethylene (Perchloroethylene	5.7E-06
Zinc	3.9E-06
Barium	3.7E-06
Fluoranthene	3.5E-06
Nitrosodipropylamine, n-	2.9E-06
Aluminum	2.4E-06
Chromium Chromium, hexavalent	2.1E-06
Antimony	2.1E-06 1.7E-06
Bromoform (tribromomethane	1.7E-06
Selenium	1.6E-06
Chlorobenzene	1.6E-06
Benzoic Acid	1.3E-06
Dinitrotoluene, 2,4-	1.3E-06
Benzene	1.2E-06
Methylene chloride 3. Penten 2 one 4 methyl	1.2E-06
3-Penten-2-one, 4-methyl Bromodichloromethane	1.1E-06 1.1E-06
Ethylhexyl phthalate, bis-2-	1.1E-06
Dinitrotoluene, 2,6-	1.1E-06
Dibromochloromethane	1.0E-06
Methyl bromide (Bromomethane)	8.6E-07
Dinitrophenol, 2,4-	7.3E-07
Nitrophenol, 4-	7.0E-07
Nitroaniline, 3-	7.0E-07
Chloronaphthalene,2-	6.6E-07

	ACUTE INHALATION HAZARD QUOTIENT (a)	
Methylene bromide	5.1E-07	
Dichlorobenzidine, 3,3'-	5.1E-07	
PentaCDF, 2,3,4,7,8-	4.4E-07	
Pentachloronitrobenzene (PCNB)	4.2E-07	
Toluene	4.2E-07	
Chlorobenzilate	3.2E-07	
Dimethylphenol, 2,4- Acrylonitrile	3.1E-07 3.0E-07	
Nitrophenol, 2-	2.6E-07	
Heptachlor	2.4E-07	
Carbon Tetrachloride	2.4E-07	
Carbazole	2.3E-07	
Benzaldehyde	2.3E-07	
Dinitrobenzene, 1,3-	2.2E-07	
Methyl ethyl ketone (2-Butanone)	2.1E-07	
Benzyl alcohol	2.1E-07	
Phenanthrene Cabalt	1.6E-07	
Cobalt Nitropiling 4	1.6E-07 1.5E-07	
Nitroaniline, 4- Benzonitrile	1.5E-07 1.5E-07	
Di-n-butyl phthalate	1.5E-07	
Aniline	1.4E-07	
Carbon Disulfide	1.4E-07	
Methyl chloride (Chloromethane)	1.3E-07	
Heptachlor epoxide	1.3E-07	
Phenol	1.2E-07	
Endrin	9.5E-08	
Chlorophenol, 2-	8.6E-08	
Chloroaniline, p-	8.3E-08	
Trichlorobenzene, 1,2,3-	6.9E-08	
Acetone Bromophenyl-phenylether, 4-	6.8E-08 6.7E-08	
Chloro-3-methylphenol, 4-	6.6E-08	
Hexachloro-1,3-butadiene (Perchlorobutadiene	6.4E-08	
Naphthalene	6.4E-08	
Acetophenone	6.3E-08	
Cresol, o-	6.2E-08	
N-nitrosodimethylamine	5.5E-08	
Butylbenzylphthalate	4.4E-08	
Chlordane	4.3E-08	
Dichlorobenzene, 1,3-	4.2E-08	
2,5-Dimethylheptane	4.1E-08	
Diethyl phthalate Acenaphthylene	4.0E-08	
Tetrachloroethane, 1,1,2,2-	4.0E-08 3.9E-08	
Vinyl Acetate	3.9E-08	
Dichloropropene, 1,3- (cis)	3.5E-08	
Xylene, p-	3.4E-08	
Xylene, m-	3.4E-08	
Bis(2-chloroethoxy) methane	3.3E-08	
Trichlorophenol, 2,4,5-	3.2E-08	
Nitroaniline, 2-	3.2E-08	
Nitrobenzene	3.1E-08	
Dichlorophenol, 2,4-	2.9E-08	
Benzo(b)fluoranthene	2.9E-08	
2-Hexanone	2.8E-08	
Hexachloroethane (Perchloroethane	2.8E-08	
Cresol, p-	2.7E-08	
Cresol, m- Dimethyl phthalate	2.7E-08 2.7E-08	
Endosulfan I	2.6E-08	
Trichlorophenol, 2,4,6-	2.6E-08	
BHC, beta-	2.4E-08	
Pyridine	2.2E-08	
Dibenzofuran	2.1E-08	
Diphenylamine	2.1E-08	
Bromobenzene	2.0E-08	
Tetrachlorobenzene, 1,2,4,5-	1.9E-08	
Aldrin	1.9E-08	
Nitrosodiphenylamine, N-	1.9E-08 1.9E-08	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Pentachlorobenzene	1.8E-08	
Di-n-octylphthalate	1.7E-08	
Trichlorobenzene, 1,2,4-	1.6E-08	
Chrysene	1.5E-08	
Aroclor 1254	1.5E-08	
Diphenylhydrazine,1,2-	1.4E-08	
3-Ethyl benzaldehyde 4-Ethyl benzaldehyde	1.4E-08 1.4E-08	
4-⊑triyi berizalderiyde Trichloropropane, 1,2,3-	1.2E-08	
DDT, 4-4'-	1.2E-08	
Butylbenzene, sec	1.2E-08	
Xylene, o-	1.2E-08	
1,1-Dichloropropene	1.0E-08	
Trichloroethane, 1,1,2-	9.6E-09	
Dieldrin	9.2E-09	
BHC, alpha-	9.0E-09	
Benzo(a)Anthracene	8.6E-09	
Styrene	8.2E-09	
Bis(2-chlorethyl)ether	8.1E-09	
2,2'-oxybis (1-Chloropropane)	7.7E-09 7.7E-09	
Indeno(1,2,3-cd) pyrene Benzo(k)fluoranthene	7.7E-09 7.6E-09	
lodomethane	7.0E-09 7.2E-09	
Methyl isobutyl ketone	5.6E-09	
Benzo(a)pyrene	4.9E-09	
gamma-BHC (Lindane)	4.6E-09	
TetraCDD, 2,3,7,8-	4.3E-09	
Ethylene dibromide	3.9E-09	
TetraCDF, 2,3,7,8-	3.9E-09	
Trichloroethylene	3.6E-09	
Tetrahydrofuran	3.6E-09	
Pyrene DDD, 4,4'-	3,6E-09 3.5E-09	
Tetrachloroethane, 1,1,1,2-	3.2E-09	
1,3-Dichloropropane	3.0E-09	
Butylbenzene, n-	2.9E-09	
Dichloroethylene 1,1-	2.8E-09	
2,2-Dichloropropane	2.8E-09	
Butylbenzene, terl	2.8E-09	
Vinyl Chloride	2.6E-09	
Trichloroethane, 1,1,1-	2.4E-09	
PentaCDD, 1,2,3,7,8-	2.3E-09	
Anthracene	2.3E-09	
Acenaphthene 2-Methylnaphthalene	2.2E-09 2.1E-09	
Trimethylbenzene, 1,3,5-	1.9E-09	
Dichlorobenzene, 1,2-	1.7E-09	
Dichloroethane, 1,2- (Ethylene Dichloride)	1.6E-09	
HexaCDF, 1,2,3,6,7,8-	1.4E-09	
HexaCDF, 2,3,4,6,7,8-	1.1E-09	
Methoxychlor	1.1E-09	
Dichlorobenzene,1,4-	1.0E-09	
DDE, 4,4'-	9.8E-10	
HexaCDF, 1,2,3,4,7,8-	9.5E-10	
Fluorene	8.7E-10	
Cumene (Isopropylbenzene)	8.5E-10	
2-Chlorotoluene	7.5E-10	
4-Chlorotoluene Ethylene Glycol	7.5E-10	
<u>⊨tnylene Glycol</u> Propylbenzene, n-	6.5E-10	
Trichlorofluoromethane (Freon 11)	6.2E-10 5.5E-10	
1,2,4-Trimethylbenzene	5.4E-10	
Dichloroethylene, cis-1,2-	4.9E-10	
Ethylbenzene	4.7E-10	
Dichloropropane, 1,2-	4.7E-10	
PentaCDF, 1,2,3,7,8-	4.0E-10	
Chloroethane	3.1E-10	
Dichlorodifluoromethane	3.1E-10	
HexaCDD, 1,2,3,4,7,8-	3.1E-10	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
methyl tert-butyl ether	2.4E-10	
Propylene oxide	1.7E-10	
Dichloroethylene-1,2 (trans)	1.5E-10	
Dichloroethane 1,1-	1.5E-10	
Methyl methacrylate	4.1E-11	
HexaCDD, 1,2,3,7,8,9-	3.7E-11	
HexaCDD, 1,2,3,6,7,8- Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	2.2E-11 2.0E-11	
Dioxane, 1,4-	1.6E-11	
Dibenz(a,h)anthracene	8.0E-12	
HeptaCDF, 1,2,3,4,6,7,8-	3.7E-12	
HexaCDF, 1,2,3,7,8,9-	2.0E-12	
Acrylic Acid	1.6E-12	
OctaCDF, 1,2,3,4,6,7,8,9-	1.1E-12	
1-Hexane (n-hexane)	2.8E-13	
HeptaCDF, 1,2,3,4,7,8,9-	2.5E-13	
OctaCDD, 1,2,3,4,6,7,8,9-	2.3E-13	
HeptaCDD, 1,2,3,4,6,7,8-	1.8E-13	
Endosulfan sulfate	NC	
2,5-Dione, 3-hexene	NC NC	
Benzo(e)pyrene	NC NC	
Perylene	NC NC	
Phosphine imide, P,P,P-triphenyl	NC NC	
Diallate	NC NC	
9-Octadecenamide (oleamide)	NC NC	
delta-BHC 2-Methyl octane	NC NC	
Z-Metnyi octane Endosulfan II	NC NC	
Endosulian ii Endrin ketone	NC NC	
3-Penten-2-one (ethylidene acetone)	NC NC	
2,5-Dimethylfuran	NC NC	
Endrin aldehyde	NC NC	
3-Hexen-2-one	NC NC	
Benzoic acid, methyl ester (methyl benzoate	NC NC	
Isopropyl toluene, p-	NC	
Total (b)	5.6E-01	
R_1 resident	1.65.01	
Nitrogen dioxide	1.6E-01 5.8E-02	
Sulfur dioxide	<del>                                     </del>	
Arsenic Chlorine	5.8E-03 2.3E-03	
Hydrogen chloride	1.4E-03	
Lead	6.6E-04	
Nickel	3.8E-04	
Copper	3.2E-04	
Cadmium	7.8E-05	
Hexachlorobenzene	4.0E-05	
Chlorophenyl-phenylether, 4-	3.7E-05	
Chloroform (Trichloromethane)	2.7E-05	
Benzidine	2.6E-05	
Dibromo-3-chloropropane, 1,2-	2.1E-05	
Mercury	1.1E-05	
Beryllium	1.1E-05	
Hexachlorocyclopentadiene	9.1E-06	
Thallium (I)	6.7E-06	
4,6-Dinitro-2-methylphenol	5.3E-06	
Manganese	4.2E-06	
Vanadium Marausia ablasida	3.8E-06	
Mercuric chloride	2.8E-06	
Silver	2.7E-06	
Pentachlorophenol	2.5E-06	
Tetrachloroethylene (Perchloroethylene	2.3E-06	
	1.4E-06	
	1.4E-06	
Zinc		
Zinc Barium	1.3E-06	
Zinc Barium Nitrosodipropylamine, n-	1.3E-06 1.2E-06	
Fluoranthene Zinc Barium Nitrosodipropylamine, n- Aluminum Chromium	1.3E-06	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Antimony	7.0E-07	
Bromoform (tribromomethane	6.8E-07	
Chlorobenzene	6.4E-07	
Selenium Bonzolo Apid	5.8E-07 5.4E-07	
Benzoic Acid Dinitrotoluene, 2,4-	5.4E-07	
Benzene	4.9E-07	
Methylene chloride	4.7E-07	
Ethylhexyl phthalate, bis-2-	4.7E-07	
3-Penten-2-one, 4-methyl	4.6E-07	
Bromodichloromethane Dinitrotoluene, 2,6-	4.5E-07 4.3E-07	
Dibromochloromethane	4.2E-07	
Methyl bromide (Bromomethane)	3.5E-07	
Dinitrophenol, 2,4-	3.0E-07	
Nitrophenol, 4-	2.8E-07	
Nitroaniline, 3-	2.8E-07	
Chloronaphthalene,2- Dichlorobenzidine, 3,3'-	2.7E-07 2.2E-07	
Methylene bromide	2.1E-07	
PentaCDF, 2,3,4,7,8-	1.9E-07	
Pentachloronitrobenzene (PCNB)	1.7E-07	
Toluene	1.7E-07	
Chlorobenzilate	1.3E-07 1.2E-07	
Dimethylphenol, 2,4- Acrylonitrile	1.2E-07 1.2E-07	
Nitrophenol, 2-	1.1E-07	
Heptachlor	9.7E-08	
Carbon Tetrachloride	9.7E-08	
Carbazole	9.5E-08	
Benzaldehyde	9.4E-08	
Dinitrobenzene, 1,3- Methyl ethyl ketone (2-Butanone)	8.9E-08 8.4E-08	
Benzyl alcohol	8.4E-08	
Phenanthrene	6.7E-08	
Nitroaniline, 4-	6.1E-08	
Benzonitrile	6.1E-08	
Di-n-butyl phthalate Aniline	6.0E-08	
Carbon Disulfide	5.8E-08 5.6E-08	
Cobalt	5.5E-08	
Methyl chloride (Chloromethane)	5.2E-08	
Heptachlor epoxide	5.2E-08	
Phenol	4.8E-08	
Endrin	3.9E-08	
Chlorophenol, 2- Chloroaniline, p-	3.5E-08 3.4E-08	
Trichlorobenzene, 1,2,3-	2.8E-08	
Acetone	2.8E-08	
Bromophenyl-phenylether, 4-	2.7E-08	
Chloro-3-methylphenol, 4-	2.7E-08	
Hexachloro-1,3-butadiene (Perchlorobutadiene	2.6E-08	
Naphthalene Acetophenone	2.6E-08	
Cresol, o-	2.6E-08 2.5E-08	
N-nitrosodimethylamine	2.3E-08	
Butylbenzylphthalate	1.8E-08	
Chlordane	1.7E-08	
Dichlorobenzene, 1,3-	1.7E-08	
2,5-Dimethylheptane	1.7E-08	
Diethyl phthalate Acenaphthylene	1.6E-08 1.6E-08	
Tetrachloroethane, 1,1,2,2-	1.6E-08	
Vinyl Acetate	1.6E-08	
Dichloropropene, 1,3- (cis)	1.4E-08	
Xylene, p-	1.4E-08	
Xylene, m-	1.4E-08	
Bis(2-chloroethoxy) methane	1.4E-08	
Trichlorophenol, 2,4,5-	1.3E-08	
Nitroaniline, 2- Nitrobenzene	1.3E-08 1.3E-08	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Dichlorophenol, 2,4-	1.2E-08	
Benzo(b)fluoranthene	1.2E-08	
2-Hexanone	1.1E-08	
Hexachloroethane (Perchloroethane	1.1E-08	
Cresol, p-	1.1E-08	
Cresol, m-	1.1E-08 1.1E-08	
Dimethyl phthalate Endosulfan I	1.1E-08	
Trichlorophenol, 2,4,6-	1.0E-08	
BHC, beta-	9.6E-09	
Pyridine	9.2E-09	
Dibenzofuran	8.7E-09	
Diphenylamine	8.7E-09	
Bromobenzene	8.1E-09	
Aldrin	7.9E-09	
Tetrachlorobenzene, 1,2,4,5-	7,9E-09	
Nitrosodiphenylamine, N-	7.8E-09	
Isophorone Postachlorohonzone	7.8E-09 7.3E-09	
Pentachlorobenzene Di-n-octylphthalate	7.3E-09 7.1E-09	
Trichlorobenzene, 1,2,4-	6.5E-09	
Chrysene	6.3E-09	
Aroclor 1254	5.9E-09	
Diphenylhydrazine,1,2-	5.7E-09	
3-Ethyl benzaldehyde	5.5E-09	
4-Ethyl benzaldehyde	5.5E-09	
Trichloropropane, 1,2,3-	5.0E-09	
DDT, 4-4'-	4.9E-09	
Butylbenzene, sec	4.8E-09	
Xylene, o-	4.7E-09	
1,1-Dichloropropene Trichloroethane, 1,1,2-	4.2E-09 3.9E-09	
Dieldrin	3.8E-09	
BHC, alpha-	3.7E-09	
Benzo(a)Anthracene	3.7E-09	
Styrene	3.3E-09	
Benzo(k)fluoranthene	3.3E-09	
Bis(2-chlorethyl)ether	3.3E-09	
2,2'-oxybis (1-Chloropropane)	3.2E-09	
lodomethane	3.0E-09	
Indeno(1,2,3-cd) pyrene	2.7E-09	
Methyl isobutyl ketone	2.3E-09	
Benzo(a)pyrene	2.1E-09	
gamma-BHC (Lindane)	1.9E-09	
TetraCDD, 2,3,7,8- TetraCDF, 2,3,7,8-	1.8E-09 1.6E-09	
Ethylene dibromide	1.6E-09	
Trichloroethylene	1.5E-09	
Tetrahydrofuran	1.5E-09 1.5E-09	
Pyrene	1.5E-09	
DDD, 4,4'-	1.4E-09	
Tetrachloroethane, 1,1,1,2-	1.3E-09	
1,3-Dichloropropane	1.2E-09	
Butylbenzene, n-	1.2E-09	
Dichloroethylene 1,1-	1.1E-09	
2,2-Dichloropropane	1.1E-09	
Butylbenzene, tert	1.1E-09	
Vinyl Chloride	1.0E-09	
PentaCDD, 1,2,3,7,8-	1.0E-09	
Trichloroethane, 1,1,1-	9.9E-10	
Anthracene Acenaphthene	9.3E-10 9.0E-10	
2-Methylnaphthalene	9.0E-10 8.7E-10	
Trimethylbenzene, 1,3,5-	7.9E-10	
Dichlorobenzene, 1,2-	6.9E-10	
Dichloroethane, 1,2- (Ethylene Dichloride)	6.5E-10	
HexaCDF, 1,2,3,6,7,8-	6.4E-10	
HexaCDF, 2,3,4,6,7,8-	5.1E-10	
Methoxychlor	4.4E-10	
HexaCDF, 1,2,3,4,7,8-	4.2E-10	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)
DDE, 4,4'-	4.0E-10
Fluorene	3.5E-10
Cumene (Isopropylbenzene)	3.5E-10
2-Chlorotoluene 4-Chlorotoluene	3.1E-10 3.1E-10
Ethylene Glycol	2.7E-10
Propylbenzene, n-	2.5E-10
Trichlorofluoromethane (Freon 11)	2.2E-10
1,2,4-Trimethylbenzene	2.2E-10
Dichloroethylene, cis-1,2- Ethylbenzene	2.0E-10
Dichloropropane, 1,2-	1.9E-10 1.9E-10
PentaCDF, 1,2,3,7,8-	1.7E-10
HexaCDD, 1,2,3,4,7,8-	1.4E-10
Benzo(g,h,i)perylene	1.3E-10
Chloroethane	1.3E-10
Dichlorodifluoromethane	1.3E-10
Bromochloromethane methyl tert-butyl ether	1.2E-10 9.7E-11
Propylene oxide	6.9E-11
Dichloroethylene-1,2 (trans)	6.3E-11
Dichloroethane 1,1-	6.0E-11
Methyl methacrylate	1.7E-11
HexaCDD, 1,2,3,7,8,9- HexaCDD, 1,2,3,6,7,8-	1.6E-11
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	9.8E-12 8.1E-12
Dioxane, 1,4-	6.3E-12
Dibenz(a,h)anthracene	2.9E-12
HeptaCDF, 1,2,3,4,6,7,8-	1.6E-12
HexaCDF, 1,2,3,7,8,9-	8.6E-13
Acrylic Acid OctaCDF, 1,2,3,4,6,7,8,9-	6.4E-13
1-Hexane (n-hexane)	4.7E-13 1.1E-13
HeptaCDF, 1,2,3,4,7,8,9-	1.1E-13
OctaCDD, 1,2,3,4,6,7,8,9-	1.0E-13
HeptaCDD, 1,2,3,4,6,7,8-	7.9E-14
Endosulfan sulfate	NC NC
2,5-Dione, 3-hexene Benzo(e)pyrene	NC NC
Perylene	NC NC
Phosphine imide, P,P,P-triphenyl	NC
Diallate	NC
9-Octadecenamide (oleamide)	NC
delta-BHC	NC NC
2-Methyl octane Endosulfan II	NC NC
Endrin ketone	NC NC
3-Penten-2-one (ethylidene acetone	NC NC
2,5-Dimethylfuran	NC
Endrin aldehyde	NC
3-Hexen-2-one	NC NC
Benzoic acid, methyl ester (methyl benzoate	NC NC
sopropyl toluene, p- Total (b)	NC 2.3E-01
R_2 resident	2.00-01
Nitrogen dioxide	1.1E-01
Sulfur dioxide	3.9E-02
Arsenic	3.4E-03
Chlorine	1.5E-03
Hydrogen chloride	9.2E-04
_ead Nickel	3.9E-04 2.3E-04
Copper	1.9E-04
Cadmium	4.6E-05
Hexachlorobenzene	2.7E-05
Chlorophenyl-phenylether, 4-	2.5E-05
Chloroform (Trichloromethane)	1.8E-05
Benzidine	1.7E-05 1.4E-05

	ACUTE INHALATION HAZARD QUOTIENT (a)	
Mercury	7.5E-06	
Beryllium	6.6E-06	
Hexachlorocyclopentadiene	6.1E-06	
Thallium (I) 4,6-Dinitro-2-methylphenol	4.0E-06 3.5E-06	
Manganese	2.5E-06	
Vanadium	2.3E-06	
Mercuric chloride	1.9E-06	
Pentachlorophenol	1.7E-06	
Silver	1.6E-06	
Tetrachloroethylene (Perchloroethylene	1.6E-06	
Fluoranthene Zinc	9.5E-07 8.3E-07	
Nitrosodipropylamine, n-	7.8É-07	
Barium	7.7E-07	
Aluminum	5.0E-07	
Antimony	4.7E-07	
Bromoform (tribromomethane	4.6E-07	
Chromium hovavalent	4.4E-07 4.4E-07	
Chromium, hexavalent Chlorobenzene	4.4E-07 4.3E-07	
Benzoic Acid	3.6E-07	
Dinitrotoluene, 2,4-	3.6E-07	
Selenium	3.5E-07	
Benzene	3.3E-07	
Ethylhexyl phthalate, bis-2-	3.2E-07	
Methylene chloride	3.2E-07	
3-Penten-2-one, 4-methyl Bromodichloromethane	3.1E-07 3.0E-07	
Dinitrotoluene, 2,6-	2.9E-07	
Dibromochloromethane	2.8E-07	
Methyl bromide (Bromomethane)	2.3E-07	
Dinitrophenol, 2,4-	2.0E-07	
Nitrophenol, 4-	1.9E-07	
Nitroaniline, 3-	1.9E-07	
Chloronaphthalene,2- Dichlorobenzidine, 3,3'-	1.8E-07 1.5E-07	
Methylene bromide	1.4E-07	
PentaCDF, 2,3,4,7,8-	1.3E-07	
Pentachloronitrobenzene (PCNB)	1.1E-07	
Toluene	1.1E-07	
Chlorobenzilate	9.0E-08	
Dimethylphenol, 2,4-	8.3E-08	
Acrylonitrile Nitrophenol, 2-	8.1E-08 7.2E-08	
Heptachlor	6.5E-08	
Carbon Tetrachloride	6.5E-08	
Carbazole	6.4E-08	
Benzaldehyde	6.3E-08	
Dinitrobenzene, 1,3-	6.0E-08	
Methyl ethyl ketone (2-Butanone)	5.6E-08 5.6E-08	
Benzyl alcohol Phenanthrene	4.5E-08	
Nitroaniline, 4-	4.1E-08	
Benzonitrile	4.1E-08_	
Di-n-butyl phthalate	4.0E-08	
Aniline	3.9E-08	
Carbon Disulfide	3.7E-08	
Methyl chloride (Chloromethane)	3.5E-08 3.5E-08	
Heptachlor epoxide Cobalt	3.3E-08	
Phenol	3.2E-08	
Endrin	2.6E-08	
	2.3E-08	
Chlorophenol, 2-	2.3E-08	
Chloroaniline, p-		
Chloroaniline, p- Trichlorobenzene, 1,2,3-	1.9E-08	
Chloroaniline, p- Trichlorobenzene, 1,2,3- Acetone	1.9E-08 1.9E-08	
Chloroaniline, p- Trichlorobenzene, 1,2,3- Acetone Bromophenyl-phenylether, 4-	1.9E-08 1.9E-08 1.8E-08	
Chlorophenol, 2- Chloroaniline, p- Trichlorobenzene, 1,2,3- Acetone Bromophenyl-phenylether, 4- Chloro-3-methylphenol, 4- Hexachloro-1,3-butadiene (Perchlorobutadiene	1.9E-08 1.9E-08	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Acetophenone	1.7E-08	
Cresol, o-	1.7E-08	
N-nitrosodimethylamine	1.5E-08	
Butylbenzylphthalate	1.2E-08	
Chlordane	1.2E-08	
Dichlorobenzene, 1,3- 2,5-Dimethylheptane	1.2E-08 1.1E-08	
Diethyl phthalate	1.1E-08	
Acenaphthylene	1.1E-08	
Tetrachloroethane, 1,1,2,2-	1.1E-08	
Vinyl Acetate	1.1E-08	
Dichloropropene, 1,3- (cis)	9.6E-09	
Xylene, p-	9.3E-09	
Xylene, m-	9.3E-09	
Bis(2-chloroethoxy) methans	9.1E-09	
Trichlorophenol, 2,4,5-	8.8E-09	
Nitroaniline, 2- Nitrobenzene	8.6E-09	
Dichlorophenol, 2,4-	8.6E-09 8.0E-09	
Benzo(b)fluoranthene	7.8E-09	
2-Hexanone	7.6E-09	
Hexachloroethane (Perchloroethane	7.6E-09	
Cresol, p-	7.4E-09	
Cresol, m-	7.4E-09	
Dimethyl phthalate	7.3E-09	
Endosulfan I	7.0E-09	
Trichlorophenol, 2,4,6-	7.0E-09	
BHC, beta- Pyridine	6.5E-09	
Pyridine Dibenzofuran	6.1E-09 5.8E-09	
Diphenylamine	5.8E-09	
Bromobenzene	5.4E-09	
Aldrin	5.3E-09	
Tetrachlorobenzene, 1,2,4,5-	5.3E-09	
Nitrosodiphenylamine, N-	5.2E-09	
Isophorone	5.2E-09	
Pentachlorobenzene	4.9E-09	
Di-n-octylphthalate	4.8E-09	
Trichlorobenzene, 1,2,4-	4.3E-09	
Chrysene	4.3E-09	
Aroclor 1254 Diphenylhydrazine 1,2-	4.0E-09	
3-Ethyl benzaldehyde	3.8E-09 3.7E-09	
4-Ethyl benzaldenyde	3.7E-09	
Trichloropropane, 1,2,3-	3.4E-09	
DDT, 4-4'-	3.3E-09	
Butylbenzene, sec	3.2E-09	
Xylene, o-	3.2E-09	
1,1-Dichloropropene	2.8E-09	
Trichloroethane, 1,1,2-	2.6E-09	
Dieldrin	2.5E-09	
Benzo(a)Anthracene	2.5E-09	
BHC, alpha-	2.5E-09	
Benzo(k)fluoranthene	2.2E-09	
Styrene Bis(2-chlorethyl)ether	2.2E-09	
2,2'-oxybis (1-Chloropropane)	2.2E-09 2.1E-09	
lodomethane	2.0E-09	
Indeno(1,2,3-cd) pyrene	1.6E-09	
Methyl isobutyl ketone	1.5E-09	
Benzo(a)pyrene	1.4E-09	
gamma-BHC (Lindane)	1.3E-09	
TetraCDD, 2,3,7,8-	1.2E-09	
TetraCDF, 2,3,7,8-	1.1E-09	
Ethylene dibromide	1.1E-09	
Trichloroethylene	9.9E-10	
Tetrahydrofuran	9.9E-10	
Pyrene	9.7E-10	
DDD, 4,4'-	9.7E-10	
Tetrachloroethane, 1,1,1,2- 1,3-Dichloropropane	8.6E-10 8.2E-10	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Butylbenzene, n-	7.9E-10	
Dichloroethylene 1,1-	7.6E-10	
2,2-Dichloropropane	7.6E-10	
Butylbenzene, tert	7.5E-10	
Vinyl Chloride	7.0E-10	
PentaCDD, 1,2,3,7,8-	6.8E-10	
Trichloroethane, 1,1,1-	6.6E-10	
Anthracene	6.2E-10	
Acenaphthene	6.0E-10	
2-Methylnaphthalene	5.8E-10	
Trimethylbenzene, 1,3,5-	5.3E-10	
Dichlorobenzene, 1,2-	4.6E-10	
Dichloroethane, 1,2- (Ethylene Dichloride)	4.3E-10	
HexaCDF, 1,2,3,6,7,8-	4.3E-10	
HexaCDF, 2,3,4,6,7,8- Methoxychlor	3.4E-10 3.0E-10	
HexaCDF, 1,2,3,4,7,8-	2.8E-10	
Dichlorobenzene,1,4-	2.8E-10	
DDE, 4,4'-	2.7E-10	
Fluorene	2.4E-10	
Cumene (Isopropylbenzene)	2.3E-10	
2-Chlorotoluene	2.1E-10	
4-Chlorotoluene	2.0E-10	
Ethylene Glycol	1.8E-10	
Propylbenzene, n-	1.7E-10	
Trichlorofluoromethane (Freon 11)	1.5E-10	
1,2,4-Trimethylbenzene	1.5E-10	
Dichloroethylene, cis-1,2-	1.3E-10	
Ethylbenzene	1.3E-10	
Dichloropropane, 1,2-	1.3E-10	
PentaCDF, 1,2,3,7,8-	1.2E-10	
HexaCDD, 1,2,3,4,7,8-	9.2E-11	
Benzo(g,h,i)perylene	8.8E-11	
Chloroethane	8.6E-11	
Dichlorodifluoromethane	8.4E-11	
Bromochloromethane	8.3E-11	
methyl tert-butyl ether	6.5E-11	
Propylene oxide	4.6E-11	
Dichloroethylene-1,2 (trans)	4.2E-11	
Dichloroethane 1,1-	4.0E-11	
Methyl methacrylate	1.1E-11	
HexaCDD, 1,2,3,7,8,9-	1.1E-11	
HexaCDD, 1,2,3,6,7,8-	6.7E-12	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane) Dioxane, 1,4-	5.4E-12	
	4.2E-12	
Dibenz(a,h)anthracene HeptaCDF, 1,2,3,4,6,7,8-	1.7E-12 1.1E-12	
HexaCDF, 1,2,3,7,8,9-	5.8E-13	
Acrylic Acid	4.3E-13	
OctaCDF, 1,2,3,4,6,7,8,9-	3.2E-13	
1-Hexane (n-hexane)	7.6E-14	
HeptaCDF, 1,2,3,4,7,8,9-	7.3E-14	
OctaCDD, 1,2,3,4,6,7,8,9-	6.8E-14	
HeptaCDD, 1,2,3,4,6,7,8-	5.3E-14	
Endosulfan sulfate	NC	
2,5-Dione, 3-hexene	NC NC	
Benzo(e)pyrene	NC NC	
Perylene	NC NC	
Phosphine imide, P,P,P-triphenyl	NC NC	
Diallate	NC	
9-Octadecenamide (oleamide)	NC	
delta-BHC	NC	
2-Methyl octane	NC	
Endosulfan II	NC	
Endrin ketone	NC	
3-Penten-2-one (ethylidene acetone	NC	
2,5-Dimethylfuran	NC	
Endrin aldehyde	NC	
3-Hexen-2-one	NC	
Benzoic acid, methyl ester (methyl benzoate	NC	
sopropyl toluene, p-	NC	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)			
Total (b)	1.5E-01			
R_3 resident farmer				
Nitrogen dioxide	1.0E-01			
Sulfur dioxide	3.6E-02			
Arsenic	3.3E-03			
Chlorine Hydrogen chloride	1.4E-03 8.7E-04			
Lead	3.7E-04			
Nickel	2.1E-04			
Copper	1.8E-04			
Cadmium	4.4E-05			
Hexachlorobenzene Chlorophenyl-phenylether, 4-	2.6E-05 2.3E-05			
Chloroform (Trichloromethane)	1.7E-05			
Benzidine	1.7E-05			
Dibromo-3-chloropropane, 1,2-	1.3E-05			
Mercury	7.1E-06			
Beryllium	6.2E-06			
Hexachlorocyclopentadiene Thallium (I)	5.8E-06			
4,6-Dinitro-2-methylphenol	3.8E-06 3.3E-06			
Manganese	2.4E-06			
Vanadium	2.1E-06			
Mercuric chloride	1.8E-06			
Pentachlorophenol	1.6E-06			
Silver	1.5E-06			
Tetrachloroethylene (Perchloroethylene) Fluoranthene	1.5E-06 9.0E-07			
Zinc	7.8E-07			
Nitrosodipropylamine, n-	7.4E-07			
Barium	7.3E-07			
Aluminum	4.7E-07 4.4E-07			
Antimony Bromoform (tribromomethane)				
Chromium	4.3E-07 4.2E-07			
Chromium, hexavalent	4.2E-07			
Chlorobenzene	4.0E-07			
Benzoic Acid	3.4E-07			
Dinitrotoluene, 2,4-	3.4E-07			
Selenium	3.3E-07			
Benzene	3.1E-07			
Ethylhexyl phthalate, bis-2- Methylene chloride	3.0E-07 3.0E-07			
3-Penten-2-one, 4-methyl	2.9E-07			
Bromodichloromethane	2.9E-07			
Dinitrotoluene, 2,6-	2.7E-07			
Dibromochloromethane	2.7E-07			
Methyl bromide (Bromomethane)	2.2E-07			
Dinitrophenol, 2,4-	1.9E-07			
Nitrophenol, 4- Nitroaniline, 3-	1.8E-07 1.8E-07			
Chloronaphthalene,2-	1.7E-07			
Dichlorobenzidine, 3,3'-	1.4E-07			
Methylene bromide	1.3E-07			
PentaCDF, 2,3,4,7,8-	1.2E-07			
Pentachloronitrobenzene (PCNB)	1.1E-07			
Toluene Chlorobenzilate	1.1E-07			
Chlorobenzilate Dimethylphenol, 2,4-	8.5E-08 7.8E-08			
Acrylonitrile	7.6E-08			
Nitrophenol, 2-	6.7E-08			
Heptachlor	6.1E-08			
Carbon Tetrachloride	6.1E-08			
Carbazole	6.0E-08			
Benzaldehyde	5.9E-08			
Dinitrobenzene, 1,3- Methyl ethyl ketone (2-Butanone)	5.6E-08 5.3E-08			
Benzyl alcohol	5.3E-08			
Phenanthrene	4.2E-08			

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Nitroaniline, 4-		
Benzonitrile	3.8E-08	
Di-n-butyl phthalate	3.8E-08	
Aniline	3.7E-08	
Carbon Disulfide  Methyl chloride (Chloromethane)	3.5E-08 3.3E-08	
Heptachlor epoxide	3.3E-08	
Cobalt	3.1E-08	
Phenol	3.1E-08	
Endrin	2.5E-08	
Chlorophenol, 2-	2.2E-08	
Chloroaniline, p-	2.1E-08	
Trichlorobenzene, 1,2,3-	1.8E-08	
Acetone	1.8E-08	
Bromophenyl-phenylether, 4-	1.7E-08 1.7E-08	
Chloro-3-methylphenol, 4- Hexachloro-1,3-butadiene (Perchlorobutadiene	1.6E-08	
Naphthalene	1.6E-08	
Acetophenone	1.6E-08	
Cresol, o-	1.6E-08	
N-nitrosodimethylamine	1.4E-08	
Butylbenzylphthalate	1.1E-08	
Chlordane	1.1E-08	
Dichlorobenzene, 1,3-	1.1E-08	
2,5-Dimethylheptane	1.1E-08	
Diethyl phthalate	1.0E-08	
Acenaphthylene	1.0E-08	
Tetrachloroethane, 1,1,2,2-	1.0E-08	
Vinyl Acetate Dichloropropene, 1,3- (cis)	9.9E-09 9.1E-09	
Xylene, p-	8.8E-09	
Xylene, m-	8.8E-09	
Bis(2-chloroethoxy) methane	8.5E-09	
Trichlorophenol, 2,4,5-	8.3E-09	
Nitroaniline, 2-	8.1E-09	
Nitrobenzene	8.1E-09	
Dichlorophenol, 2,4-	7.5E-09	
Benzo(b)fluoranthene	7.4E-09	
2-Hexanone Hexachloroethane (Perchloroethane	7.2E-09 7.2E-09	
Cresol, p-	7.0E-09	
Cresol, m-	7.0E-09	
Dimethyl phthalate	6.9E-09	
Endosulfan I	6.6E-09	
Trichlorophenol, 2,4,6-	6.6E-09	
BHC, beta-	6.1E-09	
Pyridine	5.8E-09	
Dibenzofuran	5.5E-09	
Diphenylamine	5.5E-09	
Bromobenzene	5.1E-09	
Aldrin	5.0E-09	
Tetrachlorobenzene, 1,2,4,5-	5.0E-09	
Nitrosodiphenylamine, N-	4.9E-09	
Isophorone	4.9E-09	
Pentachlorobenzene Di-n-octylphthalate	4.6E-09	
Di-n-octylphthalate Trichlorobenzene, 1,2,4-	4.5E-09 4.1E-09	
Chrysene	4.0E-09	
Aroclor 1254	3.7E-09	
Diphenylhydrazine,1,2-	3.6E-09	
3-Ethyl benzaldehyde	3.5E-09	
4-Ethyl benzaldehyde	3.5E-09	
Trichloropropane, 1,2,3-	3.2E-09	
DDT, 4-4'-	3.1E-09	
Butylbenzene, sec	3.0E-09	
Xylene, o-	3.0E-09	
1,1-Dichloropropene	2.6E-09	
Trichloroethane, 1,1,2-	2.5E-09	
Dieldrin Benzo(a)Anthracene	2.4E-09 2.4E-09	
	1 / 4E-119	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Benzo(k)fluoranthene	2.1E-09	
Styrene	2.1E-09	
Bis(2-chlorethyl)ether	2.1E-09	
2,2'-oxybis (1-Chloropropane)	2.0E-09 1.9E-09	
lodomethane Indeno(1,2,3-cd) pyrene	1.5E-09	
Methyl isobutyl ketone	1.4E-09	
Benzo(a)pyrene	1.4E-09	
gamma-BHC (Lindane)	1.2E-09	
TetraCDD, 2,3,7,8-	1.1E-09	
TetraCDF, 2,3,7,8-	1.0E-09	
Ethylene dibromide	1.0E-09	
Trichloroethylene Tetrahydrofuran	9.4E-10 9.4E-10	
Pyrene	9.4E-10 9.1E-10	
DDD, 4,4'-	9.1E-10	
Tetrachloroethane, 1,1,1,2-	8.1E-10	
1,3-Dichloropropane	7.7E-10	
Butylbenzene, n-	7.4E-10	
Dichloroethylene 1,1-	7.2E-10	
2,2-Dichloropropane	7.1E-10	
Butylbenzene, terl	7.1E-10	
Vinyl Chloride	6.6E-10	
PentaCDD, 1,2,3,7,8- Trichloroethane, 1,1,1-	6.5E-10 6.3E-10	
Anthracene	5.8E-10	
Acenaphthene	5.7E-10	
2-Methylnaphthalene	5.5E-10	
Trimethylbenzene, 1,3,5-	5.0E-10	
Dichlorobenzene, 1,2-	4.4E-10	
HexaCDF, 1,2,3,6,7,8-	4.1E-10	
Dichloroethane, 1,2- (Ethylene Dichloride)	4.1E-10	
HexaCDF, 2,3,4,6,7,8- Methoxychlor	3.3E-10 2.8E-10	
HexaCDF, 1,2,3,4,7,8-	2.7E-10	
Dichlorobenzene,1,4-	2.6E-10	
DDE, 4,4'-	2.5E-10	
Fluorene	2.2E-10	
Cumene (Isopropylbenzene)	2.2E-10	
2-Chlorotoluene	1.9E-10	
4-Chlorotoluene	1.9E-10	
Ethylene Glycol	1.7E-10	
Propylbenzene, n- Trichlorofluoromethane (Freon 11)	1.6E-10 1.4E-10	
1,2,4-Trimethylbenzene	1.4E-10	
Dichloroethylene, cis-1,2-	1.3E-10	
Ethylbenzene	1.2E-10	
Dichloropropane, 1,2-	1.2E-10	
PentaCDF, 1,2,3,7,8-	1.1E-10	
HexaCDD, 1,2,3,4,7,8-	8.8E-11	
Benzo(g,h,i)perylene	8.4E-11	
Chloroethane	8.1E-11	
Dichlorodifluoromethane	7.9E-11 7.8E-11	
Bromochloromethane methyl tert-butyl ether	6.1E-11	
Propylene oxide	4.3E-11	
Dichloroethylene-1,2 (trans)	4.0E-11	
Dichloroethane 1,1-	3.8E-11	
HexaCDD, 1,2,3,7,8,9-	1.1E-11	
Methyl methacrylate	1.1E-11	
HexaCDD, 1,2,3,6,7,8-	6.4E-12	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	5.1E-12	
Dioxane, 1,4-	4.0E-12	
Dibenz(a,h)anthracene	1.6E-12	
HeptaCDF, 1,2,3,4,6,7,8- HexaCDF, 1,2,3,7,8,9-	1.1E-12 5.6E-13	
Acrylic Acid	4.0E-13	
OctaCDF, 1,2,3,4,6,7,8,9-	3.1E-13	
1-Hexane (n-hexane)	7.1E-14	
HeptaCDF, 1,2,3,4,7,8,9-	7.0E-14	
OctaCDD, 1,2,3,4,6,7,8,9-	6.5E-14	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)		
HeptaCDD, 1,2,3,4,6,7,8-	5.1E-14		
Endosulfan sulfate	NC		
2,5-Dione, 3-hexene	NC NC		
Benzo(e)pyrene	NC NC		
Perylene Phosphine imide, P,P,P-triphenyl	NC NC		
Diallate	NC NC		
9-Octadecenamide (oleamide)	NC NC		
delta-BHC	NC		
2-Methyl octane	NC		
Endosulfan II	NC		
Endrin ketone	NC NC		
3-Penten-2-one (ethylidene acetone)	NC NC		
2,5-Dimethylfuran Endrin aldehyde	NC NC		
3-Hexen-2-one	NC NC		
Benzoic acid, methyl ester (methyl benzoate	NC		
Isopropyl toluene, p-	NC		
Total (b)	1.4E-01		
R_4 resident farmer			
Nitrogen dioxide	1.6E-01		
Sulfur dioxide	5.9E-02		
Arsenic	5.5E-03		
Chlorine Hydrogen chloride	2.3E-03 1.4E-03		
Lead	6.3E-04		
Nickel	3.6E-04		
Copper	3.0E-04		
Cadmium	7.3E-05		
Hexachlorobenzene	4.1E-05		
Chlorophenyl-phenylether, 4-	3.7E-05		
Benzidine Chloroform (Trichloromethane)	2.8E-05 2.8E-05		
Dibromo-3-chloropropane, 1,2-	2.2E-05		
Mercury	1.1E-05		
Beryllium	1.0E-05		
Hexachlorocyclopentadiene	9.4E-06		
Thallium (I)	6.3E-06		
4,6-Dinitro-2-methylphenol	5.4E-06		
Manganese Vanadium	4.0E-06 3.6E-06		
Mercuric chloride	2.9E-06		
Silver	2.6E-06		
Pentachlorophenol	2.6E-06		
Tetrachloroethylene (Perchloroethylene	2.4E-06		
Fluoranthene	1.5E-06		
Zinc	1.3E-06		
Barium Nitragadin randamina n	1.2E-06		
Nitrosodipropylamine, n- Aluminum	1.2E-06 8.0E-07		
Antimony	7.2E-07		
Chromium	7.0E-07		
Chromium, hexavalent	7.0E-07		
Bromoform (tribromomethane)	7.0E-07		
Chlorobenzene	6.6E-07		
Benzoic Acid	5.6E-07		
Dinitrotoluene, 2,4- Selenium	5.5E-07 5.5E-07		
Ethylhexyl phthalate, bis-2-	5.1E-07		
Benzene	5.1E-07		
Methylene chloride	4.9E-07		
3-Penten-2-one, 4-methyl	4.7E-07		
Bromodichloromethane	4.6E-07		
Dinitrotoluene, 2,6-	4.4E-07		
Dibromochloromethane Methyl bromide (Bromemethane)	4.3E-07		
Methyl bromide (Bromomethane) Dinitrophenol, 2,4-	3.6E-07 3.0E-07		
Dinitrophenol, 2,4- Nitrophenol, 4-	3.0E-07 2.9E-07		
Nitroaniline, 3-	2.9E-07		

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Chloronaphthalene,2-		
Dichlorobenzidine, 3,3'-	2.3E-07	
Methylene bromide	2.1E-07	
PentaCDF, 2,3,4,7,8-	2.1E-07	
Pentachloronitrobenzene (PCNB)	1.8E-07	
Toluene	1.8E-07	
Chlorobenzilate Dimethylphenol, 2,4-	1.4E-07 1.3E-07	
Acrylonitrile	1.2E-07	
Nitrophenol, 2-	1.1E-07	
Heptachlor	1.0E-07	
Carbon Tetrachloride	9.9E-08	
Carbazole	9.8E-08	
Benzaldehyde	9.6E-08	
Dinitrobenzene, 1,3-	9.2E-08	
Methyl ethyl ketone (2-Butanone)	8.6E-08	
Benzyl alcohol	8.6E-08	
Phenanthrene	6.8E-08	
Nitroaniline, 4-	6.2E-08 6.2E-08	
Benzonitrile Di-n-butyl phthalate	6.2E-08	
Aniline	6.0E-08	
Carbon Disulfide	5.7E-08	
Methyl chloride (Chloromethane)	5.4E-08	
Heptachlor epoxide	5.3E-08	
Cobalt	5.2E-08	
Phenol	5.0E-08	
Endrin	4.0E-08	
Chlorophenol, 2-	3.6E-08	
Chloroaniline, p-	3.5E-08	
Trichlorobenzene, 1,2,3-	2.9E-08	
Acetone	2.9E-08 2.8E-08	
Bromophenyl-phenylether, 4- Chloro-3-methylphenol, 4-	2.7E-08	
Hexachloro-1,3-butadiene (Perchlorobutadiene)	2.6E-08	
Naphthalene	2.6E-08	
Acetophenone	2.6E-08	
Cresol, o-	2.6E-08	
N-nitrosodimethylamine	2.3E-08	
Butylbenzylphthalate	1.9E-08	
Chlordane	1.8E-08	
Dichlorobenzene, 1,3-	1.8E-08	
2,5-Dimethylheptane	1.7E-08	
Diethyl phthalate	1.7E-08	
Acenaphthylene Tetrachloroethane, 1,1,2,2-	1.7E-08 1.6E-08	
Vinyl Acetate	1.6E-08	
Dichloropropene, 1,3- (cis)	1.5E-08	
Xylene, p-	1.4E-08	
Xylene, m-	1.4E-08	
Bis(2-chloroethoxy) methane	1.4E-08	
Trichlorophenol, 2,4,5-	1.3E-08	
Nitroaniline, 2-	1.3E-08	
Nitrobenzene	1.3E-08	
Dichlorophenol, 2,4-	1.2E-08	
Benzo(b)fluoranthene	1.2E-08	
2-Hexanone	1.2E-08	
Hexachloroethane (Perchloroethane	1.2E-08	
Cresol, p-	1.1E-08	
Cresol, m- Dimethyl phthalate	1.1E-08 1.1E-08	
Dimetnyi prinalate Endosulfan I	1.1E-08	
Trichlorophenol, 2,4,6-	1.1E-08	
BHC, beta-	9.9E-09	
Pyridine	9.4E-09	
Dibenzofuran	8.9E-09	
Diphenylamine	8.9E-09	
Bromobenzene	8.3E-09	
Aldrin	8.1E-09	
Tetrachlorobenzene, 1,2,4,5-	8.1E-09	
Nitrosodiphenylamine, N-	8.0E-09	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Isophorone	7.9E-09	
Pentachlorobenzene	7.5E-09	
Di-n-octylphthalate	7.4E-09	
Chrysene	6.6E-09	
Trichlorobenzene, 1,2,4-	6.6E-09	
Aroclor 1254 Diphenylhydrazine,1,2-	6.1E-09 5.8E-09	
3-Ethyl benzaldehyde	5.7E-09	
4-Ethyl benzaldehyde	5.7E-09	
Trichloropropane, 1,2,3-	5.2E-09	
DDT, 4-4'-	5.1E-09	
Butylbenzene, sec	4.9E-09	
Xylene, o-	4.9E-09	
1,1-Dichloropropene	4.3E-09	
Trichloroethane, 1,1,2-	4.0E-09	
Benzo(a)Anthracene	3.9E-09	
Dieldrin	3.8E-09	
BHC, alpha- Benzo(k)fluoranthene	3.8E-09 3.6E-09	
Styrene	3.4E-09	
Bis(2-chlorethyl)ether	3.4E-09	
2,2'-oxybis (1-Chloropropane)	3.2E-09	
lodomethane	3.0E-09	
Indeno(1,2,3-cd) pyrene	2.6E-09	
Methyl isobutyl ketone	2.3E-09	
Benzo(a)pyrene	2.3E-09	
gamma-BHC (Lindane)	1.9E-09	
TetraCDD, 2,3,7,8-	1.9E-09	
TetraCDF, 2,3,7,8-	1.7E-09	
Ethylene dibromide Trichloroethylene	1.6E-09 1.5E-09	
Tetrahydrofuran	1.5E-09	
DDD, 4,4'-	1.5E-09	
Pyrene	1.5E-09	
Tetrachloroethane, 1,1,1,2-	1.3E-09	
1,3-Dichloropropane	1.2E-09	
Butylbenzene, n-	1.2E-09	
Dichloroethylene 1,1-	1.2E-09	
2,2-Dichloropropane	1.2E-09	
Butylbenzene, terl	1.2E-09	
PentaCDD, 1,2,3,7,8-	1.1E-09	
Vinyl Chloride Trichloroethane, 1,1,1-	1.1E-09 1.0E-09	
Anthracene	9.5E-10	
Acenaphthene	9.2E-10	
2-Methylnaphthalene	8.9E-10	
Trimethylbenzene, 1,3,5-	8.1E-10	
Dichlorobenzene, 1,2-	7.1E-10	
HexaCDF, 1,2,3,6,7,8-	7.0E-10	
Dichloroethane, 1,2- (Ethylene Dichloride)	6.6E-10	
HexaCDF, 2,3,4,6,7,8-	5.6E-10	
HexaCDF, 1,2,3,4,7,8-	4.6E-10	
Methoxychior	4.6E-10	
Dichlorobenzene,1,4-	4.2E-10	
DDE, 4,4'-	4.1E-10	
Fluorene	3.6E-10	
Cumene (Isopropylbenzene) 2-Chlorotoluene	3.6E-10 3.1E-10	
4-Chlorotoluene	3.1E-10	
Ethylene Glycol	2.7E-10	
Propylbenzene, n-	2.6E-10	
Trichlorofluoromethane (Freon 11)	2.3E-10	
1,2,4-Trimethylbenzene	2.3E-10	
Dichloroethylene, cis-1,2-	2.0E-10	
Ethylbenzene	2.0E-10	
Dichloropropane, 1,2-	2.0E-10	
PentaCDF, 1,2,3,7,8-	1.9E-10	
HexaCDD, 1,2,3,4,7,8-	1.5E-10	
Benzo(g,h,i)perylene	1.4E-10	
Chloroethane	1.3E-10	

## REACTIVATION FACILITY STACK EMISSIONS - UPSET CONDITIONS (MAXIMUM MEASURED EMISSION RATE \*10)

	1	
COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Bromochloromethane	1.3E-10	
methyl tert-butyl ether	9.9E-11	
Propylene oxide	7.0E-11	
Dichloroethylene-1,2 (trans)	6.5E-11	
Dichloroethane 1,1-	6.2E-11	
HexaCDD, 1,2,3,7,8,9-	1.8E-11	
Methyl methacrylate	1.7E-11	
HexaCDD, 1,2,3,6,7,8-	1.1E-11	
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	8.3E-12	
Dioxane, 1,4-	6.5E-12	
Dibenz(a,h)anthracene	2.7E-12	
HeptaCDF, 1,2,3,4,6,7,8-	1.8E-12	
HexaCDF, 1,2,3,7,8,9-	9.4E-13	
Acrylic Acid	6.5E-13	
OctaCDF, 1,2,3,4,6,7,8,9-	5.2E-13	
HeptaCDF, 1,2,3,4,7,8,9-	1.2E-13	
1-Hexane (n-hexane)	1.2E-13	
OctaCDD, 1,2,3,4,6,7,8,9-	1.1E-13	
HeptaCDD, 1,2,3,4,6,7,8-	8.7E-14	
Endosulfan sulfate	NC	
2,5-Dione, 3-hexene	NC	
Benzo(e)pyrene	NC	
Pervlene	NC	
Phosphine imide, P.P.P-triphenyl	NC	
Diallate	NC	
9-Octadecenamide (oleamide)	NC	
delta-BHC	NC	
2-Methyl octane	NC	
Endosulfan II	NC	
Endrin ketone	NC	
3-Penten-2-one (ethylidene acetone	NC	
2,5-Dimethylfuran	NC	
Endrin aldehyde	NC	
3-Hexen-2-one	NC	
Benzoic acid, methyl ester (methyl benzoate	NC	
Isopropyl toluene, p-	NC	
Total (b)	2.3E-01	

#### NC = Not calculated.

- (a) Acute hazard quotients were calculated for all compounds with stack air emission rates and acute inhalation toxicity criteria.
- (b) The total is based on the sum of all chemical-specific hazard quotients regardless of the type of health effects of the summed compounds. A total value summed across all compounds is used as a screening tool only, to determine if additional evaluation for specific types of health effects is warranted (i.e., if the total value is greater than 1).

#### ATTACHMENT B

# FUGITIVE EMISSIONS RISK ASSESSMENT: DETAILED CHRONIC AND ACUTE RISK RESULTS INCLUDING TOTAL CHROMIUM AND HEXAVALENT CHROMIUM

#### Fugitive Air Emissions Risk Assessment Chronic Inhalation Risk Results by Compound (IRAP Software Output Information)

Receptor	Scenario	Compound	Inhalation Excess Lifetime Cancer Risk	Inhalation Non-Cancer Hazard Quotient
R 1 resident	resident adult	1,3-Butadiene	1.0E-08	3.9E-04
R 1 resident	resident adult	1-Hexane (n-hexane)	0.0E+00	3.7E-07
R_1 resident	resident_adult	Acrylonitrile	1.8E-09	3.2E-05
R_1 resident	resident_adult	Arsenic	2.3E-14	4.2E-10
R_1 resident	resident_adult	Benzene	6.0E-11	6.0E-07
R_1 resident	resident_adult	Beryllium	1.1E-15	5.3E-11
R_1 resident	resident_adult	Cadmium	4.5E-15	2.9E-11
R_1 resident	resident_adult	Chloroform (Trichloromethane)	8.7E-12	2.9E-06
R_1 resident	resident_adult	Chromium	0.0E+00	4.0E-15
R_1 resident	resident_adult	Chromium, hexavalent	1.5E-14	3.6E-10
R_1 resident	resident_adult	Cobalt	0.0E+00	2.0E-10
R_1 resident	resident_adult	Copper	0.0E+00	6.1E-12
R_1 resident	resident_adult	Cyclohexane	0.0E+00	5.6E-08
R_1 resident	resident_adult	Dichlorobenzene,1,4-	1.2E-11 0.0E+00	3.1E-09 5.3E-09
R_1 resident R 1 resident	resident_adult resident_adult	Ethylbenzene Ethylene Dibromide	3.0E-11	1.3E-08
R 1 resident	resident adult	Ethylene Glycol	0.0E+00	9.6E-11
R 1 resident	resident adult	Naphthalene	0.0E+00	8.6E-09
R 1 resident	resident adult	Nickel	7.1E-15	3.5E-10
R 1 resident	resident adult	Styrene	0.0E+00	5.8E-09
R 1 resident	resident adult	Tetrachloroethylene	2.7E-11	2.6E-08
		(Perchloroethylene)		
R 1 resident	resident adult	Toluene	0.0E+00	2.1E-08
R 1 resident	resident_adult	Trichloroethylene	5.3E-12	1.0E-08
R_1 resident	resident_adult	Vinyl Chloride	3.7E-11	9.9E-08
		Total	1E-08	4E-04
R_1 resident	resident_child	1,3-Butadiene	2.0E-09	3.9E-04
R_1 resident	resident_child	1-Hexane (n-hexane)	0.0E+00	3.7E-07
R_1 resident	resident_child	Acrylonitrile	3.7E-10	3.2E-05
R_1 resident	resident_child	Arsenic	4.7E-15	4.2E-10
R_1 resident	resident_child	Benzene	1.2E-11	6.0E-07
R_1 resident	resident_child	Beryllium	2.2E-16	5.3E-11 2.9E-11
R_1 resident	resident_child	Cadmium Chloroform (Trichloromathona)	9.1E-16 1.7E-12	2.9E-11 2.9E-06
R_1 resident R 1 resident	resident_child resident_child	Chloroform (Trichloromethane) Chromium	0.0E+00	4.0E-15
R 1 resident	resident child	Chromium, hexavalent	2.9E-15	3.6E-10
R 1 resident	resident child	Cobalt	0.0E+00	2.0E-10
R 1 resident	resident child	Copper	0.0E+00	6.1E-12
R 1 resident	resident child	Cyclohexane	0.0E+00	5.6E-08
R 1 resident	resident child	Dichlorobenzene,1,4-	2.3E-12	3.1E-09
R 1 resident	resident child	Ethylbenzene	0.0E+00	5.3E-09
R 1 resident	resident child	Ethylene Dibromide	6.1E-12	1.3E-08
R 1 resident	resident child	Ethylene Glycol	0.0E+00	9.6E-11
R 1 resident	resident child	Naphthalene	0.0E+00	8.6E-09
R_1 resident	resident_child	Nickel	1.4E-15	3.5E-10
R_1 resident	resident_child	Styrene	0.0E+00	5.8E-09
R_1 resident	resident_child	Tetrachloroethylene (Perchloroethylene)	5.3Ë-12	2.6E-08
R_1 resident	resident_child	Toluene	0.0E+00	2.1E-08
R_1 resident	resident_child	Trichloroethylene	1.1E-12	1.0E-08
R_1 resident	resident_child	Vinyl Chloride	7.5E-12	9.9E-08
		Total	2E-09	4E-04
R_2 resident	resident_adult	1,3-Butadiene	2.4E-08	9.2E-04
R_2 resident	resident_adult	1-Hexane (n-hexane)	0.0E+00	8.7E-07
R_2 resident	resident_adult	Acrylonitrile	4.4E-09	7.5E-05
R_2 resident	resident_adult	Arsenic	5.5E-14	1.0E-09
R_2 resident	resident_adult	Benzene	1.4E-10	1.4E-06
R_2 resident	resident_adult	Beryllium	2.6E-15	1.3E-10
R_2 resident	resident_adult	Cadmium	1.1E-14	7.0E-11
R_2 resident	resident_adult	Chloroform (Trichloromethane)	2.1E-11	6.9E-06
R_2 resident	resident_adult	Chromium	0.0E+00	9.5E-15
R_2 resident	resident_adult	Chromium, hexavalent	3.5E-14	8.4E-10
R_2 resident	resident_adult	Cobalt	0.0E+00	4.8E-10
R_2 resident	resident_adult	Copper	0.0E+00	1.4E-11

Receptor	Scenario	Compound	Inhalation Excess Lifetime Cancer Risk	Inhalation Non-Cancer Hazard Quotient
R 2 resident	resident adult	Cyclohexane	0.0E+00	1.3E-07
R 2 resident	resident adult	Dichlorobenzene,1,4-	2.7E-11	7.3E-09
R 2 resident	resident adult	Ethylbenzene	0.0E+00	1.2E-08
R 2 resident	resident adult	Ethylene Dibromide	7.2E-11	3.1E-08
R 2 resident	resident_adult	Ethylene Glycol	0.0E+00	2.3E-10
R_2 resident	resident_adult	Naphthalene	0.0E+00	2.0E-08
R_2 resident	resident_adult	Nickel	1.7E-14	8.2E-10
R_2 resident	resident_adult	Styrene	0.0E+00	1.4E-08
R_2 resident	resident_adult	Tetrachloroethylene (Perchloroethylene)	6.3E-11	6.2E-08
R_2 resident	resident_adult	Toluene	0.0E+00	5.0E-08
R_2 resident	resident_adult	Trichloroethylene	1.3E-11	2.4E-08
R_2 resident	resident_adult	Vinyl Chloride	8.9E-11	2.3E-07
		Total	3E-08	1E-03
R_2 resident	resident_child	1,3-Butadiene	4.7E-09	9.2E-04
R_2 resident	resident_child	1-Hexane (n-hexane)	0.0E+00	8.7E-07
R_2 resident	resident_child	Acrylonitrile	8.7E-10	7.5E-05
R_2 resident	resident_child	Arsenic	1.1E-14	1.0E-09
R_2 resident	resident_child	Benzene	2.8E-11	1.4E-06
R_2 resident	resident_child	Beryllium	5.2E-16	1.3E-10
R_2 resident	resident_child	Cadmium	2.1E-15	7.0E-11 6.9E-06
R_2 resident R 2 resident	resident_child resident_child	Chloroform (Trichloromethane) Chromium	4.1E-12 0.0E+00	9.5E-15
R 2 resident	resident_child	Chromium, hexavalent	6.9E-15	9.5E-15 8.4E-10
R 2 resident	resident child	Cobalt	0.9E+00	4.8E-10
R 2 resident	resident child	Copper	0.0E+00	1.4E-11
R 2 resident	resident child	Cyclohexane	0.0E+00	1.3E-07
R 2 resident	resident child	Dichlorobenzene,1,4-	5.5E-12	7.3E-09
R 2 resident	resident child	Ethylbenzene	0.0E+00	1.2E-08
R 2 resident	resident child	Ethylene Dibromide	1.4E-11	3.1E-08
R 2 resident	resident child	Ethylene Glycol	0.0E+00	2.3E-10
R_2 resident	resident_child	Naphthalene	0.0E+00	2.0E-08
R_2 resident	resident_child	Nickel	3.4E-15	8.2E-10
R_2 resident	resident_child	Styrene	0.0E+00	1.4E-08
R_2 resident	resident_child	Tetrachloroethylene (Perchloroethylene)	1.3E-11	6.2E-08
R_2 resident	resident_child	Toluene	0.0E+00	5.0E-08
R_2 resident	resident_child	Trichloroethylene	2.5E-12	2.4E-08
R_2 resident	resident_child	Vinyl Chloride	1.8E-11	2.3E-07
		Total	6E-09	1E-03
R_3 resident farmer	farmer_adult	1,3-Butadiene	3.9E-08	1.1E-03
R_3 resident farmer	farmer_adult	1-Hexane (n-hexane)	0.0E+00	1.1E-06
R_3 resident farmer	farmer_adult	Acrylonitrile	7.2E-09	9.3E-05
R_3 resident farmer	farmer_adult	Arsenic	9.2E-14	1.2E-09
R_3 resident farmer	farmer_adult	Benzene	2.4E-10	1.8E-06
R_3 resident farmer	farmer_adult	Beryllium	4.3E-15	1.6E-10
R_3 resident farmer	farmer_adult	Cadmium	1.8E-14	8.7E-11
R_3 resident farmer	farmer_adult	Chromium (Trichloromethane)	3.4E-11	8.6E-06
R_3 resident farmer	farmer_adult	Chromium hovavalent	0.0E+00	1.2E-14
R 3 resident farmer R 3 resident farmer	farmer_adult farmer_adult	Chromium, hexavalent Cobalt	5.8E-14 0.0E+00	1.1E-09 6.0E-10
R 3 resident farmer	farmer_adult	Copper	0.0E+00 0.0E+00	1.8E-11
R 3 resident farmer	farmer_adult	Cyclohexane	0.0E+00 0.0E+00	1.6E-07
R 3 resident farmer	farmer_adult	Dichlorobenzene,1,4-	4.6E-11	9.1E-09
R_3 resident farmer	farmer_adult	Ethylbenzene	0.0E+00	1.5E-08
R_3 resident farmer	farmer_adult	Ethylene Dibromide	1.2E-10	3.9E-08
R_3 resident farmer	farmer_adult	Ethylene Glycol	0.0E+00	2.8E-10
R_3 resident farmer	farmer adult	Naphthalene	0.0E+00	2.5E-08
R 3 resident farmer	farmer adult	Nickel	2.8E-14	1.0E-09
R_3 resident farmer	farmer adult	Styrene	0.0E+00	1.7E-08
R_3 resident farmer	farmer_adult	Tetrachloroethylene (Perchloroethylene)	1.0E-10	7.8E-08
R_3 resident farmer	farmer_adult	Toluene	0.0E+00	6.2E-08
R 3 resident farmer	farmer adult	Trichloroethylene	2.1E-11	3.0E-08

Receptor	Scenario	Compound	Inhalation Excess Lifetime Cancer Risk	Inhalation Non-Cancer Hazard Quotient
R 3 resident farmer	farmer adult	Vinyl Chloride	1.5E-10	2.9E-07
		Total	5E-08	1E-03
	T		T = 0= 00	T 4 = 00
R_3 resident farmer	farmer_child	1,3-Butadiene	5.9E-09	1.1E-03
R_3 resident farmer	farmer_child	1-Hexane (n-hexane)	0.0E+00 1.1E-09	1.1E-06
R_3 resident farmer R_3 resident farmer	farmer_child farmer_child	Acrylonitrile Arsenic	1.1E-09 1.4E-14	9.3E-05 1.2E-09
R 3 resident farmer	farmer_child	Benzene	3.5E-11	1.8E-06
R 3 resident farmer	farmer child	Beryllium	6.4E-16	1.6E-10
R 3 resident farmer	farmer child	Cadmium	2.7E-15	8.7E-11
R_3 resident farmer	farmer_child	Chloroform (Trichloromethane)	5.1E-12	8.6E-06
R_3 resident farmer	farmer_child	Chromium	0.0E+00	1.2E-14
R_3 resident farmer	farmer_child	Chromium, hexavalent	8.7E-15	1.1E-09
R_3 resident farmer	farmer_child	Cobalt	0.0E+00	6.0E-10
R_3 resident farmer	farmer_child	Copper	0.0E+00	1.8E-11
R_3 resident farmer	farmer_child	Cyclohexane	0.0E+00	1.6E-07
R_3 resident farmer	farmer_child farmer_child	Dichlorobenzene,1,4-	6.8E-12 0.0E+00	9.1E-09 1.5E-08
R_3 resident farmer R 3 resident farmer	farmer_child	Ethylbenzene Ethylene Dibromide	1.8E-11	1.5E-08 3.9E-08
R 3 resident farmer	farmer_child	Ethylene Glycol	0.0E+00	2.8E-10
R 3 resident farmer	farmer_child	Naphthalene	0.0E+00	2.5E-10 2.5E-08
R 3 resident farmer	farmer child	Nickel	4.2E-15	1.0E-09
R 3 resident farmer	farmer child	Styrene	0.0E+00	1.7E-08
R_3 resident farmer	farmer_child	Tetrachloroethylene (Perchloroethylene)	1.6E-11	7.8E-08
R_3 resident farmer	farmer_child	Toluene	0.0E+00	6.2E-08
R_3 resident farmer	farmer_child	Trichloroethylene	3.1E-12	3.0E-08
R_3 resident farmer	farmer_child	Vinyl Chloride	2.2E-11	2.9E-07
		Total	7E-09	1E-03
R 4 resident farmer	farmer adult	1,3-Butadiene	3.2E-08	9.4E-04
R 4 resident farmer	farmer adult	1-Hexane (n-hexane)	0.0E+00	8.8E-07
R 4 resident farmer	farmer adult	Acrylonitrile	5.9E-09	7.6E-05
R 4 resident farmer	farmer adult	Arsenic	7.5E-14	1.0E-09
R_4 resident farmer	farmer_adult	Benzene	1.9E-10	1.4E-06
R_4 resident farmer	farmer_adult	Beryllium	3.5E-15	1.3E-10
R_4 resident farmer	farmer_adult	Cadmium	1.5E-14	7.1E-11
R_4 resident farmer	farmer_adult	Chloroform (Trichloromethane)	2.8E-11	7.0E-06
R_4 resident farmer	farmer_adult	Chromium	0.0E+00	9.7E-15
R_4 resident farmer R 4 resident farmer	farmer_adult	Chromium, hexavalent Cobalt	4.7E-14	8.6E-10
R_4 resident farmer  R 4 resident farmer	farmer_adult farmer_adult	Copper	0.0E+00 0.0E+00	4.9E-10 1.5E-11
R 4 resident farmer	farmer_adult	Cyclohexane	0.0E+00	1.3E-07
R 4 resident farmer	farmer adult	Dichlorobenzene,1,4-	3.7E-11	7.4E-09
R_4 resident farmer	farmer adult	Ethylbenzene	0.0E+00	1.3E-08
R_4 resident farmer	farmer_adult	Ethylene Dibromide	9.7E-11	3.1E-08
R_4 resident farmer	farmer_adult	Ethylene Glycol	0.0E+00	2.3E-10
R_4 resident farmer	farmer_adult	Naphthalene	0.0E+00	2.1E-08
R_4 resident farmer	farmer_adult	Nickel	2.3E-14	8.3E-10
R_4 resident farmer	farmer_adult	Styrene	0.0E+00	1.4E-08
R_4 resident farmer	farmer_adult	Tetrachloroethylene (Perchloroethylene)	8.5E-11	6.3E-08
R_4 resident farmer	farmer_adult	Toluene	0.0E+00	5.1E-08
R_4 resident farmer	farmer_adult	Trichloroethylene	1.7E-11	2.5E-08
R_4 resident farmer	farmer_adult	Vinyl Chloride	1.2E-10	2.4E-07
		Total	4E-08	1E-03
R 4 resident farmer	farmer child	1,3-Butadiene	4.8E-09	9.4E-04
R 4 resident farmer	farmer_child	1-Hexane (n-hexane)	0.0E+00	8.8E-07
R 4 resident farmer	farmer child	Acrylonitrile	8.8E-10	7.6E-05
R_4 resident farmer	farmer child	Arsenic	1.1E-14	1.0E-09
R_4 resident farmer	farmer_child	Benzene	2.9E-11	1.4E-06
R_4 resident farmer	farmer_child	Beryllium	5.2E-16	1.3E-10
R_4 resident farmer	farmer_child	Cadmium	2.2E-15	7.1E-11
R_4 resident farmer	farmer_child	Chloroform (Trichloromethane)	4.2E-12	7.0E-06
R_4 resident farmer	farmer_child	Chromium	0.0E+00	9.7E-15

Receptor	Scenario	Compound	Inhalation Excess Lifetime Cancer Risk	Inhalation Non-Cancer Hazard Quotient
R_4 resident farmer	farmer_child	Chromium, hexavalent	7.0E-15	8.6E-10
R_4 resident farmer	farmer_child	Cobalt	0.0E+00	4.9E-10
R_4 resident farmer	farmer_child	Copper	0.0E+00	1.5E-11
R_4 resident farmer	farmer_child	Cyclohexane	0.0E+00	1.3E-07
R_4 resident farmer	farmer_child	Dichlorobenzene,1,4-	5.6E-12	7.4E-09
R_4 resident farmer	farmer_child	Ethylbenzene	0.0E+00	1.3E-08
R_4 resident farmer	farmer_child	Ethylene Dibromide	1.5E-11	3.1E-08
R_4 resident farmer R_4 resident farmer	farmer_child farmer_child	Ethylene Glycol Naphthalene	0.0E+00 0.0E+00	2.3E-10 2.1E-08
R 4 resident farmer	farmer_child	Nickel	3.4E-15	8.3E-10
R 4 resident farmer	farmer child	Styrene	0.0E+00	1.4E-08
R_4 resident farmer	farmer_child	Tetrachloroethylene (Perchloroethylene)	1.3E-11	6.3E-08
R 4 resident farmer	farmer child	Toluene	0.0E+00	5.1E-08
R 4 resident farmer	farmer child	Trichloroethylene	2.5E-12	2.5E-08
R_4 resident farmer	farmer_child	Vinyl Chloride	1.8E-11	2.4E-07
		Total	6E-09	1E-03
R_5 resident	resident_adult	1,3-Butadiene	2.1E-08	8.0E-04
R_5 resident	resident_adult	1-Hexane (n-hexane)	0.0E+00	7.5E-07
R_5 resident	resident_adult	Acrylonitrile	3.8E-09	6.5E-05
R_5 resident R 5 resident	resident_adult resident_adult	Arsenic Benzene	4.8E-14 1.2E-10	8.7E-10 1.2E-06
R 5 resident	resident adult	Beryllium	2.2E-15	1.2E-06 1.1E-10
R 5 resident	resident adult	Cadmium	9.3E-15	6.0E-11
R 5 resident	resident adult	Chloroform (Trichloromethane)	1.8E-11	6.0E-06
R 5 resident	resident adult	Chromium	0.0E+00	8.3E-15
R 5 resident	resident adult	Chromium, hexavalent	3.0E-14	7.3E-10
R 5 resident	resident_adult	Cobalt	0.0E+00	4.2E-10
R_5 resident	resident_adult	Copper	0.0E+00	1.2E-11
R_5 resident	resident_adult	Cyclohexane	0.0E+00	1.1E-07
R_5 resident	resident_adult	Dichlorobenzene,1,4-	2.4E-11	6.3E-09
R_5 resident	resident_adult	Ethylbenzene	0.0E+00	1.1E-08
R_5 resident	resident_adult	Ethylene Dibromide	6.2E-11	2.7E-08
R_5 resident	resident_adult	Ethylene Glycol	0.0E+00	2.0E-10
R_5 resident R 5 resident	resident_adult resident_adult	Naphthalene Nickel	0.0E+00 1.5E-14	1.8E-08
R_5 resident	resident adult	Styrene	0.0E+00	7.1E-10 1.2E-08
R 5 resident	resident_adult	Tetrachloroethylene	5.5E-11	5.4E-08
R 5 resident	resident adult	(Perchloroethylene) Toluene	0.0E+00	4.3E-08
R 5 resident	resident adult	Trichloroethylene	1.1E-11	2.1E-08
R 5 resident	resident adult	Vinyl Chloride	7.7E-11	2.0E-07
	Toolage Tagain	Total	2E-08	9E-04
R 5 resident	resident child	1,3-Butadiene	4.1E-09	8.0E-04
R 5 resident	resident child	1-Hexane (n-hexane)	0.0E+00	7.5E-07
R 5 resident	resident child	Acrylonitrile	7.5E-10	6.5E-05
R_5 resident	resident_child	Arsenic	9.6E-15	8.7E-10
R_5 resident	resident_child	Benzene	2.5E-11	1.2E-06
R 5 resident	resident_child	Beryllium	4.5E-16	1.1E-10
R_5 resident	resident_child	Cadmium	1.9E-15	6.0E-11
R_5 resident	resident_child	Chloroform (Trichloromethane)	3.6E-12	6.0E-06
R 5 resident	resident_child	Chromium	0.0E+00	8.3E-15
II ti recident	resident_child	Chromium, hexavalent	6.0E-15	7.3E-10
	resident child	Cobalt	0.0E+00	4.2E-10
R_5 resident		IC		
R 5 resident R 5 resident R 5 resident R 5 resident	resident_child	Cycloboxano	0.0E+00	1.2E-11
R 5 resident R 5 resident R 5 resident	resident_child resident_child	Cyclohexane	0.0E+00	1.1E-07
R 5 resident R_5 resident R_5 resident R_5 resident R_5 resident	resident_child resident_child resident_child	Cyclohexane Dichlorobenzene,1,4-	0.0E+00 4.8E-12	1.1E-07 6.3E-09
R 5 resident	resident child resident child resident child resident child	Cyclohexane Dichlorobenzene,1,4- Ethylbenzene	0.0E+00 4.8E-12 0.0E+00	1.1E-07 6.3E-09 1.1E-08
R 5 resident	resident child resident child resident child resident child resident child	Cyclohexane Dichlorobenzene,1,4- Ethylbenzene Ethylene Dibromide	0.0E+00 4.8E-12 0.0E+00 1.2E-11	1.1E-07 6.3E-09 1.1E-08 2.7E-08
R 5 resident	resident child resident child resident child resident child resident child resident child	Cyclohexane Dichlorobenzene,1,4- Ethylbenzene Ethylene Dibromide Ethylene Glycol	0.0E+00 4.8E-12 0.0E+00 1.2E-11 0.0E+00	1.1E-07 6.3E-09 1.1E-08 2.7E-08 2.0E-10
R 5 resident	resident child resident child resident child resident child resident child	Cyclohexane Dichlorobenzene,1,4- Ethylbenzene Ethylene Dibromide	0.0E+00 4.8E-12 0.0E+00 1.2E-11	1.1E-07 6.3E-09 1.1E-08 2.7E-08

Receptor	Scenario	Compound	Inhalation Excess Lifetime Cancer Risk	Inhalation Non-Cancer Hazard Quotient
R_5 resident	resident_child	Tetrachloroethylene (Perchloroethylene)	1.1E-11	5.4E-08
R_5 resident	resident_child	Toluene	0.0E+00	4.3E-08
R_5 resident	resident_child	Trichloroethylene	2.2E-12	2.1E-08
R_5 resident	resident_child	Vinyl Chloride	1.5E-11	2.0E-07
		Total	5E-09	9E-04
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R_6 resident	resident_adult	1,3-Butadiene	2.6E-08	1.0E-03
R_6 resident R 6 resident	resident_adult	1-Hexane (n-hexane) Acrylonitrile	0.0E+00 4.7E-09	9.4E-07 8.1E-05
R 6 resident	resident adult	Arsenic	6.0E-14	1.1E-09
R 6 resident	resident adult	Benzene	1.5E-10	1.5E-09
R 6 resident	resident_adult	Beryllium	2.8E-15	1.4E-10
R 6 resident	resident adult	Cadmium	1.2E-14	7.5E-11
R 6 resident	resident adult	Chloroform (Trichloromethane)	2.2E-11	7.5E-06
R 6 resident	resident adult	Chromium	0.0E+00	1.0E-14
R 6 resident	resident adult	Chromium, hexavalent	3.7E-14	9.1E-10
R 6 resident	resident_adult	Cobalt	0.0E+00	5.2E-10
R 6 resident	resident adult	Copper	0.0E+00	1.5E-11
R 6 resident	resident adult	Cyclohexane	0.0E+00	1.4E-07
R 6 resident	resident adult	Dichlorobenzene,1,4-	3.0E-11	7.9E-09
R 6 resident	resident adult	Ethylbenzene	0.0E+00	1.3E-08
R 6 resident	resident adult	Ethylene Dibromide	7.7E-11	3.3E-08
R 6 resident	resident adult	Ethylene Glycol	0.0E+00	2.4E-10
R 6 resident	resident adult	Naphthalene	0.0E+00	2.2E-08
R 6 resident	resident adult	Nickel	1.8E-14	8.8E-10
R 6 resident	resident adult	Styrene	0.0E+00	1.5E-08
R_6 resident	resident_adult	Tetrachloroethylene (Perchloroethylene)	6.8E-11	6.7E-08
R 6 resident	resident adult	Toluene	0.0E+00	5.4E-08
R 6 resident	resident adult	Trichloroethylene	1.4E-11	2.6E-08
R 6 resident	resident adult	Vinyl Chloride	9.6E-11	2.5E-07
rv_o resident	resident_addit	Total	3E-08	1E-03
	<u>,</u>			
R_6 resident	resident_child	1,3-Butadiene	5.1E-09	1.0E-03
R_6 resident	resident_child	1-Hexane (n-hexane)	0.0E+00	9.4E-07
R_6 resident	resident_child	Acrylonitrile	9.4E-10	8.1E-05
R_6 resident	resident_child	Arsenic	1.2E-14	1.1E-09
R_6 resident	resident_child	Benzene	3.1E-11	1.5E-06
R_6 resident	resident_child	Beryllium	5.6E-16	1.4E-10
R_6 resident	resident_child	Cadmium	2.3E-15	7.5E-11
R_6 resident	resident_child	Chloroform (Trichloromethane)	4.4E-12	7.5E-06
R_6 resident	resident_child	Chromium	0.0E+00	1.0E-14
R_6 resident	resident_child	Chromium, hexavalent	7.5E-15	9.1E-10
R_6 resident	resident_child	Cobalt	0.0E+00	5.2E-10
R_6 resident	resident_child	Copper	0.0E+00	1.5E-11
R_6 resident	resident_child	Cyclohexane	0.0E+00	1.4E-07
R_6 resident	resident_child	Dichlorobenzene,1,4-	5.9E-12	7.9E-09
R_6 resident	resident_child	Ethylbenzene	0.0E+00	1.3E-08
R_6 resident	resident_child	Ethylene Dibromide	1.5E-11	3.3E-08
R_6 resident	resident_child	Ethylene Glycol	0.0E+00	2.4E-10
R_6 resident	resident_child	Naphthalene	0.0E+00	2.2E-08
R_6 resident	resident_child	Nickel	3.6E-15	8.8E-10
R_6 resident	resident_child	Styrene	0.0E+00	1.5E-08
R_6 resident	resident_child	Tetrachloroethylene	1.4E-11	6.7E-08
R_6 resident	resident_child	Toluene	0.0E+00	5.4E-08
R_6 resident	resident_child	Trichloroethylene	2.7E-12	2.6E-08
R_6 resident	resident_child	Vinyl Chloride	1.9E-11	2.5E-07
	<u></u>	Total	6E-09	1E-03

IRAP-h View

### ACUTE INHALATION RISK RESULTS FUGITIVE AIR EMISSIONS DURING UNLOADING AT OUTDOOR HOPPER

A_1 maximum impact point (stack emissions)	COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)
Chloroform (Trichloromethane)	A_1 maximum impact point (stack emissions)	
Agrylonitrile		2.1E-04
1.3-Butadene		
Tetrachloroethylene (Perchloroethylene)   7.9E-06		
Sole-06   Sole		
Styrene	· · · · · · · · · · · · · · · · · · ·	
Toluene		
1-Hexane (n-hexane)		
Vinyl Chloride		
Nickel   1,7E-07	Arsenic	1.0E-06
Ethylbenzene		
Trichloroethylene		
Dichlorobenzene,1,4-         6, 1E-08           Copper         3,2E-08           Ethylene Dibromide         8,8E-09           Naphthalene         5,1E-09           Beryllium         2,9E-09           Cadmium         2,9E-09           Chromium         2,1E-10           Cobalt         1,0E-10           Chromium, hexavalent (c)         0,0E+00           Total         3,7E-04           A_2 closest business         Benzene           Benzene         4,6E-04           Chloroform (Trichloromethane)         1,9E-04           Acrylonitrile         9,5E-05           1,3-Butadiene         1,7E-05           Tetrachloroethylene (Perchloroethylene)         1,7E-05           Tetrachloroethylene (Perchloroethylene)         1,7E-05           Tyrene         9,2E-06           Tolluene         7,5E-06           Tollene (n-hexane)         5,7E-06           Tollene (n-hexane)         5,7E-06           Tollene (n-hexane)         5,7E-06           Tollene (n-hexane)         3,8E-07           Trichloroethylene         2,9E-07           Dichlorobenzene,1,4-         1,4E-07           Copper         7,0E-08           Ethylen		
Copper   3.2E-08   Ethylene Dibromide   8.8E-09   Naphthalene   5.1E-09   Beryllium   3.2E-09   Cadmium   2.9E-09   Chromium   2.1E-10   Cobalt   1.0E-10   Chromium, hexavalent (c)   0.0E+00   Total   3.7E-04   A 2 closest business   Benzene   4.6E-04   Chloroform (Trichloromethane)   1.9E-04   Acrylonitrile   9.5E-05   1.3-Butadiene   1.7E-05   Tetrachloroethylene (Perchloroethylene)   1.7E-05   Styrene   9.2E-06   Toluene   7.5E-06   1-Hexane (n-hexane)   5.7E-06   Arsenic   2.2E-06   Winyl Chloride   1.8E-06   Winyl Chloride   1.8E-06   Winyl Chloride   1.8E-06   Tirchloroethylene   2.9E-07   Tirchloroethylene   3.5E-07   Tirchloroethylene   1.9E-08   Beryllium   7.0E-09   Cadmium   7.0E-09   Cadmium   7.0E-09   Cadmium   7.0E-09   Cadmium   7.0E-09   Chromium   4.7E-10   Cobalt   2.3E-10   Chromium   4.7E-10   Cobalt   4.3E-04   Cobalt   4.3E-04   Cobalt   4.3E-04   Cobalt   4.3E-04   Cobalt   4.3E-04   Cob		
Ethylene Dibromide		
Naphthalene         5.1E-09           Beryllium         3.2E-09           Cadmium         2.9E-09           Chromium         2.1E-10           Cobalt         1.0E-10           Chromium, hexavalent (c)         0.0E+00           Total         3.7E-04           A 2 closest business         Benzene           Benzene         4.6E-04           Chloroform (Trichloromethane)         1.9E-04           Acrylonitrile         9.5E-05           1,3-Butadiene         1.7E-05           Tetrachloroethylene (Perchloroethylene)         1.7E-05           Cyclohexane         1.1E-05           Styrene         9.2E-06           Toluene         7.5E-06           1-Hexane (n-hexane)         7.5E-06           1-Hexane (n-hexane)         7.5E-06           1-Hexane (n-hexane)         3.8E-07           Chioride         1.8E-06           Nickei         3.8E-07           Ethylbenzene         3.5E-07           Trichloroethylene         2.9E-07           Dichlorobenzene, 1,4-         1.4E-07           Copper         7.0E-08           Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08 <td></td> <td></td>		
Beryllium   3.2E-09   Cadmium   2.9E-09   Chromium   2.1E-10   Chromium   2.1E-10   Chromium   2.1E-10   Chromium, hexavalent (c)   0.0E+00   Total   3.7E-04   A.2 closest business		
Chromium         2.1E-10           Cobalt         1.0E-10           Chromium, hexavalent (c)         0.0E+00           Total         3.7E-04           A_2 closest business         3.7E-04           Benzene         4.6E-04           Chloroform (Trichloromethane)         1.9E-04           Acrylonitrile         9.5E-05           1,3-Butadiene         1.7E-05           Etrachloroethylene (Perchloroethylene)         1.7E-05           Cyclohexane         1.1E-05           Styrene         9.2E-06           Toluene         7.5E-06           1-Hexane (n-hexane)         7.5E-06           1-Hexane (n-hexane)         7.5E-06           Arsenic         2.2E-06           Vinyl Chloride         1.8E-06           Nickel         3.8E-07           Trichloroethylene         2.9E-07           Dichlorobenzene, 1,4-         1.4E-07           Copper         7.0E-08           Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04		
Cobalt		
Chromium, hexavalent (c)         0.0E+00           Total         3.7E-04           A 2 closest business         3.7E-04           Benzene         4.6E-04           Chloroform (Trichloromethane)         1.9E-04           Acrylonitrile         9.5E-05           1,3-Butadiene         1.7E-05           Tetrachloroethylene (Perchloroethylene)         1.7E-05           Cyclohexane         1.1E-05           Styrene         9.2E-06           Toluene         7.5E-06           I-Hexane (n-hexane)         5.7E-06           Arsenic         2.2E-06           Vinyl Chloride         1.8E-06           Nickel         3.8E-07           Ethylbenzene         3.5E-07           Trichloroethylene         2.9E-07           Dichlorobenzene,1,4-         1.4E-07           Copper         7.0E-08           Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04 <t< td=""><td></td><td></td></t<>		
A_2 closest business   Benzene		
A 2 closest business   Benzene		
Benzene		3.7 E-04
Chloroform (Trichloromethane)   1.9E-04		4.65.04
Acrylonitrile 9.5E-05 1,3-Butadiene 1.7E-05 Tetrachloroethylene (Perchloroethylene) 1.7E-05 Cyclohexane 1.1E-05 Styrene 9.2E-06 Toluene 7.5E-06 1-Hexane (n-hexane) 5.7E-06 Arsenic 2.2E-06 Vinyl Chloride 1.8E-06 Nickel 3.8E-07 Ethylbenzene 3.5E-07 Trichloroethylene 2.9E-07 Dichlorobenzene, 1,4- Copper 7.0E-08 Ethylene Dibromide 1.9E-08 Naphthalene 1.1E-08 Beryllium 7.0E-09 Cadmium 6.5E-09 Chromium 4.7E-10 Cobalt 2.3E-10 Chromium, hexavalent (c) 0.0E+00 Total 8.2E-04  A_3 maximum impact point (hopper fugitive emissions)  Benzene 1.1E-02 Chloroform (Trichloromethane) 4.8E-03 Acrylonitrile 2.4E-03 1,3-Butadiene (Perchloroethylene) 2.7E-04 Styrene 2.3E-04  Arsenic 5.5E-05		
1,3-Butadiene       1.7E-05         Tetrachloroethylene (Perchloroethylene)       1.7E-05         Cyclohexane       1.1E-05         Styrene       9.2E-06         Toluene       7.5E-06         1-Hexane (n-hexane)       5.7E-06         Arsenic       2.2E-06         Vinyl Chloride       1.8E-06         Nickel       3.8E-07         Ethylbenzene       3.5E-07         Trichloroethylene       2.9E-07         Dichlorobenzene,1,4-       1.4E-07         Copper       7.0E-08         Ethylene Dibromide       1.9E-08         Naphthalene       1.1E-08         Beryllium       7.0E-09         Cadmium       6.5E-09         Chromium       4.7E-10         Cobalt       2.3E-10         Chromium, hexavalent (c)       0.0E+00         Total       8.2E-04         A_3 maximum impact point (hopper fugitive emissions)         Benzene       1.1E-02         Chloroform (Trichloromethane)       4.8E-03         Acrylonitrile       2.4E-03         1,3-Butadiene       4.3E-04         Cetrachloroethylene (Perchloroethylene)       2.7E-04         Styrene       2.3E-04 <tr< td=""><td></td><td></td></tr<>		
Cyclohexane       1.1E-05         Styrene       9.2E-06         Toluene       7.5E-06         1-Hexane (n-hexane)       5.7E-06         Arsenic       2.2E-06         Vinyl Chloride       1.8E-06         Nickel       3.8E-07         Ethylbenzene       3.5E-07         Trichloroethylene       2.9E-07         Dichlorobenzene, 1,4-       1.4E-07         Copper       7.0E-08         Ethylene Dibromide       1.9E-08         Naphthalene       1.1E-08         Beryllium       7.0E-09         Cadmium       6.5E-09         Chromium       4.7E-10         Cobalt       2.3E-10         Chromium, hexavalent (c)       0.0E+00         Total       8.2E-04         A_3 maximum impact point (hopper fugitive emissions)         Benzene       1.1E-02         Chloroform (Trichloromethane)       4.8E-03         Acrylonitrile       2.4E-03         1,3-Butadiene       4.3E-04         Cyclohexane       2.7E-04         Styrene       2.3E-04         Toluene       1.9E-04         1-Hexane (n-hexane)       4.4E-04         Arsenic       5.5E-05     <		
Styrene   9.2E-06   Toluene   7.5E-06   Toluene   7.5E-06   1-Hexane (n-hexane)   5.7E-06   1-Hexane (n-hexane)   5.7E-06   3.7E-06   4.7E-06   4.7E-06   5.7E-06   4.7E-06   5.7E-06   5.7E-07   5.7E-06   5.7E-07		1.7E-05
Toluene		
1-Hexane (n-hexane)       5.7E-06         Arsenic       2.2E-06         Vinyl Chloride       1.8E-06         Nickel       3.8E-07         Ethylbenzene       3.5E-07         Trichloroethylene       2.9E-07         Dichlorobenzene,1,4-       1.4E-07         Copper       7.0E-08         Ethylene Dibromide       1.9E-08         Naphthalene       1.1E-08         Beryllium       7.0E-09         Cadmium       6.5E-09         Chromium       4.7E-10         Cobalt       2.3E-10         Chromium, hexavalent (c)       0.0E+00         Total       8.2E-04         A_3 maximum impact point (hopper fugitive emissions)         Benzene       1.1E-02         Chloroform (Trichloromethane)       4.8E-03         Acrylonitrile       2.4E-03         1,3-Butadiene       4.3E-04         Tetrachloroethylene (Perchloroethylene)       4.3E-04         Cyclohexane       2.7E-04         Styrene       2.3E-04         Toluene       1.4E-04         4-rsenic       5.5E-05		
Arsenic         2.2E-06           Vinyl Chloride         1.8E-06           Nickel         3.8E-07           Ethylbenzene         3.5E-07           Trichloroethylene         2.9E-07           Dichlorobenzene,1,4-         1.4E-07           Copper         7.0E-08           Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.4E-04           4-rsenic         5.5E-05		
Vinyl Chloride         1.8E-06           Nickel         3.8E-07           Ethylbenzene         3.5E-07           Trichloroethylene         2.9E-07           Dichlorobenzene,1,4-         1.4E-07           Copper         7.0E-08           Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.4E-04           4-rsenic         5.5E-05		
Nickel         3.8E-07           Ethylbenzene         3.5E-07           Trichloroethylene         2.9E-07           Dichlorobenzene, 1,4-         1.4E-07           Copper         7.0E-08           Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.4E-04           Arsenic         5.5E-05		
Ethylbenzene         3.5E-07           Trichloroethylene         2.9E-07           Dichlorobenzene,1,4-         1.4E-07           Copper         7.0E-08           Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.4E-04           Arsenic         5.5E-05		
Dichlorobenzene,1,4-         1.4E-07           Copper         7.0E-08           Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.9E-04           1-Hexane (n-hexane)         4.4E-03           Arsenic         5.5E-05	· · · · · · · · · · · · · · · · · · ·	
Copper         7.0E-08           Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.9E-04           4-Hexane (n-hexane)         1.4E-04           Arsenic         5.5E-05	Trichloroethylene	2.9E-07
Ethylene Dibromide         1.9E-08           Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.9E-04           1-Hexane (n-hexane)         1.4E-04           Arsenic         5.5E-05	Dichlorobenzene,1,4-	1.4E-07
Naphthalene         1.1E-08           Beryllium         7.0E-09           Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.9E-04           1-Hexane (n-hexane)         1.4E-04           Arsenic         5.5E-05		
Beryllium   7.0E-09		
Cadmium         6.5E-09           Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.9E-04           4-Hexane (n-hexane)         1.4E-04           Arsenic         5.5E-05		
Chromium         4.7E-10           Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.9E-04           1-Hexane (n-hexane)         1.4E-04           Arsenic         5.5E-05		
Cobalt         2.3E-10           Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.9E-04           1-Hexane (n-hexane)         1.4E-04           Arsenic         5.5E-05		
Chromium, hexavalent (c)         0.0E+00           Total         8.2E-04           A_3 maximum impact point (hopper fugitive emissions)           Benzene         1.1E-02           Chloroform (Trichloromethane)         4.8E-03           Acrylonitrile         2.4E-03           1,3-Butadiene         4.3E-04           Tetrachloroethylene (Perchloroethylene)         4.3E-04           Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.9E-04           1-Hexane (n-hexane)         1.4E-04           Arsenic         5.5E-05		
Section   Sect		
Benzene	Total	8.2E-04
Chloroform (Trichloromethane)       4.8E-03         Acrylonitrile       2.4E-03         1,3-Butadiene       4.3E-04         Tetrachloroethylene (Perchloroethylene)       4.3E-04         Cyclohexane       2.7E-04         Styrene       2.3E-04         Toluene       1.9E-04         1-Hexane (n-hexane)       1.4E-04         Arsenic       5.5E-05	A_3 maximum impact point (hopper fugitive en	nissions)
Acrylonitrile       2.4E-03         1,3-Butadiene       4.3E-04         Tetrachloroethylene (Perchloroethylene)       4.3E-04         Cyclohexane       2.7E-04         Styrene       2.3E-04         Toluene       1.9E-04         1-Hexane (n-hexane)       1.4E-04         Arsenic       5.5E-05		
1,3-Butadiene       4.3E-04         Tetrachloroethylene (Perchloroethylene)       4.3E-04         Cyclohexane       2.7E-04         Styrene       2.3E-04         Toluene       1.9E-04         1-Hexane (n-hexane)       1.4E-04         Arsenic       5.5E-05		
Tetrachloroethylene (Perchloroethylene)       4.3E-04         Cyclohexane       2.7E-04         Styrene       2.3E-04         Toluene       1.9E-04         1-Hexane (n-hexane)       1.4E-04         Arsenic       5.5E-05		
Cyclohexane         2.7E-04           Styrene         2.3E-04           Toluene         1.9E-04           1-Hexane (n-hexane)         1.4E-04           Arsenic         5.5E-05		
Styrene     2.3E-04       Toluene     1.9E-04       1-Hexane (n-hexane)     1.4E-04       Arsenic     5.5E-05		<del></del>
Toluene         1.9E-04           1-Hexane (n-hexane)         1.4E-04           Arsenic         5.5E-05		
1-Hexane (n-hexane) 1.4E-04 Arsenic 5.5E-05	<del></del>	··
/inyl Chloride         4.5E-05           Nickel         9.5E-06		4.5E-05

### ACUTE INHALATION RISK RESULTS FUGITIVE AIR EMISSIONS DURING UNLOADING AT OUTDOOR HOPPER

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)
Ethylbenzene	8.6E-06
Trichloroethylene	7.3E-06
Dichlorobenzene,1,4-	3.4E-06
Copper	1.7E-06
Ethylene Dibromide	4.8E-07
Naphthalene	2.8E-07
Beryllium Codmina	1.7E-07 1.6E-07
Cadmium Chromium	1.0E-07 1.2E-08
Cobait	5.6E-09
Chromium, hexavalent (c)	0.0E+00
Total	2.0E-02
R_1 resident	
Benzene	2.8E-05
Chloroform (Trichloromethane)	1.2E-05
Acrylonitrile	5.8E-06
1,3-Butadiene Tetrachloroethylene (Perchloroethylene)	1.1E-06
	1.1E-06 6.8E-07
Cyclohexane Styrene	5.7E-07
Toluene	4.6E-07
1-Hexane (n-hexane)	3.5E-07
Arsenic	1.4E-07
Vinyl Chloride	1.1E-07
Nickel	2.4E-08
Ethylbenzene	2.1E-08
Trichloroethylene	1.8E-08
Dichlorobenzene, 1,4-	8.4E-09
Copper	4.3E-09
Ethylene Dibromide Naphthalene	1.2E-09 7.0E-10
Napritialene Beryllium	4.3E-10
Cadmium	4.0E-10
Chromium	2.9E-11
Cobalt	1.4E-11
Chromium, hexavalent (c)	0.0E+00
Total	5.1E-05
R_2 resident	
Benzene	2.6E-05
Chloroform (Trichloromethane)	1.1E-05
Acrylonitrile	5.4E-06
1,3-Butadiene	9.9E-07
Tetrachloroethylene (Perchloroethylene)	9.9E-07 6.3E-07
Cyclonexane Styrene	5.2E-07
Toluene	4.3E-07
1-Hexane (n-hexane)	3.2E-07
Arsenic Arrestancy	1.3E-07
Vinyl Chloride	1.0E-07
Nickel	2.2E-08
Ethylbenzene	2.0E-08
Trichloroethylene	1.7E-08
Dichlorobenzene,1,4-	7.7E-09
Copper	4.0E-09
Ethylene Dibromide	1.1E-09
Naphthalene	6.5E-10
Beryllium Codmium	4.0E-10
Cadmium Chromium	3.7E-10
Coholt.	2.7E-11 1.3E-11
Cobalt Chromium, hexavalent (c)	0.0E+00
	0.02.00

### ACUTE INHALATION RISK RESULTS FUGITIVE AIR EMISSIONS DURING UNLOADING AT OUTDOOR HOPPER

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)	
Benzene	2.1E-05	
Chloroform (Trichloromethane)	8.9E-06	
Acrylonitrile	4.4E-06	
1,3-Butadiene	8.0E-07	
Tetrachloroethylene (Perchloroethylene) Cyclohexane	8.0E-07 5.1E-07	
Styrene	4.2E-07	
Toluene	3.5E-07	
1-Hexane (n-hexane)	2.6E-07	
Arsenic	1.0E-07	
Vinyl Chloride	8.4E-08	
Nickel Ethylbenzene	1.8E-08 1.6E-08	
Trichloroethylene	1.4E-08	
Dichlorobenzene,1,4-	6.3E-09	
Copper	3.2E-09	
Ethylene Dibromide	9.0E-10	
Naphthalene Bondlium	5.2E-10 3.2E-10	
Beryllium Cadmium	3.0E-10	
Chromium	2.2E-11	
Cobalt	1.0E-11	
Chromium, hexavalent (c)	0.0E+00	
Total	3.8E-05	
R_4 resident farmer		
Benzene	2.7E-05	
Chloroform (Trichloromethane)	1.2E-05	
Acrylonitrile 1,3-Butadiene	5.6E-06 1.0E-06	
Tetrachloroethylene (Perchloroethylene)	1.0E-06	
Cyclohexane	6.6E-07	
Styrene	5.4E-07	
Toluene	4.5E-07	
1-Hexane (n-hexane) Arsenic	3.4E-07 1.3E-07	
Vinyl Chloride	1.3E-07	
Nickel	2.3E-08	
Ethylbenzene	2.1E-08	
Trichloroethylene	1.7E-08	
Dichlorobenzene,1,4-	8.1E-09	
Copper Ethylope Dibromide	4.2E-09 1.2E-09	
Ethylene Dibromide Naphthalene	6.7E-10	
Beryllium	4.2E-10	
Cadmium	3.9E-10	
Chromium	2.8E-11	
Cobalt	1.3E-11	
<u>Chromium, hexavalent (c)</u> Total	0.0E+00 4.9E-05	
R_5 resident		
Benzene	3.4E-05	
Chloroform (Trichloromethane)	1.4E-05	
Acrylonitrile 1,3-Butadiene	7.0E-06 1.3E-06	
Tetrachloroethylene (Perchloroethylene)	1.3E-06 1.3E-06	
Cyclohexane	8.2E-07	
Styrene	6.8E-07	
Toluene	5.6E-07	
1-Hexane (n-hexane)	4.2E-07	
Arsenic	1.6E-07	
Vinyl Chloride Nickel	1.4E-07 2.8E-08	
Ethylbenzene	2.6E-08	
Trichloroethylene	2.2E-08	

### ACUTE INHALATION RISK RESULTS FUGITIVE AIR EMISSIONS DURING UNLOADING AT OUTDOOR HOPPER

<del></del>	·····
COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)
Dichlorobenzene, 1,4-	1.0E-08
Copper	5.2E-09
Ethylene Dibromide	1.4E-09
Naphthalene	8.4E-10
Beryllium	5.2E-10
Cadmium	4.8E-10
Chromium	3.5E-11
Cobalt	1.7E-11
Chromium, hexavalent (c)	0.0E+00
Total	6.1E-05
R_6 resident	
Benzene	1.5E-05
Chloroform (Trichloromethane)	6.5E-06
Acrylonitrile	3.2E-06
1,3-Butadiene	5.8E-07
Tetrachloroethylene (Perchloroethylene)	5.8E-07
Cyclohexane	3.7E-07
Styrene	3.1E-07
Toluene	2.5E-07
1-Hexane (n-hexane)	1.9E-07
Arsenic	7.4E-08
Vinyl Chloride	6.1E-08
Nickel	1.3E-08
Ethylbenzene	1.2E-08
Trichloroethylene	9.8E-09
Dichlorobenzene,1,4-	4.5E-09
Copper	2.3E-09
Ethylene Dibromide	6.5E-10
Naphthalene	3.8E-10
Beryllium	2.3E-10
Cadmium	2.2E-10
Chromium	1.6E-11
Cobalt	7.5E-12
Chromium, hexavalent (c)	0.0E+00
Total	2.7E-05

- (a) Acute hazard quotients were calculated for all compounds with fugitive air emission rates and acute inhalation toxicity criteria.
- (b) The total is based on the sum of all chemical-specific hazard quotients regardless of the type of health effects of the summed compounds. A total value summed across all compounds is used as a screening tool only, to determine if additional evaluation for specific types of health effects is warranted (i.e., if the total value is greater than 1).
- (c) USEPA does not provide an acute inhalation reference concentration for hexavalent chromium.

### ATTACHMENT C

# EXCERPT FROM 2003 WORKING DRAFT RISK ASSESSMENT WORKPLAN FOR THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REACTIVATION FACILITY:

4.3 FUGITIVE EMISSIONS EXPOSURE ASSESSMENT

#### ATTACHMENT C

# EXCERPT FROM 2003 WORKING DRAFT RISK ASSESSMENT WORKPLAN FOR THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REACTIVATION FACILITY

#### INTRODUCTION

The following text is an excerpt from the November 2003 Risk Assessment Workplan prepared for the Siemens Water Technologies Corp. (SWT) carbon reactivation facility. This excerpt is provided in response to USEPA Region IX comments on the July 2007 risk assessment that was performed for the facility. The information provided in this excerpt was based on facility data available in 2003.

The Workplan described the approaches proposed for the SWT facility risk assessment. The Workplan, updated by agreement with the USEPA to include elements of more recent 2005 Agency guidance for risk assessments of waste combustion facilities, was approved by USEPA prior to the initiation of the risk assessment.

#### **EXCERPT FROM 2003 WORKPLAN**

#### 4.3 Fugitive Emissions Exposure Assessment

USEPA (2001a) requested that Westates' risk analysis address fugitive emissions potentially associated with the carbon reactivation facility including waste unloading, handling and processing. This section provides an overview of potential sources of fugitive emissions related to spent carbon at the facility in addition to a discussion of regulatory requirements, and engineering and institutional controls that are in place to minimize potential fugitive emissions. This discussion is used to identify the potential fugitive emission source related to spent carbon considered most likely to impact ambient air and thus proposed for detailed evaluation. This section also describes the exposure assessment approach that will be used to quantitatively evaluate the selected fugitive emissions source.

#### 4.3.1 Potential for Fugitive Emissions from the Westates Facility

Processes involving spent carbon at the Westates facility that have the potential for fugitive particulate and volatile organic compound (VOC) emissions include:

- Handling of spent carbon containers received at the facility,
- Spent carbon unloading operations,
- Storage of spent carbon at the facility,
- Reactivation of spent carbon, and
- Production and bagging of reactivated carbon.

Potential fugitive emissions from each of these activities are reduced through standard work practices, facility design, and air pollution control (APC) devices. In addition, the intrinsic

highly adsorptive nature of spent carbon results in very low partitioning of contaminants from the carbon to the atmosphere.

Potential fugitive emission sources at the facility are addressed by the USEPA under:

- the National Emission Standard for Benzene Waste Operations, Subpart FF of 40 CFR Part 61 (part of USEPA's program addressing National Emission Standards for Hazardous Air Pollutants or NESHAPs),
- the Resource Conservation and Recovery Act (RCRA) Subpart CC, <sup>1</sup> and
- the Potential to Emit Transition Policy for Part 71 Implementation (part of USEPA's Clean Air Act program).

#### 4.3.1.1 Spent Carbon Containers

All containers received at the facility that contain spent carbon classified as hazardous waste under RCRA and all containers of spent carbon received from a facility that is regulated under the benzene NESHAP rule must be managed in accordance with strict USEPA requirements. These requirements include assuring that the spent carbon containers are completely scaled; this is initially accomplished by the spent carbon generators through both visual inspections of containers and VOC monitoring around the seals of containers. Then upon arrival at the Westates facility, containers are again visually inspected for proper seals.

The Westates facility currently stores sealed containers of spent carbon for up to one year, although most such containers are typically unloaded into the unloading hopper H-2 within about one month. These containers are also visually inspected during routine quarterly plant inspections. Rolloff containers and slurry trucks unload spent carbon at the time of delivery into hopper H-1. Supersacks and other smaller containers unloaded at H-1 may be stored for up to one year but are usually unloaded within about one to three months. Although not required, similar practices are typically followed for non-RCRA classified spent carbon as well.

#### 4.3.1.2 Spent Carbon Unloading

Engineering and work practices during unloading operations at the facility's two hoppers are designed to limit the potential for fugitive dust emissions. Moreover, at no time other than when spent carbon is being unloaded into one of the hoppers is spent carbon exposed directly to the ambient environment. The two spent carbon hoppers are considered in the Part 71 Implementation program, but are not specifically regulated under the benzene Subpart FF standard or RCRA Subpart CC.

<sup>&</sup>lt;sup>1</sup> USEPA's air emission control standards under RCRA for certain hazardous waste management units (tanks and containers) are generally known as the Subpart CC standards, found at 40 CFR Parts 264 and 265. USEPA has also developed national emissions standards for hazardous air pollutants (NESHAPS) under the Clean Air Act specifically for benzene, known as the National Emission Standard for Benzene Waste Operations, Subpart FF of 40 CFR Part 61. RCRA waste management units that are operated in compliance with the Subpart FF standards are generally exempt from the RCRA Subpart CC standards (because the practices used to control potential benzene emissions will also control other volatile organic compound emissions, meeting the Subpart CC requirements as well. See 40 CFR 264.1080(b)(7) and 40 CFR 265.1080(b)(7)). (See 40 CFR 264.1080 and 40 CFR 265.1080 for Subpart CC standards and 40 CFR 61.340 for Subpart FF standards.)

Roughly 52% of the spent carbon unloaded at hopper H-1 and 47% of the spent carbon unloaded at hopper H-2 is wet (saturated at roughly 50% moisture content by weight) and, therefore, do not generate fugitive dusts. Moreover, only a very small percentage of the dry spent carbon may be fine particulates. Powdered activated earbon is not accepted at the facility.

A hand-held water spray hose is used at H-1 as the material exits the containers to minimize potential dust emissions during unloading of dry spent carbon as well as to facilitate transfer of the spent carbon from the hopper through the piping system to the storage tanks. A hand-held water spray is also occasionally used to minimize dust emissions while unloading at hopper H-2 inside the spent carbon storage building.

An exhaust ventilation system is used for both hoppers, drawing roughly 2,500 cubic feet per minute of air from several ducts inside the hoppers through a fabric filter baghouse (BH-2) and then a carbon adsorber (WS-2). Particulate matter collected in the baghouse is periodically emptied into a container and placed in the RCRA-regulated debris bin maintained on site. Waste in the debris bin is sent to the RCRA-regulated Aptus, Utah incinerator facility every 60-90 days.

#### 4.3.1.3 Spent Carbon Storage and Furnace Feed Hopper

All spent carbon storage tanks and the furnace feed hopper used at the facility are regulated under the benzene NESHAP Subpart FF air emission regulation which effectively minimizes potential VOC emissions. Although this regulation focuses on controlling benzene emissions, it ultimately achieves control of all VOC emissions. The tanks used to store spent carbon, as well as the furnace feed hopper and the water recycle tanks, have been constructed and are managed to comply with these regulations. The spent carbon storage tanks (tanks T-1, T-2, T-5, T-6), the furnace feed hopper (T-18) and the primary and secondary water recycle tanks (T-9 and T-12) are all fixed-roof, closed-vent storage vessels from which all vapors are passively routed through activated carbon adsorbers. The control efficiency of the carbon adsorbers is at least 95% for organic compounds and at least 98% for benzene. The carbon in these systems is changed over every 40 days for the adsorber that vents tanks T-1, T-2, T-5, T-6, T-9 and T-12. The adsorber that serves the furnace feed hopper T-18 is changed every 38 days. The changeout time for each of these adsorbers has been set based on engineering calculations to assure that the carbon does not approach its maximum collection efficiency.

The holding and discharge water tank, tank T-11, which is used for water and not spent carbon, is subject to recordkeeping and monitoring requirements, but is exempt from the RCRA Subpart CC and benzene Subpart FF air emission control requirements. Under Subpart CC, a tank in which the entering material has an average VOC concentration less than 500 mg/L (i.e., < 500 parts per million by weight or ppmw) is exempt from the RCRA Subpart CC air emission control requirements (40 CFR 265.1082(c)). In accordance with this program, annual monitoring of the material in tank T-11 is conducted and has indicated that the average VOC concentration in the water is less than 500 mg/L. Tank T-11 water is also monitored for benzene annually and has to date been found to contain less than 10 mg/L benzene, the trigger level at which USEPA's Subpart FF benzene NESHAP air emission requirements would be needed.

Process equipment (e.g., piping, valves, flanges, hatches, etc.) is also regularly monitored and inspected to minimize potential fugitive emissions in accordance with the facility's RCRA

compliance program and the benzene NESHAP Subpart FF requirements. Annual air monitoring, in accordance with Subpart FF, is conducted to measure any VOC emissions from tanks, the furnace feed hopper, carbon adsorbers, piping, and other equipment involved in the handling of spent carbon. The Westates monitoring program examines more than 80 potential emission locations at the facility (e.g., flanges, equipment doors, valves, carbon adsorber outlets, etc.). An instrument reading, using USEPA's Method 21, of more than 500 parts per million by volume (ppmv) in air above background is used as a trigger under Subpart FF indicating unacceptable VOC emissions. Measurements made on process equipment (e.g., piping, valves, flanges, hatches, etc.) have exceeded the 500 ppmw trigger only once from 1995 through 2001 (the hatch of recycle water tank T-9 had been left ajar). In this instance, the hatch was immediately closed. Other than this instance, the measured VOC concentrations at process equipment potential emission locations using Method 21 have typically been no more than 1-10 ppmv above background levels.

Visual inspections of facility equipment and processes also occur on a daily, weekly, quarterly and bi-annual basis. The inspection forms used by Westates to conduct these inspections are included in Appendix D. On a daily basis, for example, all drums, vessels and bags are checked for leaks, corrosion, and complete closure and the storage tank systems are checked to ensure that there are no valve leaks, no cracks in piping, no corrosion, that overfill protection systems are functioning and that all monitoring equipment is functioning. Dust collection systems are checked weekly for leaks and to assure adequate pressure drop. A detailed inspection of all seals, inlets and outlets of pumps and valves is performed on a monthly basis. Visual inspections are also conducted to search for cracks, holes, loose connections or gaps in all fixed-roofs, seals, access doors, ductwork, piping, connections and all other openings of equipment used to manage spent carbon. These openings are required to be maintained in a closed, sealed position at all times when spent carbon is present except when it is necessary to use the opening for sampling or removal, or for equipment inspection, maintenance or repair.

#### 4.3.1.4 Spent Carbon Reactivation

Potential emissions associated with spent carbon reactivation are routed through the facility's air pollution control (APC) equipment and then discharged through the facility stack. The high temperature reactivation process and APC employed at the facility are extremely effective in minimizing and removing potential pollutants from the exhaust stack gases. As noted in Section 4.2, potential risks associated with stack emissions will be considered in the risk assessment. Fugitive emissions from the reactivation furnace are, however, prevented by the design of the process which utilizes a totally sealed system. Facility inspection procedures also ensure the integrity of the equipment.

#### 4.3.1.5 Production and Bagging of Reactivated Carbon

Potential fugitive dusts associated with production and bagging of reactivated carbon are controlled through the use of an exhaust system which draws air from the product piping and bagging equipment to the product-side baghouse (BH-1). Not only are product bags connected

<sup>&</sup>lt;sup>2</sup> VOC concentrations greater than 500 ppmw have been observed using the Method 21 sampling not for process equipment but rather in the immediate vicinity of spent carbon barrels at the moment they are opened for unloading and during unloading.

with tight seals to the bagging equipment while filling, but the piping inserted into bags being filled exhausts air to baghouse BH-1. Almost the entire reactivated carbon product consists of small pellets or granules. Based on data from January 2000 to October 2001, only 3.7% of the reactivated product was screened into the smallest "fines" category (i.e., close to powdered activated carbon). Of this percentage, approximately 88% is fed directly to bagging equipment with the remainder (powdered activated carbon) collected in the product-side baghouse fabric filters. The baghouse is shaken periodically, and then a rotary valve scrapes the product directly from the filters into supersacks that are tightly scaled onto the base of the baghouse. When full, the supersacks are manually closed and sealed. This process produces roughly one bag of fine powdered activated carbon per week. The reactivated carbon product is no longer subject to RCRA regulations.

#### 4.3.1.6 Potential Fugitive Emissions from Other Sources

All spent carbon received at the facility is maintained inside sealed containers which are regularly inspected until they are unloaded. Spent carbon is never stored in storage piles anywhere at the facility. The only time spent carbon is ever exposed to the ambient air is during unloading. Once unloaded into the hoppers, all spent carbon is maintained in a slurry form (roughly 44% water) and is enclosed in process equipment (e.g., storage tanks) until it is sent to the combustion system.

All roads used by vehicles transporting spent carbon and reactivated carbon at the facility are paved, thereby minimizing potential fugitive dust emissions. Since spent carbon remains containerized until unloading, fugitive dust emissions that could potentially occur from vehicle movement would only contain native soils, not spent carbon. In addition, the length of paved road segments used by vehicles at the facility is very limited (no more than about 1/4 mile) and vehicle speeds are kept very slow at all times on facility roads (typically less than 5 miles per hour). These factors all limit the likelihood of fugitive dust emissions of soil due to vehicular traffic at the facility. Vehicles carrying spent carbon occasionally wait on the shoulder of the paved facility driveway for their turn to unload their spent carbon; in this case, the vehicle will be at a standstill except when pulling off or on the pavement. The potential for fugitive dust emissions of soil from non-paved surfaces is, therefore, negligible due to the infrequent need for vehicles to pull over while waiting their turn coupled with the fact that the vehicles on the driveway shoulder are not moving except when pulling off or on the paved surface.

#### 4.3.2 Exposure Assessment for Fugitive Emissions

#### 4.3.2.1 Potential Fugitive Emission Sources Selected for Evaluation

The requirements of the benzene Subpart FF regulations minimize potential fugitive volatile organic emissions associated with spent carbon containers and spent carbon storage and process equipment. The combustion process effectively destroys VOCs on spent carbon, thus fugitive VOC emissions will not occur during production and bagging of reactivated carbon. Spent carbon is only exposed to the ambient air during unloading, and there is thus some potential for fugitive VOC emissions during this activity. The potential impact of fugitive VOC emissions in outdoor ambient air will be lower for unloading activities at the indoor hopper compared to the

outdoor hopper because the indoor environment will hinder release and dispersion of potential VOC emissions into the outdoor environment.

Fugitive dust emissions associated with spent carbon may occur during unloading of dry spent carbon at the hoppers. Fugitive dust emissions associated with reactivated carbon could potentially occur during production and bagging activities. At all other points in the facility's process, spent carbon and reactivated carbon are maintained in enclosed systems with no contact with the ambient air. Also, after unloading until combustion, all spent carbon is maintained in a slurry form and will not generate fugitive dusts. There is, however, a potential for spent carbon fugitive dust emissions to occur during unloading of dry spent carbon at the two hoppers even though these emissions are reduced through the use of an exhaust system at the hoppers as well as through the use of a water spray during unloading. Fugitive dust emissions during production and bagging of reactivated carbon are minimized by routing all product through a well-controlled piping and bagging system equipped with highly localized air emission controls at the point of potential dust generation. Thus, fugitive dust emissions associated with reactivated carbon are likely to be negligible.

Based on the discussion provided above, the potential fugitive emission source related to spent carbon considered most likely to impact ambient air is the unloading of spent carbon at the outdoor hopper. Thus, this fugitive emission source will be addressed in the risk assessment, focusing on both fugitive dust emissions as well as fugitive VOC emissions.

### ATTACHMENT D

# STACK EMISSIONS RISK ASSESSMENT: ACUTE INHALATION RISK RESULTS USING MAXIMUM MEASURED STACK EMISSION RATES

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
A_1 max hourly impact point (stack)	
Arsenic	8.2E-02
Nitrogen dioxide	3.9E-02
Sulfur dioxide	1.4E-02
Chlorine	8.9E-03
Hydrogen chloride	4.0E-03 3.1E-03
Beryllium Cadmium	1.3E-03
Nickel	2.7E-04
Lead	2.6E-04
Copper	2.2E-04
Mercury	3.9E-05
Hexachlorobenzene	9.9E-06
Mercuric chloride	9.7E-06
Chlorophenyl-phenylether, 4-	8.9E-06 6.6E-06
Chloroform (Trichloromethane) Benzidine	6.0E-06
Dibromo-3-chloropropane, 1,2-	5.1E-06
Thallium (I)	4.7E-06
Manganese	3.0E-06
/anadium	2.7E-06
Hexachlorocyclopentadiene	2.2E-06
Silver	1.9E-06
4,6-Dinitro-2-methylphenol	1.3E-06
Zinc	9.8E-07
Barium Pentachlorophenol	9.1E-07 6.1E-07
Aluminum	5.9E-07
Tetrachloroethylene (Perchloroethylene)	5.7E-07
Chromium	5.2E-07
Chromium, hexavalent	5.2E-07
Selenium	4.1E-07
Fluoranthene	3.5E-07
PentaCDF, 2,3,4,7,8-	3.3E-07
Nitrosodipropylamine, n- Antimony	2.9E-07 1.7E-07
Bromoform (tribromomethane)	1.7E-07
Chlorobenzene	1.6E-07
Benzoic Acid	1.3E-07
Dinitrotoluene, 2,4-	1.3E-07
Benzene	1.2E-07
Methylene chloride	1.2E-07
3-Penten-2-one, 4-methyl	1.1E-07
Bromodichloromethane	1.1E-07
Ethylhexyl phthalate, bis-2- Dinitrotoluene. 2.6-	1.1E-07 1.1E-07
Dibromochloromethane	1.0E-07
Methyl bromide (Bromomethane)	8.5E-08
Dinitrophenol, 2,4-	7.2E-08
Vitrophenol, 4-	6.9E-08
Nitroaniline, 3-	6.9E-08
Chloronaphthalene,2-	6.6E-08
Dichlorobenzidine, 3,3'-	5.1E-08
Methylene bromide	5.1E-08
Pentachloronitrobenzene (PCNB)	4.2E-08
Coholt	4.2E-08
Cobalt Chlorobenzilate	3.9E-08 3.2E-08
Dimethylphenol, 2,4-	3.0E-08
Acrylonitrile	3.0E-08
Vitrophenol, 2-	2.6E-08
leptachlor	2.4E-08
Carbon Tetrachloride	2.4E-08
Carbazole	2.3E-08
Benzaldehyde	2.3E-08
Dinitrobenzene, 1,3-	2.2E-08
Methyl ethyl ketone (2-Butanone)	2.1E-08 2.1E-08
Benzyl alcohol Phenanthrene	2.1E-08 1.6E-08
Nitroaniline, 4-	1.5E-08
Benzonitrile	1.5E-08
Di-n-butyl phthalate	1.5E-08

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b
Aniline	1.4E-08
Carbon Disulfide	1.4E-08
Methyl chloride (Chloromethane)	1.3E-08
Heptachlor epoxide	1.3E-08
Phenol	1.2E-08
TetraCDF, 2,3,7,8-	1.1E-08
Endrin	9.5E-09 8.5E-09
Chlorophenol, 2-	8.3E-09
Chloroaniline, p- Trichlorobenzene, 1,2,3-	6.8E-09
Acetone	6.8E-09
Bromophenyl-phenylether, 4-	6.7E-09
Chloro-3-methylphenol, 4-	6.5E-09
Hexachloro-1,3-butadiene (Perchlorobutadiene)	6.3E-09
Naphthalene	6.3E-09
Acetophenone	6.3E-09
HexaCDF, 1,2,3,6,7,8-	6.2E-09
Cresol, o-	6.2E-09
HexaCDF, 2,3,4,6,7,8-	5.8E-09
N-nitrosodimethylamine	5.5E-09
N-minosodimetrylamine Butylbenzylphthalate	4.4E-09
Chlordane	4.3E-09
Dichlorobenzene, 1,3-	4.2E-09
2,5-Dimethylheptane	4.1E-09
z,s-birnetitymeptane Diethyl phthalate	4.0E-09
Acenaphthylene	4.0E-09
Tetrachloroethane, 1,1,2,2-	3.9E-09
Vinyl Acetate	3.8E-09
HexaCDF, 1,2,3,4,7,8-	3.8E-09
HexaCDD, 1,2,3,4,7,8-	3.6E-09
Dichloropropene, 1,3- (cis)	3.5E-09
Xylene, p-	3.4E-09
Xylene, m-	3.4E-09
Bis(2-chloroethoxy) methane	3.3E-09
Trichlorophenol, 2,4,5-	3.2E-09
PentaCDF, 1,2,3,7,8-	3.2E-09
Nitroaniline, 2-	3.1E-09
Nitrobenzene	3.1E-09
Dichlorophenol, 2,4-	2.9E-09
Benzo(b)fluoranthene	2.9E-09
2-Hexanone	2.8E-09
Hexachloroethane (Perchloroethane)	2.8E-09
Cresol, p-	2.7E-09
Cresol, m-	2.7E-09
Dimethyl phthalate	2.7E-09
PentaCDD, 1,2,3,7,8-	2.6E-09
Endosulfan I	2.6E-09
Trichlorophenol, 2,4,6-	2.5E-09
BHC, beta-	2.4E-09
Pyridine	2.2E-09
Dibenzofuran	2.1E-09
Diphenylamine	2.1E-09
Bromobenzene	2.0E-09
ndeno(1,2,3-cd) pyrene	1.9E-09
Tetrachlorobenzene, 1,2,4,5-	1.9E-09
Aldrin	1.9E-09
Nitrosodiphenylamine, N-	1.9E-09
sophorone	1.9E-09
Pentachlorobenzene	1.8E-09
Di-n-octylphthalate	1.7E-09
Trichlorobenzene, 1,2,4-	1.6E-09
TetraCDD, 2,3,7,8-	1.6E-09
Chrysene	1.5E-09
Aroclor 1254	1.4E-09
Diphenylhydrazine,1,2-	1.4E-09
3-Ethyl benzaldehyde	1.3E-09
4-Ethyl benzaldehyde	1.3E-09
Trichloropropane, 1,2,3-	1.2E-09
DDT, 4-4'-	1.2E-09
Butylbenzene, sec	1.2E-09
Xylene, o-	1.2E-09
1,1-Dichloropropene	1.0E-09
Trichloroethane, 1,1,2-	9.5E-10 9.2E-10

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
BHC, alpha-	9.0E-10
Benzo(a)Anthracene	8.7E-10
Styrene	8.1E-10
Bis(2-chlorethyl)ether	8.1E-10
Benzo(k)fluoranthene	7.8E-10
2,2'-oxybis (1-Chloropropane) lodomethane	7.7E-10 7.2E-10
Methyl isobutyl ketone	5.6E-10
Benzo(a)pyrene	5.0E-10
gamma-BHC (Lindane)	4.6E-10
OctaCDF, 1,2,3,4,6,7,8,9-	4.4E-10
Ethylene dibromide	3.9E-10
Trichloroethylene	3.6E-10
Tetrahydrofuran	3.6E-10 3.5E-10
Pyrene HexaCDD, 1,2,3,7,8,9-	3.5E-10
DDD, 4,4'-	3.5E-10
Tetrachloroethane, 1,1,1,2-	3.1E-10
HexaCDD, 1,2,3,6,7,8-	3.0E-10
1,3-Dichloropropane	3.0E-10
Butylbenzene, n-	2.9E-10
Dichtoroethylene 1,1-	2.8E-10
2,2-Dichloropropane	2.8E-10
Butylbenzene, tert Vinyl Chloride	2.7E-10 2.5E-10
Trichloroethane, 1,1,1-	2.4E-10
Anthracene	2.3E-10
Acenaphthene	2.2E-10
2-Methylnaphthalene	2.1E-10
Trimethylbenzene, 1,3,5-	1.9E-10
Dichlorobenzene, 1,2-	1.7E-10
Dichloroethane, 1,2- (Ethylene Dichloride)	1.6E-10
HeptaCDF, 1,2,3,4,6,7,8-	1.5E-10
Methoxychlor Dichlorobenzene,1,4-	1.1E-10 1.0E-10
DDE, 4,4'-	9.8E-11
Fluorene	8.6E-11
Cumene (Isopropylbenzene)	8.5E-11
OctaCDD, 1,2,3,4,6,7,8,9-	7.9E-11
2-Chlorotoluene	7.5E-11
4-Chlorotoluene	7.5E-11
Ethylene Glycol	6.5E-11
Propylbenzene, n- Trichlorofluoromethane (Freon 11)	6.2E-11 5.4E-11
1,2,4-Trimethylbenzene	5.4E-11
Dichloroethylene, cis-1,2-	4.8E-11
Ethylbenzene	4.7E-11
Dichloropropane, 1,2-	4.7E-11
HexaCDF, 1,2,3,7,8,9-	3.3E-11
Chloroethane	3.1E-11
Dichlorodifluoromethane	3.1E-11
Bromochloromethane	3.0E-11
Benzo(g,h,i)perylene	3.0E-11
methyl tert-butyl ether HeptaCDF, 1,2,3,4,7,8,9-	2.4E-11 2.1E-11
Propylene oxide	1.7E-11
Dichloroethylene-1,2 (trans)	1.5E-11
Dichloroethane 1,1-	1.5E-11
HeptaCDD, 1,2,3,4,6,7,8-	7.7E-12
Methyl methacrylate	4.1E-12
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	
Dibenz(a,h)anthracene	1.9E-12
Dioxane, 1,4-	1.5E-12
Acrylic Acid 1-Hexane (n-hexane)	1.6E-13
1-∺exane (n-nexane) Endosulfan sulfate	2.8E-14 0.0E+00
2,5-Dione, 3-hexene	0.0E+00
Benzo(e)pyrene	0.0E+00
Perylene	0.0E+00
Phosphine imide, P,P,P-triphenyl	0.0E+00
Diallate	0.0E+00
9-Octadecenamide (oleamide)	0.0E+00
delta-BHC	0.0E+00

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Endosulfan II	0.0E+00
Endrin ketone	0.0E+00
3-Penten-2-one (ethylidene acetone)	0.0E+00
2,5-Dimethylfuran	0.0E+00
Endrin aldehyde	0.0E+00
3-Hexen-2-one	0.0E+00_
Benzoic acid, methyl ester (methyl benzoate)	
sopropyl toluene, p-	0.0E+00
Fotal (c) A 2 closest business	1.5E-01
Nitrogen dioxide	3.9E-02
Arsenic	3.3E-02
Sulfur dioxide	1.4E-02
Chlorine	9.0E-03
Hydrogen chloride	4.0E-03
Beryllium	1.3E-03
Cadmium	5.2E-04
Nickel	1.1E-04
_ead	1.0E-04
Copper	9.0E-05
Mercury	3.9E-05
Hexachlorobenzene Marauria ablarida	9.9E-06
Mercuric chloride	9.7E-06 9.0E-06
Chlorophenyl-phenylether, 4- Chloroform (Trichloromethane)	9.0E-06 6.7E-06
Onloroform (Trichloromethane) Benzidine	5.8E-06
Dibromo-3-chloropropane, 1,2-	5.2E-06
Hexachlorocyclopentadiene	2.2E-06
Thallium (I)	1.9E-06
4,6-Dinitro-2-methylphenol	1.3E-06
Manganese	1.2E-06
Vanadium	1.1E-06
Silver	7.7E-07
Pentachlorophenol	6.1E-07
Tetrachloroethylene (Perchloroethylene)	5.7E-07
Zinc	3.9E-07
Barium	3.7E-07
Fluoranthene	3.5E-07
PentaCDF, 2,3,4,7,8-	3.2E-07
Nitrosodipropylamine, n-	2.9E-07
Aluminum	2.4E-07
Chromium	2.1E-07
Chromium, hexavalent	2.1E-07
Antimony	1.7E-07
Bromoform (tribromomethane)	1.7E-07
Selenium	1.6E-07
Chlorobenzene	1.6E-07
Benzoic Acid	1.3E-07
Dinitrotoluene, 2,4-	1.3E-07
Benzene	1.2E-07
Methylene chloride	1.2E-07
3-Penten-2-one, 4-methyl	1.1E-07
Bromodichloromethane	1.1E-07
Ethylhexyl phthalate, bis-2-	1.1E-07
Dinitrotoluene, 2,6-	1.1E-07
Dibromochloromethane	1.0E-07
Methyl bromide (Bromomethane)	8.6E-08
Dinitrophenol, 2,4-	7.3E-08
Nitrophenol, 4-	7.0E-08
Nitroaniline, 3-	7.0E-08
Chloronaphthalene,2-	6.6E-08
Methylene bromide	5.1E-08
Dichlorobenzidine, 3,3'-	5.1E-08_
Pentachloronitrobenzene (PCNB)	4.2E-08
Toluene	4.2E-08
Chlorobenzilate	3.2E-08_
Dimethylphenol, 2,4-	3.1E-08
Acrylonitrile	3.0E-08
Nitrophenol, 2-	2.6E-08
Heptachlor	2.4E-08
Carbon Tetrachloride	2.4E-08
Carbazole	2.3E-08

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Benzaldehyde	2,3E-08
Dinitrobenzene, 1,3-	2.2E-08
Methyl ethyl ketone (2-Butanone)	2.1E-08
Benzyl alcohol	2.1E-08
Phenanthrene Caball	1.6E-08
Cobalt Nitroaniline, 4-	1.6E-08 1.5E-08
Benzonitrile	1.5E-08
Di-n-butyl phthalate	1.5E-08
Aniline	1.4E-08
Carbon Disulfide	1.4E-08
Methyl chloride (Chloromethane)	1.3E-08
Heptachlor epoxide	1.3E-08
Phenol The ODE 2278	1.2E-08
TetraCDF, 2,3,7,8- Endrin	1.1E-08 9.5E-09
Chlorophenol, 2-	8.6E-09
Chloroaniline, p-	8.3E-09
Trichlorobenzene, 1,2,3-	6.9E-09
Acetone	6.8E-09
Bromophenyl-phenylether, 4-	6.7E-09
Chloro-3-methylphenol, 4-	6.6E-09
Hexachloro-1,3-butadiene (Perchlorobutadiene)	6.4E-09
Naphthalene	6.4E-09 6.3E-09
Acetophenone Cresol, o-	6.2E-09
HexaCDF, 1,2,3,6,7,8-	6.0E-09
HexaCDF, 2,3,4,6,7,8-	5.7E-09
N-nitrosodimethylamine	5.5E-09
Butylbenzylphthalate	4.4E-09
Chlordane	4.3E-09
Dichlorobenzene, 1,3-	4.2E-09
2,5-Dimethylheptane	4.1E-09
Diethyl phthalate Acenaphthylene	4.0E-09 4.0E-09
Tetrachloroethane, 1,1,2,2-	3.9E-09
Vinyl Acetate	3.9E-09
HexaCDF, 1,2,3,4,7,8-	3.7E-09
Dichloropropene, 1,3- (cis)	3.5E-09
HexaCDD, 1,2,3,4,7,8-	3.5E-09
Xylene, p-	3.4E-09
Xylene, m-	3.4E-09 3.3E-09
Bis(2-chloroethoxy) methane Trichlorophenol, 2,4,5-	3.2E-09
Nitroaniline, 2-	3.2E-09
Nitrobenzene	3.1E-09
PentaCDF, 1,2,3,7,8-	3.1E-09
Dichlorophenol, 2,4-	2.9E-09
Benzo(b)fluoranthene	2.9E-09
2-Hexanone	2.8E-09
Hexachloroethane (Perchloroethane)	2.8E-09
Cresol, p-	2.7E-09
Cresol, m-	2.7E-09
Dimethyl phthalate Endosulfan I	2.7E-09 2.6E-09
Trichlorophenol, 2.4,6-	2.6E-09
PentaCDD, 1,2,3,7,8-	2.5E-09
BHC, beta-	2.4E-09
Pyridine	2.2E-09
Dibenzofuran	2.1E-09
Diphenylamine	2.1E-09
Bromobenzene	2.0E-09
Tetrachlorobenzene, 1,2,4,5-	1.9E-09
Aldrin Nitrosodiphenylamine, N-	1.9E-09
Initrosodiphenylamine, N- Isophorone	1.9E-09 1.9E-09
Pentachlorobenzene	1.8E-09
Di-n-octylphthalate	1.7E-09
Trichlorobenzene, 1,2,4-	1.6E-09
TetraCDD, 2,3,7,8-	1.5E-09
Chrysene	1.5E-09
Aroclor 1254	1.5E-09
Diphenylhydrazine,1,2-	1.4E-09
3-Ethyl benzaldehyde	1.4E-09

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
4-Ethyl benzaldehyds	1.4E-09
Trichloropropane, 1,2,3-	1.2E-09
DDT, 4-4'-	1.2E-09
Butylbenzene, sec	1.2E-09
Xylene, o- 1,1-Dichloropropene	1.2E-09 1.0E-09
Trichloroethane, 1,1,2-	9.6E-10
Dieldrin	9.2E-10
BHC, alpha-	9.0E-10
Benzo(a)Anthracene	8.6E-10
Styrene	8.2E-10
Bis(2-chlorethyl)ether	8.1E-10
2,2'-oxybis (1-Chloropropane)	7.7E-10
Indeno(1,2,3-cd) pyrene Benzo(k)fluoranthene	7.7E-10 7.6E-10
lodomethane	7.0E-10 7.2E-10
Methyl isobutyl ketone	5.6E-10
Benzo(a)pyrene	4.9E-10
gamma-BHC (Lindane)	4.6E-10
OctaCDF, 1,2,3,4,6,7,8,9-	4.2E-10
Ethylene dibromide	3.9E-10
Trichloroethylene	3.6E-10
Tetrahydrofuran	3.6E-10
Pyrene DDD, 4,4'-	3.6E-10 3.5E-10
HexaCDD, 1,2,3,7,8,9-	3.4E-10
Tetrachloroethane, 1,1,1,2-	3.2E-10
1,3-Dichloropropane	3.0E-10
HexaCDD, 1,2,3,6,7,8-	2.9E-10
Butylbenzene, n-	2.9E-10
Dichloroethylene 1,1-	2.8E-10
2,2-Dichloropropane	2.8E-10 2.8E-10
Butylbenzene, tert Vinyl Chloride	2.6E-10
Trichloroethane, 1,1,1-	2.4E-10
Anthracene	2.3E-10
Acenaphthene	2.2E-10
2-Methylnaphthalene	2.1E-10
Trimethylbenzene, 1,3,5-	1.9E-10
Dichlorobenzene, 1,2-	1.7E-10
Dichloroethane, 1,2- (Ethylene Dichloride)	1.6E-10
HeptaCDF, 1,2,3,4,6,7,8- Methoxychlor	1.5E-10 1.1E-10
Dichlorobenzene, 1,4-	1.0E-10
DDE, 4,4'-	9.8E-11
Fluorene	8,7E- <u>1</u> 1
Cumene (Isopropylbenzene)	8.5E-11
OctaCDD, 1,2,3,4,6,7,8,9-	7.7E-11
2-Chlorotoluene	7.5E-11
4-Chlorotoluene	7.5E-11
Ethylene Glycol	6.5E-11
Propylbenzene, n- Trichlorofluoromethane (Freon 11)	6.2E-11 5.5E-11
1,2,4-Trimethylbenzene	5.4E-11
Dichloroethylene, cis-1,2-	4.9E-11
Ethylbenzene	4.7E-11
Dichloropropane, 1,2-	4.7E-11
HexaCDF, 1,2,3,7,8,9-	3,2E-11
Chloroethane	3.1E-11
Dichlorodifluoromethane	3.1E-11
Bromochloromethane	3.0E-11
Benzo(g,h,i)perylene methyl tert-butyl ether	2.9E-11 2.4E-11
metnyl terr-butyl etner HeptaCDF, 1,2,3,4,7,8,9-	2.4E-11 2.1E-11
Propylene oxide	1.7E-11
Dichloroethylene-1,2 (trans)	1.5E-11
Dichloroethane 1,1-	1.5E-11
HeptaCDD, 1,2,3,4,6,7,8-	7.5E-12
Methyl methacrylate	4.1E-12
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	2.0E-12
Dioxane, 1,4-	1.6E-12
Dibenz(a,h)anthracene	8.0E-13
Acrylic Acid	1.6E-13 2.8E-14

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Endosulfan sulfate	0.0E+00
2,5-Dione, 3-hexene	0.0E+00
Benzo(e)pyrene	0.0E+00
Perylene	0.0E+00
Phosphine imide, P,P,P-triphenyl	0.0E+00
Diallate 9-Octadecenamide (oleamide)	0.0E+00 0.0E+00
delta-BHC	0.0E+00
2-Methyl octane	0.0E+00
Endosulfan II	0.0E+00
Endrin ketone	0.0E+00
3-Penten-2-one (ethylidene acetone)	0.0E+00
2,5-Dimethylfuran	0.0E+00
Endrin aldehyde	0.0E+00
3-Hexen-2-one	0.0E+00
Benzoic acid, methyl ester (methyl benzoate)	0.0E+00
Isopropyi toluene, p-	0.0E+00
Total (c)  R 1 resident	1.0E-01
Nitrogen dioxide	1.6E-02
Arsenic	1.2E-02
Sulfur dioxide	5.8E-03
Chlorine	3.7E-03
Hydrogen chloride	1.6E-03
Beryllium	4.5E-04
Cadmium	1.8E-04
Nickel	3.8E-05
Lead	3.7E-05 3.2E-05
Copper Mercury	1.6E-05
Hexachlorobenzene	4.0E-06
Mercuric chloride	4.0E-06
Chlorophenyl-phenylether, 4-	3.7E-06
Chloroform (Trichloromethane)	2.7E-06
Benzidine	2.6E-06
Dibromo-3-chloropropane, 1,2-	2.1E-06
Hexachlorocyclopentadiene	9.1E-07
Thallium (I)	6.7E-07 5.3E-07
4,6-Dinitro-2-methylphenol Manganese	4.2E-07
Vanadium	3.8E-07
Silver	2.7E-07
Pentachlorophenol	2.5E-07
Tetrachloroethylene (Perchloroethylene)	2.3E-07
Fluoranthene	1.4E-07
PentaCDF, 2,3,4,7,8-	1.4E-07
Zinc	1.4E-07
Barium	1.3E-07
Nitrosodipropylamine, n-	1.2E-07
Aluminum	8.4E-08
Chromium	7.4E-08
Chromium, hexavalent Antimony	7.4E-08
	7.0E-08 6.8E-08
Bromoform (tribromomethane) Chlorobenzene	6.4E-08
Selenium	5.8E-08
Benzoic Acid	5.4E-08
Dinitrotoluene, 2,4-	5.4E-08
Benzene	4.9E-08
Methylene chloride	4.7E-08
Ethylhexyl phthalate, bis-2-	4.7E-08
3-Penten-2-one, 4-methyl	4.6E-08
Bromodichloromethane	4.5E-08
Dinitrotoluene, 2,6-	4.3E-08
Dibromochloromethane	4.2E-08
Methyl bromide (Bromomethane)	3.5E-08
Dinitrophenol, 2,4-	3.0E-08
Nitrophenol, 4-	2.8E-08
Nitroaniline, 3-	2.8E-08
Chloronaphthalene,2-	2.7Ë-08
Dichlorobenzidine, 3,3'-	2.2E-08 2.1E-08

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Pentachloronitrobenzene (PCNB)	1.7E-08
Toluene	1.7E-08
Chlorobenzilate	1.3E-08
Dimethylphenol, 2,4-	1.2E-08
Acrylonitrile	1.2E-08
Nitrophenol, 2- Heptachlor	1.1E-08 9.7E-09
Carbon Tetrachloride	9.7E-09
Carbazole	9.5E-09
Benzaldehyde	9.4E-09
Dinitrobenzene, 1,3-	8.9E-09
Methyl ethyl ketone (2-Butanone)	8.4E-09
Benzyl alcohol	8.4E-09
Phenanthrene	6.7E-09
Nitroaniline, 4-	6.1E-09
Benzonitrile Di-n-butyl phthalate	6.1E-09 6.0E-09
Aniline	5.8E-09
Carbon Disulfide	5.6E-09
Cobalt	5.5E-09
Methyl chloride (Chloromethane)	5.2E-09
Heptachlor epoxide	5.2E-09
Phenol	4.8E-09
TetraCDF, 2,3,7,8-	4.6E-09 3.9E-09
Endrin Chlorophenol, 2-	3.5E-09
Chloroaniline, p-	3.4E-09
Trichlorobenzene, 1,2,3-	2.8E-09
Acetone	2.8E-09
Bromophenyl-phenylether, 4-	2.7E-09
Chloro-3-methylphenol, 4-	2.7E-09
HexaCDF, 1,2,3,6,7,8-	2.7E-09
Hexachloro-1,3-butadiene (Perchlorobutadiene)	2.6E-09
Naphthalene Acetophenone	2.6E-09 2.6E-09
Cresol, o-	2.5E-09
HexaCDF, 2,3,4,6,7,8-	2.5E-09
N-nitrosodimethylamine	2.3E-09
Butylbenzylphthalate	1.8E-09
Chlordane	1.7E-09
Dichlorobenzene, 1,3-	1.7E-09
2,5-Dimethylheptane	1.7E-09
Diethyl phthalate HexaCDF, 1,2,3,4,7,8-	1.6E-09 1.6E-09
Acenaphthylene	1.6E-09
Tetrachloroethane, 1,1,2,2-	1.6E-09
Vinyl Acetate	1.6E-09
HexaCDD, 1,2,3,4,7,8-	1.5E-09
Dichloropropene, 1,3- (cis)	1.4E-09
Xylene, p-	1.4E-09
Xylene, m-	1.4E-09
Bis(2-chloroethoxy) methane	1.4E-09
PentaCDF, 1,2,3,7,8- Trichlorophenol, 2,4,5-	1.3E-09
Nitroaniline, 2-	1.3E-09 1.3E-09
Nitrobenzene	1.3E-09
Dichlorophenol, 2,4-	1.2E-09
Benzo(b)fluoranthene	1.2E-09
2-Hexanone	1.1E-09
Hexachloroethane (Perchloroethane)	1.1E-09
PentaCDD, 1,2,3,7,8-	1.1E-09
Cresol, p-	1.1E-09
Cresol, m-	1.1E-09
Dimethyl phthalate Endosulfan I	1.1E-09 1.1E-09
Endosultan I Trichlorophenol, 2,4,6-	
BHC, beta-	1.0E-09 9.6E-10
Pyridine	9.2E-10
Dibenzofuran	8.7E-10
Diphenylamine	8.7E-10
Bromobenzene	8.1E-10
Aldrin	7.9E-10
Tetrachlorobenzene, 1,2,4,5-	7.9E-10
Nitrosodiphenylamine, N-	7.8E-10

#### **ACUTE INHALATION RISK RESULTS**

### REACTIVATION FACILITY STACK EMISSIONS - MAXIMUM MEASURED STACK EMISSION RATES (a)

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Isophorone	7.8E-10
Pentachlorobenzene	7.3E-10
Di-n-octylphthalate	7.1E-10 6.5E-10
TetraCDD, 2,3,7,8- Trichlorobenzene, 1,2,4-	6.5E-10
Chrysene	6.3E-10
Arocior 1254	5.9E-10
Diphenylhydrazine,1,2-	5.7E-10
3-Ethyl benzaldehyde	5.5E-10
4-Ethyl benzaldehyde	5.5E-10
Trichloropropane, 1,2,3-	5.0E-10
DDT, 4-4'- Butylbenzene, sec	4.9E-10 4.8E-10
Xylene, o-	4.7E-10
1,1-Dichloropropene	4.2E-10
Trichloroethane, 1,1,2-	3.9E-10
Dieldrin	3.8E-10
BHC, alpha-	3.7E-10
Benzo(a)Anthracene	3.7E-10
Styrene Banza (k) fluorenthana	3.3E-10
Benzo(k)fluoranthene Bis(2-chlorethyl)ether	3.3E-10 3.3E-10
2,2'-oxybis (1-Chloropropane)	3.3E-10 3.2E-10
odomethane	3.0E-10
Indeno(1,2,3-cd) pyrene	2.7E-10
Methyl isobutyl ketonε	2.3E-10
Benzo(a)pyrene	2.1E-10
OctaCDF, 1,2,3,4,6,7,8,9-	1.9E-10
gamma-BHC (Lindane)	1.9E-10
Ethylene dibromide HexaCDD, 1,2,3,7,8,9-	1.6E-10 1.5E-10
Trichloroethylene	1.5E-10
Tetrahydrofuran	1.5E-10
Pyrene	1.5E-10
DDD, 4,4'-	1.4E-10
HexaCDD, 1,2,3,6,7,8-	1.3E-10
Tetrachloroethane, 1,1,1,2-	1.3E-10
1,3-Dichloropropane	1.2E-10
Butylbenzene, n- Dichloroethylene 1,1-	1.2E-10 1.1E-10
2,2-Dichloropropane	1.1E-10
Butylbenzene, tert	1.1E-10
Vinyl Chloride	1.0E-10
Trichloroethane, 1,1,1-	9.9E-11
Anthracene	9.3E-11
Acenaphthene	9.0E-11
2-Methylnaphthalene Trimethylbenzene, 1,3,5-	8.7E-11 7.9E-11
Dichlorobenzene, 1,2-	6.9E-11
Dichloroethane, 1,2- (Ethylene Dichloride)	6.5E-11
HeptaCDF, 1,2,3,4,6,7,8-	6.5E-11
Methoxychlor	4.4E-11
Dichlorobenzene,1,4-	4.1E-11
DDE, 4,4'-	4.0E-11
Fluorene	3.5E-11
Cumene (Isopropylbenzene)	3.5E-11
OctaCDD, 1,2,3,4,6,7,8,9- 2-Chlorotoluene	3.4E-11
2-Uniorotoluene 4-Chlorotoluene	3.1E-11 3.1E-11
Ethylene Glycol	2.7E-11
Propylbenzene, n-	2.5E-11
Trichlorofluoromethane (Freon 11)	2.2E-11
1,2,4-Trimethylbenzene	2.2E-11
Dichloroethylene, cis-1,2-	2.0E-11
Ethylbenzene	1.9E-11
Dichloropropane, 1,2-	1.9E-11
HexaCDF, 1,2,3,7,8,9-	1.4E-11
Benzo(g,h,i)perylene	1.3E-11
Chloroethane Dichlorodifluoromethane	1.3E-11 1.3E-11
Bromochloromethane	1.2E-11
methyl tert-butyl ether	9.7E-12
HeptaCDF, 1,2,3,4,7,8,9-	9.2E-12
Propylene oxide	6.9E-12

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Dichloroethylene-1,2 (trans)	6.3E-12
Dichloroethane 1,1-	6.0E-12
HeptaCDD, 1,2,3,4,6,7,8- Methyl methacrylate	3.3E-12 1.7E-12
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	8.1E-13
Dioxane, 1,4-	6.3E-13
Dibenz(a,h)anthracene	2.9E-13
Acrylic Acid	6.4E-14
1-Hexane (n-hexane)	1.1E-14
Endosulfan sulfate 2,5-Dione, 3-hexene	0.0E+00 0.0E+00
Benzo(e)pyrene	0.0E+00
Perylene	0.0E+00
Phosphine imide, P,P,P-triphenyl	0.0E+00
Diallate	0.0E+00
9-Octadecenamide (oleamide) delta-BHC	0.0E+00 0.0E+00
2-Methyl octane	0.0E+00
Endosulfan II	0.0E+00
Endrin ketone	0.0E+00
3-Penten-2-one (ethylidene acetone)	0.0E+00
2,5-Dimethylfuran	0.0E+00
Endrin aldehyde 3-Hexen-2-one	0.0E+00 0.0E+00
Benzoic acid, methyl ester (methyl benzoate)	0.0E+00
Isopropyl toluene, p-	0.0E+00
Total (c)	4.0E-02
R_2 resident	
Nitrogen dioxide	1.1E-02
Arsenic Sulfur dioxide	7.0E-03 3.9E-03
Chlorine	2.4E-03
Hydrogen chloride	1.1E-03
Beryllium	2.6E-04
Cadmium	1.1E-04
Nickel Lead	2.3E-05 2.2E-05
Copper	1.9E-05
Mercury	1.1E-05
Hexachlorobenzene	2.7E-06
Mercuric chloride	2.7E-06
Chlorophenyl-phenylether, 4- Chloroform (Trichloromethane)	2.5E-06 1.8E-06
Benzidine	1.7E-06
Dibromo-3-chloropropane, 1,2-	1.4E-06
Hexachlorocyclopentadiene	6.1E-07
Thallium (I)	4.0E-07
4,6-Dinitro-2-methylphenol Manganese	3.5E-07 2.5E-07
Vanadium	2.3E-07
Pentachlorophenol	1.7E-07
Silver	1.6E-07
Tetrachloroethylene (Perchloroethylene)	1.6E-07
Fluoranthene	9.5 <b>E</b> -08
PentaCDF, 2,3,4,7,8- Zinc	9.5E-08
Zinc Nitrosodipropylamine, n-	8.3E-08 7.8E-08
Barium	7.7E-08
Aluminum	5.0E-08
Antimony	4.7E-08
Bromoform (tribromomethane)	4.6E-08
Chromium Chromium, hexavalent	4.4E-08 4.4E-08
Chlorobenzene	4.4E-08 4.3E-08
Benzoic Acid	3.6E-08
Dinitrotoluene, 2,4-	3.6E-08
Selenium	3.5E-08
Benzene	3.3E-08
Ethylhexyl phthalate, bis-2-	3.2E-08
Methylene chloride 3-Penten-2-one, 4-methyl	3.2E-08 3.1E-08
	J. 1E-00

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Dinitrotoluene, 2,6-	2.9E-08
Dibromochloromethane	2.8E-08
Methyl bromide (Bromomethane)	2.3E-08
Dinitrophenol, 2,4- Nitrophenol, 4-	2.0E-08 1.9E-08
Nitroaniline, 3-	1.9E-08
Chloronaphthalene,2-	1.8E-08
Dichlorobenzidine, 3,3'-	1.5E-08
Methylene bromide	1.4E-08
Pentachloronitrobenzene (PCNB) Toluene	1.1E-08 1.1E-08
Chlorobenzilate	9.0E-09
Dimethylphenol, 2,4-	8.3E-09
Acrylonitrile	8.1E-09
Nitrophenol, 2-	7.2E-09
Heptachlor	6.5E-09 6.5E-09
Carbon Tetrachloride Carbazole	6.4E-09
Benzaldehyde	6.3E-09
Dinitrobenzene, 1,3-	6.0E-09
Methyl ethyl ketone (2-Butanone)	5.6E-09
Benzyl alcohol Phenanthrene	5,6E-09 4.5E-09
Nitroaniline, 4-	4.5E-09 4.1E-09
Benzonitrile	4.1E-09
Di-n-butyl phthalate	4.0E-09
Aniline	3.9E-09
Carbon Disulfide	3.7E-09
Methyl chloride (Chloromethane) Heptachlor epoxide	3.5E-09 3.5E-09
Cobalt	3.3E-09
Phenol	3.2E-09
TetraCDF, 2,3,7,8-	3.1E-09
Endrin Chlarachanal 2	2.6E-09
Chlorophenol, 2- Chloroaniline, p-	2.3E-09 2.3E-09
Trichlorobenzene, 1,2,3-	1.9E-09
Acetone	1.9E-09
Bromophenyl-phenylether, 4-	1.8E-09
HexaCDF, 1,2,3,6,7,8- Chloro-3-methylphenol, 4-	1.8E-09 1.8E-09
Hexachloro-1,3-butadiene (Perchlorobutadiene)	
Naphthalene	1.7E-09
Acetophenone	1.7E-09
Cresol, o-	1.7E-09
HexaCDF, 2,3,4,6,7,8- N-nitrosodimethylamine	1.7E-09 1.5E-09
Butylbenzylphthalate	1.2E-09
Chlordane	1.2E-09
Dichlorobenzene, 1,3-	1.2E-09
2,5-Dimethylheptane	1.1E-09
HexaCDF, 1,2,3,4,7,8- Diethyl phthalate	1.1E-09 1.1E-09
Acenaphthylene	1.1E-09
Tetrachloroethane, 1,1,2,2-	1.1E-09
Vinyl Acetate	1.1E-09
HexaCDD, 1,2,3,4,7,8-	1.0E-09
Dichloropropene, 1,3- (cis)	9.6E-10
Xylene, p- Xylene, m-	9.3E-10 9.3E-10
PentaCDF, 1,2,3,7,8-	9.1E-10
Bis(2-chloroethoxy) methane	9.1E-10
Trichlorophenol, 2,4,5-	8.8E-10
Nitroaniline, 2-	8.6E-10
Nitrobenzene Dichlorophenol, 2,4-	8.6E-10 8.0E-10
Benzo(b)fluoranthene	7.8E-10
2-Hexanone	7.6E-10
Hexachloroethane (Perchloroethane)	7.6E-10
PentaCDD, 1,2,3,7,8-	7.5E-10
Cresol, p-	7.4E-10
Cresol, m-	7.4E-10 7.3E-10
Dimethyl phthalate Endosulfan I	7.3E-10 7.0E-10

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Trichlorophenol, 2,4,6-	7.0E-10
BHC, beta-	6.5E-10
Pyridine	6.1E-10
Dibenzofuran	5.8E-10
Diphenylamine	5.8E-10
Bromobenzene	5.4E-10
Aldrin Tetrachlorobenzene, 1,2,4.5-	5.3E-10 5.3E-10
Nitrosodiphenylamine, N-	5.2E-10
Isophorone	5.2E-10
Pentachlorobenzene	4.9E-10
Di-n-octylphthalate	4.8E-10
TetraCDD, 2,3,7,8-	4.4E-10
Trichlorobenzene, 1,2,4-	4.3E-10
Chrysene	4.3E-10
Aroclor 1254	4.0E-10
Diphenylhydrazine,1,2- 3-Ethyl benzaldehyde	3.8E-10 3.7E-10
4-Ethyl benzaldenyde	3.7E-10
Trichloropropane, 1,2,3-	3.4E-10
DDT, 4-4'-	3.3E-10
Butylbenzene, sec	3.2E-10
Xylene, o-	3.2E-10
1,1-Dichloropropene	2.8E-10
Trichloroethane, 1,1,2-	2.6E-10
Dieldrin	2.5E-10
Benzo(a)Anthracene BHC, alpha-	2.5E-10 2.5E-10
Benzo(k)fluoranthene	2.2E-10
Styrene	2.2E-10
Bis(2-chlorethyl)ether	2.2E-10
2,2'-oxybis (1-Chloropropane)	2.1E-10
lodomethane	2.0E-10
Indeno(1,2,3-cd) pyrene	1.6E-10
Methyl isobutyl ketonε	1.5E-10 1.4E-10
Benzo(a)pyrene OctaCDF, 1,2,3,4,6,7,8,9-	1.4E-10 1.3E-10
gamma-BHC (Lindane)	1.3E-10
Ethylene dibromide	1.1E-10
HexaCDD, 1,2,3,7,8,9-	1.0E-10
Trichloroethylene	9.9E-11
Tetrahydrofuran	9.9E-11
Pyrene	9.7E-11
DDD, 4,4'-	9.7E-11
HexaCDD, 1,2,3,6,7,8-	8.8E-11
Tetrachloroethane, 1,1,1,2- 1,3-Dichloropropane	8.6E-11 8.2E-11
Butylbenzene, n-	7.9E-11
Dichloroethylene 1,1-	7.6E-11
2,2-Dichloropropane	7.6E-11
Butylbenzene, tert	7.5E-11
Vinyl Chloride	7.0E-11
Trichloroethane, 1,1,1-	6.6E-11
Anthracene	6.2E-11
Acenaphthene	6.0E-11
2-Methylnaphthalene Trimethylbenzene, 1,3,5-	5.8E-11 5.3E-11
Dichlorobenzene, 1,2-	4.6E-11
HeptaCDF, 1,2,3,4,6,7,8-	4.4E-11
Dichloroethane, 1,2- (Ethylene Dichloride)	4.3E-11
Methoxychlor	3.0E-11
Dichlorobenzene,1,4-	2.8E-11
DDE, 4,4'-	2.7E-11
Fluorene	2.4E-11
Cumene (Isopropylbenzene)	2.3E-11
OctaCDD, 1,2,3,4,6,7,8,9-	2.3E-11
2-Chlorotoluene	2.1E-11
4-Chlorotoluene	2.0E-11 1.8E-11
Ethylene Glycol Propylbenzene, n-	1.8E-11 1.7E-11
Propylberizene, n- Trichlorofluoromethane (Freon 11)	1.7E-11 1.5E-11
1,2,4-Trimethylbenzene	1.5E-11
Dichloroethylene, cis-1,2-	1.3E-11
Ethylbenzene	1.3E-11

#### **ACUTE INHALATION RISK RESULTS**

### REACTIVATION FACILITY STACK EMISSIONS - MAXIMUM MEASURED STACK EMISSION RATES (a)

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b
Dichloropropane, 1,2-	1.3E-11
HexaCDF, 1,2,3,7,8,9-	9.6E-12
Benzo(g,h,i)perylene	8.8E-12
Chloroethane Dichlorodifluoromethane	8.6E-12 8.4E-12
Bromochloromethane	8.3E-12
methyl tert-butyl ether	6.5E-12
HeptaCDF, 1,2,3,4,7,8,9-	6.2E-12
Propylene oxide	4.6E-12
Dichloroethylene-1,2 (trans)	4.2E-12
Dichloroethane 1,1-	4.0E-12
HeptaCDD, 1,2,3,4,6,7,8-	2.3E-12
Methyl methacrylate	1.1E-12
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	5.4E-13 4.2E-13
Dioxane, 1,4- Dibenz(a,h)anthracene	4.2E-13 1.7E-13
Acrylic Acid	4.3E-14
1-Hexane (n-hexane)	7.6E-15
Endosulfan sulfate	0.0E+00
2,5-Dione, 3-hexene	0.0E+00
Benzo(e)pyrene	0.0E+00
Perylene	0.0E+00
Phosphine imide, P,P,P-triphenyl	0.0E+00
Diallate	0.0E+00
9-Octadecenamide (oleamide)	0.0E+00
delta-BHC	0.0E+00
2-Methyl octane	0.0E+00
Endosulfan II Endrin ketone	0.0E+00
3-Penten-2-one (ethylidene acetone)	0.0E+00 0.0E+00
2,5-Dimethylfuran	0.0E+00
Endrin aldehyde	0.0E+00
3-Hexen-2-one	0.0E+00
Benzoic acid, methyl ester (methyl benzoate)	0.0E+00
Isopropyl toluene, p-	0.0E+00 2.6E-02
R_3 resident farmer	1 05 00
Nitrogen dioxide Arsenic	1.0E-02 6.6E-03
Sulfur dioxide	3.6E-03
Chlorine	2.3E-03
Hydrogen chloride	1.0E-03
Beryllium	2.5E-04
Cadmium	1.0E-04
Nickel	2.1E-05
Lead	2.1E-05
Copper	1.8E-05
Mercury	1.0E-05
Hexachlorobenzene	2.6E-06
Mercuric chloride	2.5E-06
Chlorophenyl-phenylether, 4- Chloroform (Trichloromethane)	2.3E-06 1.7E-06
Benzidine	1.7E-06
Dibromo-3-chloropropane, 1,2-	1.3E-06
	5.8 <b>E</b> -07
Hexachlorocyclopentadiene	3.8E-07
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol	3.8E-07 3.3E-07
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese	3.8E-07 3.3E-07 2.4E-07
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium	3.8E-07 3.3E-07 2.4E-07 2.1E-07
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver Tetrachloroethylene (Perchloroethylene)	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver Tetrachloroethylene (Perchloroethylene) PentaCDF, 2,3,4,7,8-	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07 9.1E-08
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver Tetrachloroethylene (Perchloroethylene) PentaCDF, 2,3,4,7,8- Fluoranthene	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07 9.1E-08 9.0E-08
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver Tetrachloroethylene (Perchloroethylene) PentaCDF, 2,3,4,7,8- Fluoranthene Zinc	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07 1.5E-07 9.1E-08 9.0E-08 7.8E-08
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver Tetrachloroethylene (Perchloroethylene) PentaCDF, 2,3,4,7,8- Fluoranthene Zinc Nitrosodipropylamine, n-	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07 1.5E-07 9.1E-08 9.0E-08 7.8E-08
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver Tetrachloroethylene (Perchloroethylene) PentaCDF, 2,3,4,7,8- Fluoranthene Zinc Nitrosodipropylamine, n- Barium	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07 1.5E-07 9.1E-08 9.0E-08 7.8E-08 7.4E-08 7.3E-08
Hexachlorocyclopentadiene Thallium (I) (4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver Tetrachloroethylene (Perchloroethylene) PentaCDF, 2,3,4,7,8- Fluoranthene Zinc Nitrosodipropylamine, n- Barium Aluminum	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07 1.5E-07 9.1E-08 9.0E-08 7.8E-08 7.3E-08 4.7E-08
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver Tetrachloroethylene (Perchloroethylene) PentaCDF, 2,3,4,7,8- Fluoranthene Zinc Nitrosodipropylamine, n- Barium Aluminum Antimony	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07 1.5E-07 9.1E-08 9.0E-08 7.8E-08 7.4E-08
Hexachlorocyclopentadiene Thallium (I) 4,6-Dinitro-2-methylphenol Manganese Vanadium Pentachlorophenol Silver Tetrachloroethylene (Perchloroethylene) PentaCDF, 2,3,4,7,8- Fluoranthene Zinc Nitrosodipropylamine, n-	3.8E-07 3.3E-07 2.4E-07 2.1E-07 1.6E-07 1.5E-07 9.1E-08 9.0E-08 7.8E-08 7.4E-08 4.7E-08 4.4E-08

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Chlorobenzene	4.0E-08
Benzoic Acid Dinitrotoluene, 2,4-	3.4E-08 3.4E-08
Selenium	3.3E-08
Benzene	3.1E-08
Ethylhexyl phthalate, bis-2-	3.0E-08
Methylene chloride 3-Penten-2-one, 4-methyl	3.0E-08 2.9E-08
Bromodichloromethane	2.9E-08
Dinitrotoluene, 2,6-	2.7E-08
Dibromochloromethane Methyl bromide (Bromomethane)	2.7E-08 2.2E-08
Dinitrophenol, 2,4-	1.9E-08
Nitrophenol, 4-	1.8E-08
Nitroaniline, 3-	1.8E-08
Chloronaphthalene,2- Dichlorobenzidine, 3,3'-	1.7E-08 1.4E-08
Methylene bromide	1.3E-08
Pentachloronitrobenzene (PCNB)	1.1E-08
Toluene Chlorobopyllete	1.1É-08
Chlorobenzilate Dimethylphenol, 2,4-	8.5E-09 7.8E-09
Acrylonitrile	7.6E-09
Nitrophenol, 2-	6.7E-09
Heptachlor Carbon Tetrachloride	6.1E-09 6.1E-09
Carbazole	6.0E-09
Benzaldehyde	5.9E-09
Dinitrobenzene, 1,3-	5.6 <b>E</b> -09
Methyl ethyl ketone (2-Butanone) Benzyl alcohol	5.3E-09 5.3E-09
Phenanthrene	4.2E-09
Nitroaniline, 4-	3.8E-09
Benzonitrile Di-n-butyl phthalate	3.8E-09 3.8E-09
Aniline	3.7E-09
Carbon Disulfide	3.5E-09
Methyl chloride (Chloromethane)	3.3E-09
Heptachlor epoxide Cobalt	3.3E-09 3.1E-09
Phenol	3.1E-09
TetraCDF, 2,3,7,8-	2.9E-09
Endrin Chlorophenol, 2-	2.5E-09 2.2E-09
Chloroaniline, p-	2.1E-09
Trichlorobenzene, 1,2,3-	1.8E-09
Acetone	1.8E-09
HexaCDF, 1,2,3,6,7,8- Bromophenyl-phenylether, 4-	1.7E-09 1.7E-09
Chloro-3-methylphenol, 4-	1.7E-09
Hexachloro-1,3-butadiene (Perchlorobutadiene)	1.6E-09
Naphthalene	1.6E-09
HexaCDF, 2,3,4,6,7,8- Acetophenone	1.6E-09 1.6E-09
Cresol, o-	1.6E-09
N-nitrosodimethylamine	1.4E-09
Butylbenzylphthalate Otherselection	1.1E-09
Chlordane Dichlorobenzene, 1,3-	1.1E-09 1.1E-09
HexaCDF, 1,2,3,4,7,8-	1.1E-09
2,5-Dimethylheptane	1.1E-09
Diethyl phthalate Acenaphthylene	1.0E-09 1.0E-09
Acenaphthylene Tetrachloroethane, 1,1,2,2-	1.0E-09 1.0E-09
HexaCDD, 1,2,3,4,7,8-	1.0E-09
Vinyl Acetate	9.9E-10
Dichloropropene, 1,3- (cis)	9.1E-10
Xylene, p- Xylene, m-	8.8E-10 8.8E-10
PentaCDF, 1,2,3,7,8-	8.7E-10
Bis(2-chloroethoxy) methane	8.5E-10
Trichlorophenol, 2,4,5-	8.3E-10
Nitroaniline, 2-	8.1E-10

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Dichlorophenol, 2,4-	7.5E-10
Benzo(b)fluoranthene	7.4E-10
PentaCDD, 1,2,3,7,8-	7.2E-10
2-Hexanone Hexachloroethane (Perchloroethane)	7.2E-10 7.2E-10
Cresol, p-	7.0E-10
Cresol, m-	7.0E-10
Dimethyl phthalate	6.9E-10
Endosulfan I	6.6E-10
Trichlorophenol, 2,4,6- BHC, beta-	6.6E-10 6.1E-10
Pyridine	5.8E-10
Dibenzofuran	5.5E-10
Diphenylamine	5.5E-10
Bromobenzene	5.1E-10
Aldrin	5.0E-10
Tetrachlorobenzene, 1,2,4,5-	5.0E-10 4.9E-10
Nitrosodiphenylamine, N- Isophorone	4.9E-10 4.9E-10
Pentachlorobenzene	4.6E-10
Di-n-octylphthalate	4.5E-10
TetraCDD, 2,3,7,8-	4.1E-10
Trichlorobenzene, 1,2,4-	4.1E-10
Chrysene	4.0E-10 3.7E-10
Aroclor 1254 Diphenylhydrazine 1,2-	3.6E-10
3-Ethyl benzaldehyde	3.5E-10
4-Ethyl benzaldehyde	3.5E-10
Trichloropropane, 1,2,3-	3.2E-10
DDT, 4-4'-	3.1E-10
Butylbenzene, sec	3.0E-10
Xylene, o-	3.0E-10 2.6E-10
1,1-Dichloropropene Trichloroethane, 1,1,2-	2.5E-10
Dieldrin	2.4E-10
Benzo(a)Anthracene	2.4E-10
BHC, alpha-	2.3E-10
Benzo(k)fluoranthene	2.1E-10
Styrene	2.1E-10
Bis(2-chlorethyl)ether 2,2'-oxybis (1-Chloropropane)	2.1E-10 2.0E-10
Iodomethane	1.9E-10
Indeno(1,2,3-cd) pyrene	1.5E-10
Methyl isobutyl ketone	1.4E-10
Benzo(a)pyrene	1.4E-10
OctaCDF, 1,2,3,4,6,7,8,9-	1.2E-10
gamma-BHC (Lindane)	1.2E-10 1.0E-10
Ethylene dibromide HexaCDD, 1,2,3,7,8,9-	9.9E-11
Trichloroethylene	9.4E-11
Tetrahydrofuran	9.4E-11
Pyrene	9.1E-11
DDD, 4,4'-	9.1E-11
HexaCDD, 1,2,3,6,7,8-	8.4E-11
Tetrachloroethane, 1,1,1,2-	8.1E-11 7.7E-11
1,3-Dichloropropane Butylbenzene, n-	7.4E-11
Dichloroethylene 1,1-	7.2E-11
2,2-Dichloropropane	7.1E-11
Butylbenzene, tert	7.1E-11
Vinyl Chloride	6.6E-11
Trichloroethane, 1,1,1-	6.3E-11
Anthracene	5.8E-11 5.7E-11
Acenaphthene 2-Methylnaphthalene	5.7E-11 5.5E-11
Trimethylbenzene, 1,3,5-	5.0E-11
Dichlorobenzene, 1,2-	4.4E-11
HeptaCDF, 1,2,3,4,6,7,8-	4.2E-11
Dichloroethane, 1,2- (Ethylene Dichloride)	4.1E-11
Methoxychlor	2.8E-11
Dichlorobenzene,1,4-	2.6E-11
DDE, 4,4'- Fluorene	2.5E-11 2.2E-11
OctaCDD, 1,2,3,4,6,7,8,9-	2.2E-11

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b
Cumene (Isopropylbenzene)	2.2E-11
2-Chlorotoluene	1.9E-11
4-Chlorotoluene	1.9E-11
Ethylene Glycol	1.7E-11 1.6E-11
Propylbenzene, n- Trichlorofluoromethane (Freon 11)	1.4E-11
1,2,4-Trimethylbenzene	1.4E-11
Dichloroethylene, cis-1,2-	1.3E-11
Ethylbenzene	1.2E-11
Dichloropropane, 1,2-	1.2E-11
HexaCDF, 1,2,3,7,8,9-	9.2E-12
Benzo(g,h,i)perylene	8.4E-12 8.1E-12
Chloroethane Dichlorodifluoromethane	7.9E-12
Bromochloromethane	7.8E-12
methyl tert-butyl ether	6.1E-12
HeptaCDF, 1,2,3,4,7,8,9-	6.0E-12
Propylene oxide	4.3E-12
Dichloroethylene-1,2 (trans)	4.0E-12
Dichloroethane 1,1-	3.8E-12
HeptaCDD, 1,2,3,4,6,7,8-	2.2E-12
Methyl methacrylate Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	1.1E-12 5.1E-13
Dioxane, 1,4-	4.0E-13
Dibenz(a,h)anthracene	1.6E-13
Acrylic Acid	4.0E-14
1-Hexane (n-hexane)	7.1E-15
Endosulfan sulfate	0.0E+00
2,5-Dione, 3-hexene	0.0E+00
Benzo(e)pyrene	0.0E+00
Perylene	0.0E+00 0.0E+00
Phosphine imide, P,P,P-triphenyl Diallate	0.0E+00
9-Octadecenamide (oleamide)	0.0E+00
delta-BHC	0.0E+00
2-Methyl octane	0.0E+00
Endosulfan II	0.0E+00
Endrin ketone	0.0E+00
3-Penten-2-one (ethylidene acetone) 2,5-Dimethylfuran	0.0E+00 0.0E+00
Endrin aldehyde	0.0E+00
3-Hexen-2-one	0.0E+00
Benzoic acid, methyl ester (methyl benzoate)	0.0E+00
Isopropyl toluene, p-	0.0E+00
Total (c)	2.4E-02
R_4 resident farmer	
Nitrogen dioxide	1.6E-02
Arsenic	1.1E-02 5.9E-03
Sulfur dioxide	3.7E-03
Chlorine Hydrogen chloride	1.7E-03
Beryllium	4.2E-04
Cadmium	1.7E-04
Nickel	3.6E-05
Lead	3.5E-05
Copper	3.0E-05
Mercury	1.6E-05
Mercuric chloride	4.1E-06
Hexachlorobenzene	4.1E-06 3.7E-06
Chlorophenyl-phenylether, 4- Benzidine	2.8E-06
Chloroform (Trichloromethane)	2.8E-06
Dibromo-3-chloropropane, 1,2-	2.2E-06
Hexachlorocyclopentadiene	9.4E-07
Thallium (I)	6.3E-07
4,6-Dinitro-2-methylphenol	5.4E-07
Manganese	4.0E-07
Vanadium	3.6E-07
Silver	2.6E-07
Pentachlorophenol	2.6E-07
Tetrachloroethylene (Perchloroethylene)	2.4E-07

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Fluoranthene	1.5E-07
Zinc	1.3E-07
Barium	1.2E-07
Nitrosodipropylamine, n-	1.2E-07
Aluminum	8.0E-08
Antimony Chromium	7.2E-08 7.0E-08
Chromium, hexavalent	7.0E-08
Bromoform (tribromomethane)	7.0E-08
Chlorobenzene	6.6E-08
Benzoic Acid	5.6E-08
Dinitrotoluene, 2,4-	5.5E-08
Selenium	5.5E-08
Ethylhexyl phthalate, bis-2-	5.1E-08
Benzene Methylene chloride	5.1E-08 4.9E-08
3-Penten-2-one, 4-methyl	4.7E-08
Bromodichloromethane	4.6E-08
Dinitrotoluene, 2,6-	4.4E-08
Dibromochloromethane	4.3E-08
Methyl bromide (Bromomethane)	3.6E-08
Dinitrophenol, 2,4-	3.0E-08
Nitrophenol, 4-	2.9E-08
Nitroaniline, 3- Chloronaphthalene,2-	2.9E-08 2.8E-08
Dichlorobenzidine, 3,3'-	2.3E-08
Methylene bromide	2.1E-08
Pentachloronitrobenzene (PCNB)	1.8E-08
Toluene	1.8E-08
Chlorobenzilate	1.4E-08
Dimethylphenol, 2,4-	1.3E-08
Acrylonitrile	1.2E-08
Nitrophenol, 2-	1.1E-08
Heptachlor Carbon Tetrachloride	1.0E-08 9.9E-09
Carbazole	9.8E-09
Benzaldehyde	9.6E-09
Dinitrobenzene, 1,3-	9.2E-09
Methyl ethyl ketone (2-Butanone)	8.6E-09
Benzyl alcohol	8.6E-09
Phenanthrene	6.8E-09
Nitroaniline, 4-	6.2E-09
Benzonitrile Di-n-butyl phthalate	6.2E-09 6.2E-09
Aniline	6.0E-09
Carbon Disulfide	5.7E-09
Methyl chloride (Chloromethane)	5.4E-09
Heptachlor epoxide	5.3E-09
Cobalt	5.2E-09
Phenol	5.0E-09
TetraCDF, 2,3,7,8-	4.8E-09
Endrin Chlorophanal 2	4.0E-09
Chlorophenol, 2- Chloroaniline, p-	3.6E-09 3.5E-09
HexaCDF, 1,2,3,6,7,8-	2.9E-09
Trichlorobenzene, 1,2,3-	2.9E-09
Acetone	2.9E-09
Bromophenyl-phenylether, 4-	2.8E-09
HexaCDF, 2,3,4,6,7,8-	2.7E-09
Chloro-3-methylphenol, 4-	2.7E-09
Hexachloro-1,3-butadiene (Perchlorobutadiene)	2.6E-09
Naphthalene	2.6E-09
Acetophenone Cresol, o-	2.6E-09 2.6E-09
N-nitrosodimethylamine	2.3E-09
Butylbenzylphthalate	1.9E-09
HexaCDF, 1,2,3,4,7,8-	1.8E-09
Chlordane	1.8E-09
Dichlorobenzene, 1,3-	1.8E-09
2,5-Dimethylheptane	1.7E-09
HexaCDD, 1,2,3,4,7,8-	1.7E-09
Diethyl phthalate	1.7E-09
Acenaphthylene	1.7E-09
Tetrachloroethane, 1,1,2,2-	1.6 <b>E</b> -09

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Vinyl Acetate	1.6E-09
Dichloropropene, 1,3- (cis)	1.5E-09
PentaCDF, 1,2,3,7,8- Xylene, p-	1.5E-09 1.4E-09
Xylene, m-	1.4E-09
Bis(2-chloroethoxy) methane	1.4E-09
Trichlorophenol, 2,4,5-	1.3E-09
Nitroaniline, 2- Nitrobenzene	1.3E-09 1.3E-09
Dichlorophenol, 2,4-	1.2E-09
PentaCDD, 1,2,3,7,8-	1.2E-09
Benzo(b)fluoranthene	1.2E-09
2-Hexanone Hexachloroethane (Perchloroethane)	1.2E-09 1.2E-09
Cresol, p-	1.1E-09
Cresol, m-	1.1E-09
Dimethyl phthalate	1.1E-09
Endosulfan I Trichlorophenol, 2,4.6-	1.1E-09 1.1E-09
BHC, beta-	9.9E-10
Pyridine	9.4E-10
Dibenzofuran Dishanylamina	8.9E-10
Diphenylamine Bromobenzene	8.9E-10 8.3E-10
Aldrin	8.1E-10
Tetrachlorobenzene, 1,2,4,5-	8.1E-10
Nitrosodiphenylamine, N-	8.0E-10
Isophorone	7.9E-10
Pentachlorobenzene Di-n-octylphthalate	7,5E-10 7,4E-10
TetraCDD, 2,3,7,8-	6.8E-10
Chrysene	6.6E-10
Trichlorobenzene, 1,2,4-	6.6E-10
Aroclor 1254 Diphenylhydrazine,1,2-	6.1E-10 5.8E-10
3-Ethyl benzaldehyde	5.7E-10
4-Ethyl benzaldehyde	5.7E-10
Trichloropropane, 1,2,3-	5.2 <b>E</b> -10
DDT, 4-4'- Butylbenzene, sec	5.1E-10 4.9E-10
Xylene, o-	4.9E-10
1,1-Dichloropropene	4.3E-10
Trichloroethane, 1,1,2-	4.0E-10
Benzo(a)Anthracene Dieldrin	3.9E-10 3.8E-10
BHC, alpha-	3.8E-10
Benzo(k)fluoranthene	3.6E-10
Styrene	3.4E-10
Bis(2-chlorethyl)ether	3.4E-10
2,2'-oxybis (1-Chloropropane) lodomethane	3.2E-10 3.0E-10
Indeno(1,2,3-cd) pyrene	2.6E-10
Methyl isobutyl ketone	2.3E-10
Benzo(a)pyrene	2.3E-10
OctaCDF, 1,2,3,4,6,7,8,9- gamma-BHC (Lindane)	2.1E-10 1.9E-10
HexaCDD, 1,2,3,7.8,9-	1.7E-10
Ethylene dibromide	1.6E-10
Trichloroethylene	1.5E-10
Tetrahydrofuran DDD, 4,4'-	1.5E-10 1.5E-10
Pyrene	1.5E-10
HexaCDD, 1,2,3,6,7,8-	1.4E-10
Tetrachloroethane, 1,1,1,2-	1.3E-10
1,3-Dichloropropane	1,2E-10
Butylbenzene, n- Dichloroethylene 1,1-	1.2E-10 1.2E-10
2,2-Dichloropropane	1.2E-10
Butylbenzene, tert	1.2E-10
Vinyl Chloride	1.1E-10
Trichloroethane, 1,1,1-	1.0E-10
Anthracene Acenaphthene	9.5E-11 9.2E-11
2-Methylnaphthalene	8.9E-11

### ACUTE INHALATION RISK RESULTS REACTIVATION FACILITY STACK EMISSIONS -

### REACTIVATION FACILITY STACK EMISSIONS - MAXIMUM MEASURED STACK EMISSION RATES (a)

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (b)
Trimethylbenzene, 1,3,5-	8.1E-11
HeptaCDF, 1,2,3,4,6,7,8-	7.1E-11
Dichlorobenzene, 1,2-	7.1E-11
Dichloroethane, 1,2- (Ethylene Dichloride)	6.6E-11
Methoxychlor	4.6E-11
Dichlorobenzene,1,4-	4.2E-11
DDE, 4,4'-	4.1E-11
OctaCDD, 1,2,3,4,6,7,8,9-	3.8E-11
Fluorene	3.6E-11
Cumene (Isopropylbenzene)	3.6E-11
2-Chlorotoluene	3.1E-11
4-Chlorotoluene	3.1E-11
Ethylene Glycol	2.7E-11
Propylbenzene, n-	2.6E-11
Trichlorofluoromethane (Freon 11)	2.3E-11
1,2,4-Trimethylbenzene	2.3E-11
Dichloroethylene, cis-1,2-	2.0E-11
Ethylbenzene	2.0E-11
Dichloropropane, 1,2-	2.0E-11
HexaCDF, 1,2,3,7,8,9-	1.5E-11
Benzo(g,h,i)perylene	1.4E-11
Chloroethane	1.3E-11
Dichlorodifluoromethane	1.3E-11
Bromochloromethane	1.3E-11
HeptaCDF, 1,2,3,4,7,8,9-	1.0E-11
methyl tert-butyl ether	9.9E-12
Propylene oxide	7.0E-12
Dichloroethylene-1,2 (trans)	6.5 <b>E</b> -12
Dichloroethane 1,1-	6.2E-12
HeptaCDD, 1,2,3,4,6,7,8-	3.7E-12
Methyl methacrylate	1.7E-12
Freon 113 (1,1,2-trichloro-1,2,2-trifluoroethane)	8.3E-13
Dioxane, 1,4-	6.5E-13
Dibenz(a,h)anthracene	2.7E-13
Acrylic Acid	6.5E-14
1-Hexane (n-hexane)	1.2E-14
Endosulfan sulfate	0.0E+00
2,5-Dione, 3-hexene	0.0E+00
Benzo(e)pyrene Perylene	0.0E+00
	0.0 <b>E</b> +00
Phosphine imide, P,P,P-triphenyl	0.0E+00
Diallate 9-Octadecenamide (oleamide)	0.0E+00 0.0E+00
delta-BHC	0.0E+00 0.0E+00
2-Methyl octane	
Endosulfan II	0.0E+00 0.0E+00
Endrin ketone	0.0E+00 0.0E+00
3-Penten-2-one (ethylidene acetone)	0.0E+00
2,5-Dimethylfuran	0.0E+00 0.0E+00
Endrin aldehyde	0.0E+00
3-Hexen-2-one	0.0E+00 0.0E+00
Benzoic acid, methyl ester (methyl benzoate)	0.0E+00 0.0E+00
Isopropyl toluene, p-	0.0E+00
Total (c)	4.0E-02
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NC = Not calculated.

- (a) For those compounds with emission rates based on stack test data, emission rates for this acute analysis were based on maximum measured stack test measurements. For the remaining compounds (i.e., with emission rates based on proposed permit limits or calculated based on feed rate and destruction and removal efficiency), the emission rates for this acute analysis were the same as those used in the chronic risk assessment. The emission rates are listed in Table 3 in the Response to USEPA Comment Document.
- (b) Acute hazard quotients were calculated for all compounds with stack air emission rates and acute inhalation toxicity criteria.

<sup>(</sup>c) The total is based on the sum of all chemical-specific hazard quotients regardless of the type of health effects of the summed compounds. A total value summed across all compounds is used as a screening tool only, to determine if additional evaluation for specific types of health effects is warranted (i.e., if the total value is greater than 1).

#### ATTACHMENT E

# FUGITIVE EMISSIONS RISK ASSESSMENT: ACUTE INHALATION RISK RESULTS USING MAXIMUM MODELED FUGITIVE EMISSION RATES

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)
A_1 maximum impact point (stack emissions)	
Benzene	7.0E-03
Chloroform (Trichloromethane)	3.8E-03
Tetrachloroethylene (Perchloroethylene)	4.4E-04
Vinyl Chloride	8.3E-05
Toluene Acrylonitrile	6.6E-05 4.3E-05
Cyclohexane	2.7E-05
Styrene	1.7E-05
Arsenic	1.0E-05
Trichloroethylene	3.6E-06
Ethylbenzene	2.9E-06
1-Hexane (n-hexane)	2.6E-06
Nickel Dichlorobenzene,1,4-	1.2 <u>E-06</u> 3.2E-07
Cadmium	7.0E-08
Beryllium	5.2E-08
Naphthalene	2.8E-08
Copper	2.4E-08
Cobalt	7.1E-09
Chromium	5.2E-09
Ethylene Dibromide 1,3-Butadiene	1.4E-12 0.0E+00
Chromium, hexavalent	0.0E+00
Total (b)	1.2E-02
A_2 closest business	
Benzene	1.6E-02
Chloroform (Trichloromethane)	8.4E-03
Tetrachloroethylene (Perchloroethylene)	9.8E-04
Vinyl Chloride	1.8E-04
Toluene	1.5E-04
Acrylonitrile	9.5E-05
Cyclohexane Styrene	5.9E-05 3.8E-05
Arsenic	2.3E-05
Trichloroethylene	8.1E-06
Ethylbenzene	6.4E-06
1-Hexane (n-hexane)	5.7E-06
Nickel	2.7E-06
Dichlorobenzene,1,4-	7.1E-07
Cadmium	1.6E-07 1.2E-07
Beryllium Naphthalene	6.2E-08
Copper	5.4E-08
Cobalt	1.6E-08
Chromium	1.2E-08
Ethylene Dibromide	3.2E-12
1,3-Butadiene	0.0E+00
Chromium, hexavalent	0.0E+00
Total (b)	2.6E-02
A_3 maximum impact point (hopper fugitive em	3.9E-01
Benzene Chloroform (Trichloromethane)	3.9E-01 2.1E-01
Tetrachloroethylene (Perchloroethylene)	2.4E-02
Vinyl Chloride	4.6E-03
Toluene	3.6E-03
Acrylonitrile	2.4E-03
Cyclohexane	1.5E-03
Styrene	9.5E-04
Arsenic	5.6E-04 2.0E-04
Trichloroethylene	

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)
1-Hexane (n-hexane)	1.4E-04
Nickel	6.8E-05
Dichlorobenzene,1,4-	1.8E-05
Cadmium	3.9E-06 2.9E-06
Beryllium Naphthalene	2.9E-06 1.5E-06
Copper	1.3E-06
Cobalt	3.9E-07
Chromium	2.9E-07
Ethylene Dibromide	7.9E-11
1,3-Butadiene	0.0E+00
Chromium, hexavalent	0.0E+00
Total (b)	6.3E-01
R_1 resident	
Benzene	9.6E-04
Chloroform (Trichloromethane)	5.2E-04
Tetrachloroethylene (Perchloroethylene)	6.1E-05
Vinyl Chloride	1.1E-05
Toluene Acrylonitrile	9.0E-06 5.8E-06
Acrylonitrile Cyclohexane	5.8E-06 3.6E-06
Styrene	2.4E-06
Arsenic	1.4E-06
Trichloroethylene	5.0E-07
Ethylbenzene	3.9E-07
1-Hexane (n-hexane)	3.5E-07
Nickel	1.7E-07
Dichlorobenzene,1,4-	4.4E-08
Cadmium	9.6E-09
Beryllium	7.1E-09
Naphthalene	3.8E-09
Copper	3.3E-09
Cobalt	9.7E-10
Chromium Ethylono Dibromido	7.1E-10
Ethylene Dibromide  1,3-Butadiene	2.0E-13 0.0E+00
Chromium, hexavalent	0.0E+00
Total (b)	1.6E-03
R_2 resident	
Benzene	8.9E-04
Chloroform (Trichloromethane)	4.8E-04
Tetrachloroethylene (Perchloroethylene)	5.6E-05
Vinyl Chloride	1.0E-05
Toluene	8.3E-06
Acrylonitrile	5.4E-06
Cyclohexane	3.3E-06
Styrene	2.2E-06
Arsenic	1.3E-06
Trichloroethylene	4.6E-07
Ethylbenzene	3.6E-07
1-Hexane (n-hexane) Nickel	3.2E-07 1.6E-07
Nickei Dichlorobenzene,1,4-	4.1E-08
Cadmium	8.8E-09
Beryllium	6.5E-09
Naphthalene	3.5E-09
Copper	3.1E-09
Cobalt	8.9E-10
Chromium	6.6E-10
Ethylene Dibromide	1.8E-13
1,3-Butadiene	0.0E+00
Chromium, hexavalent	0.0E+00
Total (b)	1.4E-03

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)
R_3 resident farmer	
Benzene	7.2E-04
Chloroform (Trichloromethane)	3.9E-04
Tetrachloroethylene (Perchloroethylene)	4.5E-05
Vinyl Chloride	8.5E-06
Toluene	6.7E-06
Acrylonitrile Cyclohexane	4.4E-06 2.7E-06
Styrene	1.8E-06
Arsenic	1.0E-06
Trichloroethylene	3.7E-07
Ethylbenzene	3.0E-07
1-Hexane (n-hexane)	2.6E-07
Nickel	1.3E-07
Dichlorobenzene,1,4- Cadmium	3.3E-08 7.2E-09
Beryllium	7.2E-09 5.3E-09
Naphthalene	2.9E-09
Copper	2.5E-09
Cobalt	7.2E-10
Chromium	5.3E-10
Ethylene Dibromide	1.5E-13
1,3-Butadiene	0.0E+00
Chromium, hexavalent	0.0E+00
Total (b)  R_4 resident farmer	1.2E-03
Benzene	9.3E-04
Chloroform (Trichloromethane)	5.0E-04
Tetrachloroethylene (Perchloroethylene)	5.8E-05
Vinyl Chloride	1.1E-05
Toluene	8.6E-06
Acrylonitrile	5.6E-06
Cyclohexane	3.5E-06
Styrene	2.3E-06
Arsenic Trichloroethylene	1.4E-06 4.8E-07
Ethylbenzene	3.8E-07
1-Hexane (n-hexane)	3.4E-07
Nickel	1.6E-07
Dichlorobenzene,1,4-	4.2E-08
Cadmium	9.2E-09
Beryllium	6.8E-09
Naphthalene	3.7E-09
Copper	3.2E-09
Cobalt Chromium	9.3E-10 6.9E-10
Ethylene Dibromide	6.9E-10 1.9E-13
1,3-Butadiene	0.0E+00
Chromium, hexavalent	0.0E+00
Total (b)	1.5E-03
R_5 resident	
Benzene	1.2E-03
Chloroform (Trichloromethane)	6.2E-04
Tetrachloroethylene (Perchloroethylene)	7.3E-05
Vinyl Chloride	1.4E-05
Toluene	1.1E-05
Acrylonitrile	7.0E-06
Cyclohexane Styrene	4.4E-06 2.8E-06
Arsenic	2.8E-06 1.7E-06
Trichloroethylene	6.0E-07
Ethylbenzene	4.8E-07

COMPOUND	ACUTE INHALATION HAZARD QUOTIENT (a)
1-Hexane (n-hexane)	4.2E-07
Nickel	2.0E-07
Dichlorobenzene,1,4-	5.3E-08
Cadmium	1.2E-08
Beryllium	8.5E-09
Naphthalene	4.6E-09
Copper	4.0E-09
Cobalt	1.2E-09
Chromium	8.6E-10
Ethylene Dibromide	2.4E-13
1,3-Butadiene	0.0E+00
Chromium, hexavalent	0.0E+00
Total (b)	1.9E-03
R_6 resident	
Benzene	5.2E-04
Chloroform (Trichloromethane)	2.8E-04
Tetrachloroethylene (Perchloroethylene)	3.3E-05
Vinyl Chloride	6.1E-06
Toluene	4.9E-06
Acrylonitrile	3.2E-06
Cyclohexane	2.0E-06
Styrene	1.3E-06
Arsenic	7.6E-07
Trichloroethylene	2.7E-07
Ethylbenzene	2.1E-07
1-Hexane (n-hexane)	1.9E-07
Nickel	9.2E-08
Dichlorobenzene, 1,4-	2.4E-08
Cadmium	5.2E-09
Beryllium	3.8E-09
Naphthalene	2.1E-09
Copper	1.8E-09
Cobalt	5.2E-10
Chromium	3.9E-10
Ethylene Dibromide	1.1E-13
1,3-Butadiene	0.0 <b>E</b> +00
Chromium, hexavalent	0.0E+00
Total (b)	8.5E-04

<sup>(</sup>a) Acute hazard quotients were calculated for all compounds with fugitive air emission rates and acute inhalation toxicity criteria.

<sup>(</sup>b) The total is based on the sum of all chemical-specific hazard quotients regardless of the type of health effects of the summed compounds. A total value summed across all compounds is used as a screening tool only, to determine if additional evaluation for specific types of health effects is warranted (i.e., if the total value is greater than 1).

#### ATTACHMENT F

#### **FACILITY EFFLUENT MONITORING REPORTS FOR 2005-2006**

(PROVIDED IN SEPARATE PDF FILE)

## Siemens Water Technologies Corp Report on Compliance with Categorical Pretreatment Standards Summary of Sample Results - June 2005

Analyte	CWT Limits 40	CFR 437.46(b)	Method 200.7 / 7470			Sa	mple	e Re	sult	1			
Metals - 200.7 / 7470	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>1</sup>	IOF0712-01		NA			N/	1		N.	١.
Antimony (200.7)	0.249	0.206	0.010	ND			7	1					
Arsenic (200.7)	0.162	0.104	0.0050	0.013	5		II.	1		ŀ	H		
Cadmium (200.7)	0.474	0.0962	0.0050	ND	4:			1			1	4	
Chromium (200.7)	0.947	0.487	0.0050	0.005	_			L	-	80			e.
Cobait (200.7)	0.192	0.124	0.010	ND				1			1		
Copper (200.7)	0.405	0.301	0.010	ND	*** -	-		1	ij		1.		-45
Lead (200.7)	0.222	0.172	0.0050	ND	d.			. 8		14.	l-	Ē.	
Mercury (7470)	0.00234	0.000739	0.00020	ND		- 5		1	-		di-		
Nickel (200.7)	3.95	1.45	0.010	ND	-iji		Ģ.	1.	¥.1				
Silver (200.7)	0.120	0.0351	0.010	ND				1			1		
Tin (200.7)	0.409	0.120	0.10	ND	1	:4		1			1		<i>=</i>    ·
Titanium (200.7)	0.0947	0.0618	0.0050	ND	47			1			4-	15.	
Vanadium (200.7)	0.218	0.0662	0.010	ND	- 1		i.	3		ji s	1		de
Zinc (200.7)	2.87	0.641	0.020	ND				1					

Analyte	CWT Limits 40	CFR 437.46(b)	Method 625	Sample Result <sup>1</sup>				
Organics - 625	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>1</sup>	IOF0712-02	IOF0712-03	IOF0712-04	IOF0712-05	
2,3-Dichloroaniline	0.0731	0.0361	0.005	ND	NĎ	ND	ND	
Bis(2-ethylhexyl) phthalate	0.267	0.158	0.01	ND	ND	ND	ND	
Carbazole	0.392	0.233	0.005	ND	ND	ND	ND	
o-Cresol	1.92	0.561	0.005	ND	ND	ND	ND	
p-Cresol	0.698	0.205	0.005	ND	ND	ND	ND	
n-Decane	5.79	3.31	0.005	ND	ND	ND	ND -	
Fluoranthene	0.787	0.393	0.01	ND	ND	ND	ND	
n-Octadecane	1.22	0.925	0.005	ND	ND	ND	ND	
2,4,6-Trichlorophenol	0.155	0.106	0.01	ND	ND	ND	ND	

Analyte	CWT	Limits	Method 413.1	Sample Result <sup>1</sup>			
Oil & Grease - 413.1	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>1</sup>	IOF0712-02	IOF0712-03	IOF0712-04	IOF0712-05
Oil and Grease	127	38	5	ND	ND	ND	ND

ˈmg/l (ppm)

ND - Analyte Not Detected at or above reporting limit

## Siemens Water Technologies Corp Report on Compliance with Categorical Pretreatment Standards Summary of Sample Results - December 2005

Analyte	CWT Limits 40	CFR 437.46(b)	Method 200.7 / 7470		Sample	e Result <sup>1</sup>			
Metals - 200.7 / 7470	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>1</sup>	IOL1934-01	NA	NA		NA	
Antimony (200.7)	0.249	0.206	0.010	ND	canna air	erio è d	i i	: .	1.5.
Arsenic (200.7)	0.162	0.104	0.0050	0.011			1		5 -
Cadmium (200.7)	0.474	0.0962	0.0050	ND	,				
Chromium (200.7)	0.947	0.487	0.0050	0.0059	400	30 T - 9		tei.	4
Cobalt (200.7)	0.192	0.124	0.010	ND	ás, w	- 4	÷		
Copper (200.7)	0.405	0.301	0.010	ND		i i		-	
Lead (200.7)	0.222	0.172	0.0050	ND	· -j-	r. E		***	136.5
Mercury (7470)	0.00234	0.000739	0.00020	ND	H 33	E 43 7	177		#
Nickel (200.7)	3.95	1.45	0.010	ND	4, 4				dje.
Silver (200.7)	0.120	0.0351	0.010	ND	•				- ".
Tin (200.7)	0.409	0.120	0.10	ND	wa dh	line e		-	-
Titanium (200.7)	0.0947	0.0618	0.0050	ND	. 4. %	El ga r€.	i.	ï,	
Vanadium (200.7)	0.218	0.0662	0.010	ND					
Zinc (200.7)	2.87	0.641	0.020	ND				1	- S

Analyte	CWT Limits 40	CFR 437.46(b)	Method 625	Sample Result <sup>2</sup>				
Organics - 625	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>2</sup>	IOL1934-02	IOL1934-03	IOL1934-04	IOL1934-05	
Bis(2-ethylhexyl) phthalate	0.267	0.158	9.6	ND	ND	ND	ND	
Carbazole	0.392	0.233	4.8	ND	ND	ND	ND	
o-Cresol	1.92	0.561	4.8	ND	ND	ND	ND	
p-Cresol	0.698	0.205	4.8	ND	ND	ND	ND	
n-Decane	5.79	3.31	4.8	ND	ND	ND	ND	
Fluoranthene	0.787	0.393	9.6	ND	ND	ND	ND	
n-Octadecane	1.22	0.925	4.8	ND	ND	ND	ND	
2,4,6-Trichlorophenol	0.155	0.106	9.6	ND	ND	ND	ND	

Analyte	CWT	Limits	Method 413.1	Sample Result <sup>1</sup>			
Oil & Grease - 413.1	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>1</sup>	IOL1934-02	IOL1934-03	IOL1934-04	IOL1934-05
Oil and Grease	127	38	4.8	ND	ND	ND	ND

<sup>1</sup> mg/l (ppm)

<sup>&</sup>lt;sup>2</sup> ug/l (ppb)

ND - Analyte Not Detected at or above reporting limit

## Siemens Water Technologies Corp Report on Compliance with Categorical Pretreatment Standards Summary of Sample Results - June 2006

Analyte	CWT Limits 40	CFR 437.46(b)	Method 200.7 / 7470	Sample Result <sup>1</sup>							
Metals - 200.7 / 7470	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>1</sup>	IPE2573-01	NA			NA			NA
Antimony (200.7)	0.249	0.206	0.010	ND			1				
Arsenic (200.7)	0.162	0.104	0.0050	0.012		elik v	ļ.	şh.	95		
Cadmium (200.7)	0.474	0.0962	0.0050	ND	nii;	780. :				-	4
Chromium (200.7)	0.947	0.487	0.0050	ND		3.4.1	F		*		-74
Cobalt (200.7)	0.192	0.124	0.010	ND		4	l.				
Copper (200.7)	0.405	0.301	0.010	ND							
Lead (200.7)	0.222	0.172	0.0050	ND		1	l'e				
Mercury (7470)	0.00234	0.000739	0.00020	ND	ě		i,		3	it	- 111-
Nickel (200.7)	3.95	1.45	0.010	ND						11.	***
Silver (200.7)	0.120	0.0351	0.010	ND		#		1.	r:		
Tin (200.7)	0.409	0.120	0.10	ND	184	1.0				a.	
Titanium (200.7)	0.0947	0.0618	0.0050	ND	47		ji.		-		
Vanadium (200.7)	0.218	0.0662	0.010	0.031	- 4	-4	4		nje.		464
Zinc (200.7)	2.87	0.641	0.020	ND							

Analyte	CWT Limits 40	CFR 437.46(b)	Method 625	Sample Result <sup>2</sup>			
Organics - 625	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>2</sup>	IPE2573-02	IPE2573-03	IPE2573-04	IPE2573-05
Bis(2-ethylhexyl) phthalate	0.267	0.158	9.5	ND	ND	ND	ND
Carbazole	0.392	0.233	4.8	ND	ND	ND	ND
o-Cresol	1.92	0.561	4.8	ND	ND	ND	ND
p-Cresol	0.698	0.205	4.8	ND	ND	ND	ND
n-Decane	5.79	3.31	4.8	ND	ND	ND	ND
Fluoranthene	0.787	0.393	9.5	ND	ND	ND	ND
n-Octadecane	1.22	0.925	4.8	ND	ND	ND	ND
2,4,6-Trichlorophenol	0.155	0.106	9.5	ND	ND	ND	ND

Analyte	CWT	Limits	Method 413.1	Sample Result <sup>1</sup>			
Oil & Grease - 413.1	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>1</sup>	IPE2573-02	IPE2573-03	IPE2573-04	IPE2573-05
Oil and Grease	127	38	4.8	ND	ND	ND	ND

1 mg/l (ppm)

<sup>2</sup> ug/l (ppb)

ND - Analyte Not Detected at or above reporting limit

## Siemens Water Technologies Corp Report on Compliance with Categorical Pretreatment Standards Summary of Sample Results - December 2006

Analyte	CWT Limits 40	CFR 437.46(b)	Method 200.7 / 7470	Sample Result <sup>1</sup>				
Metals - 200.7 / 7470	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>1</sup>	IPL1042-01 NA NA		NA		
Antimony (200.7)	0.249	0.206	0.010	ND	e egit s	1 + 4	ra tit ålja	
Arsenic (200.7)	0.162	0.104	0.010	ND	a die	J 66 2	4	
Cadmium (200.7)	0.474	0.0962	0.0050	ND				
Chromium (200.7)	0.947	0.487	0.0050	ND	ė į		4	
Cobalt (200.7)	0.192	0.124	0.010	ND	4 V.		an i	
Copper (200.7)	0.405	0.301	0.010	ND		_		
Lead (200.7)	0.222	0.172	0.0050	ND	r# r	Harris III	w sip i	
Mercury (7470)	0.00234	0.000739	0.00020	ND	#47 °∳.	ž ; ;	in the first	
Nickel (200.7)	3.95	1.45	0.010	ND	ad vie	s en 🛊	- 4 a a	
Silver (200.7)	0.120	0.0351	0.010	ND				
Tin (200.7)	0.409	0.120	0.10	ND	- 11	- 4 -	The second	
Titanium (200.7)	0.0947	0.0618	0.0050	ND	territoria (n. 1904)	a si a	i ė	
Vanadium (200.7)	0.218	0.0662	0.010	ND	·			
Zinc (200.7)	2.87	0.641	0.020	ND	å. j	<b>4</b>	a diplomatical distribution of the state of	

Analyte	CWT Limits 40	CFR 437.46(b)	Method 625	Sample Result <sup>2</sup>			
Organics - 625	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>2</sup>	IPL1042-02	IPL1042-03	IPL1042-04	IPL1042-05
Bis(2-ethylhexyl) phthalate	0.267	0.158	9.5	ND	ND	ND	ND
Carbazole	0.392	0.233	4.8	ND	ND	ND	ND
o-Cresol	1.92	0.561	4.8	ND	ND	ND	ND
p-Cresol	0.698	0.205	4.8	ND	ND	ND	ND
n-Decane	5.79	3.31	4.8	ND	ND	ND	ND
Fluoranthene	0.787	0.393	9.5	ND	ND	ND	ND
n-Octadecane	1.22	0.925	4.8	ND	ND	ND	ND .
2,4,6-Trichlorophenol	0.155	0.106	9.5	ND	ND	ND	ND

Analyte	CWT	Limits	Method 413.1	Sample Result <sup>1</sup>			
Oil & Grease - 413.1	Maximum Daily <sup>1</sup>	Monthly Average <sup>1</sup>	Reporting Limit <sup>1</sup>	IPL1042-02	IPL1042-03	IPL1042-04	IPL1042-05
Oil and Grease	127	38	4.8	ND	ND	ND	ND

<sup>1</sup> mg/l (ppm)

<sup>&</sup>lt;sup>2</sup> ug/l (ppb)

ND - Analyte Not Detected at or above reporting limit



Table 3-9. Makeup Water, Caustic, and Scrubber Purge POHC Concentration

	***********	Makaya W	eter (Ug/L)	*****		Caustic	(00/1)	* 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Scrabber Blo	ndown (ug/L)			POTW 05	cherge (ug/L)	
Constitutint	Rus 1	Run Z	Res 3	Average	Ren f	Run Z	Run 3	Average	Run 1	Run 2	Ron 3	Avetage	Flain 1	Run 2	Ron 3	Average
		1	1012074010-1-20040	- 100 / v	<u> </u>	Lating of the control of	Meta	8	100 100 Part	\$	teranski bisku u	1.019 //0961/0502	Contract Contract	2000000	1	
Aluminum	< 1.10E+02	< 1.10E+02	< 1.10E+02	< 1.10E+02	< 4.40E+02	I NA	NA.	< 4.40E+02	1.37E+04	1 17E+04	1.76E+04	1.43E+04	1.14E+02	< 1.10E+02	1.48E+02	< 1.24E+02
Antimony	< 1.40E+01	< 1.40E+01	< 1.40E+01	< 1.40E+01	< 5.60E+01	NA.	NA	< 5.60E+01	< 1.40E+01	< 1.40E+01	1.77E+01	< 1.52E+01	< 1.40E+01	< 1 40E+01	< 1.40E+01	< 1.40E+01
Arsenic	< 5.10E+00	5.90E+00	< 5.10E+00	< 5.37E+00	< 2.04E+01	NA NA	NA.	< 2.04E+01	3.67E+01	2.61E+01	3.93E+01	3.40E+01	1.37E+01	1,26E+01	1.19E+01	1 27E+01
Barium	5.12E+01	5.19E+01	4.92E+01	5.08E+01	3.63E+02	NA.	NA	3.63E+02	8.74E+02	7 65E+02	1.13E+03	9.23E+02	2.47E+02	2.26E+02	2.38E+02	2 37E+02
Beryllium	< 1.90E+00	< 1.80E+00	< 1.80E+00	< 1.80E+00	< 7.20E+00	NA.	NA.	< 7.20E+00	3.80E+00	3.70E+00	5.40E+00	4.30E+00	< 1.80E+00	< 1.80E+00	< 1.80E+00	< 1.80E+00
Cadmium	< 8.20E-01	< 8.20E-01	< 8.20E-01	< 8.20E-01	< 3.30E+00	NA NA	NA.	< 3.30E+00	1.13E+01	1.17E+01	1.37E+01	1 22E+01	< 8 20E-01	< 8.20E-01	2.40E+00	< 1.35E+00
Chromium 💥	< 3.90E+00	< 3.90E+00	< 3.90E+00	< 3.90E+00	3.64E+02	NA.	NA.	3.64E+02	1.72E+03	1.75E+03	2.90E+03	2.12E+03	2.46E+01	1.30E+01	2.51E+01	2.09E+01
Cobalt	< 2.20E+00	< 2.20E+00	< 2.20E+00	< 2.20E+00	< 0.00E+00	NA.	NA	< 8.60E+00	3.15E+01	2.64E+01	4.05E+01	3.28E+01	< 2.20E+00	< 2.20E+00	< 2.20E+00	< 2.20E+00
Copper	< 7.00E+00	< 7.00E+00	< 7.00E+00	< 7.00E+00	< 2.80E+01	NA	NA	< 2.80E+01	1.78E+03	9 65E+02	6.69E+02	1.14E+03	< 7.00E+00	< 7.00E+00	< 7.00E+00	< 7.00E+00
Lead 🚜	< 3.70E+00	< 3.70E+00	< 3.70E+00	< 3.70E+00	9.75E+01	NA NA	NA .	9.75E+01	7.21E+02	5 92E+02	1.51E+03	9.41E+02	< 3.70E+00	< 3.70E+00	< 3.70E+00	< 3.70E+00
Manganese	1.54E+01	1.85E+01	1.40E+01	1.60E+01	7 48E+01	NA .	NA	7.48E+01	3.38E+03	3 10E+03	4.32E+03	3.60E+03	1 15E+02	6 12E+01	8.59E+01	8.74E+01
Mercury	< 6.00E-02	< 6.00E-02	< 6.00E-02	< 6.00E-02	3.50E+00	NA.	NA	3.60E+00	3.50E-01	4.20E-01	4.50E-01	4.07E-01	< 6.00E-02	< 6.00E-02	< 6.00E-02	< 6.00E-02
Nickel	< 3.80E+00	< 3.80E+00	< 3.80E+00	< 3.80E+00	1.50E+02	NA .	NA	1.50E+02	4.33E+02	3.97E+02	4.05E+02	4.12E+02	< 3.80E+00	< 3.80E+00	4.80E+00	< 4.13E+00
Selenium	< 4.30E+00	< 4.30E+00	< 4.30E+00	< 4.30E+00	< 1.72E+01	NA.	NA.	< 1.72E+01	1.19E+01	8.80E+00	1.21E+01	1.09E+01	1.10E+01	1.00E+01	9.00E+00	1.00E+01
Silver	< 9.70E+00	< 9.70E+00	< 9.70E+00	< 9.70E+00	5.30E+01	NA NA	NA.	5.30E+01	< 9.70E+00	< 9.70E+00	< 9.70E+00	< 9.70E+00	< 9.70E+00	< 9.70E+00	< 9.70E+00	< 9.70E+00
Thailium	< 1.00E+01	< 1.00E+01	< 1.00E+01	< 1.00E+01	< 4.00E+01	NA.	NA	< 4 00E+01	< 1.00E+01	< 1 D0E+01	< 1.00E+01	< 1.00E+01	< 1.00E+01	< 1 00E+01	< 1.00E+01	< 1.00E+01
Vanadium	< 5.00E+00	< 5.00E+00	< 5.00E+00	< 5.00E+00	< 2.00E+01	NA .	NA	< 2.00E+01	B.43E+01	5.81E+01	1.09E+02	B.38E+01	2.56E+01	1.66E+01	2.10E+01	2.11E+01
Zinc	< 3.80E+00	< 3.80E+00	< 3.80E+00	< 3.80E+00	2.04E+02	NA.	NA	2.04E+02	7.65E+02	5.64E+02	6.45E+02	6.58E+02	< 3.80E+00	< 3.80E+00	< 3.80E+00	< 3.80E+00
							Volatile O									
Acetone	4.4DE+00	3.80E+00	4.50E+00	4.23E+00	4.50E+00	NA NA	NA.	4.50E+00	ND	4 10E+00	3.60E+00	3.B5E+00	3.70E+00	3.70E+00	4.8DE+00	4.07E+00
Bromobenzene	ND	ND	ND	ND	1.80E-01	NA .	NA .	1 80E-01	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	3.20E+00	4.10E+00	2.50£+00	3.27E+00	9.60E-01	NA.	NA.	9.60E-01	ND	ND	ND	ND	ND	8 90E-01	1.00E+00	9.45E-01
Bromoform	4.00E+01	3.20E+01	2.80E+01	3.33E+01	2.80E+00	NA NA	NA	ND	9.90E-01	9.20E-01	1.00E+00	9.70E-01	2.00E+00	2.00E+00	2.10E+00	2.03E+00
Carbon disulfide	ND	ND	ND	NO.	ND	NA.	NA_	ND	ND	ND	ND	ND	ND	ND	1 50E 01	1.60E-01
Chlorodibromomethane	1.30E+01	1.30E+01	8.90E+00	1.16E+01	1.00E+00	NA NA	NA	1.00E+00	9,20E-01	8.70E-01	8.90E 01	8.93E-01	1.40E+00	1.30E+00	1.40E+00	1.37E+00
Chloroform	5.60E-01	6.40E-01	6.20E-01	6.07E-01	1.70E-01	NA NA	NA	1.70E-01	ND	ND	ND	ND	1.40E-01	1.50E-01	1.40E-01	1.43E-01
1,2-Dichloroethane	ND	1.30E-01	1.20E-01	1.25E-01	1.30E-01	NA NA	NA.	1.30E-01	ND	ND	ND	ND	ND	ND	ND	ND
lodomethane	ND	ND	ND	ND	ND	NA .	NA	ND	5.50E-01	ND	ND	5.50E-01	ND	ND	ND	ND
Methylene chloride	5.50E-01	2 40E+00	2.00E+00	1.65E+00	5.30E-01	NA .	NA	ND	ND	2.30E+00	8.40E-01	1.57E+00	3.50E-01	2.00E+00	6.50E-01	1 00E+00
Tetrachloroethene 💥	3.30E-01	3.10E-01	4.50E-01	3.63E-01	2.40E-01	NA NA	NA	2.40E-01	ND	ND	ND	ND	1.30E-01	ND	NO	1.30E-01
Toluene 💥	ND	4 10E-01	3.10E-01	3.60E-01	ND	NA	NA.	NO	ND	4.10E-01	ND	4 10E-01	ND	4.30E-01	1.20E-01	2.75E-01
							Selmvolatile	Organics								
bis(2-ethylhexyl)phthalate	ND	ND	ND	ND	4.10E+01	NA	NA		ND	ND	ND	ND	ND	ND	ND	NO

Note: Only detected organics shown on this table.

Westates PDT Report Rev 0.doc

Revision: 0

Date: 06/30/06

<sup>\*</sup> These compounds were spiked into the feed materials during the PDT.



USFILTER V. ATES P.O. Box 3308 2523 Mutahar Street Parker, AZ 85344

Telephone 928-669-5758 Facsimile 928-669-5775

VIA Certified Mail

August 1, 2005

Mr. Andy Jones Plant Manager Colorado River Sewage System Joint Venture P.O. Box 628 Parker, Arizona 85344

Re:

Westates Carbon-Arizona, Inc.

Priority Pollutants Testing Report 2005

Dear Mr. Jones:

In accordance with our Industrial Wastewater Discharge Permit Number 1002-96, I am submitting the 2005 Priority Pollutants Testing Report, per our agreement, for analytes from 40 CFR Part 122, Table 2 and Table 5. As per your verbal request we have also tested analytes contained in Table III and IV.

Please call if you have any questions or require any further information.

Sincerely,

Deborah Foster EHS Specialist



17481 Owlan Ave., Sute 100, mine, CA 92814 (949) 251-1022 FAX (949) 260-2097 1014 E. Gosey Br. Sunn A. Cotton, CA 63304 (969) 310-4661 PAX (949) 310-4661 1484 Chapapeake Dr. Sunte 866, San Diego, CA 92123 (858) 605-6696 FAX (956) 605-6989 0691 Blub Fran St. Pulta B 170, Photoix, AD 85644 (480) 785-0043 FAX (460) 785-0045 2520 E. Sonni FRG 49, Las Leyas MV P3101 (702) 356-9600 FAX (301) 785-0031

#### LABORATORY REPORT

Prepared For: U.S. Filter/Westates Carbon

Project: TTO

P.O. Box 3308 Parker, AZ 85344

Sampled: 07/13-05

Attention: Deborah Foster

Received: 07/14/05

Issued: 07/27/05 17:35

#### NELAP#01108CA California ELAP#1197 CSDLAC #10117

The results listed within this Laboratory Report portion only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable configurations as nated. All soil samples are reported on a wet weight basis inless one with a neted in the report. This I aboratory Report is confidential and is intended for the solvaise. The laboratory Report is confidential and is intended from the Report of the Chango of Custody, 4 pages, are included and are an integral part of this export.

This entire report was reviewed and approved for release.

#### SAMPLE CROSS REFERENCE

SCHCONTRACTED. Refer to the last page for specific subcontract laboratory information included in this report

 LABORATORY ID
 CLIENT ID
 MATRIX

 3OG0857-01
 T1O
 Water

Reviewed By:

Del Mar Analytical, Irvine

Lateral Commence of Department

Kathleen A. Robo Project Manager



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1014 E. Gooley Dr., Surie A, Chiron - CA 92324 - (909) 376,4667 - FAX (909) 376,1646 
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05,20 E. Sunset Rid - #3 - Lab Vegas - 11V 89120 - (702) 798,3820 - FAX (702) 798,3820

U.S. Filter/Westates Carbon P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID TTO

Report Number: 10G9857

Sampled: 07/13/05

Received: 07/14/05

#### VOLATILE ORGANICS by GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: 10G0857-01 (TTO - Water)							U	
Reporting Units: ug/l								
Acroleiu	BPA \$260B	561e003	50	ND	1	7/16/2005	7/16/2005	
Acrylonitrile	EPA 8260B	5G16003	50	ND	1	7/16/2605	7/16/2005	
2-Chloroethyl vinyl ether	EPA 8260B	5G16003	5.0	ND	ì	7/16/2005	7/16/2005	
Surrozate Dibramalluarometisme (86-126%)				92.86				
Surregate, Toluche (18780-120%)				702.06				
Surrogate: 4-Bromofluorobenzene (80-120%)				96 %				

Del Mar Analytical, Irvine Kathleen A. Robb Project Manager



1746 f Crenan Ave. If uite 100 invine. CA 90014, 1949, 1961-1922, FAX (949, 2003.19).
1014 B. Godisy Dr., Burte A., Corton, C.F. 90024, 1909, 31944667, FAX (909, 3794146.)
9484 Chesankare Cr., Sorte 5/5, San Diego, CA 91123, (858) 505-8696, FAX (958) 505-5089, 8830 Scrim 51st, Suite B-100, Phoenix, AZ 85044, (480) 785-0043, FAX (480) 785-0051, 5017, E. Sunset Fin. 45, Las Virgas, NV 89130, (100) 796-5520, FAX (700) 795-3520.

FIS Editer/Westates Carbon P.O. Pop. 3308

Parker, AZ 85344 Attention, Deborah Foster Project ID: TTO

Pepart Number 10/06/857

Sampled 07:13:05 Received 07:14:05

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOG0857-01 (TTO - Wa	ter) - cont.							
Reporting Units: ug/I								
Betwene	EPA 826/18	5621939	5.0	5.13	1	7/21/27/25	7/21/2/05	
Bremobenzene	EPA 8250B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	
Broposki otomethate	EPA S2MB	5001619	<b>\$</b> \(\bar{\gamma}\)	751)	}	7/21/2005	721/2005	
Bromost chlore methane	EPA 82m/B	5021019	2.15	1.0	1	7-21.20/5	7/21/2905	
Bromothem	EPA 82/40B	50-21019	5.0	11[1	I	7/21/2005	7/21/2005	
Bromometimoe	EPA 8266B	5G21619	5.6	ND	l	7/21/2005	7/21/2005	
n-Bar Benzene	EPA 826-B	5021619	5.0	MD	1	7-21/2015	7/21/2005	
sec-Buty Bonzene	EPA \$2563	5021.19	5.0	(17)	1	721275	7/21-25/05	
tert-Patylbenzene	EPA 8266B	5901019	5.0	MD	1	7/21/2005	7/21/2005	
Carbon Disatfide	EPA \$260B	5621019	5.0	j-1[)	1	7/21/2005	7/21/2005	
Carlt yn tetraeklonyle	EPA \$260B	5001019	< *	v.(j)	1	7/21/2005	7:21/2005	
Calorefranciene	EPA \$26(-B	5021619	2 -	50	1	7/21/2905	7/21.2005	
Cirlomethuse	EPA \$2663	5021619	5 (1	ND	1	7/21/27/05	7.23-2005	
Chloroform	EPA 8260B	5021019	2.0	ND	1	7/21/2005	7/21/2005	
Chlorest ethane	EPA 82H B	5021(19)	5 11	1.0	!	7.21.27(5	701/25/45	
2-Cintor stabliche	EPA 8266 B	\$601019	5	ED	i	7.21-25055	7.21-20:05	
4-Chlorotoitiene	EPA 8260B	5021019	5.0	MD	ì	7.21.2005	7/21/2005	
Distriction of the Distriction of	EPA 8260B	5021019	2 //	MD	1	7/21/2005	7/21/2005	
1.7-15 momo-3-chlocopropune	EPA \$260B	5021419	5.0	ND	1	7212005	7/21/2065	
1,2-P. bromoethane (FDB)	EPA 3256B	5021-19	<u></u> 11	ND	1	7.21.2965	T 21:294.5	
Dibtomomethane	FPA 8266B	5021019	2.0	51)	i	7/21/2005	7/21/2005	
1.2 Pichiorobenzene	EPA 8260B	5621619	2.0	ZD	!	7/21/2005	7/21/2005	
( 3-1 pulmorabenzene	EPA 8767B	5922119	96 - 5 5	ND		7-21-26-5	7-21/20-5	
i 4-Dichiorobenzone	FPA 8260B	3G2.619	2.5	*:D	:	7/21/20/5	7/21/2005	
Dictaorosidiuoromethane	EPA \$276B	5621919	5.0	ND	:	7/21/2005	7/21/2005	
1,1-Duckdoroethane	EPA 8250B	5021619	2.0	ND	;	7/21/2005	7/21/2005	
1.2-15 . Electorinate	EPA 825.B	5(-21),19	2.1	1.0	4	7.21.2005	7.21/2005	
1.1-D chromoethers	EPA \$2563	5001616	\$ "	VI.)	1	7-21/2665	7-21/2005	
cis-(1.4) hibboroothene	EPA 8260B	5621019	2.9	ND.	t ,	7/21/2605	7/21/2005	
time-1.2-Inchloroethere	EPA 80/4/B	5021/19	2 %	8.11.)	1	7012665	7/21/2005	
1.2-I selderopropane	EPA \$260B	5(421114	2.0	51)	i	7.21/2005	7 21 2015	
1,3-Dicheropropane	UPA 8266 B	56:00019	2 (	ND	4 2	7212665	7.01/2005	
2,2-i.)ichloropropane	EPA \$260B	3671019	2.0	ND.	1	7/21/2005	7/21/2005	
1.1-Da lileropropene	EPA 824CB	5621619	2.0	51)	1	7/21/2005	7/21/2005	
2.4-1 % Dichlosopropene	EPA NIN B	50.23 19	2 .	$\mathbb{N}(1)$		7 21 2615	7.71.2005	
trans (1.3) Unchloropy pene	EPA 8040B	5(121):}9	2.6	M7	1	7/21/2005	7/01/2005	
Fiths (benzene	EPA 8260B	5621019	2.0	ND	) (	7/21-2005	7/11/2005	
Heyachi arabutadi ene	EPA SINCB	5/321/19	5.1	227)	)	7/21/2005	7/21/2005	
Tempopy inchize no	FPA-82918	5521119	2 :	· IL)	ì	7.21/2065	7.11.2005	
p-1so; supplitalization	EPA 82% B	50-110-19	2 :	140	1	7/21/2965	7.21/2005	
Methylene chloride	EPA 80n/18	5621019	5.0	511)	}	7/21/2665	7/21/2005	

Del Mar Analytical, Irvine

Katmeen A. Robb Project Manager



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U.S. Filter, Westates Carbon, 2.O. Box 3308 Project ID. TTO

Parker, AZ 85344

Report Number: IOG0857

Sampled 07/13//)5 Received: 07/14/05

Attention: Deb. rah Foster

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

			Reporting	Sample	Dilution	Date	Date	Data
Analyte	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifiers
Sample ID: IOG0857-01 (TTO - Water) - con	t.							
Reporting Units: ug/l								
Maphibalone	FPA 8260B	5021019	5.0	MD	1	7.21/2005	7/21/2005	
n-Propylbenzene	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
Styrene	FPA 8260B	5G21019	2.0	KD	1	7-21/2005	7/21/2005	
1.1.1.2-Tetrachloroethane	FPA 8260B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	
1.1.2.2-Tetrachloroethane	EPA 8260B	5G21019	2.0	ND	•	7/21/2005	7/21/2005	
Latracht-rosithene	EPA 8260B	5G21619	2.6	ND	1	7/21/2005	7/21/2005	
Loluene	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
F.2.3-Trichtoroponzene	EPA 8260B	5G21019	5.0	ND	!	7.21/26/5	7/21/2005	
1.2.4-Trichlorobenzene	EPA 8260B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	
Lat. Introductione	FPA 8260B	5G21v19	î ()	ND	1	7/21/2055	7/21/2005	
1-1-2-Trichloroethane	EPA 8260B	5G21019	2.3	1/10	J	7.71.2005	21/2005	
Tuchioroethene	FPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
Tuchloroffuotometisme	HPA 8260B	5G21019	5.0	SD.	1	7/21/2005	7/21/2005	
1.2.3-Trichloropropane	EPA 8260B	5G21019	10	ND	1	7/21/2005	7/21/2005	
1,2.4-Trunctin/lbenzene	EPA 8260B	5G21619	2.0	ND	}	7/21/2005	7/21/2005	
1.3.5 Unimeti » Ibertzene	EPA 8260B	5G21619	2.0	200	1	7/21/2005	7/21/2005	
VintyLacetate	EPA 8260B	5G21019	5.0	ND	1	7/21/2005	7.21/2005	
Variy Felidottak	EPA 8266B	5G21619	5.0	145)	1	7/21/20:15	7/21/2005	
Contraction of the Contraction o	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
nup-Nylenes	EPA \$260B	5G21019	2.0	ND	3	7.12 1, 2(0.)5	7/21/2005	
Normagaic - China de president maine 189-1209 e				20 Ca				
Surrogate: Foluene-d8 (80-120%)				164.98				
Surveys to 4-brane, floorof enzone (80-120%)				95 17				

Del Mar Analytical, Irvine Kathleen A. Robb Project Manager



1046 1 Jener (Ave., Suite 100 to unit DAIA, F14 (1949) 761-1000 E AX (640 1.60 30 a) 1014 E Codey On, Suite A, Cotton, CA 91304 (609) 370-4667 FAX (609) 370-1046 9464 Cresopieske Dr., Suite 805 San Dingo, CA 90113 (656) 506-8696 FAX (658) 505-9696 969, Sh. til 146 St. Guite B-100, Propris AZ 87044 (460) 785-0043 FAX (460) 785-0951 1010 E Suite Fid #2 Lies Vegris, NV 89170 (701) 795-3600 FAX (701) 786-961

U.S. Filter/Westates Carbon P.O. Dox 3208 Part 11, AZ \$5344

Attention Debouds Foster

Project ID: TTO

Report Number 10G0857

Sampled: 07/13/05 Received: 17/14/15

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: 10G0857-01 (TTO - Water)								
Reporting Units: ug/l								
Accompathone	FFA 8270C	5617017	10	D		7.17/2(0)5	7:20-2005	
Acenaphthylene	EPA 8270C	5017017	10	ND	1	7/17/2005	7/20/2005	
And re	EPA 82000	5017017	162	545	1	7717/2005	7/20/2005	
Anthracene	EPA 8270C	5017017	10	SD	1	7.17/2005	7/20/2005	
Bennin e	FPA 8270C	5017617	26	ZD.	1	7/17/2005	7/20/2005	l.
Benzon achi	EPA 8270C	5617017	2.3	20	1	7 17:2005	7/20 2005	
Benzos abantlitacene	FFA 8270C	5G17017	100	13D	1	7/17/2005	7/2002005	
Banzo billuoranthena	EPA 8270C	5617017	10	1.10	1	7.17.2005	7/20/2005	
Benzo:k)fkioranthene	EPA 8270C	5G17017	10	МD	1	7/17/2005	7/20/2005	
Benzo g hasperylenc	FPA 8270C	5G17017	10	ND	;	7472605	7:20/2005	
Вепло(адругене	EPA 8270C	5G17017	10	t√[])	Ì	7/17/2(4)5	7/20/2005	
Benzj Falsohol	EPA 8276C	5017(017	~3.4	AD		7.17/2005	7/21/2005	
Basi2 choroctnoxy incthane	EPA 8270C	5617017	10	::10	1	7.17.2605	7.20/2005	
Bis(2)-chloroethy hether	FPA 8270C	5617017	E 4 F	·41)	ş Ş	71172005	7/20/2005	
Bis/2-chlorosopropy bether	EPA 8210C	5617017	111	(E*	1	7.17.2005	7:21+2005	
Bis(2-ethylhexyl)phthulate	EPA 8270C	5G17017	50	ZD	1	7/17/2005	7/20/2005	
4-Bronsophenyl phenyl ether	EPA 8270C	5017017	10	ND	1	7117/2005	7/20/2005	
Buty I benzy I phthalate	EPA 8270C	5G17017	20	ZD	1	7.17/2005	7/20/2005	
4-Chlore and his	EPA 8270C	5617017	10	ZD	i	7.17/2005	7.20(2005	
2-Chioronaphthalene	EFA 8270C	5617017	10	ND		7 17-2005	7 20 2005	
4-Chior -3-methylpharm)	EPA 8270C	5017017	20	200	1	7 17/2005	7/20/2005	
2-Chlerophenol	EPA 8270C	5017417	10	$\angle D$	;	T (T'2005	7/26/2005	
4-Chloropheny! phenyl ether	EPA 8270C	5G17017	10	ZD	1	7/17/2005	7/20/2005	
Ctaysese	EPA 8270C	5017017	10	ND	i	7/17/2005	7/20/2005	
Dibeazra.h/anthracene	EPA 8270C	5G17017	20	CD.	1	7/17/2005	7/20/2005	
Palecase (for an	EFA 8270C	5017017	19	, D	1	7.17/2005	7/20/2005	
De-t-buty liple balate	EDA 8270C	5G17U17	20	ZD	1	7/17/2005	7/20/2005	
1.3-1 reliforabenzene	CPA 8270C	5017017	[6	7.112	1	7/17/2005	7/20/2005	
1,4 Pachlorabenzene	EFA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
1.2-Dichlorabenzene	EPA 8270C	5G17017	1 ()	$\angle D$	1	7/17/2005	7/20/2005	
3.3-Dichlorobenzidnic	TTA 8270C	5017017	20	SD		7:17:2005	7/20/2005	
2,4-Dichlerophenol	EPA 8270C	5017017	10	ND		7/17/2005	7/20/2005	
Diethy 'phthalate	EPA 8270C	5617017	10	117		7/17/2005	7/26/2005	
2.4-i Janethylphonol	HPA 8270€	5617017	20	ND	1	7.17/2005	7/2(7/2005	
Den et et blirbil alate	EPA 8270C	5017.47	111	177	1	0.102005	7/20/2005	
4, n-1, nnorno-2 - methy by henol	EPA 8270C	5G17J17	234	127	i	7.170005	7.21-2005	
2.4-1 thetrophenel	EPA 8270C	5017017	20	ND	1	7/17/2005	7/25/2005	
7.4-Duratiotodiaene	FPA 8270C	5017017	10	130	1	7:17:2005	7:20/2005	
2,6-Dmitrotolijene	EPA 8270C	5G17017	10	AD.	1	7/17/20/05	7/20/2005	
Droct. Lybradate	EFA 8270C	5017-17	201	,	4	7/17/2015	7,2502505	
Euroranthene	EPA 8270C	5637017	10	170	1	7.17/2005	7/20/2005	

Del Mar Analytical, Irvine

Kathleen A. Robb Project Manager



17461 Behan Avel, Suite 100, Irune ICA 92814 (949) 161-1022 FAX (949) 160-0297 1014 E. Cooley Dr., Suite A. Collon, CA 92824 (909) 370-4667 FAX (909) 370-1046 9484 Chesaticate Dr. Filite 835 San Diego ICA 92103 (858) 858-8696 FAX (858) 858-9690 1993 South Enst St., Fuite 8410, IPhoen A. AZ 86044 (480) 766 CC43 IPAX (490, 786-086) 2620 E. Suneet Roll #3, Las Vegas, NV 89120 (702) 756-3626 IPAX (702) 798-3621

H.S. Falter/Westates Carbon P.O. Rox 35/18 Parker, AZ N/344

Attention: Deborah Foster

Project ID: TTO

Report Number, IQG9857

Sampled 07/13/05 Received: 07/14/05

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample 1D: IOG0857-01 (TTO - Water) - cor	ıt.							
Reporting Units: ug4								
Figorene	EPA 8270C	5617617	10	ND		7.17/2005	7.20/26/05	
Hexachlorebenzene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Hexachterabutadiene	EPA 8270C	5G17917	10	ND	1	7/17/2005	7.20 2005	
L'exaculorgey clopentadiene	EPA 8270C	5G17017	20	CDI	i	7.17 2005	7/20/2005	
Herach oreething	EPA \$270C	5G17017	10	ND.	1	7.17/2015	7120.2005	
Indenoi 1.2.3-edipyrene	EPA 8270C	5G17017	20	ND	1	7/17/2005	7/20/2005	
Isoplici ine	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
2-Methylnophthalene	EPA 8270C	5(317017	10	ND	:	7:17:2905	7/20/2005	
2-Methylphenol	EPA 8270C	5G17017	1 (1	ИD	1	7/17/2005	7/20/20/05	
4-Methylphemil	EPA 8270C	5G17017	10	ND	1	7-17/2005	7120/2005	
Nuphthakene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
2-String almo	FPA 8270C	5G17017	20	C24	1	7 17/2005	7/20.2005	
3-Nationaline	EPA 8270C	5617017	20	C.1	i	7 17 2005	7/26/2005	
4-Nitroamlme	EPA 8270C	5G17017	20	CZ	1	7/17/2005	7/20/2005	
Nitrobenzene	EPA 8270C	5G17017	20	N3)	1	7/17/2(005	7/20/2005	
2-Nitrophenol	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
4 Mittophenol	FPA 8270C	5617017	20	NÐ.	1	7.17.2965	7/20/2005	
N-Nintesodiphenylamine	EPA 8270C	5G17017	10	ND	1	7:17.2005	7,20/2005	
N-Matieso-di-n-gropy lamine	EPA 8270C	5G17017	10	SID	1	7/17/2005	7/20/2005	
Pentaentorophenol	EPA 8270C	5G17017	.1()	CLA	1	7/17/2005	7,20,2005	
Phenochrete	EPA 8270C	5G17017	10	MD	1	2/17/2005	7/20/2005	
Phenel	EPA 8270C	5G17017	(0)	20	:	7 17:20(5	7/20/2065	
Pyrene	EPA 8270C	5G17017	[1]	ND	1	7/17/2005	7/20/2005	
1.2 4-Trichiorobenzene	EPA 8270C	5G17017	[()	CL-1	!	7 11/2005	7.20/2005	
2.4,5-Trichlorophenol	EPA 82700	5G17017	20	ND	1	7/17/2065	7/20/2005	
2.4 % Unchlorophenol	FPA 8270C	5017017	7%	K. D.		7 17 2005	7 20 2395	
re-Nitrosodimethylamine	EPA 8270C	5017017	20	G.4		7/17/2005	7/20/2005	C
1.2-Durheny lhydrazine/Azobenzene	FPA 827001	5017017	20	ИD		7117/2005	7/20/2005	
Surregare 2-1 hiersyshenol (30-120°1)				19.0%				
Surroguste Phenol-sl6 (35-120%)				1986				
Surveyore 1.4.6-7-Aramophenal (45-1205)				5 1 28				
surregae: Anrobenzene-d5 (45-120%)				7156				
Surveyore 2 Fluore hiphenyl (43-120%)				7.5 6%				
Surregue Termenyi-a14 (45-120%)				80 %				

Del Mar Analytical, Irvine Kathleen A. Robb Project Manager



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Attention: Deborah Foster

Project ID: TTO

Report Number; 10G0857

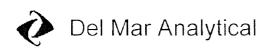
Sampled: 07/13/05

Received: 07/14/05

#### ORGANOCHLORINE PESTICIDES (EPA 3510C/8081A)

			Reporting	Sample	Dilution	Date	Date	Data
Analyte	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifiers
Sample ID: 10G0857-01 (TTO - Water)								
Reporting Units: ug/l								
Aldrin	EPA 3510C/8081A	5G20057	0.10	ND	0 971	7/20/2005	7/20/2005	
alpha-8HC	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
beta-BHC	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
delta-BHC	EPA 3510C/8081A	5G20057	0.20	ND	0.971	7/20/2005	7/20/2005	
gamma-BHC (Lindane)	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Chlordane	EPA 3510C/8081A	5G20057	1.0	ND	0.971	7/20/2005	7/20/2005	
4,4'-DDD	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
4,4'-DDE	EPA 3510C/8081A	5G29057	0.10	ND	0.971	7/20/2005	7/20/2005	
4,4'-DDT	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Dieldrin	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Endosulfan I	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Endosulfan II	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Endosulfan sulfate	EPA 3510C/8081A	5G20057	0.20	ND	0.971	7/20/2005	7/20/2005	
Endrin	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Endrin aldehyde	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Endrin kelone	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Heptachlor	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Heptachlor epoxide	EPA 3510C/8981A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Methoxychlor	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Toxaphene	EPA 3510C/8081A	5G20057	5.0	ND	0.971	7/20/2005	7/20/2005	
Surrogate: Tetrachloro-m-xylene (35-115%)	)			56%				
Surrogate Decachlorobiphenyl (45-120%)				73.%				

**Del Mar Analytical, Irvine** Kathleen A. Robb Project Manager



17461 Delian Avel, Suite 180 Jovine, CA 92014 (949) 261-1022 FAX (945) 265-3297 1014 E. Codley Dr., Suite A., Colton, CA 92324 (509) 370-4667, FAX (909) 370-1048 9454 Dreselsone Dr., Soine 605, Son Clego, CA 92123, 1966; 505-6195, PAX (656) 505-9569 9613 Sooth Chin St., Soine B-103, Frisenbl, AZ 90644 (480) 786-1043, FAX (480) 785-1043, EAX (480) 785-1043, FAX (480) 785-1043, FAX (480) 785-9676, FAX (702) 118, 9621

U.S. Filter/Westates Carbon.

P. C. P. & 37/48 Parker, AZ 85344

Attention | Deborah Foster

Project ID: 110

Report Number 1000857

Sampled 07/13/05 Received 07-14/05

#### POLYCHLORINATED BIPHENYLS (EPA 3510C/8082)

			Reporting	Sample	Dilution	Date	Date	Data
Analyte	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifiers
Sample ID: 10G0857-01 (TTO - Water)								
Reporting Units: ag I								
Arrect at 2016	EPA 3516.8082	501260-57	14:	241)	3,971	7/20 20(3	1.22/2005	
Arocker (221	EPA 3510/8082	5020057	1.0	ND	0.971	7/20/2005	7/22/2005	
Crossic no 200	DPA 3516 S/80	5023057	1.5	N. 14	7.971	7/26/01/65	7,02/2005	
Arodo: (242	EPA 3510/8682	5G20057	1.0	ND	0.971	7/20/2005	7.132/2(±05	
Arock r 1248	EPA 3510/8: \$2	5020057	1.0	ΝĎ	0,971	3/20/20(65	1 22:26:05	
Aracler 1254	EPA 3516/8082	5020057	1.6	80	1.971	7/27 : 2010 5	7.22.2095	
Araba 1269	EPA 3510-8982	50000057	i (!	ND	) 971	7/20/20/05	7/22/2005	
The major of the submission phone 1945-1200 cg.				38 1				



17401 Berlah Avel, Suite 101 livine, CA 6/514 1945 161-1002 FAX (540-1603007)
1014 El Croley Orl, Suite Al Cohrin, CA 9/204 1909 370-4667 FAX (909) 370-4646
2484 Chesioceake Dr. Guite 816 San Dison, CA 9/2103 1958 305-6666 FA 41-869 EDE 9/658830 South 51st St., State 8-120, Phoenix, AZ 85044 1460, 785-0442 FAX (460) 785-0865
1650 El Crolet Prolife Brillian segris, NV 8/100 1700, 749-8-10 AAX, 192, 190 3007

U.S. Editor-Westates Curbon

4 - 0.368, 37, 8 1 - km - 37, 835,14

Attention: Leborah coster

Project ID TTO

Report Number - 30kii 0857

Sampled 07/13/05 Received 07/14/05

#### METALS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: 10G0857-01 (TTO - Water)								
Reporting Units: mg/l								
Aluminum	FPA 6919B	5(4) 4.389	11 (15.0)	0.082		7.1-20-5	7202036	
\ntgreek	EPA 6010B	5G18097	9.010	ND	1	7/18/2005	7/20/2005	
Arsenie	EPA 6610B	5G1x09T	0.0050	0.0052	;	-7.18204.5	7/20/2005	
Bacium	DPA 60193	5018097	9. 10	0.075	1	7.18/2005	7262695	
Boron	EPA 6010B	5G19086	0.050	0.64	1	7/19/2005	7/30/2005	
Chemin	EFA 6010B	5018097	0.0050	5.5	1	7/18/2015	7.20/2005	
Cabalt	EFA 6 CBB	5G18097	11411	ND	ì	7/18/2(6)/5	7.20:2005	
Corper	EPA 6010B	5G1809?	0.010	ND	:	7/18/2005	7/20/2005	
žran –	EPA 6010B	5G1≈086	9 (40)	ND	ì	7/19/2005	7/20/2005	
Magnesium	EPA 6010B	5010986	0.020	29		7362005	7 20 2005	
Manuanose	EPA 6010B	5G19086	0.630	ND	1	7/19/2005	7/20/2005	
Mercury	EPA 7470A	5G19037	0.00020	ND	ì	7/19/26/05	7/19/2005	
Moly Edenoire	EPA 6010B	5018097	0.020	NID		7/18/2005	7/20/2005	
Silver	EPA 6/110B	5018097	0.0070	MD	!	7/18/2095	7/26/2005	
Strontium	EPA 6010B	5G19086	0.020	1.7	, 1	7.19/2005	7/20/2005	
Chalmun	El::\ 60108	5618097	0.610	ND		7-18/2605	7/20/2005	
Fig.	EPA 6010B	5G19086	21.154	MD	1	7/19/2005	7/20/2005	
Citamun.	EPA 6010B	5G19086	0.0050	ND	i	7/19/2005	7/20/2005	
Vacalinin	FPA 6916B	5G <b>:</b> 8097	2.010	SD	1	7 1812 85	7120-2005	
Zinc	FPA 6010B	501809	- 020	ND	P	7/18/2005	7/20/2005	
Zucomun	EPA 6010B	5G25067	6.20	ND	l	7/25/20/05	7/25/2005	



17461 Derah Are - Buito 100 Irvne - CA 97514 - 1949; 261-3222 - FAX - 949; 251-3247 - 1614 E. diceley Dr., Surte A. Colten, CA 12324 (509) 370-4667 - FAX (509) 370-4668 - FAX (509) 580-8698 - FAX (509) 580-8699 - FAX (5

U.S. hilter/Westates Carbon.

P.O. Fox 35.8 Parker, AZ 85344

Attention Deboreh Faster

Project ID: TTO

Report Number: 10G0857

Sampled 97 13/05 Received: 07/14/05

#### INORGANICS

Vnalyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOG0857-01 (TTO - Water) Reporting Units: Color Units								
Color	SM2120B	£G14789	1.4	NIT!	1	7 (14/2): (5	7 14/2/05	pH
Sample 1D: 10G0857-01 (TTO - Water)								
Reporting Units: mg/l								
Total Kjeldahl Nitrogen	SM4500+NORG.C	5G19066	0.50	0.84	1	7 19/2005	7.19/2(615	
Ammonta-N	EPA 350 3	5G22113	0.50	NO	i	7/22/2005	7/22/2005	
Bromide	EPA 300 0	5G14039	0.50	1.1	;	7 14/25/5	7 14/2(%5	
Total Cyanide	SM4500-CN-C.E	5G15075	0.025	ND	Annual Vancoria	7.15/2005	7/18/2005	
Fluoride	HPA 300 v	5014039	0.50	1.8	?	7014/2005	7.14/2065	
Nitrate-N	EPA 300.0	5014039	0.15	2.7	1	7/14/2(005	7/14/2005	
Norme-N	EPA 300 0	5614039	1.5	N(T)	10	2742965	7 14 2005	R1 -3
Oil & Grease	EPA 413 1	5G20078	5.0	NĐ	1	7/20/2005	7/25/2005	
Physiols	EPA 420.1	5G22080	0.10	NO	!	7 222 03	7.22/2005	
Phosphorus	EPA 365.3	5G14075	0.050	0.15	1	7/14/2005	7/14/2005	
Residual Chloride	EPA 330.5	5614594	9.16	ND.	1	7 14/214 5	= 14/20°5	
Sulfate	EPA 300.0	5G14039	5.0	480	10	7/14/2005	7/14/2(005	
Sulfide	EPA 376.0	5(5)5015	0.10	ND.	1	7 5/2005	7 15/2005	
Surfactants (MBAS)	SM5540-C	5G14118	040	ND	1	7/14/2005	7/14/2005	



11461 Dedan Aval, Suite 100 divine, CA 17814 1946, 1941-1922 FAIX (84912020507) 1114 B. Cooley Dr., Suire A., Coton, CA 90324 1999; 870-4667 FAIX (859) 870-4640 9464 Chesipuske Dr., Suite 896, San Diego, CA 90123 (859) 505-8596 FAIX (858) 505-6589 9830 Rolan Ffst St., Suite 8470 Fibernix AJ 85044 (450) 795-4040 FAIX (457) 755-9851 U. J. R. Slutest Rd. #1, Les Veyss 1678010 (701) 708-9520 FAIX (707) 768-6711

U.S. Filter/Westates Carbon D.O. Rox 3308 Life in Act 85344 Attention Debouds Foster Project ID: TTO

Report Number: 10Gr857

Sampled: 07/13/05 Received: 07/14/05

#### NITROGEN, ORGANIC (Calculation)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample 1D: IOG0857-01 (TTO - Water)								
Reporting Units: mg I								
Organic Nitrogen - N	Calculation	50:250:44	7-57	0.84	1	7.25.2365	7 25 2005	



17461 Lenan Ave., Suite 100, hvine, OA 90514, (949) 251 17522, FAX (949, 250 3397) 1014 S. Gooky, Ch., Suite A., Cotton, OA 90024, 1769, 370, 4657, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 500, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697, 4697

4. S. Erlter/Westates Carbon 19 O. Hox 33-48 Parker: AZ 85344 Attent in Deborah Loster Project ID: TTO

Report Number: 10G0857

Sampled (7/13/05) Received: (67/14/05)

#### DIQUAT/PARAQUAT (EPA 549.2)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: 10G0857-04 (110 - Water)								
Reporting Units: ug/l								
Ungen	EPA 549 I	CEGIER	$1/\zeta_i$	ZD.	1	7.18/21/35	7.18/20/5	
Paragrat	EPA 549 2	C5G1809	50	ND	The second	7/18/2005	7/18/2065	



17461 Cerian Ave. Suth 100 Trune. C7 90614, 1949) 061 1007 FAX (54A) 250 5.037 (C14 E. Crole, Cr. Suth A. Distri, C4 9704, 1909) 210 4667 FAX (609, 370 1046 6484 Chrisapeake Dr., Suth 805, San Diego, CA 92123, (609) 606 8596 FAX (658) 506 9696 (536 Sound Est St. Dure 8-100, Phoenix, AC 96044, 4800 766, 0642, FAX (180) 766 1661 (1870 E. Sumphord #2, Cas Vegas, NV, 89100, 710) 788 5620 FAX (701, 796, 701)

U.S. Eilber/Westates Carbon.

P.C. Box 3368 Parker, AZ 85344

"ttention" to bonds hester

Project ID. 170

Report Number: 10G0857

Sampled: 07-13-95 Received: 07-14:05

#### SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: T1O (IOG0857-01) - Water					
EFA 300 0	2	07 13/2005 14 00	07-14/2005 10:10	07:14/2065 16:00	07/14/2005 16:09
$N_{B}(q_{1})$				07 14 2()((5 16 14 1	97 14/2005 17 16
F1 A 330, 5	1	07 13/2005 14 00	67 14/2005 10.1u	07.14/2005.16.08	07/14/2005 16:08
SN211 3	2	07.13/2005 14 (8)	07:14:2(805.10.10)	97/14/2005 14:00	077112(00515.00
SM554 + C	2	07.13/2005 14 00	07/14/2005 10:10	07/14/2005 23:00	07/14/2005 23:55



17451 Lenan Ave. Suits 100 invine. CA 92514 (949, 261 1002 FAX 1242 200 3197 1014 B. Cooley Cr., Suite A, Colton, CA 92124 (909) 376-4667 FAX (369) 976-1146 9484 Chesapeake Dr., Suite 865, San Diego, CA 92123 (868) 805-8696 FAX (868) 505-9659 9830 South 51st St., Suite B 120, Phoenix, AZ 85044 (480) 765-0043 FAX (480) 785-9651 1511 B. Suiter Ris #1, Les vegas 11, 89120 (701) 798-9600 FAX (712) 798-9601

U.S. milen/Westates Carbon P.O. Mix 3308 Dinfler AZ \$5304

Parther AZ \$554 Affention Deborah koster Project ID: TTO

Report Number 10G0887

Sampled: 07/13/05 Received 07/14/05

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5030B/8260B)

		Reporting		Spike	Source		%RFC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%RFC	Limits	RPD	Limit	Qualifiers
Batch: 5G16003 Extracted: 07/16/05	<u> </u>									
Blank Analyzed: 07/16/2005 (5G1600	)3-BLK1)									
Acrolem	ND	53	ug4							
Acts burds of	70	87	-24							
2-C blone stire I vinwi etter	ND	* 0	954							
Sairtogate Uthremoffrecomethane	23.9		$ug\mathcal{A}$	254		10	80-120			
Sur again Tahung-di	25 ≠		ngd	25.0		702	SO-120			
Surveyance 4-Reamothics chenzene	24.2		P2 7	25.0		9**	\$11-1271			
LCS Analyzed: 07/16/2005 (5G16003	B-BS1)									
2-Chioroethyl vmyl other	29.4	5.0	ugil	25.0		118	25-170			
Signerate information amethore	24.5		ng f	23.0		95	89-720			
Sec game Tilamore	25 4		1977	250		1/12	54-520			
Survivate of Promodulevolenzone	248		287	25.6		66	54-120			
Matrix Spike Analyzed: 07/16/2005 (	5G16003-MS1)				Source: I	OG0808-0	1			
2-Chlorouthyl van Letla	27.1	51,	3 <u>2</u> //	25 (	$\mathbb{N}[1]$	.478	25-170			
Surveyede Arbraine How innethace	14.7		11 <b>2</b> T	25.6		99	\$9-220			
Survey, we Tolian, A	23.4		ugsT	25.6		102	80-120			
Sum operate: 4-Reomeythum abenzene	24.7		ug (I	32.0		20	80-120			
Matrix Spike Dup Analyzed: 07/16/2	005 (5G16003-N	ISD1)			Source: 1	QG0808-0	1			
2-Cidoroethy Lymy Lether	28.2	5.0	ngA	28.6	ND	113	25-170	4	2.5	
Surveyore Dilnomedino conginue	25.3		ug/I	25.0		707	80-120			
Survey of Admin - Po	25 N		ug !	25.0		21.3	\$6-720			
figuration 2 Section of the Antonina			$t_{ij}g^{ij}$	150		43	37-720			

Project Manager



1740 (Denem Ave., Suite 100, Irvine, CA 90814, (949) 251-1022, FAX (649) 250, 1097, 1014, E. Cooley, Cr., Suite A. Catton, CA 90824, (200) 370-4657, FAX (009) 370, 1046, 9414, Chesser and Dr., Sinth 506, Say, Cingo, CA, 90, 103, 1859) 500-6596, FAN (568, 500, F639, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414, 5414

U.S. Filter Westates Carbon In O. Box 3708 Indian AZ 85344

Attention Deborah Foster

Projectilla, TIO

Report Number: ICG: 857

Sampled: 07/13/05

Received: 67/14/05

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		Parket		RPD	Data
Vnalyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019   Extracted: 07 21	305									
Blank Analyzed: 07/21/2005 (5G2	1019-BLK1)									
Market State	NE	2 1	···£							
Promobetions	ND	5.0	ug."							
Bromochloremethane	ND	5.0	ug/I							
Draw Lefa, Toron y Studie	ND	- i	1.g fi							
B. ornelwic	ND	5.6	ug i							
Transpired asc	ND	5.0	ug (							
A Both been a s	ND	£ 3	1142							
sectionly them one	ND	5.0	ug/l							
tem-lisury from the 2	GA	5 (1	4.64,							
Carbon Losaffine	KD	F 19	1142							
Tarbon tetrochhoride	ND	5.0	ag/1							
Chilaphenone	ND	2.0	1127							
c'h velesthane	ND	5 0	i-Ç							
Claimathann	ND	10	ug/l							
Christian Cherina	ND	0.00	224							
2 kilologist diacher	ND	£ 5	ug 1							
4. Character money	ND	5.0	ug/l							
Differenced to concibions	ND	2 0	జ⊈ే							
Nemporal Scalendaria	ND	3 Q	Jg 1							
1.2 Objection of Hilbs	ND	2 (:	ngA							
Euromations	ND	2.0	ag T							
E. I. differential medical section of the control o	ND	2.6	ug 1							
1.5 Dichlerchenzene	ND	2.0	ug/i							
1,4 Legateranciarens	KD	:0	uş/l							
EnvEbitod: fluori imethico.	ND	5 (4)	.15/.							
El-Dichlorocthane	ND	2.0	ug/i							
L2 Dechies witness	ND	2.5	.ig/l							
and chloroute 65	$\mathcal{N}_{i}^{*})$	F	.12							
es-12-Dichloroethene	ND	2.0	ug/C							
tra r 2 fluit, l'octhere	8.13	2.4	ag :							
i Istoch orace gang	80	24	ug '							
LS Incharer opane	ND	2.6	rā <sub>Vi</sub>							
2.2-Ell-Species hatte	505	1:0	or Constitution of the Con							
Last State Contraction	ND	2 (	ug i							
cas 1.3 Dichteropropene	ND	2.0	:g()							
•										

Del Mar Analytical, Irvine

Kathleen A. Robb

Pik set Manager



1744.1 Genan Avel, Suite 100, Franc, CA 20014 (949) 251-17022 FAX (949) 250-2597 
1014.5 Cudev Dr. Suite Al Culton CA 10204 (999) 270-4867 FAX (909) 270-1143 
R104 Chest Park Dr. Suite 815 San Diego CA 32128 (959) 001-1696 FAX (959) 669 969 
1690 South 14t St. Suite 8-128, Franchix AZ Fac44 (460) 105-0043 FAX (460) 105-0051 
2510 P. Suite 17d #3, Las Vegas, NV 89120 (700) 769-9820 FAX (700) 796 9610

4 S. Filter Westeres Carbon P.O. Rox 5308

Budker 1/2 853 14

Attention Debarah Foster

Project ID TTO

Report Number 1000/857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		"»RFC		RPD	Data
Analyte	Result	l, imit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019 Extracted: 07 21/05										
Blank Analyzed: 07/21/2005 (5G21019	9-BLK1)									
the graph of Bolling or high operation by	50	2.0	.:2 "							
Apply History on	ND	2.0	ugʻ.							
Themohic robuts diene	ND	5.0	DØ5.							
To reapy Horning a	ND	1.6	aby fi							
peliagraph to highe	VD	2 (	ug/!							
Methylone chlorade	ND	5.0	ug/l							
Nagrifia des	SD	F.7	ug ?							
in-Dilign Denastine	ND	2.0	ugā							
South	ND	2.5	ng/l							
To Detection has received	ND	e -	985							
I.1 II 2-1 etrach eroethins	ND	2.0	ug/I							
Letrachlomerhene	ND	# V	ugA							
Toluese	N1)	2 1	ag. l							
1.2.3 Ench indbenzens	ND	5.0	ag i							
1. 2 → Mean controvativitan	ND	5.0	ug/I							
to the fine removable to	NII	2 1	<u>u</u> ./.							
1.3.2. friedskreiethane	ND	2.0	ugri							
The Bornethane	ND	2.3	og fl							
The Maryshop are offices,	NO	₹ ₹.	ug-l							
🚅 - Fright wapropens	ND	19	ug/l							
1.2.4- Prince H. Departers	ND	2.0	ug4							
Long Entreet Victoriate in	ND	2.0	ugil							
Ving Facetate	ND	5.0	ug/l							
Ving Cheng:	ND	5.0	ug/i							
4 V 30W	8.0	27	ngi							
n de Xylenes	ND	2.0	ug/I							
Social garage I Stromathian methane	24.8		ug l	25.6		7.11	80-720			
So region of money.	25 √		rg :	25.0		12.2	804.20			
Succession of Reamoffsweethers are	23 7		ng 7	23.90		93	80-720			

Del Mar Analytical, Irvine Kathleen A. Robb

Profest Manager



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A. Colton: CA 92324 (999) 370-4667 FAX (909) 370-1046 2484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9599 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0861 2520 E. Suitet R.d. 43, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 758-3601

U.S. Filter/Westates Carbon P.O. Box 3308 Parker, AZ 85344 Attention. Deborah Foster Project ID: TTO

Report Number, 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G21019 Extracted: 07/21/05										
LCS Analyzed; 07/21/2005 (5G21019-BS	147									
Benzene	20.3	2.0	ug/l	25.0		81	65-120			
Bromobenzene	21.5	5.0	ug/l	25 0		85	70-120			
Bromochloromethane	22.5	5.0	ug/l	25.0		90	65-130			
Bromodichloromethane	20.0	2.0	ug/l	25.0		80	65-135			
Bromaform	193	5.0	ug/l	25.0		77	50-130			
Bromomediane	19.4	5.0	ug/l	25.0		78	60-140			
n-Butvibenzene	20.9	5.0	ug/l	25.0		84	70-125			
sec-Butylbenzene	20 0	5.0	ug/l	25 0		80	70-125			
tert-Butylbenzene	20,8	5.0	ug/l	25.0		83	70-125			
Carbos Disulfide	20.9	5.0	ug/l	25.0		84	50-130			
Carbon tetrachloride	19.9	5.0	ug/l	25.0		80	65-140			
Chlorobenzene	20.5	2.0	ug/l	25.0		82	70-125			
Chloroethane	19.5	5 0	ug/î	25.0		78	55-140			
Chloroform	20.9	2 0	ug/l	25.0		84	65-130			
Chloromethase	16.6	5.0	ug/i	25.0		66	40-140			
2-Chlorotobiene	20.9	5 0	ugA	25.0		84	70-125			
4-Chlorotoluene	20.8	5.0	ug/I	25 0		83	70-125			
Dibramochloromethase	21.4	2 0	ugA	25.0		85	65-140			
1.2-Dibramo-3-chlerapropage	20,2	5.0	ug/l	25.0		81	45-135			
1.2-Dibromoethane (EDB)	22.2	2.0	ug/l	25.0		89	70-125			
Dibromomethane	22.2	2.0	ug/l	25 0		89	65-130			
1.2-Dichlorobenzeno	20.3	2.0	ug/l	25.0		81	70-126			
1,3-Dichlorobenzene	19.8	2.0	ug/l	25 0		79	70-125			
1,4-Dichlorobenzene	20.1	2.0	ug/I	25.0		80	70-125			
Dichlosedifluoromethane	13.5	5.0	ug/l	25.0		54	25-155			
1.1-Dichloroethane	21.4	2.0	ug/l	25 0		86	65-130			
LC-Dichlorogthane	20-6	2.0	ug/I	25,0		82	60-140			
1,1-Dichloroethene	20.8	5.0	ug/l	25.0		83	70-130			
cis-1, 2-Dichlorouthene	20.5	2 (1	ug/i	25.0		82	65-125			
trans-1-2-Dichtoroethene	20 8	2.0	ug/l	25.0		83	65-130			
1.2-Dichloropropane	21.6	2.0	ug/l	25 0		86	65-125			
1,3-Dichloropropene	22.0	2 0	ug/l	25.0		88	65-125			
2.2-Dichloropropane	21.8	2.0	ug/l	25.0		87	60-145			
L.1-Dichforopropene	20.i	2.0	ug/l	25.0		80	70-130			
cts-1,3-Diehleropropene	21.6	2.0	ug/I	25.0		86	70-130			

#### Del Mar Analytical, Irvine

Kathleen A. Robb Project Manager



16451 Denan Avel, Suite 100, Irvine, CA 90614 (949) 261-1022 PAX (949) 260-2007 1614 El Godley Dr. Stute Al Control 04 9003 (1904) 250-4067 FAX (959) 250-1040 8314 Chesar nave Dr. Suite 906, San Dingol 0A 01103 (856, 601 9690 PAX (959) 500-909 R630 South 51st St., Suite B 120, Prochox, AZ 65044 (480) 760-0043 (FAX (480) 760-0043 2600 El Sunser 8d 40 Las Vedas NV 89120 (700) 199-3820 (FAX (702) 753-350)

U.S. Filter Westates Carbon

P.O. Box 331.8 Parket, A.1 55344

Attention Deborah Coster

Project ID: TTO

Report Number | IOGH857

Sampled: 07/13/05 Received: 07/14/65

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		"aREC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	SAREC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019 Uxtracted: 07/21/05										
LCS Analyzed: 07/21/2005 (5G21019-1	BS1)									
Mary -1.3-19 Control to the	21 4	2.1	6.20	23 (		3.5	45.000			
Pithis Photograms	26 K	2.5	ug/i	15.0		8.2	75-125			
Her addorol stadione	17.0	5.9	gg/j	25.6		6.8	60-135			
Is gropp factured:	22.5	2.1	UÇ!	25		451	7 127			
p 1- grapy toluene	19.2	20	ug/l	#30		7.7	73-105			
Metrosene d'Jonde	22.5	5.5	ug"	25 9		137,1	60-130			
Numbto Henc	24.3	5.0	pg/l	25 %		51	5-, -1-4-,			
nethops to unique	21.9	26	ug/i	25.0		8.8	79-125			
Stylene	22.4	2.6	ng/i	25.5		1971	75-130			
1.1.1.0-Herrico Ferrentiars	21.3	5.1	5 <u>2</u> 1	23		5.1	774135			
1.1.2.2-1-tria hisroethane	25.8	2.0	11 <b>8</b> :	2.2		1.75	55-130			
Termentamethane	19.4	2.0	1177,14	25		78	45 125			
Loharite	211	2.5	. 2).	21.2		5.5	7 -125			
L2,3-Encklidobetzete	195	5.0	ug/l	25.0		75	n -136			
1,24 Trich a abenzene	10.5	* [	4g /	23.5		2	45 135			
The first of the state of the s	21.0	1.0	ugr.	25		4, ,1	55-135			
1 / 2-Trichloroethare	22.5	2.0	ug "	25.0		30	45-125			
Englisher (eggle)	10.4	2 (	űξ.,	25.0		7:	712.3			
Thichis to flaction others.	18.3	٤٠,	ug".	25 %		7.3	71140			
1,2,3-Trichlorepropand	24.5	4 ()	ug/	25 5		415	55-130			
1.2.4.4 rem en Bernsenn	16 A	0.0	ag "	28.5		7.5	70,125			
1.3.5-Tem et allbenvene	21.5	# 15 1 1	ug i	21.		54	7 14123			
Vinox incetate	15.6	5.0	ug/1	25 (		62	45-145			
Vince colorida	11.6	2.0	1 20 1	23 :		~(	50-130			
√ - Y   ψ   2	20-4	Ž.,	λÇΊ.	- c		*	7. 18. 5			
m p Xylenes	<b>4</b> 0 0	2.0	цеЛ	54.0		86	70-125			
Fig. spaces to comotine exactlying	25 ti		195	200		, 50	17-729			
Surveyate Surveyeds	25 7		ngri	157		70,5	50-710			
Surregate : 1 Bromeffranchenzenc	24.7		ng./	25.0		20	80-720			

Del Mar Analytical, Irvine

Kathleev A Robb Project Manager



17461 Denah Avell Sude 100, thene, CA 92614 1949; 06141022 FAR (249) 051 3197 1814 F. Godky Cr. Sude A, Collen CA 92104 (900) 970 4867 FAR (202) 970 1046 9464 Cheseumare Ch., Sche 915 San I, edo. CA 92103 (955) 006-8396 FA Kra56; 606-609 9530 South Shsh Sh, Sude 84120, Phoenix, AZ 61644 (480) 785-0043 FAX (480) 786-005 0400 G. Suden 91 ±8, Las Magash NV 86120 (700) 746-8820 FAV (700) 049 9701

U.S. Falter-Westates Carbon, P.O. Box, 3308

Packer, 37 85344

Attention Deborah Foster

Project ID TTO

Report Number 100-857

Sampled: 07-13:05 Received: 57-14:05

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		"hREC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019   fixtracted: 07/21/	05									
Matrix Spike Analyzed: 07/21/200:	S (5G21019-MSI)				Source: 10	ŌG0857-(	ìŢ			
But the	25.1	27	tigt T	254	ND		60.125			
Stempherorine	25.4	5.0	ugal	25.0	5.13	1.2	7:5-125			
Brompublic emethanc	203	5.0	ug/l	250	5.0	1+111	(40.135			
By no notify temptians	24.6	2.9	123	25.3	50	k	(55-135			
Beamelorm	<u> </u>	5.5	ugri	25.	1.6	5,2	506135			
Programmer and programmer	25.2	8.5	cg/I	25.0	ND	100	50.145			
in Beth Darwin C	23 =	5 1	col	25.	SD	1	65.135			
sine Bioty Dishwerse	24.3	5.0	ug/I	25.0	SD		65-105			
tors Butefee seed	25.5	5.0	110.5	25.0	87	100	65 130			
Carin Discussion	23 ;	Ē.J	Lg-1	15.0	100	7.2	49. 40			
Carbon ti tracolorido	25.1	5.0	agri	25.0	NO	100	(44)			
Chilotapenteere	25.0	ů 9	вg/	25/3	NO	10	10-125			
Charletter	24.9	5	ugd	15 %	ND;	•	5,547			
Charmon	25.4	2.5	ugi	25.9	<b>SD</b>	1.2	65-135			
Chloromethane	26.5	4.6	ug/"	25.0	ND	F.7	35-140			
I Chiadoloista	24 €	4 °	ug ".	25 %	ND	1 '	15 135			
4 k 11 korgadelherne	25.6	5.0	ug/.	25.0	ND	Tee	65 135			
Disconaction engineer	26.2	2.5	ug/.	<u> 25</u> .t	ND	1:5	694149			
The process of green our oping	23.1	£ 7	1g-1	2 -		· <u>"</u>	10.50			
1.2 Dibromouthine (EDR)	26.5	2.3	ug/l	25.3	ND	114	(5-150)			
Dia romiorise lang	26 1	2.5	eg"	250	MI	114	10,00			
10414animta envena	247	2 m	ugi	27	M	.4	77.125			
Lo Digitiero icazone	24.2	2.0	ug/l	25.5	ND	wj	76-125			
# 1) Attacementicate	24.4	2.1	og4	2.	ND	5.9	74 - 125			
Ducator application of the control o	18.4	\$ j	ug4	A2.	NI)	1.5	15-155			
i. I. Dichiorochiane	26.3	2.6	ug/I	25.6	ND	105	(49-150			
1/2-Dichorocatione	24.5	2 0	ug4	25	ND	1-3	de - 10.			
to the Complete same of the same	23.3	5.0	ug 1	23.0	KD	17.1	m*_+ 45			
on 1245 chancehore	25.2	2.0	ugil	25.47	ND	11-1	60-130			
the first morning of the son	25.4	2.7	19.4	2.5	ND	111	Artis			
1.24 Charles and		24	ag-l	21%	540	:	1125			
La-Defenopopage	264	2.0	u <u>e</u> /I	25.6	ND	's <b>.</b>	60-135			
TVTC (At let rank many)	25 V	2.4	121	25.0	ND		67 - 145			
I I I against gorene	24.5	2 1.	ug-l	24	55	1	45-115			
, 10 - 1.3D. «А соонражерия»	26.41	2.6	ug/l	25.0	ND	[04	65-135			

Del Mar Analytical, Irvine

Kathleen A. Robb Project Manager



U.S. Filter/Westates Carbon

P.O. Box 3308 Perker AJ 85314

Attention: Delvirah Foster

Project ID: TTO

Report Number 1060857

Sumpled: 37/13/05

Received: 17/14:05

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019 Extracted: 07-21/03	5									
Matrix Spike Analyzed: 07/21/2005 (						OG0857-0				
trans 1.3 Dichloropropene	25.9	2.0	.:9 1	05.0	20	1(4	c5-140			
Edwin Land	251	26	1.6.1	250	<b>ND</b>	170	55-130			
Heila o obstaties	2000	3 B	:5:1	25.4	ND	42	50-135			
Isopropulbanzour	26.2	2.0	ag4	25.0	ND	103	65-130			
p-Isopropytrolin ne	23/2	2.0	454	25.0	KD	43	65~125			
Media pose especial	28.	5.0	ng 1	15.9	NE	112	55-130			
Napital kile	22.9	5.0	.24	25.0	MD	45	45-145			
n-Propolibenzene	25.9	2.9	135° f	25.0	ND	104	65-130			
Swirene	16.4	2.9	654	25.0	ND	65	45-145			
1,1 2 Years ansare district	25.4	5.0	ugri	25.0	ND	1.42	95-J4-L			
1.1.2.2 Tetruchioroetiche	28.9	13	.g.l	25.5	SiD	: 4	55-140			
Tetrachio actione	14.5	2.3	ag 1	25.0	ND	:78	60-130			
Tolacor	25.5	2.0	.g.4	25.0	ND	1::2	45-125			
1.2 Inc. a provenient s	228	\$ (	-24	253	ND		55-105			
1.2 + Encharational	23.6	5.0	- 27	157	ND.	52	60-135			
(i.1.1 Trachiarectrance	24.9	2.3	ug 1	25 0	MD	.00	65-140			
1 1 2 1 good or a flower	24.2	2.3	r.g/l	25.0	e[74	1012	60-136			
The hard wife and	24.3	2.4	sg1	_= (-	*: <u>`</u>	5.7°	60.115			
Trackers in preparthuse	23.2	5 <i>i</i> g	3.1	[5.6]	7417	+ 3	55-145			
1,2,3-1 rel foropropime	27.8	15	ugA	150	ND	111	50-135			
1,7.4-Transfliv@encese	23.5	2.0	55 <sup>4</sup>	25.0	MD	GZ,	55-130			
1.3 folia methy has non-	250	2.0		25 0	212)	1041	65.13			
Virial acetate	18.8	5 0	Ug/5	15.9	40	11.5	40-150			
Viryl chloude	19.2	5.0	ug/li	25.0	ND	7.7	40-135			
e-N. Eng	24.5	2.0	5.21	150	NĐ	113	60-115			
ing the New Perfect	48.8	2.0	H2/2	¢ [11	ND.	<u>\$</u>	504130			
Services, Debrom Moore methers	25.71		uz-l	22.0		100	80-720			
Surrowan - Toluene 48	35.7		ug/l	25.0		103	80-120			
Survivor, Albertalism chanzene	24.6		5g T	23.0		2.8	30-120			

Del Mar Analytical, Irvine Katalisen A. Robb Profest Manager



17461 Decar Avel, Suite 105, borre, CA 92614 (948) 261-1002 FAX (049) 260-2267 1014 El Copiey Dr., Suite A, Colton, CA 90304 (999) 270-4667 FAX (900) 370-1046 9484 Chesapeake Dr., Suite 905, San Diego, CA 92123 (856) 506-6596 FAX (958) 506-6689 9200 Sairt 61vt St., Suite 6400 Phoenb. AZ 85044 (480) 186-0043 FAX, 480) 185-0851 0704 El Suitet Ad #8 Las vegas NV F3120 1707-179-2800 FAX (71) 175-641.1

U.S. Falter/Westates Carbon P.O. Box 3508 Partier: AZ 85544 Attention: Debendi Lester Project ID TTO

Report Number 10036857

Sampled 07/13/05 Received 07/14/05

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Matrix Spike Dup Analyzed: 07/21/2005 (5G21019-MSD1)   Source: 1OG0857-01   Source: 1OG0857			Reporting		Spike	Source		%RFC		RPD	Data
Matrix Spike Dup Analyzed: 07/21/2005 (5G21019-MSD1)         Source: 1OG0857-01           Beneaus         23.8         2.0         ug/l         25.0         ND         15         60-125         5         20           Brown of matrice         23.3         5.0         ug/l         25.0         ND         13         65-125         9         20           Brown of matrices         20.0         8.0         ug/l         25.0         ND         91         05-135         8         20           Brown of matrices         22.5         5.0         ug/l         25.0         ND         91         05-135         8         20           Brown of matrices         22.5         5.0         ug/l         25.0         2.0         80         59-135         2         25	Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Behavior         23.8         2.0         ug/l         25.0         ND         15         60-125         5         20           Breavior activate         23.3         5.0         ug/l         15.0         ND         13         65-125         9         20           Browskichloromethate         20.0         8.0         ug/l         25.0         ND         91         65-125         8         20           Browskichloromethate         22.5         5.0         ug/l         25.0         26         80         50-125         2         25	Batch; 5G21019 Extracted; 07/21/05										
Brown of matter         23.3         5.9         ng/l         15.0         100         13         68-125         9         20           Brown of momentume         20.0         8.0         ng/l         25.0         80.0         4         66-125         8         25           Brown of momentume         22.7         2.0         ng/l         25.0         NO         91         65-125         8         20           Brown of momentume         22.5         5.0         eg/l         25.0         2.6         80         50-125         2         25	Matrix Spike Dup Analyzed: 07/21/200	5 (5G21019-N	(18D1)			Source: 1	OG0857-0	11			
Brew of properties         20.0         8.0         agh         25.0         NO         4         69-135         8         25           Bromodic/Horomethian         22.7         2.6         agh         25.0         NO         91         65-135         8         20           Bromodium         22.5         5.0         egh         25.0         2.6         80         50-135         2         25	Bandara	23.8	3.5	ug 1	25.0	ND	15	60-125	5	711	
Bromodic bloromethine         22.7         2.6         ng/l         25.0         NO         91         65-135         8         20           Bromodic bloromethine         22.5         5.0         eg/l         25.0         2.6         80         59-135         2         25	British to the second	23.3	5.0	197	15.0	(42)		45.125	C)	201	
Browedown 22.5 5.9 og/4 25.0 2.6 80 50-135 2 25	Brew of prometages	25.0	\$ 6	110 m	.15 0	500	<i>:</i>	60×135	ς.		
as an analysis of the state of	Bropposis Moroprethipe	22.7	2.0	ng/l	25.0	MD	91	05-135	8	20	
Remonshing 23.4 5.9 gF 25.0 ND 64 556145 7 25	Brownium	22.5	5.0	4 · £ · · · · ·	25.0	2.4	80	50-135	2	2.5	
	Browning others	23.4	5.0	12 T	25.7	MD	4.1	53-145	7	25	
m-Pet 1 type - 25 27 27 27 28 28 27 27 28 27 28 28 28 29 29 29 29 29 29 29 29 29 29 29 29 29	h-Pot 1 those	25.2	5	0g/1	21.9	87	1.:.	05-135	3	20	
security features 23.6 5.0 agd 25.0 ND 54 65/25 3 26	section frances	23.6	5.0	ug/l	25.0	ND	1.4	65,125	3	277	
tert-Borythemzene 24.6 5.0 ug8 25.0 ND 96 65-130 4 20	tert-Distylbunzene	24.6	5.0	ປຊາໃ	25.0	21)	65	65-130	4	20	
Carpor Disaffide 23.8 f.5 ugf 27.0 N40 05 4044, 2 №	Curper Doubles	23.8	\$ 4	ALC: Y	27.0	547	<.5	40-14.	2	29	
Carbon conversion control 23.6 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Carbon terr, aslaning	23.0	# ···	35 G	25	7(D)	y- 1	(5.)4/	6	25	
Chloroberizone 23.7 3.6 og4 25.0 ND 95 70-125 5 20	Chloroberisme	33.7	2.0	egA	25.0	5.17	5.5	70-125	5	20)	
Chloraethane 23.5 5.0 ag/4 28.0 ND 54 59-140 6 25	Chloraethane	23.5	5.0	ag/L	25 G	ZD	€, ;	59-140	6	2.5	
CHaration 24.5 2.1 gd 25.0 MH 38 (5-25 4 20	Citarojorpi	24.5	2 5	15.4	27.0	Mi	7.5	43.435		20	
Characterist 194 5.6 agr 25.0 NO 78 35-149 in 25	Contract of the	(0.2	5 6	4 <u>4</u> 4	25.0	1,11	7.4	35-141	40	22	
2-Chien Johanne 23.2 5.0 ug/l 25.0 ND 53 65-735 7 20	2-Chiore to bone	23.2	5.0	ug4	25.0	ND	4.3	65-135	-	20	
4-Chler tolurac 23.3 5.0 ag4 25.0 ND 93 65-135 7 20	4-Office to tueno	23.3	5.0		25.0	ND	93	65-135	7	20	
District Control	Collaboration is seem to under	24.8	20	1 g <sup>q</sup>	27.	* 1	(4)	10,120	3	25	
1.0-1.0-dependence-section experience 23.8 5.9 kg/s 2.5 kg/s 2.5 kg/s 40-45 7 30	1.0-1 (concento-s-chirac) grapping	23.8	\$ 19	(34	25%	* **	₹1	42-199	2	3/1	
1.2-Stranonoethme (FD3)	L2-Denomoethine (FDB)	15.2	2.0	r.g.H	J = 0	ND	1(4)	t 5-13G	.5	25	
Descriptions 15.0 2.0 eg4 28.0 ND 50 69438 4 28	Transcourage State	15.0	20	ugfl	25.0	ND	410	60.435	4	2.6	
1.2-15s, conservence 29 6 27 con 10 5 No. 94 70-125 4 20	1.2-15m autobenzens	23.6	20		134	1,10	64	70-125	4	20	
ECREPOND IN 12 9 20 0g9 1510 ND 12 90-125 8 25	1.5-13 cm a rebenzenc	* ~ 1	2.6	145	111	55	62	76-124	:	29	
L6-10x Surobenzene 23.0 2.0 kgA 25.0 ND 92 76-125 6 20	1,4-15s Morobenzene		2.6		250	1417	<u>02</u>	70-125	6	20	
Delieud Bandingbank 174 56 ogf 216 ND 70 15455 6 30	Deflered flame nethers	174	5.6	0.01	100	ND	70	15-155	ř.	30	
0.0-00 cm.c.mae 250 26 cg/ 250 ND 10 66-130 4 20	1,1-10/20 the litting	25.2	2.5			540	16.1	66-130	4	20	
1.3-50x, Friedom home 23.3 2.6 mgA 25.0 ND 95 66-140 7 2D	1.7. Cachier och me	23.3			* 4 .5	ND	03	66-146	2	20	
3.1-On-Electropethene 23.7 5.0 ug/l 25.0 ND 95 60-135 7 20	3.1.1 in blocoethene	23.7		-	25.0	ND	04	60-135	?	20	
cis-1.2 Digitloroethere 24 1 2.0 uz0 25.0 NO 05 69-130 4 20	cis-1.2 Dichtoroethe w	24.1	2.0	ez/l	25.9	533	i je	60-150	.4	20	
- Bank (Factioner)		24.5				NO	9.,	69-148	4	2.7	
1.2 1 m. herropropune 24.6 2.0 mg/s 25.6 N/J 98 60-125 6 D)							98	60-125	÷		
L3-Dichloropropang 25.2 2.0 ng/h 25.0 ND 101 60-135 4 25	, i			-							
22-19- Horographic 28 f 2.0 up.1 25.0 Mb 114 67-345 2 25	* '			-					2		
E. Duran graphia 254 27 ag 1 25 c ND 94 c5-125 r Z.											
viv. 1 (1) (notoprop. e. 24.1 2.0 ag/1 25.0 MD 96 65-125 8 26							0,6		8		

Del Mar Analytical, Irvine

Kathleen A. Rolli. Procet Manager



17461 Dknan Hvel, Suits 100 Bvns. CA 20014. [449, 26141072 FAX (944) 1803117. 1014 S. Czolej Dr., Suite A, Colten CA 60324. [908] 370-4067 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 806 San Diego, CA 97123. [668] 506-8696 FAX (669) 006 9069 9690 Bruth Crist St., Suite Byrzo, Pholenik, AD 85044. [460, 766-0143. FAX (460, 766-066) 9690 B. Sunset Rall #3 It as Vegas, NV 56120. [702] 798-3620. FAX (702) 798-3621

U.S. Editer/Westates Carbon P.O. Bux 3308

Parker, AZ 85344 Attention - Deborah Fester Project ID: TTO

Report Number: 10G0857

Sampled 07.13.05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G21019 Extracted: 07/21/05										•
35 . 2 . 1 . 1 . 4 . 3 . 3 . 1 . 1 . 1 . 1		TC INT			C 1	OG0857-0	.1			
<ul> <li>Matrix Spike Dup Analyzed: 07/21/2 trans 3.3% school ortopene</li> </ul>	.005 (5G210195) 24 T	1801) 20	024	25.0	ND ND	05 05	(1 (65-140)	7	25	
Ethylpensene	23.8	2.3	ug4	25.0	ND	95	65-130	5	20	
Merota Mary Pengalhump	20:0	5.7	- 10 t	15.5	ND	84	60-135		20	
Isopropy Theorems	24.8	2.5	eg/l	150	ND	99	65-130	5	20	
beli obtobalione isobalista men	27.6	20	674	25 O	ND.	90	65-125	3	29	
Metry to enlande	26.4	50	ug/I	25 U	ND	106	55-150	ė.	20	
Night trace	24 6	5.0	94.1 941	25.6	ND	98	45-145	7	311	
n Propyllienzane	24.4	2.6	ug/l	25.0	ND	48	65-130	é	20	
St. cent	14 (	2.6	eg.T	23.6	ND	56	45-145	16	30	
14,1.2-Tetrachimoethane	24.3	5.0	ugd	210	ND	47	65-140	é	20	
1 1 2 2 -Tetrachletoethanc	287	i è	.g/	2.5 %	ND	:15	55 140	I	30	
Letia, him octhere	23.3	2.0	ug/i	25.0	ND	93	60-130	5	20	
1 classic	23.4	2.3	ng.C	25.6	ND	tiv4	5.125	r	29	
1.2 S-I mehlerobenzene	23.5	5.0	ng/l	28.0	NO	94	55-135	3	20	
2. N. D. Harddern See Sept.	23.4	\$ 40	g/I	25.0	ND	1,1	Ç., 135	3	25	
1.1. Incideroctions	24.3	2.0	ug/l	25.0	ND	97	65-140	2	20	
a 1,2-Th ealthson outc	25 (	2.1	ug/i	270	ND	100	46-190	Ś	2.5	
The monochiene	22.5	2.0	ue/l	25.0	ND	ЧŰ	60-125	8	20	
This it well aromethy se	21.8	< <u>(</u> ,	ug T	25.6	ND.	47	55-145	1.	es #	
1.2.3 Tachtoroptoping	27.0	10	ag/l	25.0	ND	98	50-135	3	36	
1.2.471 mile throby wierse	22.3	2.0	.ad	25.0	ND	80	55-130	5	25	
L3.5-Trainethylberizene	23 (-	2.0	ug/I	25.0	ND	94	65-130	<i>t</i> s	20	
Number ties total	) Car Ca	5.0	ugil	24.0	NIN	5.3	40-150		34	
Vinyl phloride	18.2	5.0	ug/I	25.0	ND	73	40-135	S	30	
o No lene	24.1	2.6	ug/l	27.6	ND	42	50-125	ž,	24.	
na pa Xv Iones	466	2.0	ug/I	50.0	ND	93	60-130	5	25	
Live signify some mighten smith me	I - 12		1-g7	25 8		750	\$90,29			
Serrogate: Colueno de	25.2		igA	25.0		197	80-120			
Son, oggite (4-Brun, Zhiri), nenzene	243		vg i	25.6		29	50-720			

Del Mar Analytical, Irvine Kathleen A. Reish Project Manager



17471 Tenan Ave. Suite 110 Inche, CA 92/144 (949) 251 1022 FAX (949) Lt.64207 1714 B. Cope, Ch. Skire A. Cohm. CA 92/124 (969) 310 4657 FAR (959) 310 1046 1744 Chestomers Dr., Buire 605 San Diego, CA 92/123 (859) 500 8596 FAX (959) 105 0849 1630 South Stat St., Saite B-120, Phosp k, AZ 85044 (450) 756-0043 FAX (450) 155-0567 C727 B. Staten Br. #2, Las Veges NV 91/100 (770) 706-0520 FAX (702) 706-0521

t ES Falter/Westales Carbon P. O. P. A. 2868 Parket 177/355344

Attention Debutah Foster

Project ID: TTO

Report Number - 1063:857

Sampled: 47/13/05

Received: of 14:05

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

		Reporting		Spilke	Source		$^{\circ}\circ REC$		RPD	Data
Anulyte	Result	Limit	Units	Level	Result	"eREC	Limits	RPD	Limit	Qualifiers
Barch: 5G17017 Extracted: 07/17	7/05									
Blank Analyzed: 07/20/2005 (5G1	7017-BLK1)									
Acting form	ND	, 62	(4g) . 1							
Acenophthylene	ND	10	13(2)							
र्यम् काङ्	810	10	ugri							
And telepin	AD	.9	6:72							
Remark the	N10	20	ug-1							
Beneval agus	AU	20	ugl							
Service and the service	71.7	10	11E-1							
ise was builtnormather e	AD	10	H gu							
The Local Color and themse	CZ	10	ug4							
The same in the matter.	ND	19	ug 4							
Here and the state	ND	.0	ug/I							
Percent discharge	CM	20	ug 1							
des(2-clib continues methane	'(;)	10	ug i							
Re(2-chlaro, thef)other	ND	10	ug 4							
Ber Zechlason engas better	ND	19	ug ?							
Bar I-oth the type the ore	1.1)	50	145.1							
4-Bromophers I phenyl ether	ND	10	ug!							
two the symbolic	ND	201	nā.							
deglin websimaning	ND	řík	us !							
13. Morozoplatkalene	NI)	ΙÚ	ugal							
4-Charo Cincips promid	N!)	20	054							
2-Chlorophyn)	80	10	L¥1							
4 Chloropharyt phonyl other	ND	10	ug/i							
Professional	5.5)	1 - 8	. 5.							
[ Nation (1924)   148   15   1935 (1935)	<b>5.</b> 10	13	55°							
Dibenzetern	ND	TFE	ugh							
The contribution to allow	ND	201	1.97							
1.3 Dichlor tenzens	ND	10	v. <u>2</u> ″							
1.4 Preidorobenzene	ND	1(6	ug4							
1,2 (D) littler between	ND	171	vg"							
s & Degelop Entrage	6573	20	ug".							
2.4-Dieblomphersol	ND	10	ug/l							
Coother profession	Nii	1.1	12.0							
1.4 th metiglication.	ND	29	ug/I							
Chaneth Epil, h. late	MO	9	ag/f							

Del Mar Analytical, Irvine

Rathbeen A. Rabbi Project Macheer



10461 Tier sal Aug. Foure 1010 Invite 1014 (1941) 2514/1622 FAX (946-26040) 3 1 144 F. Codley Lin. Bure A., Coron, CA 97324 (1996) 370-4687 FAY (609) 370-7640 9484 Christophaka Dr., Surle 808, San Diego, CA 92123 (868) 505-8596 FAX (858) 505-9596 9830 Forth 51 at St., Surle B-170 Phaenix, AZ 55644 (460) 785-0043 FAX (480) 785-955 1 100 P. Surlet H. B., Use Vegas, MV 93100 (700) 148-9520 PAX (400, 389-95)

U.S. Filter/Westates Carbon P.O. Bick 5208 Flamm, AZ 48344 Attention Debotch hoster Project in TTO

Report Number 1000:857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

		Reporting		Spike	Source		% <b>RE</b> C		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G17017 Extracted: 07 17 05	<u> </u>									
Blank Analyzed; 07/20/2005 (5G170)	17-BLK1)									
4.6 Proceeds methy behand	ND	28	ug#							
2.4-1 in the absence	ND	2.7	uş4							
2 1-1 (intro) of works	70	10	ug l							
2,5 Pristrableage	ND	10	ug/l							
Democal Calabilitatis	ND	20	ug/l							
The subtractions	ND	1.0	.12:1							
Physicia	ND	10								
Desact Condensene	ND	; ")	ug/I							
He inchlorobutadiene	ND	10	u24							
The conditionness deport and one	ND	20	VE 1							
Result brouthing	ND	10	011							
Indution 1.2.3-edypy three	MD	20	មន្ត។							
Isopacreac	ND	10	Lg4							
2-Aforby to apintusional	.co	$\mathbf{E}$	::21							
2-MHz systymenic	ND	1.	LQ.1							
4-Mathy-photof	ND	10	ag4							
Not blin me	ND	10	::ជូ:1							
B-Matalage Care	ND	21	157							
3 National Inter-	NI)	20	ug l							
4-Numerosime	ND	20	ug.1							
Nate current	ND	20	444							
Tell to be used	50	Ħ	0.2%							
4-Natrephiemed	NO	20	62 i							
N-Nitrosediphenylamme	ND	10	eg/l							
N-Nation (disp-propy leating)	∧D	10	ag fi							
Bentucial, or promote	50	*	196							
Phinippolaricals	50		91 <u>2</u> 1							
Phenol	ND	10	ugA							
Panes	ND	15	ng 4							
CONTRACTOR CONTRACTOR	MI		JE 1							
2.4.7-Tellieri kerantan d	80	2.0	344							
2,4 6-Trichtosophenol	ND	20	ug/I							
No Catalysia Convetor Continue	5.7)	Σ.	639							
<ul> <li>Lighter to drawn Makemacha</li> </ul>	5,5)	<u>.</u>	a= .							
But on the Differ graned	127		4,27	2-10		2,71	30-720			

Del Mar Analytical, Irvine

Kethleen A. Robb Profect Manager



11461 Denah Ako (Sun, 100, Irvne, 04, 6514, 1946) 25141220 FAX (948) 253-257 1014 El Cooley Del, Suite A, Colton, 04, 90324, 1003, 270, 4667, FAX, 969, 270-1046 9484 Chesapeake Dr., Suite 805, San Diego, 04, 92123, (856) 505-8596, FAX (856) 505-9589 9630 South Stit, Suite Bit10, Phoenol AD 55944, 1485; T85-0143, FAX (486) 755-0551 14 (10) Bi Runsel Kid, #3, Jas Vegas, 11, 19100, 1010; 344-4690, FAX (10), 739-9587

U.S. Falter/Westates Carbon P.O. Box 3308 Parker, AZ 85344 Attention Debotals Foster Project ID TTO

Report Number 1069857

Sampled: 60/13/65 Received: 00/14/65

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%RUC Limits	RPD	RPD L <del>i</del> mit	Data Qualifiers
Batch: 5G17017 Extracted: 07.17.05										
Blank Analyzed: 07/20/2005 (5G17017-	B1 K1)									
Surveyore Phenolette	7,7.7		ng-7	200		4.5	35-720			
Survive 2 15 Post in exphana	164		15	25/9		4.1	23-720			
Sumberte Natiobertenes 15	-7 -		ng i	1.40		7.7	45-720			
Sourcegan 2-Floorshy benyl	77.0		ug T	200			45-120			
Surregate Terphenel-e14	".S. T		ng I	760		79	45-120			
LCS Analyzed: 07/20/2005 (5G17017-B	(\$1)									M-NR1
Acentipathene	86.7	.9	ng4	100		87	55-125			
Accampliting tene	89.0	16	ис/І	100		89	55-120			
Atabac	813	10	ag 1	165		81	35.120			
Notified the	14.5	12	.gT	100		S	55-120			
Benzidae	173	20	- 51	1 1/4		:03	20-160			**
Benzerc sold	60,7	20	ug/I	100		N.	35-120			
Pen mit tantantens	8: "	10	, ⊈4	100		82	50-120			
Beave believenthere	84.1	1 <sup>2</sup> 2	.g-1	160		20	50-120			
ลิตการณ์ เข้าแตกแก้ของผ	87.2	10	1.g.1	(6)		89	50-125			
Benzo(g.) inpensione	93.7	10	ug/l	100		64	40-125			
Penanagri rene	the are - 7	19	Ja 7	40			55-129			
Bentolin , day	55.4	20	.424	:90		5.5	45-120			
Brs(C) ebiorbethosy jointhune	84.1	10	.g/1	) 00		54	55-120			
Bis/2-chierochys)erber	83.6	10	rgA	Col		\$4	50-120			
RistI-chlorossopropy bother	\$4.8	(1)	187	ψ.		\$3	45-120			
RRAD at the residentiation and	53.4	50	. 5 %	1444		<b>3</b> %	5(-13)			
4-Brone-phenyl phenyl chier	85.3	10	λ <u>ε</u> đ	105		85	50-120			
Buty I bened phthalate	K= 2	2.1	ug/I	160		2.2	55-125			
4.630. Same	73.4	15	154	100		7,9	59-120			
2-Cheer mentionalisms	70.5	in	.gA	$\rho(Y)$		Χ,	55+120			
4-Casaro-Semulin lister to	82 0	2:3	eg∄	100		84	60+100			
2-Chlorophenol	77.6	10	:: <sub>[</sub> ]	100		78	45-120			
4-Chies, phenyl prominether	30.5		. 44	990		1r	55-120			
Chry and	8" (c	10	. 41	170		S. =	50-120			
Diberur i, Banthracene	96 [	20	1.8/1	100		ck/-	45-130			
Diberration	85 1	10	1120	100		\$5	60-129			
Dieners de Epícibaliste	76.3	30 m 		100		7.	55-125			
1.3 Could rather some	212	10	ائود	99		-4	35-115			
1,3-Da blarobarzene	72.5	13	. 2/1	100		- 3	35-126			

Del Mar Analytical, Irvine

Kathleen A. Robb Project Manager



17461 Dynan Ave - Buje 100 Hyme, CA 91614 (949) 251-1022 FAX (949) 250 3701 1014 E. Godiey Dr., Feite A., Gotton, CA 92324 (999) 370 4667 FAX (909) 370-1046. 5464 Cherspreak e Dr., Suite 805, San Diego, CA 92123 (956) 605-6966 FAX (959) 605-6969 8630 Solm Charlet , Suity 5-121, Phoenix - AD 95044 (448), 765-0043 FAX (450) 765-0661 1710 B. Suiter Folley Las Veges Nov 89120 (100) 797-3600 FAX (700) 767-8601

U.S. Edler/Wedates Carbon P.O. Rox 3308 Edder AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number - 10/G6857

Sampled: 67/13/95

Revenied: 17,14/95

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G17017 Extracted: 07/17/05										
1.CS Analyzed: 07/20/2005 (5G47017-B	STI									M-NRI
1.2-Dichlorobenisers	34.8	10	ug/l	115		7.5	35-120			
R.3-12 obtoroberanome	e, 4	20	127	1.4		~>	45-130			
2.445. Herophone	7 7		rg T			- 5	55-120			
Dieths physikate	86 1	10	ug/l	400		80	55-120			
2.4-Conethylphener	C3-8	20	112/1	100		64	30-136			
Thoratry shitheliate	14.3	1.3	ε :			5.1	63-120			
4 - Paratti - Pemarth (1930) na	15.2	20	961	110		5.5	55-120			
2.4-12r atreptionel	49.3	20	02.7	310		40	40-120			
2.4-Parametobiese	93.9	10	uerl	140		∴	60-120			
2.6 Peretrista valur	81.3	121	g.1	e*		81	65-120			
Turner, to Columbia	84.2	27	::g::1	eryt.		<.1	55-136			
Plantarting	82.0	10	u <u>c</u> il	:00		52	55-120			
Plantene	49.0	10	ug T	10(i		8,0	60-126			
3 Secretaria Assessant	25.7	10	ндЭ	7-7		4.5	5-4-126			
Her verhior doctors on a	74.7	\$ 4 6 %	had h	100		7.7	4% 176			
Henacaloroes clopentarisene	₩.5	20	ugʻi	100		77.3	15-120			
Herse ober other	76.3	19	9g/1	140		375	35-120			
In ferror 12.3 cd owners	500	21	44.1	1767			40-136			
Programment,	82.6	i u	6 <u>9</u> .1	1.0		3.3	50-121			
2-Nieuw ocpatibilese	\$1.0	10	.: <u>c</u> .1	150		5.1	50-120			
2-Meth the w	2017	10	ugrl	EK		* 5	45/120			
and the managery	5/1/3	1€.	192	1.11		8.1	45-100			
NapaCadene	$\forall  \xi   \gamma_i$	1/4	eg l	100		7.9	59-120			
2-4s-troumiline	84.6	20	ug/l	100		83	60-120			
3-Mityumline	64.0	20	.g1	100		C.4	55-120			
e-№ traunt in€	43.5	27	g.1	(1)		1	56-125			
Nitrohenitens	20.1	20	.g.T	105		76	50-120			
2-Newsphenol	82.1	10	tig4	190		82	55-120			
±-1× (	78.4	<u>20</u>	eg t	:30		- 4	45-120			
N. M. Johnson, Street from the	86.3		6g t	118		5.6	55-121			
NeX починантерия раздитите	8 24	1.5	ą.T	100		\$9	45-12/.			
Pentichiorophenal	91.4	20	ug/l	100		Çr.	50-120			
Please with raine	N/ 2	10	ugil	130		* 1	55-126			
High s	277 5		1,2,1	1.73		*,	45-120			
Pyrous	874	10	424	100		X."	50-125			
V - V - V - V - V - V - V - V - V - V -										

Del Mar Analytical, Irvine

Kuthkeer A. Roeb. Profect Manager



U.S. Filter/Westates Carbon P.O. Box 3308 Parker N.6.85304 Attention, Debotah Foster Project (D. TTO

Report Number, 1000857

| Sample J | 17/13/05 | Received | 17/14/05

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Anafyte	Result	Reporting Limit	Units	Spike Level	Source Result	%RFC	%REC	RPD	RPD Limit	Data Qualifiers
,										
Batch: 5G17017 1 xtracted: 07/17/05										
UCS Analyzed: 07/20/2005 (5G17017-E	BS1)									M-NRI
1.2.4. Departuration by the	75.1	10	ug/l	(40)		7.5	48-120			
2.4.6 Dischlorophy as	55-1	27	137			\$1.0	40-123			
2.4 o la via nome de	89: 8	20	.:2-1	10		۲:	60-107			
N-3 throad methy pinnic	84.9	20	ug4	100		85	40-120			
1.2-Dinberty Spectromics: Alcobornione	\$6.5	20	1/2:1	100		87	60-126			
Survey one 24 Person process	148		112 T	200		7.	36.720			
Successful Association	171		14 T	7764		4.3	35-72:			
Smill gate (2,4.6%) advantaphenal	$I\delta I$		$H_{K}^{\infty}$ . $\tilde{\mathcal{X}}$	2.1353		970	45-720			
Sign gain. Nipokrotone-45	50 3		ngJ	550		5.0	45-120			
Survey Survey Superior Consumption	V1.2		167			52	45-721			
Sweeget, Testile by 304	×6.2		3g /	2.74		37	45-72%			
LCS Dup Analyzed: 97/20/2005 (5G170	)17-BSD1)									
Aperapathere	34.0	13	und	\$1.7		84	55-120	3	21	
Nile applicates care	47.3	- 3	rgd	1.6		4.3	55-126	<u> </u>		
Amaing	75.7	:0	ug/l	100		77	35-120	6	25	
Apthorope	80.8	10	ug/l	100		81	55-120	1	20	
Benefice	17-9-1	20	التي	100		aa	20-1-99	54	3.5	R-2
Ber en uid	50.7	20	og i			4,4	35-100	23	30	
Beroora)antibracene	\$6 O	1.0	ug 4	υng		\$20	60-120	5	20	
Ben, of Stagranthere	88.7	10	ug/l	100		2.0	50-120	G	25	
Bee, all all oranthers	56.€	13	Jg II	100		<b>&gt;</b> 7	50-120	3	29	
Benevita harpenile te	1.4	16	- 2/	1.4		745	45 125	1	25	
Benual servene	79.8	10	.gA	196		81	55-170	4	27	
Borz 1: Sohol	63.6	20	ug4	100		61	45.120	4	20	
Bod the seeth or out time	53.2	19	ng 1	116		¥3	55-120	1	10	
Box 2s, are need by herbert	, · 7	. (4	u <u>2</u> 4	116			500 127	2	10	
BistC consensionary Lights	81.1	(9	ug/l	nto		81	45-120	4	20	
Brail of inclinesy topical abate	85.2	50	ug'l	.(10)		\$.5	60-130	2	20	
4-is: - applicant macro faction	57.8	19	ug 1	5- C		5.5	50-121	3	2.6	
B. followare white are	+3.2	29	(; ·1	100		-3	55-125	2	20	
4-6, is observable	77.3	10	.ig.?i	.00		27	50-120	1	25	
2-Chlor-marbitishene	81.4	10	ue/I	106		8.1	55-100	2	20	
43 feat of legs with the	7:2	27	41	111			A		7.7	
2-Charage, and	74.5		ag I	125		5.4	45-115	4	25	
d. Champions I photo. Lether	87 G	10	ug/I	'F')		e	554120	3	267	
<ul> <li>iii and superior or graph and the first</li> </ul>	* *	4.6	1121 - 1						-	

#### Del Mar Analytical, Irvine

Kathiben A. Rasso. Profest Masager



17461 Ferian Ave. Suite 160, Inuria. 1A 31614, 1941-151 1622, FXX, T45, 1813251 1614 S. Copiey En, Share A, Contin. CA 56324, 1939, 574-4867, FAX, RUS, 576-1646 1948 Chicropease Dr., Suite 865, San Diego. CA 90123, 1656) 565-866. FAX 1658) 565-8664 6832 S. Imišniki St., S. He B-120, Phoenix. A7,85044, (491,781-2043) FAX, 1950, 185-6861 1711 T. Bussin To. RN., 48 Negas, 10 V R1 100, 101, 791-9600, FAX, 100, 193-3601

U.S. Filter/Westities Carbon P.O. Box 3308 P. Her. AZ 88304 Attention - Fel Staff Foster Project ID: 110

Report Number 1008857

Sampled: 07/13/05 Received 17/14/05

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G17017   Extracted: 07 17:05										
LCS Dup Analyzed: 07/20/2005 (5G17)	(17-BSD1)									
Chrystone	87.1	10	ng#	110		87	60-120	fi	20:	
Description of the Property	57.1	20	ug 1	114		27	45-130		25	
Emilians of the tops	843	19	ugá			4.4	95-129		79	
De-n-tenty Ephthalate	77.2	20	ugA	1609		17	55-125	;	20	
1.3-19 Chombenzene	72.2	10	ug/l	100		7.7	35-120	3	2.5	
1.4 Pastigrobetzean	7. 2	13	ug"			77,	35-120	4	2.5	
1.2 Trig membrog negric	72.5	177	ug 1			*1,3	354105	3	25	
3.3.1 while observe ru	80-1	20	ug.1	258)		Y.,1	45-130	ì	25	
2.4 Dach, nightnot	76.5	10	ug/i	1660		7.5	55-120	2	20	
Dietic liphthamn	83.2	14,	u <sub>j</sub> , n	1.7		53	55-120	3	2.0	
2.4 Droved Applied	1,3.7	20	1.8 4			****	30-120	ń.		
Dimeth Liphthalate	54.4	10	ug4	.130		8.4	60-126	Ų.	20	
4,5 denotes-2-metho spakingli	\$2.9	20	ug/l	:00		83	50-120	3	25	
2 will a try other of	55.7	±1.	. g 1	100		3.7	40-120	3	:	
2.4 Textural Austria	;: }	16	<u>e</u> .1			++*Tr	40-126-	.:		
I.rei im gotalica c	83 Ð	10	ug/f	.76		\$.5	60-12P	2	20	
Dr. n. cer. Prouhotar.	87.3	20	ug/I	100		87	60-130	4	20	
Luorard sene	75.5	4.8	96.3	i Vi		<b>%</b> :	55-124	3	27	
	85.5		105.1	100		36	50-120	÷	7	
Hermal Insubstitution	84.2	10	ng:1	10%		şn	50-121	.:	20	
Her, the populations	74.9	19	ug.'i	1640		1.5	40-120	m; air	2.5	
Her Alleroeyck pentiatiene	× 3 4	26	og i	(4)			15-120	_	30	
Here uninvoctions	73.3	10	. 41	last's		7.5	35-120	4	: 5	
Indiana (23-cdyparose	90.1	29	14/1	190		95	40-130	Q.	2.5	
Exception and	83.7	171	0.94	100		84	50-120	1	20	
2-Atetin loophilinders	78.7	10	ug I	100		•	50-120	:	25	
2-Matrix promov	76.8	10	320	17.1		- 7	45-120	3	~	
4-Nicti v phenoi	70.3	10	ug/i	100		20	45-126	2	20	
Napriths, she	78.3	10	ug/l	10/3		73	50-120	1	20	
Extension from	5	20	2.7	EV.		<b>k</b> :	651.100	,	÷.,	
3. Austread and a		28	agal Ligal	100			35-120	4	2.4	
A-Instrugactine	87.8	20	ngd	100		88	50-125	6	20	
Satisfy Administration	79.1	20	197 194	100		7.	50-120	0	2.5	
	74 a	10	va i	189		\$10	35-126	3	2.5	
Astronomy Communication	7.4.7	2.1	42.7	3.630		*,	45-124	5	25	
An April and Control	. ** 7	* * *	ie.				T 277		•	

Del Mar Analytical, Irvine

Rathleen A. Ror » Project Manager



17461 Derian Avel, Suite 100, Irvine, CA 92614 (948) 261-1022 FAX (949) 260-2297 1014 E. Cooley Dr., Suite A., Colton, CA 92324 (909) 370-4667 FAX (909) 370-1048 9454 Chesapeake Dr., Suite 805, Sen Diego, CA 92122 (858) 505-6569 FAX (859) 505-9659 9630 South 51st St., Suite 81-20, Phoenix, AZ 85044 (480) 785-0045 AX (480) 785-0651 2520 E. Suite 81-20, Phoenix, AZ 85044 (480) 785-0651 540 (4702) 798-3620 FAX (702) 798-3620 FAX (

U.S. Filter/Westates Carbon

Attention: Deborah Foster

P.O. Box 3308 Parker, AZ 85344 Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G17017 Extracted: 07/17/05										
LCS Dup Analyzed: 07/20/2005 (5G1	7017-BSD1)									
N-Nitrosodiphenylamine	88.2	10	u <u>c</u> 1	100		88	55-120	2	20	
N-Nitrosa-dish-propy!amme	86.8	10	ug/l	100		87	45-120	2	20	
Pentachlorophenol	94.4	20	ug/l	100		94	50-120	3	25	
Phenasthrene	79.7	10	ug/l	109		80	55-120	1	20	
Phenol	74.4	10	ug/l	100		74	45-120	4	25	
Pycone	83.4	10	ug.T	100		83	50-120	5	25	
i 2.4-Triciplorobonzene	75.3	10	ug/l	100		75	45-120	0	20	
2,4,5-Trichlorophenol	88.5	20	ug/l	100		88	60-120	1	20	
2,4,6-Tuchlorophenul	82 1	20	ug/l	100		82	60-120	2	20	
N-Natroandimethy lamine	72.3	20	ug/l	100		72	40-120	16	20	
F.2-Diphonythydrazine/Azabenzene	82.7	20	ug/l	100		83	60-120	5	25	
Surrogare, 2-Fluorophenol	133		ugA	200		óÓ	30-120			
Surrogate Phenol-d6	147		ug.7	200		74	35-120			
Surrogate 2/4,6-Tribromopheriol	181		ng:1	J10/0		90	45-120			
Surrogate Navobenzene-d5	79.2		ug/l	100		79	45-720			
Surrogare 2-Elmocohiphenyl	83.5		ugI	100		54	45-120			
Surrogata: Terphenyl-2114	83.1		ugA	100		83	45-120			



11401 Denan Aval, Suite 100 Invine, CA 92614, (946) 26141022, FAP, 1845, 201, 3097, 1014 E. Charley Dr., Suite A. Suiten, CA 64324, 4605, 370-4667, FAP, 4609, 91011046, 9464, Charles earle Dr., Suite 805, San Orlego, CA 92120, 1066, 505, 9690, FAY, 4610, 505, 9600, 1067, FAP, 470, 505, 9600, 1067, FAP, 470, 505, 9600, 1067, FAP, 470, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070, 1070,

U.S. Filten Westates Carbon

P.O. Box 55: 8 Darker Ad 85744 Attendance 10 Seach Foster Project ID: 110

Report Number 10/G0857

Sampled 07/13/65 Received 07/14/05

#### METHOD BLANK/QC DATA

#### ORGANOCHLORINE PESTICIDES (EPA 3510C/8081A)

Anaixte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Data Qualifiers
Batch: 5G20057 Extracted: 07/20/05										
Blank Analyzed: 07/20/2005-07 22/2005	156" 2 MIST 12	1.671.								
Aldem	ND	1. <b>K1</b> ) 1. 9	140							
aipha-BFRC	ND	6.10	eg i							
beta-BDC	ND	0.10	1127							
Softa-filik	NO.	20	¥.7							
manung-1800° al mahariti	NO	2.54	ng"							
v Triffer disstor	ND	. 6								
4 + 500	ND	v *11	og *							
4 2 D[X:	ND	9.10	ug-i							
4.7-DDT	ND	9.10	ag.1							
To a com	ND	0.10	027							
Endesestor (	ND	1/1/10	ng"							
Endospitus U	ND	5.10	ug."							
landes: line malate	ND	o 20	ug 5							
Fadria	ND	្ សេ	ag."							
Endras aldehyde	ND	6,10	ug#							
Esdim ketala	ND	7-15	HC 1							
Hertachion	50	*7.	11"							
Hartingfrom councils	ND		uji t							
Military Lair	ND	11 11	44,7							
oxaphene	ND	5.0	43							
Sacrogate - Let oridoro m-xylene	0.351		$\kappa_F \%$	6.500		70	35-775			
$\exists \ n \geq \exp((e_n) + e_n) + (n - e_n) + \exp(\frac{2\pi i n}{n}) + \frac{2\pi i n}{n} = \frac{1}{n}$	6441		inge 7	6590		\$9	45.000			
LCS Analyzed: 07-20-2005 (5G20057-B.	81)									M-NRI
Baine	5.35*	1.10	181	1.5.		5.1	45-1-5			
auto-BHC	0.435	0.10	U\$4	(1.596		87	45-115			
beta-BHC	0,397	0.10	ugf	0.500		79	50-115			
.ig*t. 38H0	0.447	6.20	r pol	0.500		85-	<4.150			
gameno-RFR) I miliari k	1431	41.10	15	4.5.10		\$44	45-115			
- 4 ×1.10.1	1457	1 1		1545		1 -				
44 DOE		F - 7	11. " "	7.5		375	11-123			
4,41,0131	0.443	(* † *)	eş-1	0.500		2.2	9.420			
Dielaris	0.437	(+10	407	0.500		87	55-120			
To how, the st	0.410	7 14	18	₹550		23	50-115			
Following Control	5.433	4 - 12	112	# f -2		8.7	+3 - 24			
To demonstration	3.451	0.20	-	1. 2 11		11.00	1 2 4			

Del Mar Analytical, Irvine

Kathleen A. Robb

Project Manager



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cocley Dr., Suite A. Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-9595 FAX (958) 505-9669 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

U.S. Filter/Westates Carbon P.O. Box 3308 Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### ORGANOCHLORINE PESTICIDES (EPA 3510C/8081A)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G20057, Extracted: 07/20/05										
LCS Analyzed: 07/20/2005 (5G20057-BS	81)									M-NRI
Endrin	0.441	0.10	ng/l	0.500		88	55-125			
Endrin atdebyde	0.443	0.10	ug/l	0.500		89	55-115			
Endrin Letone	0.441	0.10	ug/I	0.500		88	60-115			
Heptachlor	0.370	0.10	ug/l	0.500		74	45-115			
Heptachlor ephyside	0.416	0.10	ug/I	0,500		83	50-115			
Methaxychior	0,454	0.10	ng/l	0.500		91	60-120			
Surragate: Tetrachloro-m-sylene	0.318		ug/I	0.500		68	35-115			
Surrogene Decachlorohiphenyl	0.439		ng/l	0.500		88	45-120			
LCS Dup Analyzed: 07/20/2005 (5G200)	57-BSD1)									
Aldrie	0.341	0.10	ug/i	9.500		68	40-115	4	30	
aiphe-BHC	0.422	0.10	ug/l	0.500		84	45-115	3	30	
beta-BHC	0.386	0.10	ug/l	0.500		77	50-115	3	30	
delta-BHC	0.433	0.20	ug/1	0.500		87	55-120	3	30	
gamma-BHC (Lindanc)	0.419	0.10	ug/I	0.500		84	45-115	3	30	
4.4-DDD	0.439	0.10	ug/I	0.500		88	60-120	5	30	
4.4°-DDE	0.425	0.10	ug/l	0.500		85	55-120	5	30	
4.4/-1003	0.420	0.10	ug/l	0.500		84	60-120	5	30	
Dieldrin	0.417	0.10	ug/1	0.500		83	55-120	5	30	
Endoseitan I	0.398	0.10	ug/I	0.500		80	50-115	5	30	
Endospitan II	0.411	0.10	ug/l	0.500		82	60-125	5	30	
Endosulfan sulfate	0.445	0.20	ug/I	0.500		89	60-120	6	30	
Endrin	0.421	0.10	ug/I	0.500		84	55-125	5	30	
Endrin aldehyde	0.379	0.10	ug/I	9.590		76	55-115	16	30	
Endrin ketone	0.415	0.10	ug/I	0.500		83	60-115	6	30	
Heptachior	0.356	010	ug/I	0.500		71	45-115	4	30	
Heptachiar epoxide	0.400	0.10	ug/I	0.500		80	50-115	4	30	
Methoxyestor	0.430	0.19	ug"i	0.500		86	60-120	5	30	
Surrogate Tytrochloro-m-sylene	0.337		ugA	0.500		67	35-715			
Surrogas: Decachlarohybenyl	0.410		ng/l	0.500		8.2	45-120			

**Del Mar Analytical, Irvine** Kathleen A. Robb Project Manager



11481 Elevan Ave., Sure 100, Swine, CA 92814, (949) 261, 1022, FAX (949, 260, 2297, 1014, 1016, 94, 05, 82, 14, A. Custon, CA 9282, 4, 1979, 370, 4667, FAX (956), STEP (446, 9484, 656), San Diego, CA 92123, (858) 506-8696, FAX (858), 506-8696, VR30 For in 618, Shi, Sure R 102, Friend, AD 98, 44, (450) 385-2943, FAX (480, 1056), 380, WR 50, BB, Eas Vegas, NW 80100, (707) 798-8620, FAX (707) 789-8621

U.S. Piliter Westates Carbon.

E + 180x 3348 Eusker AZ 85344

Further A.Z 85344 Attention Deborah Foster Project 10 TTO

Report Number 10/00857

Sampled - 97/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### POLYCHLORINATED BIPHENYLS (EPA 3510C/8082)

		Reporting		Spike	Source		""REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	SREC	Limits	RPD	Limit	Qualifiers
Batch: 5G20057 Extracted: 07/20/0	<u>5</u>									
Blank Analyzed: 07/20/2005-07/22/2	1005 (5G20057-B1	LKI)								
Armand I Th	ND	: 0	ug l							
Apoch a 1001	ND	, £1	- S. T.							
Anodor (132	ND	1.0	ug/l							
Street at 12-2	ND	1.0	.ig. 1							
Aroclor 1248	ND	1.0	ug T							
Nrocin 1254	ND	1.0	agri							
Area for 1250	ND	1.0	ag/i							
Surveyare Taccuration deplucing	0.513		ng-c	6300		, 03	43-720			
LCS Analyzed: 07/22/2005 (5G2005	7-BS2)									M-NR1
Ages of Figure	3 5 1	. 0	::g/}	4 (5)		58	50.115			
Areaclas (Cod)	3.47	1.0	464	4 -0		92	£5-i15			
part of the Designation of Section	E 501		12.1	$Q \not \subseteq Q_G$		704	$\mathcal{L}_{\mathcal{F}} = \mathcal{L}_{\mathcal{F}}^{\mathcal{A}}(0)$			
LCS Dup Analyzed: 07/22/2005 (5G	20057-BSD2)									
Atoxior 1016	3.23	: 0	ug-l	4 (/)		81	50-115	8	30	
they at 12%	3.37	E O	ug-l	4 (1)		8.4	f.5-11.5	-	25	
Speciosate Peca Wreobiphem!	6.479		119 %	0.500		96	45-720			

Del Mar Analytical, Irvine Notificen A Parts

Project Manager



17461 Denah Ave., Suite 100, Irvine. CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cocley Dr., Suite A., Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9464 Chesapeake Dr., Suite 305, Sain Diego. CA 92123 (856) 505-8596 FAX (858) 505-8596 930 South 51st St., Bure B-120, Phoenix, AZ 65044 (480) 785-0043 FAX (480, 785-0651 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3520 FAX (702) 708-3621

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention. Deborah Fester

Project ID: TTO

Report Number; 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### **METALS**

Amalata	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Data Qualifiers
Analyte	Resun	t/mit	Cints	(,cvc)	Resuit	70 KEC	7,1191118	KI D	Cimit	Quaimers
Batch: 5G18097 Extracted: 07/18/05										
Blank Analyzed: 07/19/2005 (5G18097-I	BLK1)									
Antimony	ND	0.010	mg/l							
Arselic	ND	0.0050	mg/l							
Barrers	ND	0.010	mg/i							
Chromiun	ND	0.0050	mg/l							
Cofalt	ИD	0.010	mg/l							
Coppe:	ND	0.010	mg/l							
Maly briemin	ND	0.020	mg/i							
Silver	ND	0.0070	mg/l							
Thalben	ND	0.010	mg/l							
Vanacium	ND	0.010	mg/i							
Zinc	ND	0.020	mg/l							
LCS Analyzed: 07/19/2005 (5G18097-BS	S1)									
Antimony	1.07	0.010	mg/l	1.00		107	80-120			
Arsenic	1 00	0.0050	mg/i	1.00		100	SG-120			
Bartom	0 954	0,010	mg/l	1.00		95	80-120			
Chronitian	0.986	0.0050	mg/l	. 00		99	80-120			
Cebali	1.02	0.010	mg/i	00. i		:02	80-120			
Copper	1.01	0.010	mg/I	1.00		101	80-120			
Mctybdenum	0.956	0.020	mg/i	i.00		96	80-120			
Silver	0.507	0.0070	mg/l	0.500		101	80-120			
Thatfism	0.962	0.010	mg/l	1.00		96	80-120			
Varadium	0.988	0.010	nig/I	1.00		99	80-120			
Zâne	0.959	0.020	mg/l	: 00		96	80-120			
Matrix Spike Analyzed: 07/19/2005 (5G	(8097-MSI)				Source: I	⊃G0791-0	1			
Antimony	0.998	0.010	mg/i	1.00	ND	100	75-125			
Arsenic	0.946	0.0050	mg/!	1.00	0.0099	94	75-125			
Berien	C 888	0.010	mg/i	1.00	0.024	86	75-125			
Chromium	0.897	0.0050	mæ/l	1.00	ND	90	75-125			
Cobalt	0.946	0.010	mg/l	1.00	ND	95	75-125			
Соррег	1 02	0.010	mg/l	' (00)	ND	.02	75-125			
Malybaentan	1.09	0.020	mg/I	1.00	0.21	88	75-125			
Silve	0.476	0.0070	mg/l	0.500	ND	95	75-125			
Thallium	0.837	0.010	mg/l	1.00	GM	84	75-125			
Vanadium	0 925	0.010 C	mg/l	1.00	0.0044	92	75-125			

Del Mar Analytical, Irvine

Kathleen A. Robb Project Manager

The results pertum onto to the sampler tested to the leberatory. This report shall not be repredieted, except in full, without written permission from theleklar Analytical.

IOG0857 < Page 33 of 45>



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### **METALS**

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G18097 Extracred: 07/18/05										
Matrix Spike Analyzed: 07/19/2005 (5G	18097-MS1)				Source: I	OG0791-0	1			
Zinc	0.910	0.020	mg/l	1,00	ND	91	75-125			
Matrix Spike Dup Analyzed: 07/19/2005	5 (5G18097-M	SD1)			Source: 10	OG0791-0	1			
Antimony	0.994	0.010	mg/l	1.00	ND	99	75-125	0	20	
Arsenic	0.945	0.0050	mg/l	1.00	0.0099	94	75-125	0	20	
Barium	0.879	0.010	mg/l	1 00	0.024	86	75-125	1	20	
Chromium	0.886	0.0050	mg/l	1,00	ND	89	75-125	1	20	
Cobalt	0.937	0.010	mg/l	1.00	ND	94	75-125	Ĭ	20	
Соррег	1.01	0.010	mg/l	1.00	ND	101	75-125	ì	20	
Molybachum	1.08	0 020	mg/l	1.00	0.21	87	75-125	I	20	
Silver	0.471	0.0070	mg/l	0.500	CM	94	75-125	į	20	
Thailium	0.837	0.010	mg/l	1.00	ND	84	75-125	O	20	
Vanadaum	0.916	0.010	mg/l	1.00	0.0044	91	75-125	ŧ	20	
Zinc	0.900	0.020	mg/l	1.00	ND	90	75-125	1	26	
Batch: 5G19037 Extracted: 07/19/05										
Blank Analyzed: 07/19/2005 (5G19037-I	BLK1)									
Mercury	ND	0.00020	mg/J							
LCS Analyzed: 07/19/2005 (5G19037-BS	51)									
Mercury	0.00823	0.00020	mg/l	0.00800		103	90-115			
Matrix Spike Analyzed: 07/19/2005 (5G	19037-MS1)				Source: 10	OG0937-0	1			
Mercury	0,00796	0.00020	mg/i	0.00800	ИD	001	75-120			
Matrix Spike Dup Analyzed: 07/19/2005		*			Source: 10					
Mercury	0.00788	0.00020	mg/l	0.00800	ND	98	75-120	1	20	



17461 Derign Ave., Suite 100. Irvine, CA 92514 (949) 261-1022 FAX (949) 260-3297 1014 E. Cociny Dr., Suite A, Cocton, CA 90094 (999) 370-4667 FAX (899) 370-1046 9484 Chesapeake Dr., Suite 805, San Drego, CA 92123 (898) 505-8696 FAX (858) 505-9699 9630 South 51st St., Suite 80120, Phoenix, AZ 86044 (420) 785-0043 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 795-3670 FAX (702) 795-3621

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: IOG0857

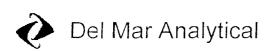
Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### **METALS**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Data Qualifiers
Batch: 5G19086 Extracted: 07/19/05										`
Blank Analyzed: 07/20/2005 (5G19086-I	,									
Alammum	ИD	0.050	mg/i							
Boren	ND	0.050	mg//							
lion	ND	0.040	mg/l							
Magnestum	ND	0.020	mg/l							
Manganese	ND	0.020	mg/l							
Stroutium	ND	0.020	mg/l							
Tin	ND	0.10	mg/l							
Titanium	ND	0.0050	mg/l							
LCS Analyzed: 07/20/2005 (5G19086-BS	51)									
Alamena	0.972	0.050	mg/!	1.00		97	80-120			
Boron	1.01	0.050	mg/l	1.00		101	80-120			
Iron	1.04	0.040	mg/l	1.00		104	\$0-120			
Magnes um	4.92	0.020	mg/l	5.00		98	80-120			
Manganese	1.02	0.020	mg/l	1,00		102	80-120			
Strontium	0.985	0.020	mg/l	1.60		98	80-120			
Em	0.973	0.10	mg/l	1 00		97	80-120			
Titemum	1.03	0.0050	ng/i	1.00		103	80-120			
Matrix Spike Analyzed: 07/20/2005 (5G	19086-MS1)				Source: 10	OG0857-0	1			
Aluminum	1.06	0.050	mg/l	7.00	0.082	98	75-125			
Boron	1,66	0.050	mg/!	1.00	0.64	102	75-125			
Iron	0.991	0,040	mg/!	1.00	0.034	96	75-125			
Magnesium	33.0	0.020	mg/l	5,00	29	68	75-125			
Manganese	0.938	0.020	mg/l	1,00	0.010	93	75-125			
Strontium	2,68	0.020	rng/l	1.00	1.7	98	75-125			
Tim	0.933	0.10	rng/l	1.00	0.0053	93	75-125			
Titgmen	0.987	0.0050	rng/E	1.00	0.0034	98	75-125			

**Del Mar Analytical, Irvine** Kathleen A. Robb Project Manager



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Poster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### **METALS**

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G19086 Extracted: 07/19	9/05									
Matrix Spike Dup Analyzed: 07/2	20/2005 (5G19086-N	ISD1)			Source: I	OG0857-0	1			
Alterinan	1.11	0.050	ang/l	1.00	0.082	103	75-125	5	20	
Вогол	1 74	0.050	mg/l	1.00	0.54	110	75-125	5	20	
tron	1.02	0.040	arg/l	1.00	0.034	99	75-125	3	20	
Magnesium	34.4	0 020	mg/l	5.00	29	108	75-125	4	20	
Manganese	0.977	0.020	mg/l	1.00	0.016	97	75-125	4	20	
Strontum	2,76	0.020	mg/l	1.00	1.7	106	75-125	3	20	
Tie	0.950	9.10	mg/l	1.00	0.0055	94	75-125	2	20	
Titanium	1.02	0.0050	mg/l	1.00	0.0034	102	75-125	.3	20	
Batch: 5G25067 Extracted: 07/25	5/05									
Blank Analyzed: 07/25/2005 (5G2	25067-BLK1)									
Zircomum	ND	0.20	mg∕;							
LCS Analyzed: 07/25/2005 (5G25	(067-BS1)									
Zirconjum	1.01	0.50	mg/l	. 00		101	80-120			
Matrix Spike Analyzed: 07/25/200	05 (5G25067-MS1)				Source: 10	OG1423-0	1			
Zirconium	1.02	0.20	ug/i	1,00	ND	102	75-125			
Matrix Spike Dup Analyzed: 07/2	25/2005 (5G25067- <b>)</b>	ISD1)			Source: 10	OG1423-0	1			
Zirconaim	1.03	0.20	mg/I	1.00	ND	103	75-125	1	20	



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### **INORGANICS**

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G14039 Extracted: 07/14/05										
Blank Analyzed: 07/14/2005 (5G14039-B	LKI)									
Bromide	ND	0.50	mg/!							
Fluoride	ND	0,50	mg/!							
Nitrate-N	ND	0.15	mg/l							
Nitrite N	ND	0.15	mg/l							
Sulfate	ND	0.50	mg/i							
LCS Analyzed: 07/14/2005 (5G14039-BS	1)									
Bromide	4.88	0.50	mg/l	5.00		98	90-110			
Finonde	4.68	0.50	mg/l	5.00		94	90-110			
Nitrate-N	1.08	0.15	mg/l	1.13		96	90-110			
Mitrite-N	1.47	0.15	mg/l	1.52		97	90-110			
Sulfate	9.53	0.50	mg/l	10.0		95	90-110			M-3
Matrix Spike Analyzed: 07/14/2005 (5G1	4039-MS1)				Source: 10	)G <b>082</b> 9-0	1			
Bromide	4.97	0.50	mg/l	5.00	ND	99	80-120			
Fluoride	4.98	0.50	mg/l	5.00	0.18	96	80-120			
Nitrate N	6.59	0.15	ing/l	1.13	5.2	123	80-120			M-HA
Nitrite-N	1.54	0.15	mg/l	1.52	ND	101	80-120			
Matrix Spike Dup Analyzed: 07/14/2005	(5G14039-MS	SD1)			Source: 10	OG0829-0	I			
Bromide	4.71	0.50	mg/l	5.00	ND	94	80-120	5	20	
Fluoride	4.91	0.50	mg/I	5 00.	0.18	95	80-120	i	20	
Nitrate-N	6.54	0.15	mg/l	1.13	5.2	119	80-120	1	20	
Nitrite-N	1.50	0.15	mg/l	1.52	ND	99	80-120	.3	20	
Batch: 5G14075 Extracted: 07/14/05										
Blank Analyzed: 07/14/2005 (5G14075-B	LK1)									
Phosphorus	ND	0.050	n:g/l							

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U.S. Filter/Westates Carbon P.O. Box 3308

Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G14075 Extracted: 07/14/05										
LCS Analyzed: 07/14/2005 (5G14075-BS	1)									
Phosphoras	0.915	0.050	mg/i	1.00		92	80-120			
Matrix Spike Analyzed: 07/14/2005 (5G1	(4075-MS1)				Source: I	OG0784-0	1			
Phosphorus	1.25	0.050	mg/l	1.00	0.37	88	65-130			
Matrix Spike Dup Analyzed: 07/14/2005	(5G14075-N	ISD1)			Source: I	OG0784-0	1			
Phosphorus	1.31	0.050	mg/l	1.00	0.37	94	65-130	5	15	
Batch: 5G14089 Extracted: 07/14/05										
Duplicate Analyzed: 07/14/2005 (5G1408	39-DUP1)				Source: 1	OG0808-0	1			
Color	10.0	1.0	Color Units		10			0	20	ρН
Batch: 5G14094 Extracted: 07/14/05										
Duplicate Analyzed: 07/14/2005 (5G1409	94-DUP1)				Source: I	OG0812-0	1			
Residual Chlorine	ND	0.10	mg/l		ND				20	
Batch: 5G14118 Extracted: 07/14/05										
Blank Analyzed: 07/14/2005 (5G14118-B	LK1)									
Surfactants (MBAS)	ND	0.10	mg/l							
LCS Analyzed: 07/14/2005 (5G14118-BS	1)									
Surfactants (MBAS)	0.255	0.10	n:g/l	0.250		102	90-110			



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

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Received: 07/14/05

METHOD BLANK/QC DATA

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G14118 Extracted: 07/14/05										
Matrix Spike Analyzed: €7/14/2005 (5 Surfacians (MBAS)	<b>G14118-MS1)</b> 0 271	0.10	mg/I	0 250	Source: I	OG0833-0	1 50-125			
Matrix Spike Dup Analyzed: 07/14/20	05 (5G14118-N	1SD1)			Source: I	OG0833-0	1			
Surfactorts (MBAS)	0.299	010	mg/i	0.250	ND	120	50-125	10	20	
Batch: 5G15045 Extracted: 07/15/05										
Blank Analyzed: 07/15/2005 (5G15045 Sulfice	5-BLK1) ND	0.10	mg/!							
LCS Analyzed: 07/15/2005 (5G15045- Sulfide	<b>BS1</b> ) 0.567	0.10	10:2/1	0.550		161	\$0-120			
Matrix Spike Analyzed: 07/15/2005 (5	G15045-MS1)				Source: 1	OG0959-0	2			
Suffide	0.547	0.10	ing/l	0.560	0.010	96	70-130			
Matrix Spike Dup Analyzed: 07/15/20	05 (5G15045-N	ISD1)			Source: I	OG0959-0	2			
Sulfide	0.527	0.10	mg/!	0.560	0.10,0	92	70-130	4	30	
Batch: 5G15075 Extracted: 07/15/05										
Blank Analyzed: 07/18/2005 (5G15075	S-BLK1)									
Total Cyanide	ИN	0.025	mg/!							
LCS Analyzed: 07/18/2005 (5G15075-	BS1)									
Total Cynnide	0.19!	0.025	mg/i	0.200		96	90-110			



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Sampled: 07/13/05

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#### METHOD BLANK/QC DATA

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G20078 Extracted: 07/20/05										
LCS Analyzed: 07/20/2005 (5G20078-BS	S1)									M-NR1
Oil & Gicase	16.0	5.0	mæ∕i	20.0		80	65-120			
LCS Dup Analyzed: 07/26/2005 (5G200	78-BSD1)									
Oil & Grease	15.5	5,0	mg∕i	20.0		78	65-120	3	20	
Batch: 5G22080 Extracted: 07/22/05										
Blank Analyzed: 07/22/2005 (5G22080-J	BLKI)									
Phenois	ND	0.10	mg/!							
LCS Analyzed: 07/22/2005 (5G22080-BS	S1)									
Phenois	0.508	0.10	rtg/l	0.500		102	60-110			
Matrix Spike Analyzed: 07/22/2005 (5G)	22080-MS1)				Source: I	OG0903-(	8			
Phenols	0.508	0.10	mg/l	0.500	ND	102	65-155			
Matrix Spike Dup Analyzed: 07/22/2005	5 (5G22080-M	ISD1)			Source: I	OG0903-0	18			
Phenols	0.526	0.10	n:g/f	0.500	ND	105	65-155	3	20	
Batch: 5G22113 Extracted: 07/22/05										
Blank Analyzed: 07/22/2005 (5G22113-I	BLKI)									
Amnie, a-N	ND	0.50	mg/l							
LCS Analyzed: 07/22/2005 (5G22113-BS	S1)									
Ammora N	0.993	0.50	mg/i	1.00		99	85-115			



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Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

Analyte <u>Batch: 5G22113 Extracted: 07/22/05</u>	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Matrix Spike Analyzed: 07/22/2005 (5G2. Anmonia-N	2113-MS1) 1.74	0.50	mg/l	2.00	Source: 10	)G0857-01 87	1 75-125			
Matrix Spike Dup Analyzed: 07/22/2005 (Ammonii-N	5 <b>G22113-MS</b> E 1.83	0 <b>1)</b> - 0.50	m <b>g/</b> l	2 00	Source: IC	OG0857-01	( 75-125	5	15	



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U.S. Filter/Westates Carbon P.O. Box 3308 Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

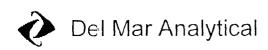
Report Number, IOG0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### DIQUAT/PARAQUAT (EPA 549.2)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: C5G1809 Extracted: 07/18/05										
Blank Analyzed: 07/18/2005 (C5G1809-I	BLK1)									
Diguat	ND	4.0	Ng/I							
Paraguet	ND	20	ng/l							
LCS Analyzed: 07/18/2005 (C5G1809-B	S1)									
Diquat	32.5	4.0	ng/!	40.0		81	70-120			
Paraquat	32.7	20	нg/!	40.0		82	65-120			
LCS Dup Analyzed: 07/18/2005 (C5G18)	09-BSD1)									
Diquat	32.7	4.0	ug/l	40.0		82	70-120	i t	20	
Paraguit	33,1	20	ug/l	40.0		83	65-120	i	20	
Matrix Spike Analyzed: 07/18/2005 (C50	G1809-MS1)				Source: C	OG0352-	01			
Diquat	34.8	4.0	ng/l	40.0	ND	87	70-120			
Paraouat	35.5	20	₹g/!	40 0	ND	89	65-120			



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344 Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received. 07/14/05

Attention: Deborah Foster

#### DATA QUALIFIERS AND DEFINITIONS

Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.

Laboratory Control Sample recovery was above the method control limits. Analyte not detected, data not impacted.

M-3Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was

accepted based on acceptable recovery in the Blank Spike (LCS). M-HA

Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).

There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike M-NRI Duplicate.

рΠ pH = 7

R-2 The RPD exceeded the method control limit.

Reporting limit raised due to high concentrations of non-target analytes. RL-3

Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified. ND

Relative Percent Difference RPD

#### ADDITIONAL COMMENTS

#### For 1,2-Diphenylhydrazine:

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product, Azobenzene.

Def Mar Analytical, Irvine Kathleen A. Robb Project Manager



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U.S. Filter/Westates Carbon

P.O. Box 3308

Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### Certification Summary

#### Del Mar Analytical, Irvine

Method	Matrix	Nelac	California
Calculation	Water	X	X
GPA 300.0	Water	X	X
EPA 330.5	Water	X	Х
EPA 350.3	Water	X	Х
EPA 3510/8082	Water	X	X
EPA 3510C/8081A	Water	X	X
EPA 365.3	Water	X	X
EPA 376.2	Water	X	X
JCPA 413.1	Water	X	X
EPA 420, !	Water	X	X
EPA 6010B	Water	X	Х
EPA 7470A	Water	X	Х
EPA 8260B	Water	X	X
EPA 8270C	Water	X	X
SM21208	Water	N/A	N/A
SM4500-CN-CJF	Water	Х	X
SM4500-NORG.C	Water		Х
SM5540-C	Water	Х	X
2M2240-C	w ater	X	X

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contacting the laborators or visiting our website at www.dmalabs.com.

#### Subcontracted Laboratories

Del Mar Analytical - Colton California Cert #1/69, Arizona Cert #3/20662, Nevada Cert #CA-242

1014 E. Cooley Drive, Stifte AB - Colton, CA 92324

Method Performed: EPA 549.2

Samples, iOC0857-01

#### Test America, Inc.

2960 Foster Creighton Drive - Nashville, TN 37204

Analysis Performed: 8151A (Herbicides)

Samples 10G0857-01

Del Mar Analytical, Irvine

Kathleen A. Robb Project Manager



#### **SUBCONTRACT ORDER - PROJECT # IOG0857**

#### SENDING LABORATORY:

Del Mar Analytical, Irvine 17461 Derian Avenue. Suite 100

Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228

Project Manager: Kathleen A. Robb

RECEIVING LABORATORY:

Del Mar Analytical - Colton 1014 E. Cooley Drive, Suite AB Colton, CA 92324

Phone :(909) 370-4667 Fax: (909) 370-1046

COG 0448

Page 1 of 1

Analysis	Expiration	Due	Comments	
Sample ID: IOG0857-01 549.1-Diquat	, .	07/13/05 14:00 07/25/05 12:00	and TATE with an DMAC area community	
Containers Supplied:	07/20/05 14:00	07/25/05 12:00	std TAT- sub to DMAC-see comments	
1 L Brown Poly (IOG08.	57-01V)			

All containers intact: Custody Seals Present:	Yes Yes			SAMPLI ole labels/COC agreed les Preserved Property	* /	TY:  No No	Samples Receive		Yes O No	-
[/a]	Sa	uli			A. 0	new	7-14/-	05	<del>/5</del> -*	
Released By  Anthon	Ly G	neco	Date 7-14-6	Time 5 /500	Received By	whom	m-7/M	Desc	Time	<u></u> -
Released By	V	······································	Date	Time	Received By	, ()		Date	Time	



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## CHAIN OF CUSTODY FORM

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#### CHAIN OF CUSTODY FORM

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August 16, 2005

U.S. Filter/ Westates Carbon P.O. Box 3308 Parker, AZ 85344

Attention:

Deborah Foster

Project:

Semi-Annual

TTO

Sampled: 07/13/05

Del Mar Analytical Number: IOG0857

Dear Ms. Foster:

Test America Analytical Testing Corporation reperformed the 8151A Herbicides for confirmation purposes in regards to the referenced project above. Please use the following cross-reference table when reviewing your results.

U.S. Filter ID	Del Mar ID	Test America ID
TTO	IOG0857-01	05-A102935

Attached is the original report from the subcontract laboratory. If you have any questions or require further assistance, please contact me at (949) 261-1022, extension 218.

Sincerely yours,

DEL MAR ANALYTICAL

Kathléen A. Robb Project Manager

Enclosure



2960 FOSTER CREIGHTON DRIVE + NASHUETE, TENVESSER 37204 800-765-0980 • 615-726-3404 FAX

#### ANALYTICAL REPORT

DEL MAR ANALYTICAL, IRVINE 11405 MICHELE HARPER

17461 DERIAN, STE 100 IRVINE, CA 92614

Project: IOG0857 Project Name:

Sampler:

Lab Number: 05-A102935 Sample ID: IOG0857-01 Sample Type: Ground water

Site JD:

Date Collected: 7/13/05 Time Collected: 14:00 Date Received: 7/19/05 Time Received: 9:55

			Report	pil	Analysis	Analysi			
ialyte	Result	Units	Limit	Factor	Date	Time	Analyst	Method	Batch
*PESTICIDES/PCP's/HERBI	CIDES-								
2,4-D	ND	mg/1	0.00500	1	7/20/05	19:04	K. Burritt	8151A	440
2.4.5-7	NO	mg/1	0.00050	ı	7/20/05	19:04	K. Burritt	8151A	4 4 5
2,4.5-TP	MD	mg/l	0.00050	1	7/20/05	39:04	E. Burritt	8151X	440
Dalapon	N1)	mg/l	0.0200	ì	7/20/05	19:04	K. Burritt	8151%	4 4 0
2.4-DB	ND	mg/l	0.00500	ì	7/20/05	29:04	K. Burritt	8151A	441
Dicambe	ND	mg/l	0.00050	1	7/20/05	19:04	K. Burritt	8151A	446
bachdereprop	OTM	mg/l	0.00500	1	7/20/05	19:04	K. Burritt	8151A	440
Dinoseb	MD	mg/l	0.00250	3	7/20/05	19:04	K. Burritt	8153A	44
RCPA	IIN	mg/l	0.500	1	7/20/05	19:04	K. Burritt	8151A	440
MCFF	ND	mg/l	0.500	1	7/20/05	19:04	K. Burritt	8151A	440
Pentachlerophenol	7,D	mg/l	0.00050	1	7/20/05	19:04	K. Burritt	6151A	440
	NO	mq/2	0.00050	ì	0/20/05	19:04	K. Burritt	8151A	44

Payameter Extracted Extract Vol Date Time Apolyst 

% Recovery Target Range Currogato 

turr DCAA 92. 51, - 136.



2960 Foster Originator Dress . Nasionale, Teynesser 37294 800-763-0980 • 615-726-3104 Po.

#### ANALYTICAL REPORT

Laboratory Number: 05-A102935 Sample ID: IOG0857-01

Page 2

#### LABORATORY COMMENTS:

ND - Not detected at the report limit.

B = Amalyte was detected in the method blank.

Estimated Value below Report Limit.
 Estimated Value above the calibration limit of the instrument.
 Recovery outside Laboratory historical or method prescribed limits.



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PROJECT QUALITY CONTROL DATA

Project Number: IOG0857 Project Name:

Dage 1

Page: 1

Laboratory Receipt Date: 7/19/05

#### Matrix Spike Recovery

Note. If Blank is referenced as the sample spiked, insufficient volume was received for the defined analytical batch for MS/MSD analysis on an true sample matrix. Laboratory reagent water was used for QC purposes.

Amalyte	units	Orig. Val.	MS Val	Spike Conc	Recovery	Target Range	Ç.C. Batch Spike Sample
							*********
FIPEST/PCB/HERE PARAM	ETURS**						
1,4-D	tng/l	< 0.00006	0.00363	0.00500	7.3	35 141.	440 blank
2,4,5-1	me/l	< 0.00003	0.00341	0.00500	6.8	25 149.	440 blank
I, 4, 5-TP	mg/l	< 0.00003	0.00431	0.00500	86	31 137.	440 blank
Palapon	mg/l	< 0.00002	0.00018	0.00500	4#	10 301.	460 blank
2.4-DB	mg/l	< 0.00009	0.00732	0.00500	14.0	34 153.	440 blank
Dicamba	mg/l	< 0.00006	0.00338	0.00500	68	23 157.	440 blank
Dichloroprop	mg/l	< 0.00006	0.00403	0.00500	81	45, - 152.	440 blank
Dinoseb	mg/l	< 0.00005	0.00384	0.00500	77	27, ~ 129.	440 blank
мсра.	mg/1	< 0.00410	0.234	0.500	4.3	26 139.	440 blank
мсъэ	mg/l	< 0.00700	0.539	0.500	108	24 164.	440 blank
Pentaculorophenol	mg/l	< 0.00003	0.00297	0.00500	59	25 133.	440 blank
4-Mismophenol	mg/l	< 0.00005	: 0.00050	3,20500	r/a	21 133.	440 bilank

#### Matrix Spike Duplicate

Analyte	units	Orig. Val.	Duplicate	מקא	Limit	Q.C. Batch
·· FEST/ PCE/HERB PARAM	METERS**					
5.4-6	mg/l	0.00363	0.00488	71,67	34.	4.4.C
2.4.5/7	mg/l	0.00341	0.06381	13 08	51.	440
1.4.5-57	mg/l	0.00431	0.00462	31.17	44.	490
Lalapon	mg/l	0.06018	0.00018	0.90	89.	440
0.4-DB	mg/l	0.00702	0.00639	6.32	33,	440
Dicamba	mg/l	0.00338	0.00369	8.77	46.	440
Michlomoprop	mg/l	0.00403	0.00455	12.12	41.	440
Ranoses	mg/1	0.00384	0.00416	8.00	50.	440
MCPA	mg/l	0.214	0.309	36.33	50.	440
MOPF	mg/l	0.539	0.596	10.04	4.5	440
Pentachlorophenol	mg/⊥	¢.00297	C.60335	12.03	49.	440
4 Nitrophenol	mg/l	< 6.00030	0.00373	152.72#	55.	440

Project 00 continued . . .



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PROJECT QUALITY CONTROL DATA

Project Number: IOG0857

Project Name:

Page: 2

Laboratory Receipt Date: 7/19/05

#### Laboratory Control Data

Amalyne	units	Known Val.	Amalyzed Val	₹ Recovery	Target Range	Q.C. Batch
**PEST/PCB/HERB PARA	METERS**					
2,4-0	mg/l	C.00500	0.00398	8.0	35 - 141	440
2.6.5-7	mg/l	0.00500	0.00374	75	33 - 136	440
2.4.5-TP	πg/1	0.00500	0.00477	9.5	33 - 136	440
Dalapon	mg/l	0.00500	0.00025	5 #	10 - 101	440
0,4-00	mg/l	0.00500	0.00633	127	38 - 243	440
Ficamba	mg/2	0.00500	0.00361	7.2	23 - 157	440
Dichleroprop	mg/3	0.00500	0.00443	R S	50 - 143	440
Danoseb	mg/l	0,.00500	0.00384	77	28 - 127	440
MCPA	mg/1	0.500	0.311	5 2	26 - 139	440
MOPP	mg/1	0.500	0.525	105	24 ~ 154	440
Pencachloropaeno.	mg/l	0.00500	0.00328	€€	33 - 130	440
<pre>&lt;-Nitrophenol</pre>	mg/l	6.00500	0.00364	7.3	23 - 125	440
ng r - LCAA	% Rec			102	BL - 136	440

#### Duplicates

Ammilyte	umits	Orig. Val.	Duplicate	270	Limit	Q.C. Batch	Sample Dup'd

#### Blank Data

Analyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Analyzed



## SUBCONTRACT ORDER - PROJECT # IOG0857

# | RECEIVING LABORATORY: | Test America, Irc. | 2960 Foster Creighton Drive | Nashville, TN 37204 | Phone: (949) 261-1022 | Fax: (949) 261-1028 | Project Manager | Kathleen A. Robb | Receiving Laboratory: | Receiving Laboratory: | Test America, Irc. | 2960 Foster Creighton Drive | Nashville, TN 37204 | Phone: 800.765-0980 | Fax: 615/726-0954 | Phone: 
Standard TAT is requ	Initials:		
Analysis	Expiration	Comments	
Sample 1D: 1OG0857-01 8151A (Harbicidas)	Water Sampled: 07/13/05 14:00 07/20/05 14:00	Needs Arizona Certification	)02935
Containers Supplied: . I. Amber (IOG0857-0)	(2)		

	 	 	SAMPLE	E INTEGRIT	ГΥ:			
A's containers (mac) Custody Seals Present.			nnic labels/COC agree: nples Preserved Properly:	⊠ Yes EN Yos	□ No □ No		Received On ice:: Received at (temp):	数 Yas .□ No 
	 	 7.18-25	/5:35		00	m/m	7/19/05	355
Released By	 	 Date	Time	Received By	y Jar		Date	Time
Reteared By	 	 Date	Time	Received By	у		Date	Time Page 1 of 1

# Test/America

### Sample NonConformance/COC Revision Form

Initiated by: Client Name:

JUJacobs DEL MAR ANALYT Phone:

9492611022

102935

423201

NC Closed

Client Contact:

MICHELE HARPE

Sample Range:

Date Closed

7/19/2005

Client Account:

11405 7/19/2005 SDG: Analyst:

Date Created:

Supervisor:

Paul Buckingham NC Analytical 1

NC #:

102935

NC Type:

Terminal Manager:

Project Name:

Project Number: IOG0857

Project Origin

Regulatory:

Action: herb List: Long

Process: HERB List?

Corrected By:

Kenny Bundy

Closed: 🗹

kbundy

Comments:

Comment added by: JDJacobs on 7/19/2005 2:11:02 PM

NC closed with out comments

Comment added by: kbundÿ on 7/19/2005 2:04:51 PM

Long list herbicides.

Added Without Comments

NC#: 30524

Revised 4-18-03



#### **COOLER RECEIPT FORM**

BC#



Client Name : Del Mar Analytical	
Cocler Received/Opened On: 7/19/05 Accessioned By: James D. Jacobs	
Cala-	
Log-in Personnel Signature	
1. Temperature of Cooler when triaged: Degrees Celsius	
2. V/ere custody seals on outside of cooler?	A
a. If yes, how many and where:	
3. Were custody seals on containers?	k
4. Were the scals intact, signed, and dated correctly?	4
5. Were custody papers inside cooler?	1
6. Were custody papers properly filled out (ink, signed, etc)?	4
7. Dic you sign the custody papers in the appropriate place?	4
8. What kind of packing material used? Bubblewrap Peanuts Vermiculite Foam Inser-	t
Ziplock baggies Paper Other None	
9. Cooling process: Ice (ce-pack Ice (direct contact) Dry ice Other Non	e
10. Did all containers arrive in good condition (unbroken)?	Ļ
11. Were all container labels complete (#, date, signed, pres., etc)?	L.
12. Did all container labels and tags agree with custody papers?	ķ.
13. Were correct containers used for the analysis requested?	1
14. a. Were VOA vials received?	L
b. Was there any observable head space present in any VOA vial?	Ĺ
15. Was sufficient amount of sample sent in each container?	
16. Were correct preservatives used?	١.
.f not, record standard 1D of preservative used here	
17. Was residual chlorine present?(NO).YESNA	¥
18. Indicate the Airbill Tracking Number (last 4 digits for Fedex only) and Name of Courier below:	
1Z1AE5870198963060	
Fed-Ex UPS Velocity DHL Route Off-street Misc.	
19. If a Non-Conformance exists, see attached or comments below:	



17461 Denan Ave. Suite 100, Irvine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228 1014 E. Cooley Dr., Suite A. Coton, CA 92224 Ph (809) 370-4607 Fax (929) 370-1046

9830 South 61st Street, Stifte B-120, Phoenix, AZ 85044 Ph (480) 785-9043 Fax (480) 785-0851

## SUBCONTRACT ORDER - PROJECT # IOG0857

SENDIN Del Mar Analytical, Irvine 17461 Derian Avenue, Suite Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Kathleen /			Test America, Inc. 2960 Foster Creighto Nashville, TN 37204 Phone :800/765-0980 Fax: 615/726-0954		DRY:
Standard TAT is requested	d unless specific du	e date is requested	=> Due Date:		(nitials:
Analysis	Expiration		Comments		
Sample ID: IOG0857-91 Wa 815 A (Herbicides)	ter Sampled: 07/29/05 14:00	07/13/05 14:00	Needs Arizona Certificatio	n	
Containers Supplied: ! 1 Amber (!OG0857-01Z)					
		SAMPLE	INTEGRITY:		
All containers image,		ample labels/COC agree.	☐ Yes ☐ No ☐ Yes ☐ No	Samples Received On Jou:: Samples Received at (temp):	☐ Yes ☐ №0
Re-cased By	Date	Time	Received By	Date	Time
Released By	Date	Time	Received By	Date	Time Page 1 of 1



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## LABORATORY REPORT

Prepared For: U.S. Filter/Westates Carbon

Project: TTO

P.O. Box 3308

Parker, AZ 85344 Attention: Deborah Foster

Sampled: 07/13/05

Received: 07/14/05

Issued: 07/27/05 17:35

#### NELAP #01108CA California ELAP#1197 CSDLAC #10117

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of Del Mar Analytical and its client. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical. The Chain(s) of Custody, 4 pages, are included and are an integral part of this report.

This entire report was reviewed and approved for release.

#### SAMPLE CROSS REFERENCE

SUBCONTRACTED

Refer to the last page for specific subcontract laboratory information included in this report.

LABORATORY ID

ÇÉIENT ID

MATRIX

Water

JOG0857-01

Reviewed By:

Del Mar Analytical, Irvine



17451 Derian Ave., Suite 100, Irvine, CA 92614 (946) 251-1022 FAX (949) 250 3297 1014 F. Coctay Dr., Suite A. Colten, CA 92324 (909) 870-4667 FAX (909) 870-1046 9484 Chesaneake Dr., Suite 805, San Diego, CA 92123 (858) 505-6596 FAX (858) 505-9669 9330 South 51st St., Suite 3-12C, Procenix, AZ 85044 (490) 785-0043 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-9520 FAX (702) 796-3021

U.S. Filter/Westates Carbon

P.O. Box 3368 Parker, AZ 85314 Project ID: TTO

Sampled: 07/13/05

Attention. Deborah Foster

Report Number: 10G0857

Received: 07/14/05

## VOLATILE ORGANICS by GC/MS (EPA 5030B/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOG0857-01 (TTO - Water)								
Reporting Units: ug/l								
Acrolein	EPA 8260B	5G16003	50	CIA	1	7/16/2005	7/16/2005	
Acrylonitrile	EPA 8260B	5G16003	50	ND	ì	7/16/2005	7/16/2005	
2-Chloroethyl vinyl ether	EPA 8260B	5G16003	5.0	ND	1	7/16/2005	7/16/2005	
Surregue: Dibromoffuoromethane (80-120%)				92 W				
Swrogate, Taluenc-d8 (80-120%)				102 %				
Surrogate: 4-Bromofhwrobenzene (80-120%)				96 %				



17461 Donah Ave - Suite 100, Irvine - OA 97914 (949) 251-1022 FAX (949) 250-0297 1014 E. Cooley Dr., Suite A. Chilon, CA 92324 (909) 370-4067 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 865, Sen Dingo, CA 92122 (858) 500-6596 FAX (808) 505-9689 9830 South 51st St., Suite B-120, Phoenix, AZ 83044 (480) 785-0045 FAX (480) 785-0651 2570 E. Sunsot Rd. #3, Las Vegus, NV 89120 (702) 798-3620 FAX (702) 798-3621

U.S. Filter/Westates Carbon

Attention: Deborah Foster

P.O. Box 3308 Parker, AZ 85344 Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05 Received 07/14/05

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOG0857-01 (TTO - Water) - cor	nf.							
Reporting Units: ug/l								
Benzene	EPA 8260B	5G21019	2.0	CDA	1	7/2.1/2005	7/21/2005	
Bromobenzene	EPA 8260B	5G21019	5.0	ND	i	7/21/2005	7/21/2005	
Bromochloromethane	EPA 8260B	5G21019	5.0	CA	1	7/21/2005	7/21/2005	
Bromodichioromethane	EPA 8260B	5021019	2.0	NL)		7/21/2005	7/21/2005	
Bromeform	EPA 8260B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	
Bromomethane	EPA 8260B	5021019	5.0	MD	1	7/21/2005	7/21/2005	
n-Butylbenzene	EPA 8360B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	
scc-Butylbenzenc	EPA 8260B	5G21019	5.0	ND	,	7/21/2005	7/21/2005	
tert-Butyfbenzene	EPA 8260B	5G21019	5.0	МD	1	7/21/2005	7/21/2005	
Carbon Disulfide	EPA 8260B	5G21019	5.0	ND	i	7/21/2005	7/21/2005	
Carbon tetrachloride	EPA 8260B	5G2*019	5.0	ND	1	7/21/2005	7/21/2005	
Chiorobenzene	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
Chloroethane	EPA 8260B	5021019	5.0	ND	i	7/21/2005	7/21/2005	
Chloroform	EPA 8260B	5G21019	2.0	MD	1	7/21/2005	7/21/2005	
Chioromethane	EPA 8260B	5G21019	5.0	CA	1	7/21/2005	7/21/2005	
2-Chlorotoluene	EPA 8260B	5021019	5.0	ND	1	7/21/2005	7/21/2005	
4-Chiorotoinene	EPA 8260B	5G21019	5.0	CDA	1	7/21/2005	7/21/2005	
Dibromochio: omethane	EPA 8260B	5G2!019	2.6	ND	1	7/21/2005	7/21/2005	
1,2-Dibromo-3-chloropropune	EPA 8260B	5G21019	5.0	ND	i	7/21/2005	7/21/2005	
1,2-Dibromoethane (EDB)	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
Dibromomethane	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
1.2-Dichlorobenzene	EPA 8260B	5G21019	2.0	ND	!	7/21/2005	7/21/2005	
L3-Dichlorobenzene	EPA 8260B	5G21019	2.0	СМ	1	7/21/2005	7/21/2005	
j.4-Dichlorobenzene	EPA 8260B	5G21019	2.0	CIK	1	7/21/2005	7/21/2005	
Dichlorodifluoromethane	EPA 8260B	5G21C19	5.0	ND	!	7/21/2005	7/21/2005	
1, 1-Dichloroethane	EPA 8260B	5G21019	2.0	ND	i	7/21/2005	7/21/2005	
i.2-Dichloroethane	EPA 8260B	3G21019	2.0	ND	i	7/21/2005	7/21/2005	
1.1-Dichioroethene	EPA 8260B	5G21019	5.0	ND	i	7/21/2005	7/21/2005	
cis-1,2-Dichloroethene	EPA 8260B	5G21019	2.0	CIN	]	7/21/2005	7/21/2005	
trans-1.2-Dichioroethene	EPA 8260B	5G21019	2.0	ND	!	7/21/2005	7/21/2005	
1,2-Dichioropropane	EPA 8260B	5G21019	2.0	ND	ì	7/31/2005	7/21/2005	
1,3-Dichloropropane	EPA 8260B	5G21019	2.0	МD	1	7/21/2005	7/21/2005	
2.2-Dichloropropage	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
Li-Dichlaropropene	EPA 8260B	5G21019	2.0	ND	j	7/21/2005	7/21/2005	
cis-1,3-Dichloropropene	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
trans-1.3 Dichloropropene	EPA 82608	5G21019	2.0	ND	!	7/21/2005	7/21/2005	
Filtylbenzene	EPA 8260B	5G21019	2.0	N!D	1	7/21/2005	7/21/2005	
Hexachlo: obutadiene	EPA 8260B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	
isopropy (benzone	EPA 8260B	SG21019	2.0	ND	1	7/21/2005	7/21/2005	
p-Isopropyitoluene	EPA 8260B	5G21019	2 0	ND	;	7/21/2005	7/21/2005	
Methylene chioride	EPA 8260B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	

Del Mar Analytical, Irvine



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U.S. Filter/Westates Carbon

Project ID: TTO

P.O. Box 3308 Parker, AZ 85344

Report Number: IOG0857

Sampled: 07/13/05 Received: 07/14/05

Attention: Deborah Foster

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

			Reporting	Sample	Dilution	Date	Date	Data
Analyte	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifiers
Sample ID: IOG0857-01 (TTO - Water) - con	t.							
Reporting Units: ug/l								
Naphthalene	EPA 8260B	5G21019	5.0	МD	i	7/21/2005	7/21/2005	
n-Propytbenzene	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
Styrene	EPA 8260B	5G21019	2.0	AD	1	7/21/2005	7/21/2005	
1.1,1-2-Tetrachforoethane	EPA 8260B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	
1,1,2,2-Tetrachloroethane	EPA 8260B	5G21019	2.0	ND	i	7/21/2005	7/21/2005	
Tetrachloroethene	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
Toldene	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
1.2.3 Trichlorobenzene	EPA 8260B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	
1.2,4-Trichlorobenzene	EPA 8260B	5G21019	5.0	МD	1	7/21/2005	7/21/2005	
1,1,1-7 richloroethane	EPA 8260B	5G21019	2.0	ND	I	7/21/2005	7/21/2005	
1.1.2-Trichloroethane	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
Trichloroethene	EPA 8260B	5G21019	2.0	ND	1	7/21/2005	7/21/2005	
Trichiorofluoromethane	EPA 8260B	5G21019	5.0	ND	<b>!</b>	7/21/2005	7/21/2005	
1,2,3-Trichloropropane	EPA 8260B	5G21019	10	ND	1	7/21/2005	7/21/2005	
1,2 4-Trimethylbenzene	EPA 8260B	5G21019	2.0	ND	i	7/21/2005	7/21/2005	
1.3.5-Trimethy!benzene	EPA 8260B	5G21019	2.0	ND	!	7/21/2005	7/21/2005	
Vinyl acctate	EPA 8260B	5G21019	5.0	ND	1	7/21/2005	7/21/2005	
Viny! chloride	EPA 8260B	5G21019	5.0	ND	]	7/21/2005	7/21/2005	
o-Xylene	EPA 8260B	5G2J019	2.0	ND	!	7/21/2005	7/21/2005	
m,p-Mylenes	EPA 8260B	5G21019	2.0	ND	į.	7/21/2005	7-21/2005	
Surrogae Dibromofinoromethane (80-120%)				99.9%				
Surrogate: Foluene-d8 (80-129%)				104 %				
Surregate, 4-Bromofluorobensene (89-120%)				95.9%				

Del Mar Analytical, Irvine



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U.S. Filter/Westates Carbon

P.O. Box 3308

Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

## SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOG0857-01 (TTO - Water)								
Reporting Units: ng/								
Accumplithene	EPA 8270C	5G17017	10	ND	]	7/17/2005	7/20/2005	
Acenaphthylene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Aniline	EPA 8270C	5G17017	10	ND	ì	7/17/2005	7/20/2005	
Anthracene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Benzidme	EPA 8270C	5G17017	20	ND	!	7/17/2005	7/20/2005	L
Benzoic acid	EPA 8270C	5G17017	20	ND	1	7/17/2005	7/20/2005	
Benzo(a)anthracene	EPA 8270C	5G17017	10	ND	i	7/17/2005	7/20/2005	
Benzo(b)fluoranthene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Benzo(k)fluoranthene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Benzotg,h.r/perylene	EPA 8270C	5G17017	10	ND	j	7/17/2005	7/20/2005	
Benzo(a)pyrene	EPA 8270C	5617017	10	ND	i	7/17/2005	7/20/2005	
Benzyl alcohol	EPA 8270C	5G17017	20	ND	!	7/17/2005	7/20/2005	
Bis(2-cinioroethoxy)methane	EPA 8270C	5G17017	10	ND	]	7/17/2005	7/20/2005	
Bis(2-chloroethy!)ether	EPA 8270C	5G17017	10	ND	ĩ	7/17/2005	7/20/2005	
Bis(2-chloroisopropyf)ether	EPA \$270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Bis(2-ethylhexyl)phthainte	EPA 8270C	5G17017	50	ND	1	7/17/2005	7/20/2005	
4-Bromopheny! phony! ether	EPA 8270C	5G17017	10	ND	i	7/17/2005	7/20/2005	
Butyl benzyi phthalate	EPA 8270C	5G17017	20	ND	]	7/17/2005	7/20/2005	
4-Chloroaniline	EPA 8270C	5G17017	10	ND	i	7/17/2005	7/20/2005	
2-Chloronaphthalene	EPA 8270C	5G17017	10	ND	:	7/17/2(005	7/20/2005	
4-Chloro-3-methylphenoi	EPA 8270C	5G1 <b>7</b> G17	20	ND	1	7/17/2005	7/20/2005	
2-Chlorophenot	EPA 8270C	5G17017	10	ND	]	7/17/2005	7/20/2005	
4-Chlorophenyi phenyl other	EPA 8270C	5G17017	10	ND	;	7/17/2005	7/20/2005	
Chrysene	EPA 8270C	5017017	10	ND	!	7/17/2005	7/20/2005	
Dibenz(g.h)ambracene	EPA 8270C	5G17017	20	ND	]	7/17/2005	7/20/2005	
Dibenzofuran	EPA 8270C	5G17017	10	ND	í	7/17/2005	7/20/2005	
Dr-n-buryl phthalate	EPA 8270C	5G17017	20	ND	1	7/17/2005	7/20/2005	
1,3-Dichlorobenzene	EPA 8270C	5G17017	16	ND	]	7/17/2005	7/20/2005	
1,4-(Dichtorobenzene	EPA 8270C	5G170.7	10	ND	Ĭ	7/17/2005	7/20/2005	
1,2-Dichlorobenzene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
3,3-Dichlorobenzidine	EPA 8270C	5G!7017	20	ND	1	7/17/2005	7/20/2005	
2,4-Dichlorophenol	EPA 8270C	5G17017	10	ND	í	7/17/2005	7/20/2005	
Diethyl phthalate	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
2,4-Dimethylphenol	EPA 8270C	5G17017	20	ND	j	7/17/2005	7/20/2005	
Dimethyl phthalate	EPA 8270C	5G17017	10	CIM	ì	7/17/2005	7/20/2005	
4.6-Dmitro-2-methylphenol	EPA 8270C	5G17017	20	CA	1	7/17/2005	7/20/2005	
2,4-Dim(rophenol	EPA 8270C	5G17017	20	ND	í	7/17/2005	7/20/2005	
2,4-Dinitrotoluene	EPA 8270C	5G17017	10	KD	1	7/17/2005	7/20/2005	
2,6-Dimitrotoluene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Di-n-octyl phtholate	EPA 8270C	5G17017	20	MD	į	7/17/2005	7/20/2005	
Fluoranihene	EPA 8270C	5G17017	10	ND	1 4	7/17/2005	7/20/2005	

Del Mar Analytical, Irvine



17461 Denan Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (649) 260-5257 1014 E. Cooley Dr., Suite A. Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesaneave Dr., Suite B.S., Sen Diego, CA 92122 (856) 200-8696 FAX (856) 505-9689 9800 South C1st St., Suite B-20, Fhoenix, AZ 8604 (480) 785-6043 78X (480) 785-603 2520 E. Sunset Ed. #5, Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

U.S. Filter/Westates Carbon

P.O. Box 3308

Parker, AZ 85344
Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

## SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Oualifiers
•		inite.		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				•
Sample ID: 10G0857-01 (TTO - Water) - con	t.							
Reporting Units: ug/	777 1 60 7 0 4	:015/15	1.0	VIIS	r	7.120003	2.200.0005	
Fluorene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Hexachlorobenzene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Hexachlorobutadiene	EPA 8270C	5G17917	10	ND	1	7/17/2005	7/20/20/05	
Hexachiorocyclopentadiene	EPA 8270C	5G17017	20	SD	1	7/17/2005	7/20/2005	
Hexachloroethane	EPA 8270C	5G17017	10	GK	1	7/17/2005	7/20/2005	
Indeno(1.2,3 cd)pyrene	EPA 8270C	5G17017	20	MD	1	7/17/2005	7/20/2005	
Isophorone	EPA 8270C	5G17017	10	ND	I	7/17/2005	7/20/2005	
2-Methylnaphthalene	EPA 8270C	5G17017	10	CM	i	7/17/2005	7/20/2005	
2-Methylphenol	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
4-Methy Iphenol	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Naphthaiene	EPA 8270C	5G17017	i 0	CK	i	7/17/2005	7/20/2005	
2-Nitroaniline	EPA 8270C	5617012	20	ND)	1	7/17/2005	7/20/2005	
3-Nitroaniline	EPA 8270C	5G17017	20	NT)	i	7/17/2005	7/20/2005	
4-Nitroaniline	EPA 8270C	5G17017	20	ND	1	7/17/2005	7/20/2005	
Nitrobenzene	EPA 8270C	5G17017	20	ИD	;	7/17/2005	7/20/2005	
2-Nitrophenol	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
4-Nitropheno!	EPA 8270C	5G17017	20	ND	!	7/17/2005	7/20/2005	
N-Nitrosodiphenviamine	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
N-Nitroso-di-n-propylamine	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Pentacidorophenol	EPA 8270C	5G17017	20	ND	1	7/17/2005	7/20/2005	
Phenanthrene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Pheno!	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
Pyrene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
1.2.i-Trichtorobenzene	EPA 8270C	5G17017	10	ND	1	7/17/2005	7/20/2005	
2.4.5-Trichiorophenol	EPA 8270C	5G17017	20	ND	1	7/17/2005	7/20/2005	
2,4,6 Trichlorophenol	EPA 8270C	5G17017	20	MD	1	7/17/2005	7/20/2005	
N-Nitrosodimethylamine	EPA 8270C	5G17017	20	ND	1	7/17/2005	7/20/2005	C
1,2-Diphenylhydrazine/Azobenzene	EPA 8270C	5G17017	20	ND	1	7/17/2005	7/20/2005	
Surrogate: 2-Fluorophenol (30-120%)	13171 02700		2.0	69%	-			
Surrogate: Phenol-d6 (35-120%)				70.96				
				84%				
Surrogate: 2.4.C Tribromophenol (45-120%)				77.9%				
Surrogate: Nurobenzene-d5 (45-120%)				75 %				
Surrogate, 2-Fluorohyhenvi (45-120%)				50 % 80 %				
Surrogete: Terphenyl-di4 (45-120%)				50 Va				

Del Mar Analytical, Irvine



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U.S. Filter/Westates Carbon

Attention: Deborah Foster

P.O. Box 3308 Parker, AZ 85344 Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

## ORGANOCHLORINE PESTICIDES (EPA 3510C/8081A)

			Reporting	Sample	Dilution	Date	Date	Data
Analyte	Method	Batch	Limit	Result	Factor	Extracted	Analyzed	Qualifiers
Sample ID: 10G0857-01 (TTO - Water)								
Reporting Units: ug/l								
Aldrin	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
alpha-BHC	EPA 3510C/8081A	5G20057	0.10	СИ	0.971	7/20/2005	7/20/2005	
beta-BHC	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
delta-BHC	EPA 3510C/8081A	5G20057	0.20	ND	0.971	7/20/2005	7/20/2005	
gamma-i31(C+Lundane)	EPA 3510C/8081A	5G20057	0.10	ND	0.97!	7/20/2005	7/20/2005	
Chlordane	EPA 3510C/8081A	5G20057	1.0	ND	0.971	7/20/2005	7/20/2005	
4,4'-DDD	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
4.4'-DDE	EPA 3510C/8081A	5G20057	0.10	МD	0.971	7/20/2005	7/20/2005	
4,4'-DDT	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Dieldrin	EPA 3510C/8081A	5020057	0.10	ND	0.971	7/20/2005	7/20/2005	
Endosulfan!	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Endosulfan II	EPA 3510C/8081A	5029057	0.10	ND	0.971	7./20/2005	7/20/2005	
Endosulfan suifate	EPA 3510C/8081A	5020057	0.20	ND	0.971	7/20/2005	7/20/2005	
Endrin	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Endrin aldehyde	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Endrin ketone	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Lieptachlor	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Hentaenior epoxide	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Methoxychior	EPA 3510C/8081A	5G20057	0.10	ND	0.971	7/20/2005	7/20/2005	
Toxaphene	EPA 3510C/8081A	5G20057	5.0	ND	0.971	7/20/2005	7/20/2005	
Surrogaic: Tetrachloro-m-xylene (35-115%)	)			56 %				
Surrogate. Decachlorobiphenyi (45-129%)				73 %				

Del Mar Analytical, Irvine Kathleen A. Robb Project Manager



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U.S. Filter/Westates Carbon

P.O. Box 3308

Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

## POLYCHLORINATED BIPHENYLS (EPA 3510C/8082)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOG0857-01 (TTO - Water)								
Reporting Units: ag/l								
Araclor 1016	EPA 3510/8082	5G20057	1.0	ND	0.971	7/20/2005	7/22/2005	
Aroclor (22)	EPA 3510/8082	5G20057	1.0	ND	0.971	7/20/2005	7/22/2005	
Aroclor 1232	EPA 3510/8082	5G20057	1.0	ND	0.971	7/20/2005	7/22/2005	
Aroclor 1242	EPA 3510/8082	5G20057	1.0	ND	0.971	7/20/2005	7/22/2005	
Aroclor 1248	EPA 3510/8082	5G20057	1.0	ND	0.971	7/20/2005	7/22/2005	
Aroclor 1254	EPA 3510/8082	5G20057	1.0	ND	0.971	7/20/2005	7/22/2005	
Aroclor 1260	EPA 3510/8082	5G20057	1.0	ND	0.971	7/20/2005	7/22/2005	
Surrogate: Decachlorobiphenyl (45-120%)				88 %				



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention. Deborah Fester

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

**METALS** 

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOG0857-01 (TTO - Water)								
Reporting Units: mg7								
Muminum	EPA 6010B	5G19086	0.050	0.082	1	7/19/2005	7/20/2005	
Autimony	EPA 6010B	5G18097	0.010	ND	i	7/18/2005	7/20/2005	
Arsenic	EPA 6010B	5G18097	0.0050	0.0052	!	7/18/2005	7/20/2005	
Barium	EPA 6010B	5G18097	0.010	0.075	1	7/18/2005	7/20/2005	
Boron	EPA 6010B	5G19086	0.050	0.64	1 .	7/19/2005	7/20/2005	
Chromium	EPA 6010B	5G18097	0.0050	ND	i	7/18/2005	7/20/2005	
Cobelt	EPA 6010B	5G18097	0.010	ND	1	7/18/2005	7/20/2005	
Copper	EPA 6010B	5G18097	0.010	ND	1	7/18/2005	7/20/2005	
fron	EPA 6010B	5G19086	0.040	ХĎ	I	7/19/2005	7/20/2005	
Magnesium	FPA 6010B	5G19086	0.020	29	]	7/19/2005	7/20/2005	
Manganese	EPA 6010B	5G19086	0.020	ПИ	1	7/19/2005	7/20/2005	
Mercury	EPA 7470A	5G19037	0.00020	ND	]	7/19/2005	7/19/2005	
Molybdenum	EPA 6010B	5G18097	0.020	CZ	1	7/18/2005	7/20/2005	
Silver	EPA 6010B	5G18097	0.0070	ND	1	7/18/2005	7/20/2005	
Strontium	EPA 6010B	5G19086	0.020	1.7	ı	7/19/2005	7/20/2005	
Thalliam	EPA 6010B	5G18097	0.010	ND	1	7/18/2005	7/20/2005	
Tin	EPA 6010B	5G19086	0.10	ND	1	7/19/2005	7/20/2005	
Litarium	EPA 6010B	5G19086	0.0050	ND	1	7/19/2005	7/20/2005	
Vanadieni	EPA 6010B	5618097	0.010	NĐ	1	7/18/2005	7/20/2005	
Zine	EPA 6010B	5G18097	0.020	ND	Ţ	7/18/2005	7/20/2005	
Zircomum	EPA 6010B	5025067	0.20	ND	3	7/25/2005	7/25/2005	



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number, 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### INORGANICS

		ENOF	RGANICS					
Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: IOG0857-01 (TTO - Water) Reporting Units: Color Units								
Cofor	SM2120B	5G14089	1.6	ND	1	7/14/2005	7/14/2005	рН
Sample ID: IOG0857-01 (TTO - Water) Reporting Units: mg/l								
Total Kjeldahl Nitrogen	SM4500-NORG.C	5019066	0.50	0.84	i	7/19/2005	7.119/2005	
Ammonia-N	EPA 350.3	5G22113	0.50	ND	i	7/22/2005	7/22/2005	
Bromide	EPA 300.0	5G14039	0.50	1.1	!	7/14/2005	7/14/2005	
Total Cyemide	SM4500-CN-C,E	5G15075	0.025	V2)	ĺ	7/15/2005	7/18/2005	
Fluoride	EPA 300 0	5614039	0.50	1.8	:	7/14/2005	7/14/2005	
Nitrate-N	EPA 300.0	5G14039	0.15	2.7	l	7/14/2005	7/14/2005	
Nitrite-N	EPA 300.0	5G14039	1.5	ND	10	7/14/2005	7/14/2005	RL-3
Olf & Greuse	EPA 413.1	5G20078	5.0	<i>N</i> D	!	7/20/2065	7/20/2005	
Phonois	EPA 420.1	5G22080	0.10	ND	1	7/22/2005	7/22/2005	
Phosphorus	EPA 365.3	5G14075	0.050	0.15	;	7/14/2005	7/14/2005	
Residual Chlorme	EPA 330.5	5G14094	0.10	ND	ì	7/14/2005	7/14/2005	
Sulfate	EPA 300 0	5G14039	5.0	480	10	7/14/2005	7/14/2005	
Suifide	EPA 376.2	5G15045	0.10	ND	1	7/15/2005	7/15/2005	
Surfactants (MBAS)	SM5540-C	5G14118	0.10	ND	1	7/14/2005	7/14/2005	



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention. Deborah Foster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

## NITROGEN, ORGANIC (Calculation)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample 1D: 10G0857-01 (TTO - Water)								
Reporting Units: mg/l Organic Nitrogen - N	Calculation	5G25044	0.59	0.84	I	7/25/2005	7/25/2005	



17461 Denan Ave., Suite 100, Irvine, CA 93614 (949) 261-1022 FAX (949) 260-3297 1014 E. Codley Dr., Suite A. Collon CA 93324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9300 South 51st St., Suite 8-120, Phoenix, AZ 85044 (460) 785-0043 FAX (460) 785-0051 2520 E. Sunset Rd. #3, Las Vegas. NV 89120 (702) 798-3620 FAX (702) 798-3621

U.S. Filter/Westates Carbon

PO Box 3308

Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

## DIQUAT/PARAQUAT (EPA 549.2)

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample 1D: IOG0857-01 (TTO - Water)								
Reporting Units; ug/I								
Diquat	EPA 549.2	C5G1809	4.()	ND	1	7/18/2005	7/18/2005	
Paraquat	EPA 549.2	C5G1809	20	ND	1	7/18/2005	7/18/2005	



2960 Fustar Cregotion Drive . Nathride, Iennenber 37204 800-765-0960 • 615-726-3404 Fax

#### ANALYTICAL REPORT

DEL MAR ANALYTICAL, IRVINE 11405 MICHELE HARPER 17461 DERIAN, STE 100 1RVINE, CA 92614

Project: IOG0857 Project Name:

Sampler:

Lab Number: 05-Al02935 Sample ID: IOG0857-01 Sample Type: Ground water Site ID:

Date Collected: 7/13/05 Time Collected: 14:00 Date Received: 7/19/05 Time Received: 9:55

u.aliyte	Result	Units	Report Limit	Dil Factor	Analysis Date	Analysis Time	Analyst	Method	Fatch
*PHSTICIDES/FCB's/RERBICID	ES*								
2,4-0	0.00818	mg/1	0.00500	:	7/20/05	19:04	K. Burritt	BISIA	440
2 4 . 8 - 0	N1)	ng/1	0.00050	:	7/19/08	19.64	E. Burritt	8151A	4 6 C
3.4.5-TP	TM	mg/1	0.00050	1	7/20/05	19:04	K. Burritt	8151A	440
Dotapon	MD	mg/1	0.0200	:	7/20/05	19:04	K. Burritt	8151A	440
3 . 4 · DB	ND	mg/1	0.00500	}	7/20/05	19:04	K. Burritt	ALEES	440
⊃icamba	ND	mg/1.	0.00050	<u></u>	7/20/05	19:04	K. Burritt	8181A	940
Dich or <del>o</del> grop	ND	mg/l	0.90500	2	7/20/08	19:04	K. Burritt	8151A	440
Diroseb	ND	mg/1	0.00250	:	7/20/65	19:04	K. Burritt	8151A	440
MOPA	MD	mg/l	0.500	i	7/20/05	19:04	F. Burratt	8151A	443
MCFP	ND	mg/l	C.500	;	7/20/05	19.04	K. Burritt	8151A	440
Petit acid or ophenol	1970	mg/1	0 00050	1	7/20/05	19:04	K Burrict	8151A	440
4 Nitrophenol	MD	mg/l	0.00055	1	7/25/05	19:04	K. Burritt	8151A	4 4 0

Sample Refearation Date

	Wt/Vol		
Parameter	Extracted Extract Vol	Date Time	Analyst Method
Herbicides	1000 ml 10.0 ml	7/19/05	J. Davis 8151/615
Sum ogabe		1 Recovery	Target Range
surr DCAA		92.	51, - 136.



2060 Fosier Croopens Drive • Nashvoler, Tennessee 37204 800 765-0980 • 615-726-3404 Faa

#### ANALYTICAL REPORT

Laboratory Number: 05-A102935 Sample ID: 10G3857-01

Page 2

#### LAFORATORY COMMENTS:

ND - Not detected at the report limit.

B = Analyte was detected in the method blank.

3 = Estimated Value below Report Limit.

 $\mathcal{Z}$  = Estimated Value above the calibration limit of the instrument.

# = Recovery outside Laboratory historical or method prescribed limits.

# 

10461 Demin Ave., Suite 105., Invine CA 92614 (949) 2(1)-1022, FAX (949) 260-3257, 1014 E. Cooley Dr., Suite A, Colton, CA 92324, (909) 370-4667, FAX (949) 370-1046, 9461 Chesepeake Dr., Suite 805, San Diego, CA 97123, (858) 563-596, FAX 7538-506-9689, 9330 Suith 51st St., Stite 8-120, Phoenix, AZ 95304, 4880, 785-685, 4860, 785-685, 2520 C. Suiset Rd. #3, Las Vegas, NV 89120, (702) 796-3620, FAX (702) 796-3621

July 27, 2005

U.S. Filter/ Westates Carbon P.O. Box 3308 Parker, AZ 85344

Attention:

Deborah Foster

Project:

Semi-Annual

TTO

Sampled: 07/13/05

Del Mar Analytical Number: IOG0857

Dear Ms. Foster:

Test America Analytical Testing Corporation performed the 8151A Herbicides analysis for the referenced project above. Please use the following cross-reference table when reviewing your results.

U.S. Filter ID	Del Mar ID	Test America ID
ТТО	IOG0857-01	05-A102935

Attached is the original report from the subcontract laboratory. If you have any questions or require further assistance, please contact me at (949) 261-1022, extension 218.

Sincerely yours,

DEL MAR ANALYTICAL

Kathleen A. Robb Project Manager

Enclosure



ANALYBOAL TESTING CORPORATION

2969 FONTEE GREGION DRIVE + NASIONLES, TONNESSEE 27294 806-765-0980 + 615-726-3404 FAX

PROJECT QUALITY CONTROL DATA

Project Number: IOG0857

Project Name:

Page: 1

Laboratory Receipt Date: 7/19/05

#### Matrix Spike Recovery

Note: If Blank is referenced as the sample spiked, insufficient volume was received for the defined analytical batch for MS/MSC analysis on an true sample metrix. Jaborstory respent water was used for QC purposes.

Aba'yte	units	Orig. Val.	MS Val	Spike Conc	Recovery.	Target Range	C.C. Barch Spike Sample
			s				
**PEST/POS/HERE PARAMET	ers••						
2 , 4 - D	mg/1	< 0.00006	0.00363	0.00500	2.3	35 141.	440 blank
2 . 4 . 5 · **	mg/l	< 0.00003	0.00341	0.00500	6.8	05 149.	440 blank
2,4.5.00	mg/1	< 0.30003	0.00431	5.00560	2 6	31 137.	440 blank
Dalapon	mg/3	c 0.00002	0.00018	0.00500	4#	10 101.	440 blank
1,4.58	mg/l	< 0.00009	0.00702	0.00500	14 C	34 153.	440 blank
Di camba	ng/l	< 0.00006	0.00333	0.00500	6.6	23 157.	440 blank
Michiloroprop	mg/l	< 0.00006	0.00403	0.00500	5.1	45 1.52.	440 blank
Disched	πg/l	< 0.00005	0.00384	0.00500	77	27 129.	440 blank
MCPA	mg/l	< 0.00410	0.214	6.500	43	26 139.	440 DLank
KCPY	mg/l	c 0.00770	5.539	0.500	159	24 164.	440 blank
Penracoloroph <b>es</b> oi	mg/)	< 0.00003	0.00297	0.60500	5.9	25 133.	440 blank
4-Nitrophenol	mg/l	< 0.00005	< 0.00050	0.00500	N/E	21 133.	440 bilank

#### Matrix Spike Duplicate

Analyte	units	Orig Val	Duplicate	RP⊃	Limit	O.C. Batch
						· · · <del>-</del>
**PEST/POF/HERB PARAMI	emploc**					
2.4-D	mg/1	0.00353	0.00408	11.67	34,	440
2,1,9-7	mg/l	0 00341	0.06381	11.08	31.	440
1,4,5-TP	ng/l	6.00431	0.00482	11.17	44.	440
Balanon	mg/l	0 00015	0.00018	0.00	89.	440
2,4+DE	mg/l	0.90702	0.00659	6.32	33.	440
Dicamba	mg/l	0.00338	0.00369	8.77	48.	440
Dichieroprop	mg/1	0.00403	6.004.55	12 13	<b>5</b> 1 .	440
Dinoseb	mg/l	0.00384	0.00416	8.00	5. C .	440
MCFA	mg/l	0.214	0.309	36.33	50	4 4 C
MCPP	mg/l	0.539	0.596	10 04	45.	440
Pest achierophenol	mg/1	0.00297	0.00335	32.03	4.9	440
4 - No to opinarios	mg/1	< 0.00080	0.00273	152.70#	5.5	440



2960 FOSTER GROUDFON DRIVE \* NASHVOUR, TENNESSER 37204 800-765-0980 • 615-726-3404 Fax

PROJECT QUALITY CONTROL DATA Project Number: 10G0857

Project Name: Page: 2

Laboratory Receipt Date: 7/19/05

#### Daboratory Control Data

Analyse	units	Known Val.	Analyzed Val	: Recovery	Target Range	O.C. Baton
· · FEST/POP/HERB PARA	METERS * *					
2 : 6 · D	mg/1	5,00500	0.00398	8.0	35 - 341	440
P. K. 5-7	mg/1	0.00500	0.00574	75	33 - 13€	445
2,4,8 TP	mg/l	0 00500	0.00477	95	33 - 136	4 4 C
lar Lapon	mg/l	0.00500	0.00025	5 #	30 - 361	440
⊕ , n + D7r	mg/1	0.00200	0.00633	127	38 - 143	440
Diouspa	πg/1	0.00500	0.00361	7.2	03 - 157	440
Dichieroprop	mg/l̂	0.00500	0.00443	8.9	50 - 143	440
bisseh	mg/1	0 00500	0.00394	77	28 - 127	4 4 G
MCTA	πg/l	0.500	0.311	62	26 - 139	440
MODE	πg/1	0.500	0.525	105	24 - 164	440
Pentachiorophenoi	mg/1	0.00500	0.00328	6€	33 - 130	4 0
4-Mitrophenol	mg/l	0.00500	0.00364	73	23 - 125	440
surr DCAA	t Rec			3.62	31 136	440

#### Duplicates

/analyse	ນານ i ts	Orig. Val.	Duplicate	RPD	Limit	Q.C. Batch	Sample Dup'd

#### Elani: Data

Enalyte	Blank Value	Units	Q.C. Batch	Date Analyzed	Time Amalyzed



2966 FOSTER CREGATION DRIVE . NASHULUS, TENNOSSEE 27204 806-785-0980 • 6:5-726-3404 Fix

PROJECT QUALITY CONTROL DATA Project Number: IOG0857 Project Name:

Page: 3

Laboratory Receipt Date: 7/19/05

#### \*\* PECT / POPULIERS PARAMETERS\*\*

D : 4 - P	< 0.00006	mg/l	4 4 C	7/20/03	18:01
1.4.5-7	< 0.00003	mg/l	440	7/20/03	18:03
7.4.5·TH	< C.CDG03	и <b>д</b> /1	440	7/20/03	18 01
Da rapon	< 0.00002	mg/l	440	7/30/65	18:01
0,4-DB	< 0.00009	mg/l	440	7/20/65	18:01
Disambe	< 0.00006	mg/1	440	7/20/05	18:01
Distanoprep	< 0.00006	mg/l	440	7/25/05	10:01
Çî.k.seb	< 0.00005	mg/1	440	7/20/05	18.61
<b>M</b> C(1)20	< 0.00410	mg/l	440	2/20/05	18:64
MELL	< 0.00700	mg/l	440	1/20/05	18:01
Pentachlorophenol	< 0.00003	mg/1	440	7/20/05	18:01
4-%ilropherol	< 0.50005	mg/l	440	7/20/05	18.01
81017 - DCA4	80.	1 Rec	440	7/23/65	18:01

<sup>= .</sup> Varue outside Laboratory historical or method prescribed QC limits



29ы0 Розгов, Скифиток Беен. • Nasmurie, Трахтерые 2720 ф. 800-785-0980 • 615-726-3404 Fax

7/22/05

DEL MAR ANALYTICAL, IRVINE 11405 MICHELE HARPER 17461 DERIAN, STE 100 IRVINE, CA 92614

This report includes the analytical certificates of analysis for all samples listed below. These samples relate to your project identified below:

Project Name: Project Number: 1060857. Laboratory Project Number: 423201.

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. Any QC recoveries outside laboratory control limits are flagged individually with an #. Sample specific comments and quality control statements are included in the Laboratory notes section of the analytical report for each sample report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-800-765-0980. Any opinions, if expressed, are outside the scope of the Laboratory's accorditation.

	Page 1
Lab Number	Collection Date
<u> </u>	7/13/05
	Lab Number



2960 Posyek Gradityok Drae • Nasighae, Tanyarsia 27264 800-765-0980 \* 615-726-3404 Fax

Sample Identification

Page 2 Lab Number Collection Date

These results relate only to the items tested. This report shall not be reproduced except in full and with permission of the laboratory.

Report Approved By: Mais a Hage

Report Date: 7/22/05

Johnny A. Mitchell, Laboratory Director Michael H. Dunn, M.S., Technical Director Pamela A. Bangford, Senior Project Manager Eric S. Smith, QA/QC Director Sandra McMillin, Technical Services

Gail A. Lage, Senior Project Manager Glenn L. Norton, Technical Services Kelly S. Comstock, Technical Services Roxanne L. Connor, Senior Project Manage Mark Hollingsworth, Director of Project

Laboratory Certification Number: AZ0473

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Page 1 of 1

# SUBCONTRACT ORDER - PROJECT # IOG0857

Del Mar Analytical, Irvin 17461 Derian Avenue, St Irvine, CA 92614 Phone: (949) 261-1022 Fax: (949) 261-1228 Project Manager: Kathlee	ite 100		R Test America, Inc. 2960 Foster Creighte Nashville, TN 37204 Phone:800/765-0984 Fax: 615/726-0954		PRY:
Standard TAT is recues	ted unless specific due	date is requested ->	Due Date:	I	nitials:
Analysis	Expiration	C	omments		
Sample ID: 10G0857-01 V S151A (Herbicides)	Vater Sampled: 0 07/20/05 14:00	7/13/05 14:00 N	eeds Arizona Certificatio	en.	
Containers Supplied: L Amber (IOG0857-01Z	)				
		SAMPLE IN		ailed NCA MCA MONORAL	Jane 1920.
All containors intact:   \[ \sum_{\text{Y}} \] \[ \text{Y}	cs No San		□ Yes □ No	Samples Received On Ice::	☐ Yes ☐ No
Custody Seals Present: 🔲 N	es 🗆 No Sam	pples Prescrycá Proporty:	☐ Yes ☐ No	Samples Received at (temp):	
Reteased By	Date	Tim <b>e</b> Ree	cived By	Date	Time
Released By	Date	Time Rec	cived By	Date	Time



17461 Denan Ave. Sülte 100, rivine, CA 92614 Ph (949) 261-1022 Fax (949) 261-1228

9484 Chesapeake Orive, Suite 805, San Diego, CA 92123 Pn (619) 505-9596 Fax (619) 505-9589 9830 South 51st Street, Suite 8-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851

2520 E. Sunset: Rd., Suite #3, Cas Vegas, NV 89120 Ph (702) 798-3620 Fax (702) 798-3621

1014 E. Cooley Dr., Suite A, Colton, CA 92324 Ph (909) 370-4567 Fax (909) 370-1046

# SUBCONTRACT ORDER - PROJECT # IOG0857

SENDING LABORATORY:  Del Mar Analytical, Irvine  17461 Derian Avenue. Suite 100  Irvine, CA 92614  Phone: (949) 261-1022  Fax: (949) 261-1228  Project Manager: Kathleen A. Robb					RE Imerica, Inc. Foster Creightor ille, TN 37204 :800/765-0980 15/726-0954	TORY:		
Standard TAT is reques	eted unless spe	cific due d	ate is requested	=> Due I	Pate:		Initials:	
Analysis	Expiratio	11		Comment	S			······································
Sample ID: IOG0857-01 N 8151A (Herbicides)	Water Sa 07/20/05 1		/13/05 14:00	Needs Ari	zona Certification	1		
Containers Supplied: 12 Amber (10G0857-01Z	.)							
			SAMPLI	E INTEGRI	TY:			
All containers intact:	'es □ No 'es □ No		le labels/COC agree: les Preserved Properly:	☐ Yes	□ N <sub>0</sub> □ N <sub>0</sub>	Samples Received On Ice:: Samples Received at (temp):	Yes	□ No
		····			· · · · · · · · · · · · · · · · · · ·			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Released By		Date	Time	Received B	У	Date	Ti	nie
Released By		Date	Time	Received B	у	Date	Ť	ine



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U.S. Falter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### SHORT HOLD TIME DETAIL REPORT

	Hold Time (in days)	Date/Time Sampled	Date/Time Received	Date/Time Extracted	Date/Time Analyzed
Sample ID: TTO (IOG0857-01) - Water					
EPA 300 0	2	07/13/2005 14:00	07/14/2005 10:10	07/14/2005 16:00	07/14/2005 16:09
$N_{HCHC}N$				07/14/2005 16:00	07/14/2005 17:10
5PA 330.5	1	07/13/2005 14:00	07/14/2005 10:10	07/14/2005 16:08	07/14/2005 16:68
SM21203	2	07/13/2005 14:00	07/14/2005 10:10	07/14/2005 14:00	07/14/2005 15:00
SM5540-C	2	07/13/2005 14:00	07/14/2005 10:10	07/14/2005 23:00	97/14/2005 23:35



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U.S. Filter/Westates Carbon

P.O. Box 3308

Parker, AZ 85344

Attention: Deborah Foster

Project ID: 1TO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

## METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5030B/8260B)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G16003 Extracted: 07/16/0	5									
Blank Analyzed: 07/16/2005 (5G160	03-BLK1)									
Acrolein	ND	50	ng/l							
Acryomitrile	ND	50	0.67,							
2-Chloroethyl vwyl ether	ИŊ	5.0	n6\J							
Surrogate: Dibromofluoromer'ume	23.9		ug 4	25 O		96	80-120			
Surrogate: Toluene d8	25 4		ug/l	25.0		103	80-120			
Surrogate, 4-Bromofluorohemzene	24.2		ug/i	25.0		97	80-720			
LCS Analyzed: 07/16/2005 (5G1600.	3-BS1)									
2-Chloroethyl vinyl ether	29.4	5.0	ug/l	25.0		!18	25-170			
Surrogate: Dibromofluoromethane	24.5		ug/ï	25.0		98	S0-720			
Surrogate, Toluene-d8	25.4		ug/I	25.0		102	80-720			
Surrogaie: 1-Bromoffuorobenzene	24.8		ng/i	25.0		09	50-129			
Matrix Spike Analyzed: 07/16/2005	(5G16003-MS1)				Source: I	OG0808-0	1			
2-Chloroethyl vinyl ether	27.1	5.0	ug/l	25.0	ND	108	25-170			
Surrogare. Dibromofhioromethine	24.7		ng4	25.0		99	86-720			
Surrogate: Folnene-d8	25.4		ng/l	25.6		102	80-120			
Survoyate: 4-Bromoffnorobonzene	24 7		ng#	25.0		99	80-729			
Matrix Spike Dup Analyzed: 07/16/2	2005 (5G16003-N	1SD1)			Source: I	OG0808-0	1			
2- Chioroethy), vinv! ether	28.2	5.0	ug/l	25.0	ND	113	25-170	4	25	
Surrogate: Dibromoffvoromethane	25.3		ng/l	25.0		101	80-720			
Survogate: Totnene d8	25.8		ng/l	25.6		103	30-720			
Surregate: 4-Rromofluorobenzene	24.4		ug/l	25.0		98	80-120			



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G9857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019 Extracted: 07/21/	05									
Blank Analyzed; 07/21/2005 (5G21	019-BLK1)									
Велисте	ND	2.0	ug/i							
Braniobenzenc	ND	5.0	ug/i							
Bromoghieroniethane	ND	5.0	ug/i							
Bromodichloromethane	ИD	2 0	ug/I							
Bramoform	ИD	5.0	ug/l							
Bromomethane	ND	5.0	ug."I							
n-Bury!benzene	ИD	5.0	ug/l							
sec-Buty/benzene	ND	5.0	ug/i							
tert-Buty!benzene	ИD	5.0	ug/l							
Carbon Disalfide	ND	5.0	ug/!							
Carbon tetrachloride	ND	5.0	ug/;							
Chloroberzene	ND	2.0	39/1							
Chloroethane	ND	5.0	ug/l							
Chloreform	ND	2.0	ug/l							
Chloromethane	ND	5.0	ug/I							
2-Chiorotoluene	ND	5.0	ug/l							
4-Chiorotoluene	ND	5.0	ug/l							
DibromocoloromeCame	ND	2.0	ug/!							
1.2-Dibromo-3-chloropropune	ND	5.0	ug/I							
L2-Dibromoethane (EDB)	ND	2.0	ug/l							
Ditromometiane	ND	2.0	ug/i							
1.2-Dichtorobenzene	ND	2.0	ug/I							
1.3-Dichlorobenzene	ND	2.0	ug/l							
1.4-Dienlerobenzene	ND	2.0	ug/l							
Dichlorod::Tuoromethane	ND	5.0	и <u>е</u> /1							
Li-Dichloroethane	ND	2.0	ug/l							
1.2-Dichioroethane	ND	2.0	ug/!							
1.1-D.ehloroethene	ND	5.0	39/1							
cis !,2-Dichloroethene	ИИ	2.0	16/							
trans-1,2-Dichloroethone	ND	2.0	ug/!							
1.2-D chloropropans	SO	2.0	ug/I							
1.3-Dichloropropane	ND	2.0	ug/l							
2.2-Dichloropropane	ND	2.0	ug/l							
1.1-Digislaropropene	ND	2.0	ug/l							
cis-13-Dichloropropone	ND	2.0	ug/!							

Del Mar Analytical, Irvine



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344 Project ID: TTO

Sampled: 07/13/05

Attention: Deborah Foster

Report Number 1000857

Received: 07/14/05

#### METHOD BLANK/QC DATA

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019 Extracted: 07/21/05										
	) DI 1/1)									
Blank Analyzed: 07/21/2005 (5G21019 trans-L3-Dichloropropose	ND	2.0	ue/i							
hthy/benzene	ND	2.0	ug/l							
Hexachlorobutagiene	ND	5.0	ug/i							
Isopropyi benzene	ND	2.0	ug/i							
p-Isopropyltomene	ND	2.0	ug/l							
Methylene chloride	ND	5.0	ug/l							
Naphthalene	ND	5.0	ug/l							
n-PropyThenzene	ИD	2.0	ng/l							
Styrene	ND	2.0	ug/l							
1.1.1.2 Tetrachtoroctions	ND	5.0	ug/l							
1.1.2.2- Ferrachteroothane	ND	2.0	ug/i							
Tetracidoroethene	ND	2.0	ug/!							
Tolicene	ND	2.0	ug/i							
1.2.3-Trichlorobenzene	ND	5.0	ug/l							
1.2.4-Trichto: obenzene	ИĎ	5.0	ug/l							
1.1.1-Tright growthere	ND	2.0	ug/!							
F1.2-Trichloroethane	ND	2.0	ug/l							
Vrickioreethene	ND	2.0	ug/I							
Trichlorefluoremetanas	ND	5.0	ug/!							
1,2,3-Trichloropropane	ND	10	ug/l							
1,2,4-Trimethy benzene	ND	2.0	ug/l							
1,3,5-Trimuthy/benzene	ND	2.0	ug/l							
Vinyl acetate	ИD	5.0	ug/l							
Vinyl chloride	ND	5.0	ug/l							
o-Xviene	ND	2.0	ug/!							
in p-Xylenes	ND	2.0	ug/i							
Surrogate: Dibromoflicoromethane	24.8		าเรูป	25.0		99	80-120			
Surrogate Tolnene-d8	25.4		ug/l	25 0		102	80-120			
Surrogate 4 Bromofhwrobenzene	23.7		ng/l	25.0		9.5	80-130			

Del Mar Analytical, Irvine Kathleen A. Robb Project Manager



17451 Derian Avel, Suite 100, Irvine, CA 92614, (949) 261-1022, FAX (949) 260-3297, 1014 E, Cooley Dr., Suite A, Colton, CA 92624, (309) 370-4667, FAX (903) 370-1046, 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123, (858) 505-8596, FAX (688) 505-9689, 3530 South 51st St., Suite 85-20, Phoenix, AZ 86044, (480) 765-9043, FAX (480) 785-9551, 2620, E. Sunset Rd. #3, Las Vegas, NV 89120, (702) 766-3620, FAX (702) 798-3601

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

## METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019 Extracted: 07/21/05										
LCS Analyzed: 07/21/2005 (5G21019-B	\$1)									
Berzene	20.3	2.0	ивД	25.0		81	65-120			
Bromobenzene	21.5	5.0	ug/!	25.0		86	70-120			
Bromochloromethane	22.5	5.0	ug/i	25.0		90	65-130			
Broandichloromerhane	20.0	2.0	ug/i	2,5,0		8G	65-135			
Bromoform	19.3	5.0	ng/i	25.0		77	50-130			
Bromomethane	19.4	5.0	ug/!	25.0		78	60-140			
a-Buty/benzene	20.9	5.0	ag/!	25.0		84	70-125			
sec-Buty <sup>1</sup> nemionic	20.0	5.0	ug/I	25.0		80	70-125			
tert-Buty/benzene	20.8	5.0	ug/I	25.0		83	70-125			
Carbon Distifide	20.9	5.0	ug/l	25.0		84	50-130			
Carbon tetrachloride	19.9	5.0	ug/l	25.0		80	65-140			
Chlorobenzene	20.5	2.0	нд/і	25.0		82	70-125			
Chioroathane	19.5	5.0	ug/l	25.0		78	55-140			
Chioroform	20.9	2.0	ug/l	25.0		84	65 130			
Chiorograethane	16.6	5.0	ug/!	25.0		66	40-140			
2-Chłorotoluene	20.9	5.0	ug/ł	25.0		84	70-125			
4-Chiorotoluene	20.8	5,0	rg/!	25 C		83	70-125			
Dibromochloromethane	21.4	2.0	ug/I	25.0		86	65-140			
1.2-Dibronio-3-chloropiopane	20.2	5.0	ug/l	25.0		:8	45-135			
i,2-Dibromoethane (EDB)	22.2	2,0	.rg/l	25.0		89	70-125			
Dibromomethane	22.2	2,0	īg/i	25.0		89	65-130			
1.2-Dichlorobenzene	20.3	2.0	u <u>e</u> /l	25.0		81	70-120			
1,3 Dichlorobenzene	:9.8	2.0	ug/l	25.0		79	70-125			
1,4-Dichlorobenzene	20.J	2.0	ug/l	25.0		80	70~125			
Dichlorodifluoroniethane	13.5	5 C	.:g/I	25.0		54	25-153			
1,1-Dichloroethane	21.4	2 0	ug/l	25.0		86	65-130			
1,2-Dichloroetsane	20.6	2.0	.ig/i	25.0		82	60-140			
. 1- Dichloroethene	20.8	5.0	:Jg/]	25.0		83	70-130			
cis-i,2-Dichloroethene	20.5	2 0	118/1	25.0		82	65-125			
trans-1,2-Dichloroethene	20.8	2.0	ug/l	25.0		83	65-130			
1.2-Dichloropronunc	21.5	2.0	ug/!	25.0		8.5	65-125			
1.3-Dichloropropane	22.0	2.0	ug/l	25.0		88	65-125			
2,2-D cirloropropane	21.8	2.0	пед	25.0		87	60-145			
L.f-Digitloropropene	20.1	2 C	ug/l	25.0		80	70-130			
cis-1,3-Dicidoropropene	21.6	3.0	ug/l	25.0		85	70-130			

Del Mar Analytical, Irvine



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U.S. Filter/Westates Carbon

P.O. Box 3208 Parker, AZ 85344

Attention. Deborah Foster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019 Extracted: 07/21/05										
LCS Analyzed: 07/21/2005 (5G21019-B	BS1)									
trans-1,3-Dic doroptopene	21.9	2.0	ng/T	25.0		88	65-130			
Ethylberizene	20.6	2.0	ug/I	25.0		82	70-125			
Hexacolorobutachene	17.0	5.0	ng/I	25.0		68	60-135			
Isopropy (between	22.5	2.0	ag/I	25.0		90	70-125			
p-Isopropyltoluene	19.2	2.0	ug/l	25.0		77	70-125			
Methylone uhloride	22.5	5.0	ug/!	25 ()		90	60-130			
Naphthalene	20.3	5 0	ແ <u>ຍ</u> /ໃ	25.0		81	50-140			
n-Propy Ibanzone	21.9	2.0	ug/!	25.0		88	70-125			
Styrene	22.4	3.0	ug/l	25.0		90	70-130			
1,1,1.2-Tetrachloroethave	21.0	5.0	ug/l	25.0		84	70-135			
1.1.2.2/Tetrachloroethme	25.8	2.0	ug/l	25.0		103	55-130			
Tetrachloroethene	19.4	2.0	ug/l	25.0		78	65-125			
Toluche	21.2	2.0	ug/l	25 0		85	70-125			
1.2,3-Trichlocoberozene	19.5	5.0	ug/i	25.0		78	60-130			
1.2,4-Tachierobenzene	19.5	5.0	ug/j	25.6		78	65-135			
1,1,1-Trick.coorthane	20.5	2 C	ug/	25.5		53	65-135			
1.1.2-Trichleroethane	22.5	2.0	ug/l	25 ()		90	65-125			
Trickloroethene	19.8	2.0	ag/l	25.0		79	70-125			
Trichforoffuoromethane	18.3	5.0	ug/I	25.0		73	60-140			
1.2,3-Trichloropropane	24.5	10	ug/l	25.0		98	55-130			
1,2,4-Trimothy Toenkene	19.6	2.0	ug/!	25.0		73	70-125			
4.3.5-Transity/benzene	21.0	2.0	ug/l	25.0		84	79-125			
Vniyi agetate	15.6	5.0	ug/!	25.0		62	45-:45			
Vinyl chloride	17.6	5 C	ug/l	25.0		70	50-130			
o-Xylene	20.4	2.0	ug/l	25.0		82	70-125			
m.p-Xylenes	400	2.0	ug/l	50.0		80	70-125			
Surrogate: Dibromoffuocomethrine	25.0		ug/l	25.0		700	80-120			
Sucrogate: Toluene-d8	25.7		ug/l	25.0		103	80-720			
Surrogate: 4 Reomoffuorobenzene	24.7		ug/l	25.0		99	80-720			

**Del Mar Analytical, Irvine** Kathieen A. Robb Project Marager



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

## METHOD BLANK/QC DATA

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019 Extracted: 07/21	<u>/05</u>									
Matrix Spike Analyzed: 07/21/200	5 (5G21019-MS1)				Source: I	OG0857-0	1			
Венгере	25.1	2.0	ug/I	25.0	СИ	100	60-125			
Bromobenzene	25.4	5.0	ug/I	25.0	ND	102	65-125			
Bromochloromethane	27.3	5.0	ug/l	25.0	СИ	109	60-135			
Bromodichloromethane	24.6	2.0	ug/l	25.0	ND	98	65-135			
Bromoform	23.0	5.0	ug/I	25.0	2.6	82	50-135			
Biomornethane	25.2	5.0	ug/I	25.0	ND	101	50-145			
re Butylbenzene	25.7	5,0	ug/I	25.0	ND	163	65-135			
sec Burylbenzene	24.3	5.0	ug/l	25.0	ND	97	65-125			
teri-Butylbenzone	25.0	5.0	ug4	25.0	ND	100	55-130			
Carbon Disulfide	23.4	5.0	րջս	25.0	ND	94	40-140			
Carbon tetrachloride	25.!	5.0	ug/I	25.0	ND	100	65-140			
Chlorobenzene	25.0	2.0	ug/i	25.0	ND	100	70-125			
Coloroothane	24.9	5.0	ng/a	25 C	ND	100	50-140			
Chloroform	25.6	2.0	ug/l	25.0	CZ	102	65-135			
Chloromethane	20.5	5.0	r:8/I	25.0	СИ	82	35-140			
2-Chlorotoltiene	24.9	5.0	ug/l	25.6	ND	FOC	65-135			
4-Chlorotoluene	25.0	5.0	ug/l	25.0	ND	100	65-135			
Dibromoch oromethane	26.2	2.0	ag/I	25,0	ND	105	60-140			
1,2-Dibiomo-3-chloropropane	23.1	5.0	ug/l	25.0	ND	92	40-150			
1.2-Dibromoethane (EDB)	26.5	2.0	ពនិ/្យ	25.0	ND	106	65-!30			
Dibromomethane	26.1	2.0	ug/l	25.0	ND	164	60-135			
1.2-Droblarebonzone	24.6	2.0	ug/l	25 0	ND	98	70-125			
1.3-D chlarobenzane	24.2	2 0	ug/l	25.0	ND	97	70-125			
1,4-Dichlorobenzene	24.4	2.0	ug/]	25.0	ND	98	70-125			
Dichlorodifluoromethane	18.4	5.0	ug/]	25.0	ND	74	15-155			
1,1-Dicilloroethane	26.3	2.0	ug/l	25.0	ND	105	60-130			
1,2-Dichlorecthane	24.9	2.0	ug/l	25.0	ND	100	60-140			
1.1-Dichloroethene	25.3	5.0	นญ/]	25.0	ND	101	60-135			
cis-1,2-Dichloroethene	25.2	2.0	ug/i	25.0	ND	101	60-130			
trans-1.2-Dichleroethene	25.8	2.0	ug/)	25.0	ND	103	60-135			
L2-Dichor-propane	26.1	2.0	ນຽ/)	25.0	ND	1(:4	60-125			
1.3-Dichloropropane	26.1	2.0	ue/l	25.0	ND	104	60-135			
2.2 Dicinorapropane	27.8	2.0	ug/i	25.0	ND	111	60-145			
L.I. Dicaloropropene	24.9	2.0	ug/i	25.0	ND	100	65-135			
cis-1:3-Dich'mopropune	26.0	2.0	ug/i	25.0	ND.	104	65-135			
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Del Mar Analytical, Irvine



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U.S. Filter/Westates Carbon P.O. Box 3308

Parker, AZ 85344 Attention: Deborab Foster Project ID: TTO

Report Number 10G0857

Sampled: 07/13/05 Received: 07/14/05

## METHOD BLANK/QC DATA

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Analyte Result Limit Units Level Result %REC Limits RPD Limit Qu Batch: 5G21019 Extracted: 07/21/05	ılifiers
Batch: 5G21019 Extracted: 07/21/05	
Matrix Spike Analyzed: 07/21/2005 (5G21019-MS1) Source: IOG0857-01	
trans-1.3-Dich'oropropene 25.9 2.0 ug/l 25.0 ND 104 65-140	
Ethylhemane 25.0 2.0 ug/l 25.0 ND (00 65-130	
Hexachlorobatadiene 20.6 5.0 ug/l 25.0 ND 82 60-135	
tsopropythenzene 26 2 2.0 ug/l 25.0 ND 105 65-130	
p-Isopropy to hiere 23.2 2.0 ug/l 25.0 ND 93 65-125	
Methylene chimide 28.0 5.0 ug/l 25.0 ND 112 55-130	
Naphthalene 22.9 5.0 ug/l 25.0 ND 92 45-145	
n-Propythanzese 25.9 2.0 ug/l 25.0 ND 104 65-130	
Styrone 16.4 2.0 ug/l 25.0 ND 66 45-145	
■1.1.1.2-Tetrachloroethane 25.6 5.0 ug/l 25.0 ND 192 65-140	
.1.2.2-Termethloroethane 28.9 2.0 ug/l 25.6 ND 116 55-140	
Terreditorectione 24.5 2.0 ug/l 25.0 ND 98 60-130	
Tolarne 25.5 2.0 ug/l 25.0 ND 102 65-125	
1.2,3 Trichloro renzese 22.8 5.0 ug/l 35.0 ND 91 55-155	
1.2,4 Trichlombeazere 23.6 5.0 kg/l 25.0 ND 94 69-135	
1.1.1-Trichlorechaire 24.9 2.0 ug/l 25.0 ND 100 65-146	
1,1.2-Trightorectione 26,2 2.0 kg/s 25.0 ND 195 60-130	
Trickloroethene 24.3 2.0 ag/l 25.0 NO 97 60-125	
Trichiorofluoromethane 23.2 5.0 ug/l 25.0 ND 93 55-145	
1.2.3-Trichlarepropose 27.8 10 sig/t 25.6 ND 111 50-135	
1.2.4-Trimethylbonzene 23.5 2.0 ug/i 25.0 ND 94 55-130	
1.3.5-Trimethylbervone 25.0 2.0 ug/4 35.0 ND 100 65-130	
Vinyl acetate 19.8 5.0 eg/l 25.0 ND 79 40-150	
Vinyl chioride 39.2 5.0 ag/l 25.0 ND 77 40-135	
o-Xylone 24.5 2.0 ug/l 25.0 ND 98 60-125	
m.p. Xylenes 48.8 2.0 Jg/l 50.0 ND 98 60-130	
Surrogate: Dibromofuorometisme 25.0 xg/l 25.0 i00 89-120	
Sinragaie: Tabiene-d8 25.7 ig/l 25.0 193 89-120	
Surrogate 4-Bronosfluorobanzene 24.6 ug/l 25.0 98 80-120	

**Del Mar Analytical, Irvine** Kathleen A. Robb Project Manager



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

Matrix Spike Dup Analyzed: 07/21/2005 (5G21019-MSD1)	Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Data Qualifiers
Procedure   23 8   2 9   197   25 0   10	Batch: 5G21019 Extracted: 07/21/05										
Bromochlormochlorne   23.3   S.0   ug/l   25.0   N.D   03   65-125   9   20	Matrix Spike Dup Analyzed: 07/21/200	5 (5 <b>G21</b> 019-)	MSD1)			Source: 10	OG0857-0	11			
Bromochloromethane   26 0   5,0   ogd   25 0   ND   104   60-135   5   25	Benzene	23.8	2.0	ug/l	25.0	ND	95	60-125	5	20	
Brownedichloromethane   22.7   2.0   ug/l   25.0   ND   91   65-155   8   20	Bromobenzene	23.3	5.0	ug/!	25.0	ND	93	65-125	9	20	
Brownform	Bromochloromethane	26.0	5.0	ug/l	25,0	ND	104	60-135	5	25	
Bromomethane   234   5.0   logit   250   ND   94   50-145   7   25   1-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4	Bromodichloromethane	22.7	2.0		25.0	ND	91	65-135	8	20	
n-butylbenzene   25.0   5.0   ug/l   25.0   ND   160   65-135   3   20   esc. Butylbenzene   23.6   5.0   ug/l   25.0   ND   94   65-125   3   20   esc. Butylbenzene   24.0   5.0   ug/l   25.0   ND   94   65-125   3   20   esc. Butylbenzene   24.0   5.0   ug/l   25.0   ND   96   65-130   4   20   20   esc. Butylbenzene   23.8   5.0   ug/l   25.0   ND   95   46-140   2   20   esc. Butylbenzene   23.7   2.0   ug/l   25.0   ND   95   46-140   2   20   esc. Butylbenzene   23.7   2.0   ug/l   25.0   ND   94   65-145   5   20   esc. Butylbenzene   23.5   5.0   ug/l   25.0   ND   94   50-140   6   25   esc. Butylbenzene   24.5   2.0   ug/l   25.0   ND   94   50-140   6   25   esc. Butylbenzene   24.5   2.0   ug/l   25.0   ND   98   65-135   4   20   esc. Butylbenzene   24.5   2.0   ug/l   25.0   ND   98   65-135   4   20   esc. Butylbenzene   24.5   2.0   ug/l   25.0   ND   98   65-135   4   20   esc. Butylbenzene   24.5   2.0   ug/l   25.0   ND   98   65-135   4   20   esc. Butylbenzene   24.5   2.0   ug/l   25.0   ND   98   65-135   4   20   esc. Butylbenzene   24.5   2.0   ug/l   25.0   ND   98   65-135   4   20   esc. Butylbenzene   24.6   26.0   ug/l   25.0   ND   99   60-140   5   25   esc. Butylbenzene   25.0   ug/l   25.0   ND   99   60-140   5   25   esc. Butylbenzene   25.0   ug/l   25.0   ND   99   60-140   5   25   esc. Butylbenzene   25.0   ug/l   25.0   ND   90   60-140   5   25   esc. Butylbenzene   25.0   ug/l   25.0   ND   90   70-125   4   25   esc. Butylbenzene   25.0   ug/l   25.0   ND   90   70-125   6   26   esc. Butylbenzene   25.0   ug/l   25.0   ND   90   70-125   6   26   esc. Butylbenzene   25.0   ug/l   25.0   ND   90   70-125   6   26   esc. Butylbenzene   25.0   ug/l   25.0   ND   90   70-125   6   26   esc. Butylbenzene   25.0   ug/l   25.0   ND   90   60-135   7   20   esc. Butylbenzene   25.0   ug/l   25.0   ND   90   60-135   7   20   esc. Butylbenzene   25.0   ug/l   25.0   ND   90   60-135   4   20   esc. Butylbenzenene   24.6   2.0   ug/l   25.0   ND   90   60-135   4   20   esc.	Bromoferm	22.5	5.0	ug/l	25.0	2.6	80	50-135	2	25	
See Butthhenzene   23.6   5.0   ug/l   25.0   ND   94   65.125   3   20	Bromomethane	23.4	5.0	ug/!	25.0	ZD	94	50-145	7	25	
Centro Districted   24.0   5.0   ug/l   25.0   ND   96   65-130   4   20	n-Butyibenzene	25.0	5.0	ug/l	25.0	ND	160	65-135	3	20	
Onton Disultide         23 8         5.0         ug/l         25 0         ND         95         40-140         2         20           Infronterracidence         23 6         5 0         ug/l         25 0         ND         94         65-140         6         35           Chloroferwee         23 7         2 0         ug/l         25 0         ND         95         70-125         5         20           Chloroferme         23 5         5 0         ug/l         25 0         ND         98         65-135         4         20           Chloroferme         24 5         2.0         ug/l         25 0         ND         98         65-135         4         20           Chloroferme         23 5         5 0         ug/l         25 0         ND         98         65-135         7         20           4-Chloroferme         23 5         5 0         ug/l         25 0         ND         93         65-135         7         20           Dibromoethare         23 8         5 0         ug/l         25 0         ND         93         65-135         7         20           Dibromoethare (FDB)         25 2         2 0         ug/l         2	sec-Butylbenzene	23.6	5.0	ug/!	25.0	ND	94	65-125	3	20	
Curbon Distrible         23.8         5.0         ug/l         25.0         ND         95         40-140         2         20           Infronterracidionic         23.6         5.0         ug/l         25.0         ND         94         65-140         6         25           Chlorofenzee         23.7         2.0         ug/l         25.0         ND         95         70-125         5         20           Chlorofenzee         23.5         5.0         ug/l         25.0         ND         98         65-135         4         20           Chlorofenzee         19.4         5.0         ug/l         25.0         ND         98         65-135         4         20           Chlorofenzee         23.3         5.0         ug/l         25.0         ND         98         65-135         7         20           Chlorofenzee         23.3         5.0         ug/l         25.0         ND         93         65-135         7         20           Disconnection effecte         23.3         5.0         ug/l         25.0         ND         99         60-140         5         25           Disconnection effecte         23.8         5.0         ug/l	tert-Butyibenzene	24.0	5.0	ug/I	25 0	ND	96	65-130	4	20	
Infontetracidance	Carbon Disultide	23.8	5.0	-	25.0	ND	95	46-140	2	20	
Chlorobenzene	arbon tetrachloride	23.6	5.0		25.0	ND	94	65-140	6	25	
Chloroferm   23.5   5.0   ag/l   25.0   ND   94   50.140   6   25	Chlorobenzene	23.7	2.0	-	25.0	ND	95	70-125	5	20	
Chloromethane	Chloroethane	23.5	5.0		25.0	ND	94	50-140	6	25	
Chloromethare	Chleroform	24.5	2.0	*	25.0	СИ	98	65-135	2	20	
2-Chlorotouene   23.2   5.0   ng/l   25.0   ND   93   65-135   7   20	Chloromethane	19.4	5.0	-	25.0	ND	78	35-140	6	25	
A-Cirlorotoleane   23.3   5.0   ug/l   25.0   ND   93   65.135   7   20	2-Chiorotomene	23.2	5.0	-	25.0	ND	93	65-135	7	20	
Dibromochloror ethane   24.8   2.0   ag/l   25.0   ND   99   60-140   5   25     1.2-Dibromochloror ethane   23.8   5.0   ag/l   25.0   ND   95   40-150   3   30     1.2-Dibromochloror (FDB)   25.2   2.0   ag/l   25.0   ND   101   65-130   5   25     Dibromomethane   25.0   2.0   ag/l   25.0   ND   100   60-135   4   25     1.2-Dibriotoraterizate   23.6   2.0   ag/l   25.0   ND   94   70-125   4   20     1.3-Dichlororbenane   22.9   2.0   ag/l   25.0   ND   92   70-125   6   20     1.4-Dichlororbenane   23.0   2.0   ag/l   25.0   ND   92   70-125   6   20     1.4-Dichlororbenane   17.4   5.0   ag/l   25.0   ND   92   70-125   6   30     1.1-Dichlororbenane   23.3   2.0   ag/l   25.0   ND   101   60-130   4   20     1.2-Dichlororbenane   23.3   2.0   ag/l   25.0   ND   95   60-140   7   20     1.3-Dichlororbenane   23.7   5.0   ag/l   25.0   ND   95   60-145   7   20     1.3-Dichlororbenane   24.8   2.0   ag/l   25.0   ND   96   60-135   4   20     1.3-Dichlororbenane   24.8   2.0   ag/l   25.0   ND   96   60-135   4   20     1.3-Dichlororbenane   24.8   2.0   ag/l   25.0   ND   97   60-135   4   20     1.3-Dichlororbenane   24.8   2.0   ag/l   25.0   ND   98   50-125   6   20     1.3-Dichlororbenane   24.8   2.0   ag/l   25.0   ND   98   50-125   6   20     1.3-Dichlororbenane   24.8   2.0   ag/l   25.0   ND   98   50-125   6   20     1.3-Dichlororbenane   25.2   2.0   ag/l   25.0   ND   98   50-125   6   20     1.3-Dichlororbenane   25.2   2.0   ag/l   25.0   ND   101   60-135   4   25     1.3-Dichlororbenane   25.2   2.0   ag/l   25.0   ND   101   60-135   4   25     1.3-Dichlororbenane   25.2   2.0   ag/l   25.0   ND   101   60-135   4   25     1.3-Dichlororbenane   25.2   2.0   ag/l   25.0   ND   101   60-135   4   25     1.3-Dichlororbenane   25.2   2.0   ag/l   25.0   ND   101   60-135   4   25     1.3-Dichlororbenane   25.2   2.0   ag/l   25.0   ND   101   60-135   4   25     1.3-Dichlororbenane   25.2   20.0   ag/l   25.0   ND   101   60-135   5   25     1.3-Dichlororbenane   25.2   25   25   25   25	4-Citlorotoluene	23.3	5.0	-	25.0	СИ	93	65-135	7	20	
1.2-Dibromoethane (FDB)   25.2   2.0   ag/l   25.0   ND   95   40-150   3   30     1.2-Dibromoethane (FDB)   25.2   2.0   ag/l   25.0   ND   101   65-130   5   25     1.2-Dibromoethane   25.0   2.0   ag/l   25.0   ND   100   60-135   4   25     1.2-Dichlorobenzene   23.6   2.0   ag/l   25.0   ND   94   70-125   4   20     1.3-Dichlorobenzene   22.9   2.0   ag/l   25.0   ND   92   70-125   6   20     1.4-Dichlorobenzene   23.0   2.0   ag/l   25.0   ND   92   70-125   6   20     1.4-Dichlorobenzene   23.0   2.0   ag/l   25.0   ND   70   15-155   6   30     1.1-Dichlorobenzene   25.2   2.0   ag/l   25.0   ND   70   15-155   6   30     1.1-Dichlorobenzene   23.3   2.0   ag/l   25.0   ND   93   60-146   7   20     1.1-Dichlorobenzene   23.7   5.0   ag/l   25.0   ND   95   60-135   7   20     1.1-Dichlorobenzene   24.1   2.0   ag/l   25.0   ND   95   60-135   7   20     1.1-Dichlorobenzene   24.8   2.0   ag/l   25.0   ND   99   60-135   4   20     1.2-Dichlorobenzene   24.8   2.0   ag/l   25.0   ND   99   60-135   4   20     1.3-Dichloropropane   24.6   2.0   ag/l   25.0   ND   98   60-125   6   20     1.3-Dichloropropane   25.2   2.0   ag/l   25.0   ND   98   60-125   6   20     1.3-Dichloropropane   25.2   2.0   ag/l   25.0   ND   101   60-135   4   25     2.2-Dichloropropane   28.5   2.0   ag/l   25.0   ND   114   60-145   2   25     1.1-Dechloropropane   23.4   20   ag/l   25.0   ND   94   65-135   6   20     1.1-Dechloropropane   23.4   20   ag/l   25.0   ND   94   65-135   6   20     1.1-Dechloropropane   23.4   20   ag/l   25.0   ND   101   60-135   4   25     2.1-Dichloropropane   23.4   20   ag/l   25.0   ND   114   60-145   2   25     2.1-Dichloropropane   23.4   20   ag/l   25.0   ND   94   65-135   6   20     2.1-Dechloropropane   23.4   20   ag/l   25.0   ND   94   65-135   6   20     2.1-Dechloropropane   23.4   20   ag/l   25.0   ND   94   65-135   6   20     2.1-Dechloropropane   23.4   20   ag/l   25.0   ND   94   65-135   6   20     2.1-Dechloropropane   23.4   20   ag/l   25.0   ND   94   65-135	Dibromochlotom ethane	24.8	2.0		25.0	ND	99	60-140	5	25	
L3-Dibromoethane (FDB)   25.2   2.0   ag/l   25.0   ND   H0   65-130   5   25	1,2-Dibromo-3-aldoropropane	23.8					95	40-150			
Dibromomethane   25.0   2.0   ug/l   25.0   ND   100   60-135   4   25	, ,						101				
1.2-Dichlorophenzene   23.6   2.0   ng/l   25.0   ND   94   70-125   4   26     1.3-Dichlorophenzene   22.9   2.0   ng/l   25.0   ND   92   70-125   6   20     1.4-Dichlorophenzene   23.0   2.0   ng/l   25.0   ND   92   70-125   6   20     1.4-Dichlorophenzene   23.0   2.0   ng/l   25.0   ND   70   15-155   6   30     1.1-Dichlorophene   25.2   2.0   ng/l   25.0   ND   101   60   130   4   20     1.2-Dichlorophene   23.3   2.0   ng/l   25.0   ND   93   60-140   7   20     1.1-Dichlorophene   23.7   5.0   ng/l   25.0   ND   95   60-135   7   20     1.1-Dichlorophene   24.1   2.0   ng/l   25.0   ND   96   66-130   4   20     1.2-Dichlorophene   24.8   2.0   ng/l   25.0   ND   99   60-135   4   20     1.3-Dichlorophone   24.6   2.0   ng/l   25.0   ND   98   60-125   6   20     1.3-Dichlorophone   25.2   2.0   ng/l   25.0   ND   98   60-125   6   20     1.3-Dichlorophone   28.5   2.0   ng/l   25.0   ND   101   60-135   4   25     2.2-Dichlorophone   28.5   2.0   ng/l   25.0   ND   101   60-135   4   25     2.3-Dichlorophone   28.5   2.0   ng/l   25.0   ND   114   60-145   2   25     3.4-Dichlorophone   23.4   20   ng/l   25.0   ND   94   65-135   6   20     3.4-Dichlorophone   23.4   20   ng/l   25.0   ND   114   60-145   2   25     3.4-Dichlorophone   23.4   20   ng/l   25.0   ND   94   65-135   6   20     3.4-Dichlorophone   23.4   20   ng/l   25.0   ND   94   65-135   6   20     3.4-Dichlorophone   23.4   20   ng/l   25.0   ND   94   65-135   6   20     3.4-Dichlorophone   23.4   20   ng/l   25.0   ND   94   65-135   6   20     3.4-Dichlorophone   23.4   20   ng/l   25.0   ND   94   65-135   6   20     3.4-Dichlorophone   23.4   20   ng/l   25.0   ND   94   65-135   6   20	Dibromomethane	25.0	2.0	=	25.0	ND	100	60-135	4	25	
1.3-Dici-forebenuene   22.9   2.0   cg/l   25.0   ND   92   70-125   6   20     1.4-Dici-forebenzere   23.0   2.0   cg/l   25.0   ND   92   70-125   6   20     Dicatorodifluorometaine   17.4   5.0   cg/l   25.0   ND   70   15-155   6   30     1.1-Dichloroethane   25.2   2.0   ug/l   25.0   ND   101   60 130   4   20     1.2-Dichloroethane   23.3   2.0   cg/l   25.0   ND   93   60-140   7   20     1.4-Dichloroethane   23.7   5.0   ug/l   25.0   ND   95   60-135   7   20     cis-1.2-Dichloroethane   24.1   2.0   cg/l   25.0   ND   96   66-135   7   20     trans-1.2-Dichloroethane   24.8   2.0   cg/l   25.0   ND   99   60-135   4   20     1.3-Dichloroptopane   24.6   2.0   ug/l   25.0   ND   98   60-125   6   20     1.3-Dichloroptopane   25.2   2.0   ug/l   25.0   ND   101   60-135   4   25     2.2-Dichloroptopane   28.5   2.0   ug/l   25.0   ND   114   60-145   2   25     1.1-Dichloroptopane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20     1.1-Dichloroptopane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20     1.1-Dichloroptopane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20     1.1-Dichloroptopane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20     1.1-Dichloroptopane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20	1.2-Dichlorobenzene	23.6	2.0		25.0	ND	94	70- ; 25	4		
1.4-Dichleresbenzere	1.3-Dicktoroben.tene					ND	92		6		
Dicatorodifluorometaine         17.4         5.0         eg/i         25.0         ND         70         15-155         6         30           f.1 Dichloroethane         25.2         2.0         ug/l         25.0         ND         101         60-130         4         20           1.2-Dichloroethane         23.3         2.0         cg/l         25.0         ND         93         60-146         7         20           1.1-Dichloroethane         23.7         5.0         ug/l         25.0         ND         95         60-135         7         20           cis-1,2-Dichloroethene         24.1         2.0         ug/l         25.0         ND         96         66-135         4         20           trans-1,2-Dichloroethene         24.8         2.0         ug/l         25.0         ND         99         66-135         4         20           1,2-Dichloropropane         24.6         2.0         ug/l         25.0         ND         98         50-125         6         20           1,3-Dichloropropane         25.2         2.0         ug/l         25.0         ND         101         60-135         4         25           2,3-Dichloropropane         28.5 <td>1,4-Dichlerobenzene</td> <td>23.0</td> <td></td> <td>-</td> <td></td> <td>ND</td> <td>92</td> <td></td> <td>6</td> <td></td> <td></td>	1,4-Dichlerobenzene	23.0		-		ND	92		6		
1.1 Dichloroethane	Dicalorodifluoromethane	17.4				MD	70		6		
1.2-Dichloroethane	L.1 Dichloroethane	25.2	2.0	_	25.0	ND	101	60 130	4	20	
1.3-Dichloroethene   23.7   5.0   ug/l   25.0   ND   95   60-135   7   20   crs-1.2-Dichloroethene   24.1   2.0   ug/l   25.0   ND   96   66-130   4   20   trans-1.2-Dichloroethene   24.8   2.0   ug/l   25.0   ND   99   66-135   4   20   1,2-Dichloropropane   24.6   2.0   ug/l   25.0   ND   98   50-125   6   20   1.3-Dichloropropane   25.2   2.0   ug/l   25.0   ND   101   60-135   4   25   2.2-Dichloropropane   28.5   2.6   ug/l   25.0   ND   114   60-145   2   25   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   94   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   24   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   24   65-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   24   25-135   6   20   1.3-Dichloropropane   23.4   2.0   ug/l   25.0   ND   24   25-135   6   20   1.3-Dichloropropane   25.0   25.Dichloropropane   25.0   25.Dichloropropane   25.0   25.Dichloropropane   25.0   25.Dichloropropane   25.0   25.Dichloropropane   25.0   25.Dichloropropane   1,2-Dichioroethane	23.3				CM	93	60-140	7			
cis-1,2-Dichlorosthene         24.1         2.0         og/s         25.0         ND         96         60-130         4         20           trans-1,2-Dichlorosthene         24.8         2.0         og/l         25.0         ND         99         60-135         4         20           1,2-Dichloropropane         24.6         2.0         ug/l         25.0         ND         98         50-125         6         20           1,3-Dichloropropane         25.2         2.0         ug/l         25.0         ND         101         60-135         4         25           2,2-Dichloropropane         28.5         2.6         ug/l         25.0         ND         114         60-145         2         25           1,1-Dichloropropene         23.4         2.0         ug/l         25.0         ND         94         65-135         6         20	1,1-Dichloroethene										
trans-1,2-Dichloroetiene 24.8 2.0 eg/l 25.0 ND 99 60-135 4 20 1,2-Dichloropropane 24.6 2.0 ug/l 25.0 ND 98 50-125 6 20 1.3-Dichloropropane 25.2 2.0 ug/l 25.0 ND 101 60-135 4 25 2.2-Dichloropropane 28.5 2.0 ug/l 25.0 ND 114 60-145 2 25 1.1-Dichloropropane 23.4 2.0 ug/l 25.0 ND 94 65-135 6 20	cis-1.2-Diphloroethene										
1,2-Dichlorepropane         24.6         2.0         ug/l         25.0         ND         98         60-125         6         20           1.3-Dichloropropane         25.2         2.0         ug/l         25.0         ND         101         60-135         4         25           2.2-Dichloropropane         28.5         2.0         ug/l         25.0         ND         114         60-145         2         25           1.1-Dichloropropene         23.4         2.0         ug/l         25.0         ND         94         68-135         6         20											
1.3-Dichloropropane         25.2         2.0         ug/l         25.0         ND         101         60-135         4         25           2.2-Dichloropropane         28.5         2.0         ug/l         25.0         ND         114         60-145         2         25           1.3-Dichloropropane         23.4         2.0         ug/l         25.0         ND         94         65-135         6         20											
2.2-Dichloropropane         28.5         2.0         ug/l         25.0         ND         114         60-145         2         25           1.1-Dichloropropene         23.4         2.0         ng/i         25.0         ND         94         65-135         6         20				~							
1.1-Dichlor/properie 23.4 2.0 ig/s 25.0 ND 94 65-135 6 20	· ·			_							
	• •			***							
cis-4.3 Dichloropropene 24.1 2.0 ng/l 25.0 ND 96 65-135 8 20	cis-1.3 Dichloropropene	24.1	2 0	-	25.0		96		8	20	

Del Mar Analytical, Irvine



17461 Derian Avel, Suite 100, Irvine, CA 92514 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A., Oolton, CA 92324 (909) 370-4687 FAX (909) 370-1046 9464 Chesapeake Dr., Suite 805, San Diego, CA 92123 (658) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0643 FAX (480) 785-0851 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 798-3625 FAX (702) 788-3621

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

## VOLATILE ORGANICS by GC/MS (EPA 5035/8260B)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G21019 Extracted: 07/21/05										
	-									
Matrix Spike Dup Analyzed: 07/21/20	005 (5G21019-N	ISDI)				OG0857-0				
trans-1.3-Dichiotopropene	24.1	2.0	ug/l	25.0	ND	96	65 140	7	25	
Ethylbenzene	23.8	2.0	ug/l	25.0	ND	95	65-130	.5	20	
Hexachlorobutamene	20.9	5.0	ug/I	25.0	ND	84	60-135	i	20	
Isopropy/benzene	24.8	2.0	ug/	25.0	ND	99	65-130	5	20	
p-Isopropyltolucne	22,6	2.0	ug/;	25.0	МD	90	65-125	3	20	
Methylene chloride	26.4	5.0	ug/l	25.C	ND	106	55-130	6	20	
Naphthatene	24.6	5 C	ug/!	25.0	ND	98	45-145	7	30	
n-Propylbenzene	24.4	2.0	ug/i	25.0	ND	98	65-130	6	20	
Styrene	!40	2.0	ug/i	25.0	МÐ	56	45-145	16	30	
7.1 v.2-Tetraciiloroethane	24.2	5.0	ug/l	25.0	ND	97	65-140	5	20	
,1,2,2-Tetrachiloroethane	28.7	2,0	ug/!	25.0	ИD	115	55-140		30	
Tetrachloroothene	23.3	2.0	ug/!	25,0	СМ	93	60-130	.5	20	
Tobiene	23.9	2 0	ug/!	25.0	GZ	96	65-125	6	20	
1,2,3-Trichlorobenzene	23.5	5.0	ug/l	25.0	ИD	94	55-135	3	20	
E ? 4-1 mehlorobenzene	23.6	5.0	ug/l	25.0	ND	94	60-135	0	20	
L.L.i-Trichiorostimae	24.3	2.0	::18/1	25 0	ND	97	65-140	2	20	
1.1.2-4 richloroethane	25.0	2.0	ng/l	25.0	CZ	100	60-130	5	25	
Prichlorosthere	22.5	2.0	ug/l	25.0	SD	90	60-125	8	20	
Trichlorothuoromethane	21.8	5.0	ug/l	25.0	ND	87	55-145	6	2.5	
1,2,3-Trichloropropane	27.0	10	ug/l	25.0	ND	108	50-135	3	30	
1,2,4- Crimethy Ibenzone	22.3	2.0	ug/I	25.0	ND	89	55-130	5	25	
1.3.5-Trimethylbenzene	23 6	2.0	ug/l	25.0	ND	94	65-130	6	20	
Vinvl acetate	19.9	5.0	ug/l	25.0	ND	80	40-150	)	30	
Virivl chloride	18.2	5.0	ug/l	25.0	GM	73	40-135	5	30	
o-Xvlene	23.1	2.0	ug/]	25.0	ND	92	60-125	6:	20	
m.p. Xylenes	46.6	2.0	ug/I	50.0	ND	93	60-130	5	25	
Surrogate, Dibromofhaorometh me	24.9		119/1	25.0		700	80-120			
Surragate, Tobiene-d8	25.2		11g/l	25.0		701	89-120			
Surrogare: 4-Bromofhorobenzone	24.5		ug/l	25.0		98	80-720			
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Del Mar Analytical, Irvine Kathleen A. Robb Project Manager



17461 Derian Ave. Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Cotton, CA 92324 (996) 370-4667 FAX (909) 370-1046 9484 Chestrieske Dr., Suite 805, San Diego, CA 92123 (959) 505-6596 FAX (588) 555-6689 9809 South 51st St., Suite B-120, Pricentx, AZ 85044 (480) 785-043 FAX (460) 785-0651 28504 E. Sunsot Rd. #3, Las Vogas, NV 89120 (700) 798-9620 FAX 1702) 798-9621

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

	D 14	Reporting	Tlade.	Spike	Source	%REC	%REC Limits	RPD	RPD	Data Qualifiers
Analyte	Result	Limit	Units	Level	Result	70KEC.	Dunits	KID	Limit	Quanters
Batch: 5G17017 Extracted: 07/17/05										
Blank Analyzed: 07/20/2005 (5G17017-	BLK1)									
Acenaphthone	СИ	10	นยู/-							
Acceaphthytene	ND	i0	ug/:							
Aniline	ND	10	ug/l							
Anthracene	МD	7.0	ug/!							
Benzidine	ND	20	ug/l							
Benzoic acid	ND	20	ug/I							
Benzo(alanthracene	ND	10	ug/l							
Benzo(b):luoranthene	ND	iO	ug/i							
Benzo(k)fluoranthene	ND	10	ug/l							
Benzo(g ha)perylene	ND	10	ug/l							
Benzo(a)pyrene	ND	10	ug/l							
Benzyl al, ohol	ND	20	ug/I							
Bis(?-cisiococtnoxy)metiane	ND	:0	ug/l							
Bis(2-chioroethyl)ether	ND	10	ug/l							
Bis(2-ch) are isopropy Dether	ND	10	ug/l							
Bis(2-ethylhexyr)phthalate	ND	50	ug/l							
4-Bromophenyl phenyl ether	МD	10	ug/i							
Butyl benzył picaalate	ND	20	ug/f							
4-Chloroantine	ND	10	ug/I							
2-Chloronaphtnalene	ND	10	ug/I							
4-Chloro-3-methylphenol	ND	20	ug/l							
3-Chloropheno-	ND	10	ug/i							
4-Chlorophenyl phenyl ether	ND	10	ug/I							
Chrysene	ND	10	ug/!							
Orberaga, hanthracene	CN	20	ug/I							
Dibenzofinim	ND	10	ug/l							
Di-n-butyi phtha-ate	ND	20	ug/)							
1.3-Dichlorobenzene	ND	10	ug/l							
1.4-Dichtorobenzene	ND	10	ug/l							
1.2-Dichiorobenzenc	ND	:0	ug/!							
3.3-Dichlorobenzidine	ND	20	ug/l							
2.4-Dichtorophenol	מא	10	ug/l							
Diethyl phthalate	ND	:0	ug/I							
2,4-Dimethylphenol	ND	20	eg/I							
Dimethyl phihalate	ND	10	ug/l							
* *			**							

Del Mar Analytical, Irvine



1746 ° Derlan Ava , Sulta 100, Irvina, CA 92614 (949) 261-1022 FAX (949) 261-3297 1014 E. Cooley Dr., Sulta A, Cotton, CA 92224 (909) 370-4867 FAX (909) 370-1046 9454 Chesapeako Dr., Sulta 895 Sart Diago, CA 92123 (856) 505-896 FAX (868) 505-9369 8850 South 51st St. Sulta 3-150, Procenta, A2 85044 (490) 765-0243 FAX (480) 765-0551 2520 E. Sunset Rd. #3 Las Vegas, NV 99120 (702) 798-3620 FAX (702) 799-3621

U.S. Fiher/Westates Carbon P.O. Box 3308

Attention. Deborah Foster

Project ID: TTO

Sampled: 07/13/05

Parker, AZ 85344

Report Number: IOG0857

Received: 07/14/05

## METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Data Qualifiers
Batch: 5G17017 Extracted: 07/17/05										
Blank Analyzed: 07/20/2005 (5G17017-	BLK1)									
4 (-Dinitro-2-methy (pheno)	ND	20	tig/i							
2,4-Dinitrophenol	ND	20	ug/i							
2.4-Dinitrotofaene	ND	10	ug/I							
2,6-Dmitrotoluene	ND	10	ug/:							
Di-n-octy/ pirthafare	ND	20	ug/.							
Fluoranthene	ND	10	ug/!							
Fhiorene	ND	10	ug/l							
Hexachtorobenzene	ND	10	ug/"							
Hexachlorobutadiene	ND	10	ug/l							
Hexachtoroevelopentadiene	ND	20	ug/l							
llexachloroetha re	ND	10	ug/I							
Indeno(1.2,3-ed)pyrene	ND	20	ug/l							
Isophorone	ND	19	ug/I							
2-MethyInaphthalane	ПD	10	ug/l							
2- Methylphenol	ND	10	ug/i							
4-Methy iphenol	ND	10	ug/l							
Naphthalene	ND	10	ug/i							
2-Nationalistic	CZ	20	::g/l							
3-Natrophiline	В	20	ug/l							
4 Naroaniline	ND	20	ug/I							
Nitroberizerre	ND	20	ug/l							
2-Nitrophenol	ND	10	ug/i							
4-Mitrophesol	ND	20	ug/l							
N-Ninesodiphenylamine	ND	10	ug/l							
N-Nitroso-di-n-propylantine	ND	10	ug/l							
Pentacido: oplica of	ND	20	ug/i							
Phenanthrene	CN	10	ag/l							
Pheno	ND	10	ag/l							
Pyrene	ND	10	tig/l							
1.2,4- Erichloropenzene	ND	10	:ig/i							
2.4.5-Trightorophenol	ND	20	:ig/l							
2,4,6-Trichlorophenol	ND	20	ug/l							
N-Natrosodimethylamate	ND	20	ug/i							
1.2-Diphenvlhydrazine/Azobensene	ND	20	ug/!							
Surroyate 2 Fluorophenol	121		ug/l	200		66	30-720			

#### Del Mar Analytical, Irvine



17461 Derian Ave., Suite 100, Irvine, CA 92614 (949) 251-1022 FAX (949) 260-3297 1014 F. Copiey Dr., Suite A, Cotton, CA 92224 (959) 370-4687 FAX (909) 370-1046 9494 Chesspeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (959) 505-9059 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (450) 785-0043 FAX (480) 785-0651 2520 E. Sunset Rd. #3, Las Vogas, NV 69120 (702) 798-3620 FAX (702) 798-3621

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 83344

Attention: Deborah Foster

Project ID: TTO

Report Number: IOG0857

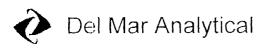
Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC	RPD	RPD Limit	Data Qualifiers
Batch: 5G17017 Extracted: 07/17/05										
mach. Cristia Landet d. 677 (70)										
Blank Analyzed: 07/20/2005 (5G17017-	BLK1)									
Surrogate, Phenol-d6	137		1/g/l	250		68	35-720			
Surrogate, 2,4,6-Fribromophanol	164		ug/l	200		5.2	45-720			
Surrogate, Nitrobenzene-d5	71.7		ug/l	190		72	45 120			
Surrogate 2/Finocohiphenyl	77.0		ugA	100		77	45-120			
Surrogate: Leophenyl-d14	78.7		ug/l	100		79	45-120			
LCS Analyzed: 07/20/2005 (5G17017-B	S1)									M-NR1
Acenaphthene	86.7	.0	ug/i	160		87	55-120			
Acenaphthylene	89.0	10	ug/l	i 00		89	55-120			
Andree	81.3	10	ug/f	100		81	35-120			
Anthracene	79 9	:0	ug/.	:00		80	55-120			
Benzidine	173	20	ug/!	100		173	20 160			L
Benzoic acid	69.7	20	ug/i	100		70	35-120			
Benzolajanjaracene	81.7	10	ug/l	100		82	60-120			
Benzo(5)fluoranthene	89.1	10	ug/l	100		89	50-120			
Benzo(k)Huoranthene	89.2	10	ug/I	100		89	50 120			
Benze(g.b.;)porviene	93.7	10	ug/l	100		94	40-125			
Велио(а)рутеле	<b>7</b> 7.0	10	ug/l	100		77	55-120			
Bertzyl nicohol	58.4	20	ug/L	100		58	45-120			
Bis(2-chloraethovy)methane	84.1	10	ug/l	100		8-4	55-120			
Bis(2-chloroethyl)ether	83-6	10	ug/f	100		84	50-120			
Bis(2-chlorosopropyl)ether	84.8	10	ug/.	100		8.5	45-120			
Bud2-ethylbexyl)phthalate	83.4	50	ug/i	:00		83	60-130			
4-Bromophenyl phenyl ether	85.3	10	ug/l	100		85	50-120			
Buty! benzy! r.hthalate	85.2	20	ug//	100		85	55-125			
4-Chloroandine	78.4	10	ug/i	100		78	50-120			
2-Chloronaphthalene	79.5	10	ug/l	100		80	55-120			
4-Chloro-3-methy (pheno)	84.0	20	ug/l	100		84	60-120			
2-Chiorophenoi	77.6	10	ug/l	100		7 <u>8</u>	45-120			
4-Chlorophanyl phenyl other	89.9	10	ug/l	100		90	55-120			
Chrysene	87.0	10	ug/l	LOC:		87	60-120			
Dibenz(a.h)anthracene	96.1	20	ug/l	100		96	45-130			
Dibenzofuran	85 1	10	ug/l	100		85	60-120			
Dr-n-bayd philalate	76.3	20	ug/l	100		7(	55-125			
1.3-Dichlorobenzene	74.2	10	ug/l	100		74	35-120			
1.4-Dightarobenzene	72.9	10	ug/l	100		73	35-120			
1,444 OCHRANIA UKCEC	14.7	1.07	ugil	100		12	2. 121			

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17461 Derian Avell, Suite 100, Invins, CA 92514 (949) 251-1022 FAX (949) 250-3097 1014 El Cooley Dr., Suite A, Colton, CA 92924 (909) 370-4657 FAX (909) 370-1046 9484 Chesapraike Dr. Suite 805, San Dingo, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (460) 785-0051 2525 El Sunset Rd. #3 Las Vegas, NV 89120 (702) 798-3620 FAX (702) 798-3621

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number, 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

## SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

Analyte		Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
	Result									
Batch: 5G17017 Extracted: 07/17/05										
LCS Analyzed: 07/20/2005 (5G17017	-BS1)									M-NRI
i .2-D)chlorobenzene	74.8	10	ug/i	100		7.5	35-120			
3.3-Digitor obenzidine	90.4	20	ug/I	100		90	45-130			
2.4-Dichlorophenol	77.7	10	ug/l	100		78	55-120			
Drethyl philiafate	86.1	10	ug/l	106		86	55-120			
2,4-Dimethylphenol	63.8	20	ug/i	100		64	30-120			
Dimethy: phthalate	84.3	19	ug/l	100		84	60-120			
4,6-Deathe-2-methylphenol	\$5.2	20	J8/1	100		8.5	50-120			
2,4-Dantropheno:	89.2	20	ug/l	190		è9	40-120			
2,4-D-nitrotaluene	93 9	10	ug/l	100		04	60-120			
2.6-Dimitrotofoene	81.3	10	ug/l	100		5.1	60-120			
Di-m octyl phthalate	84.2	20	ug/l	100		84	60-130			
Elucranthene	82.0	10	ug/l	160		82	55-120			
Fluorene	C 98	10	ug/l	100		89	60-120			
Hexachiorobenzene	85.7	10	ug/I	100		86	50-120			
Hexachlorobutaciene	76 7	10	ug/l	Toc		77	40-120			
Hexachloroevelopentsdiene	90.5	20	ag/l	100		90	15-120			
Hexachioroethane	76,3	10	ug/l	001		76	35-120			
Indeno(1,2/3-ed)pyrene	90,3	20	ug/i	100		90	40-130			
Isophorone	82.6	10	ug/l	661		83	50-120			
2-Methyinaphthalenc	81.0	:0	ug/!	100		; 8	50-120			
2-Methylphenoi	79.4	10	ug/l	100		79	45-120			
4-Micthylphenai	80.8	10	ug/i	190		81	45-120			
Naphthalene	78.8	10	ug/l	100		79	50-120			
2-Nitroambije	84.6	20	ug/l	160		85	60-120			
3 Nutroambine	94,0	20	ug/!	100		9.,	55-120			
4-Nitroamime	93.5	20	ug/l	100		94	50-125			
Nitrobenzene	79.1	20	ug/i	100		79	50-120			
2-Nicophenol	\$2.1	10	ug/l	100		82	55-120			
4-Nitrophenol	78.4	20	ug/l	100		78	45-120			
N-Nitrosodinhenylamine	86.3	10	ng/l	100		86	55-120			
N-Nitroso-di u-propylar une	88.8	iO	ug/l	100		80	45-120			
Pentachlorophenol	91.4	20	ug/i	100		91	50-120			
Phenantecoc	80.2	10	ug/i	100		80	55-120			
Phenol	77.5	10	tig/i	100		78	45-129			
Pyrane	87.4	10	ug/i	100		87	50-120			

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17451 Der an Avel, Suite 100, Irvine, CA 92814 (949) 261-1022 FAX (949) 260-3297 1014 El Cooley Dr., Suite Al Cotton, CA 92924 (908) 370-4667 FAX (909) 370-1046 9484 Chesanoake Dr., Suite 865, San Diego, CA 92123 (858) 505-8596 FAX (859) 505-9659 9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (490) 785-0651 2620 El Sunset Rd. #3, Las Vegas, NV 85120 (702) 798-3320 FAX (702) 798-3521

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborali Foster

Project ID: TTO

Report Number: 40G0857

Sampled: 07/13/05 Received: 07/14/05

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#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G17017 Extracted: 07/17/0:	<u>5</u>									
LCS Analyzed: 07/20/2005 (5G1701)	7-BST)									M-NR1
1,2,4-Trichlorobonzene	75.1	10	ug/!	100		7,5	45-120			
2.4.5-Trichlorophonol	89.1	20	ug/I	100		89	60-120			
2,4,6-Trichlorophenol	80.8	20	ug/l	100		\$1	60-120			
N-Nitrosedimethylamine	84.9	20	ug/!	100		85	40-120			
1,2-Diphenylhydrazme/Azobenzene	86,5	20	ug/l	100		87	60-120			
Surrogate 3 Fluorophenol	148		ug/l	200		74	30-120			
Surragote: Phenol-d6	161		ug/f	200		5%	35-720			
Surragate: 2.4.6-Tribromophenol	181		ug/l	200		90	45-130			
Sucrogene: Mitrobenzene d5	80.3		11g/l	100		80	45-120			
Surrogare: 2-Fluorohiphonyl	\$1.7		ug/l	100		82	45-720			
Swyogare: Terphenyl-d14	\$6.2		ug/l	700		-86	45-120			
LCS Dup Analyzed: 07/20/2005 (5G	17017-BSD1)									
Acenaphthene	84.0	10	ug/l	:00		84	55-120	3	20	
Accnaphthylene	87.2	10	ug/l	100		87	55-120	2	20	
Applied	76.7	10	ug/l	100		7.7	35-120	6	25	
Anthracene	80-8	10	ng/l	100		8:	55-120	!	20	
Benzidine	99 1	20	ug/!	100		99	20-160	54	35	R-2
Benzeic auto	87.7	20	ug/i	100		88	35-120	23	30	
Bengo(a)anthracene	86-0	10	ug/i	100		86	60-120	5	20	
Bonzo(a)fluoranthone	88.7	10	ug/i	100		89	50-120	()	25	
Benzo('c)fluorantinene	86.9	10	ug/	100		87	30-120	3	20	
Benzo(g.h.:)porylene	94.7	Ci	ug/:	.00		95	40-125	i	25	
Benzo(a)pyrene	79.8	10	1161	100		80	55-120	4	25	
Benzyl alcohol	60.6	20	ug/)	100		61	45-120	4	20	
Bis(2-chioroethoxy)methane	83.2	10	ug/l	i00		8.3	55-120	j	20	
Bis(2-chloroethyl)ether	81.7	10	ug/l	100		82	50-120	2	20	
Bis(2-chiororsopropyi)ether	81.1	10	ug/i	700		\$:	45-120	4	20	
Bis(2-ethy/nexyl)phthalate	85.2	50	ug/l	100		85	60-130	2	20	
4-Bromophenyi phenyl ether	87.8	10	:Ig/l	100		8.8	50-120	3	25	
Bury! benzy! phthulate	83.2	20	ug/l	100		83	55-125	2	20	
4-Chioroanime	77.3	10	ug/l	100		77	50-120	i	25	
2 Chloronaphthalene	814	10	ug/l	100		\$1	55-120	2	20	
4-Cidoro 3-prethyspheno	79.2	20	ug/I	.00		79	66-120	6	25	
2-Chioropaenol	74.5	10	ug/l	100		74	45-120	4	25	
4-Chlorophenyl phonyl ether	87.0	10	ug/i	100		87	55-120	3	20	
			ي							

Del Mar Analytical, Irvine

Kathieen A. Robb Project Manager



17461 Denan Ave., Suite 100, Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 F. Copiev Dr., Suite A, Colton, CA 92024 (909) 370-4667 FAX (909) 370-1046 9484 Chesapenke Dr., Suite 805, San Diego, CA 92123 (909) 570-6596 FAX (968) 505-989 9830 South 51st St., Suite 3-120, Phoenix, AZ 85044 (480) 785-043, FAX (480) 785-6651 2520 E. Sunset Rd. #3, Las Vegas, NV 89120 (702) 799-3820 FAX (702) 798-3521

U.S. Fifter/Westates Carbon P.O. Box 3308

Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

	•	Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G17017 Extracted: 07/1	<u>7/05</u>									
LCS Dup Analyzed: 07/20/2005 (	5G17017-BSD1)			ş						
Chrysone	87.1	10	ug/l	100		87	50-120	0	20	
Dibenz(u.h)ani tracene	97.1	20	ug/l	100		97	45-150	1	25	
Dibanzofuran	83 3	10	tig/l	100		83	60-120	2	20	
Di-n-butyl pathalase	77.2	26	ug/l	100		77	55-125	1	20	
1.3-Dichlorohonzene	72.2	10	ug/:	100		72	35-120	3	25	
1,4-Dichiorobenzene	70.2	: c	ug/I	100		70	35-120	4	25	
1,2-Dichlorobenzene	72.6	10	ug/l	100		73	35-120	3	25	
3.3-Dicklorobenzidine	89.1	20	u <u>s</u> /l	100		89	45-130	1	25	
2,4 Dichtorophonol	76.5	10	ug/I	100		76	55-120	2	20	
Diethyl pirthalate	83.2	10	ug/l	100		83	55-120	3	20	
2.4 Dimethy pheno!	63.7	20	ug/i	100		64	30-120	0	2.5	
Dimethyl phthalate	84.4	10	ug/l	100		84	60-120	ō.	20	
4.6-Dinitro-2-methylpheno!	82.9	20	ug/l	100		83	50-120	3	25	
2.4 Dimtrophenol	86.7	20	ug/I	100		87	40-120	3	25	
2.4-Dinitrotolucie	90.1	10	ug/i	100		90	60-120	4	20	
2.6-Dinitrotoluene	83.0	10	ug/l	:00		83	60-120	2	20	
Di-n-octy , phthalate	87.3	20	ug/I	100		87	60-130	4	20	
Fluoranthene	79.8	10	ug/l	100		80	55-120	3	20	
Fluorene	\$5.8	:0	eg/l	100		86	60-120	4	20	
Hexachiorobenzene	89.2	10	ug/l	100		89	50-120	4	20	
Hexacitlorobutadiene	74,9	10	og/I	100		75	40-120	2	25	
Flexachlorocyclopentadiene	88 4	20	ug/l	.09		88	15-120	2	30	
Hexachioroethane	73.3	10	cg/l	100		73	35-120	4	25	
Indeno(1.2,3-cd)pyrene	90.1	20	ug/l	100		90	40-130	0	25	
[sophorone	83.7	10	ug/I	100		84	50-120	:	26	
2-Methylnaphthalone	78.7	10	ug/l	100		79	50-120	3	20	
2-Methylpienol	76.8	10	ug/l	100		77	45-120	3	20	
4-Methylphenol	79,3	10	ug/l	100		79	45-120	2	20	
Naphthalone	78.3	10	ug/l	100		78	59-120	1	20	
2-Nitroanilme	83.5	20	ug/l	100		84	60-120	1	20	
3-Nitroauline	00.4	20	ug/i	100		90	55-120	4	25	
4-Nitroaniline	87.8	20	ug/l	100		88	50-125	6	20	
Nitrobenzone	79.i	20	::g/i	100		79	50-120	0	25	
2-Nitrophenol	79.7	20 [0	ug/l	100		80	55-120	3	25	
	74.7	20	ug/l	100		75	45-120	5	25	
4-Nitraphenal	/4./	2.C	G8/1	(17)		1.2	<b>→</b> U=120	~	2.4	

Del Mar Analytical, Irvine

Kathleen A. Robb Project Manager



17461 Derian Ave., Suite 100, Irvine, CA 92614, (949) 261-1022, FAX (949) 260-3297, 1014 E. Cooley Dr., Suite A, Coffon, CA 92024, (909) 370-4657, FAX (909) 370-1646, 9484 Chosapoake Dr., Suite 805, San Dingo, CA 92123, (866) 505-8596, FAX (868) 505-8589, 9830 Shufn 51st St., Suite 6-120, Phoenix, AZ 85044, (480) 785-0043, FAX (480) 785-0045, F

U.S. Filter/Westates Carbon P.O. Box 3308

Purker, AZ 85344

Attention. Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3520C/8270C)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G17017 Extracted: 07/17/05	<u> </u>									
LCS Dup Analyzed: 07/20/2005 (5G1	17017-BSD1)									
N-Nitrosodiphenylamine	88.2	7.0	ug/l	100		88	55-120	2	20	
N-Nitroso-d -n propylamine	86.8	10	ug/C	100		87	45-120	2	20	
Pentachlorophenol	94.4	20	ag/	100		94	50-120	3	25	
Phenauthrene	79 7	10	ug/l	100		08	55-120	1	20	
Phonol	74 4	10	ug/l	100		74	45-120	4	25	
Pyrene	83 4	10	ug/I	100		83	50-120	5	25	
1,2.4-Trichiorobenzene	75.3	10	ng/I	100		7.5	45-120	0	20	
2,4.5-Frichtorophenol	88.5	20	ug/l	100		88	60-120	1	20	
2.4.6-Trichlorophenol	82.1	20	ug/I	100		82	50-120	2	20	
N-N.tresedincetbylamine	72.3	20	ug/i	100		72	40-120	16	20	
2-Diphenvlhydrazine/Azobenzene	82.7	26	ug/l	100		83	60-120	5	25	
Surragate, 2-Fluorophenol	133		ug/i	200		66	30-720			
Surrogate Pacholal6	147		ng/I	200		74	35-120			
Survigate, 2-4,6-Tribromophenol	181		ugA	200		90	45-120			
Surrogate, Autrobenzene-el5	79.2		ug/l	100		7.9	45-120			
Surrogate. 2-Fluorobiphenyl	83.5		ug4	100		34	45-120			
Surveyage: Terphonyl-dl.4	83.7		ugA	700		83	45-120			



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### ORGANOCHLORINE PESTICIDES (EPA 3510C/8081A)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G20057 Extracted: 07/20/	05_									
Blank Analyzed: 07/20/2005-07/22/	2005 (5G20057-BI	LKI)								
Alidria	ND	0.10	ug/I							
alpha-BHC	ND	0.16	ug/I							
Seta-BHC	ND	0.10	ug/l							
delta-BHC	ND	0.26	ugA							
ganima-BEK (fundane)	ND	0.10	ug/l							
Chlordane	ND	0.1	ug/l							
4. C-DDD	ND	0,10	ug/i							
4.4°-DDB	ND	0.10	ug/1							
4,4°-DDT	ND	0.10	ug/!							
Dieldrin	ND	0.10	ug/l							
Endoseifan I	ND	0.10	.:9/1							
Endosulfan II	ND	0.10	ug/l							
Endosultān sulfate	ND	0.20	ug/							
Ladrin	ND	0.10	ug/i							
Endrin aldeliy de	ND	9.10	ug/!							
Badrin ketolei	ND	0.10	ug/c							
Heparchior	ND	0.10	ug/l							
Heptachlo: enoxide	ND	0.10	ng/l							
Methoxycido:	ND	0.10	ag/I							
Toxaphore	ND	5.0	ug/l							
Surrogete : Tetrachloro-m-vylene	0.352		ug/l	0.500		70	35-115			
Surregate Decachiorobiphenyi	0.446		ug/l	0.500		82	45-120			
LCS Analyzed: 07/20/2005 (5G2005	57-BS1)									M-NR1
Aldron	0.356	0.10	ug/!	0.500		71	40-115			
alpha-BHC	0,435	0.10	ug/!	0.500		87	45-115			
beta-BHC	0.397	0.10	ug/l	0.500		79	50-115			
dalta-BHC	0 447	0.20	ug/l	0.500		89	55-120			
gamma BHC (Lindane)	0.431	0.10	ug/.	0.500		86	45-115			
4.47-DDD	0.462	0.10	ug/l	0.500		92	60-120			
ta-DDE	0.446	0.10	ug/i	0.500		89	55-120			
4.4"-DDT	0.443	0.10	tig/l	0.500		86	60-120			
Dieldrin	0.437	0.10	ug/!	0.500		87	55-120			
fordesetten (	0.417	3.10	ug/!	0.500		83	50-115			
Endosulfae (I	0,433	9.10	ug/i	0.500		\$7	60-125			
Imdosulfan sulfate	0,471	0.20	ug/i	0.500		94	60-120			

#### Del Mar Analytical, Irvine

Kathleen A. Robb Project Manager



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U.S. Fifter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### ORGANOCHLORINE PESTICIDES (EPA 3510C/8081A)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G20057 Extracted: 07/20/0	<u>5</u>									
LCS Analyzed: 07/20/2005 (5G2005	7-BS1)									M-NRI
Ending	0.441	0.10	ug/i	0.500		88	55-125			
Endrin aldehyde	0.443	0.10	ug/.	0.500		89	55-115			
Endrin ketone	0.441	0.10	ug/l	0.500		88	60-115			
Figuracition	0.370	G.10	ug/l	0.500		74	45-115			
Deptachior epoxide	0.415	0.10	ug/l	0.500		83	50-115			
Methoxychlor	0.454	0.10	ug/l	0.500		91	60-120			
Surrogate: Tetrachloro-m-xylene	0.338		ug/l	0.500		68	33-115			
Surrogate: Decachlerohiphenyl	0.439		ug/l	0.500		88	45-120			
LCS Dup Analyzed: 07/20/2005 (5G	20057-BSD1)									
Aldrin	0.541	0.10	ug/I	0.500		68	40-115	4	30	
alpha-BHC	0.422	0.10	ug/l	0.500		84	45-115	3	30	
beta-BHC	0.386	0.10	ug/l	0.500		77	50-115	3	30	
delta-BHC	0,433	0.20	ug/i	0.500		87	55-120	3	30	
gamma-BHC (Landane)	0.419	0.10	ug/I	0.500		84	45-115	3	30	
4.4°-DDD	0.439	0.10	ng/l	0.500		88	60-120	5	30	
4.45.DDE	0.425	0:0	ug/l	0.500		8.5	55-120	5	30	
4.4°-DDT	0.420	0.10	ug/l	0.500		84	60-120	.5	30	
Dieldrin	0.417	0:0	ug/i	0.500		83	55-120	5	30	
Endosulfan I	0.398	0.10	ug/!	0.500		80	50-115	5	30	
Endosulfan H	0.411	0.10	ug/l	0.500		82	60-125	5	30	
Endoseiten gudate	0.445	0.20	ug/l	0.500		89	60-120	6	30	
fordrin	0.421	0.10	ug/l	0.500		84	55-125	5	30	
Endrin aldchyde	0.379	0.10	ug/l	0.500		76	55-115	16	30	
i odrin ketone	0.415	0.10	ug/l	0.500		83	60-115	6	30	
Heptachlor	0.356	0.10	ug/l	0.500		71	45-115	4	30	
Heptachlor epoxide	0.400	0.10	ug/l	0.500		80	50-115	4	30	
Methoxychlor	0.430	0.10	ug/l	0.500		86	60-120	5	30	
Surrogate: Tetrachloro-m-xylene	0.337		11g/l	0.500		67	35-115			
Surrogate: Decachtorohiphenyl	0.410		ug/l	0.500		52	45-720			



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project iD: TTO

Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### POLYCHLORINATED BIPHENYLS (EPA 3510C/8082)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G20057 Extracted: 07/20/	05									
Blank Analyzed: 07/20/2005-07/22.	/2005 (5G20057-BI	LKI)								
Aroc.or 1016	ND	1.0	ug/l							
Aroclor 1221	МD	1.0	ug/l							
Aroclor 1332	ND.	1.0	ug/!							
Aroclor : 242	ND	1.0	ug/l							
Arocler 1248	ИD	1.0	ag/I							
Arocior 1254	СИ	1.0	ug/I							
Arocier 1366	ND	1.0	ug/l							
Surrogate: Decachlorohiphenyl	0.513		ug/l	0,566		103	45-120			
LCS Analyzed: 07/22/2005 (5G200	57-BS2)									M-NR1
Aroclar 1016	3.51	1.0	ug/l	4.00		88	50-115			
Areclar 1260	3 67	1.0	ug/l	4.00		92	55-115			
Surrogate Devachtorotyphenyl	0.527		ng/l	6.596		104	45-720			
LCS Dup Analyzed: 07/22/2005 (50	G20057-BSD2)									
Arector (016	3.23	1.0	ug/l	4.00		8:	50-115	8	30	
Arocla: 1260	3.37	1.0	ug/l	4 00		84	55-115	9	25	
Surrogate: Decachlorohiphenyl	0.479		ug/l	0.500		96	45-120			



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

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#### METHOD BLANK/QC DATA

#### **METALS**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch; 5G18097 Extracted; 07/18/05				•						*
	DV 121\									
Blank Analyzed: 07/19/2005 (5G18097- Autimony	BLKT) CM	0.010	mg/l							
Arsenie	ND	0.0050	mg/l							
Berium	ND	0.0030	mg/l							
Chromium	ND	0.0050	mg/!							
Cobait	КĎ	0.010	mg/l							
Copper	ND	C.010	mg/I							
Mo.vodenum	ND	0.020	mg/l							
Silver	ND	0.0070	mg/l							
Thallium	ND	0.010	mg/l							
Vanadium	ND	0,010	mg/l							
Zinc	ND	0.020	mg/l							
LCS Analyzed: 07/19/2005 (5G18097-B	S1)									
Authnory	1.07	0.010	mg/!	1,00		107	80-120			
A isonic	1.00	0.0050	mg/l	1.00		100	80 120			
Barnum	0.954	0.010	mg/l	1.00		95	80-120			
Chroms, wi	0.986	0.0050	mg/i	1.00		99	80-120			
Cobelt	1.02	0.010	:ng/l	1.00		102	80-120			
Cepper	1.01	0.010	mg/l	1.00		!C1	80-120			
Mulybdenam	0.956	0.020	mg/l	1.00		96	80-120			
Silver	0.507	0.0070	mg/I	0.500		101	80-120			
Feelium	0.962	0.010	m.g/!	1.00		96	30-120			
Vancaium	6.988	0.010	mg/i	1.00		99	80-120			
Zinc	0.959	0.020	mg/l	1.00		96	80-120			
Matrix Spike Analyzed: 07/19/2005 (5G	(18097-MS1)				Source: 10	OG0791-0	1			
At timony	0.998	9.010	mg/J	1.00	CM	100	75-125			
Alsonic	0.946	C.0050	ing/l	1.00	0.0099	94	75-125			
Валит	0.888	0.010	mg/i	1.00	0.024	86	75-125			
Cbromium	0.897	0.0050	mg/l	1.00	ND	90	75-125			
Cebalt	0.946	0.010	mg/i	1.00	ND	95	75-125			
Co; per	1 02	0.019	mg/i	1.00	ND	102	75-125			
Molybdenum	1.09	0.020	mg/l	1.00	0.21	88	75-125			
Silver	9.476	0 9076	mg/l	0.500	ND	95	75-125			
Thakiom	0.837	0.010	mg/i	1.00	ND	84	75-125			
Vanadium	0.925	0.010	mg/l	1.00	0.0044	92	75-125			

Del Mar Analytical, Irvine

Kathleen A, Robb Project Manager



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U.S. Filter/Westates Carbon

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#### METHOD BLANK/QC DATA

#### **METALS**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G18097 Extracted: 07/18/05										
Matrix Spike Analyzed: 07/19/2005 (50	G18097-MS1)				Source: I	OG0791-0	1			
Zine	0.910	0.020	mg/!	1.00	ND	91	75-125			
Matrix Spike Dup Analyzed: 07/19/200	05 (5G18097-M	ISD1)			Source: 1	OG0791-0	1			
Antimony	0.994	0.010	:mg/l	1.00	ND	99	75-125	0	20	
Arsenic	0.945	0.0050	mg/i	00.1	0.0099	94	75-125	6	20	
Barium	0.879	0.010	mg/l	1.00	0.024	85	75-125	1	20	
Continue	0.886	0.0050	mg/l	1.00	ND	89	75-125	;	20	
Cobalt	0.937	0.010	mg/l	1.00	ND	94	75-125	1	20	
Copper	1.01	0.010	mg/l	1.00	ND	101	75-125	1	20	
Molybdenim	1.08	0.020	mg/l	1.00	0.21	87	75 125	1	20	
Sriver	0.471	9 0070	mg/l	0.500	CZ	Ş.4	75-125	i	26	
Thadium	0.837	0.010	mg/l	1,00	ND	84	75-125	0	30	
Vanadium	0.916	0.010	ım@/İ	1,00	0,0044	9;	75-125	I	20	
Zide	0.900	0.020	mg/l	1,00	ND	96	75-125	!	20	
Batch: 5G19037 Extracted: 07/19/05										
Blank Analyzed: 07/19/2005 (5G19037	-BLK1)									
Mercury	ND	0 00020	:ng/l							
LCS Analyzed: 07/19/2005 (5G19037-I	381)									
Mercury	0.00823	0.00020	mg/l	0.00800		103	90-115			
Matrix Spike Analyzed: 07/19/2005 (50	G19037-MS1)				Source: 10	OG0937-0	1			
Mercury	0.00796	6.00020	mg/i	0.00800	ND	100	75-120			
Matrix Spike Dup Analyzed: 07/19/200	)5 (5G19037-M	ISD1)			Source: 10	OG0937-0	1			
Mercury	0.00788	0.00020	mg/l	0.00800	ND	98	75-120	;	20	



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U.S. Filter/Westates Carbon

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#### METHOD BLANK/QC DATA

#### **METALS**

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G19086 Extracted: 07/19/05										
Blank Analyzed: 07/20/2005 (5G19086-I	BLK1)									
Asum inum	ND	0.650	mg/i							
Boron	ND	0.050	mg/l							
fron	ND	0.040	mg/l							
Magnesoon	ND	0.020	mg/i							
Manganese	GN	0.020	mg/i							
Strontium	ND	0.020	mg/l							
Tim	ND	0.10	mg/l							
Titanaan	NI)	0.0050	mg/]							
LCS Analyzed: 07/20/2005 (5G19086-BS	S1)									
Alensinum	C.972	0.050	mg/l	1.00		47	8(=120			
Boron	1.01	0.050	mg/l	1.90		101	80-120			
from	1.04	0.040	mg/l	1.00		194	80-120			
Magnesium	4,92	0,020	mg/l	5 (0.)		98	80-120			
Manganese	1.02	0.020	mg/l	1.00		102	80-120			
Strot tium	0.985	0.020	mg/i	1.00		98	80-120			
Ten	0.973	0.10	mg/l	1.00		97	80-120			
Titacium	1.03	0.0050	mg/l	1,00		103	80~120			
Matrix Spike Analyzed: 07/20/2005 (5G	19086-MSI)				Source: I	OG0857-0	1			
Alummam	1.06	0.050	mg/i	1.00	0.082	98	75-125			
Boron	1.66	0.050	mg/l	1.00	0.64	102	75-125			
hon	0.991	0.040	1718./	().()	0.034	97:	75-125			
Magnesium	33.0	0.020	mg/l	5.00	29	80	75-125			
Manganese	0.938	0.020	mg/l	1.00	0.010	93	75-125			
Strontium	2.68	0.020	mg/l	1.00	1.7	0.8	75-125			
Tin	0.933	0.10	mg/I	1.00	0.0053	93	75-125			
Tuanium	0.987	0.0050	mę4	1.00	0.0034	98	75-125			



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U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention. Deborah Foster

Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05

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#### METHOD BLANK/QC DATA

#### **METALS**

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G19086 Extracted: 07/	19/05									
Matrix Spike Dup Analyzed: 07.	/20/2005 (5G19086-N	1SD1)			Source: I	OG0857-0	+1			
Aigennum	1.11	0.050	mg/i	1,00	0.082	163	75-125	5	20	
Boron	1.74	0.050	mg/l	1.00	0.64	:10	75-125	5	20	
iron	1.92	0.040	mg/i	1.00	0.34	99	75-125	.3	20	
Magnesium	34.4	0.020	mg/l	5 90	29	108	75-125	4	20	
Manganese	0 977	0.020	mg/i	: 00	C 010	97	75-125	4	20	
Strontino	2.76	0.020	mg/I	1.00	1.7	106	75-125	3	20	
Tin	0.950	0.10	mg/l	1.00	0.0053	94	75-125	2	20	
Titaniam	1.02	0.0050	lng/l	1,00	0.0034	102	75-125	3	20	
Batch: 5G25067 Extracted: 07/2	<u>25/05</u>									
Blank Analyzed: 07/25/2005 (5G	(25067-BLK1)									
Zircomu v.	ďΖ	0.20	mg/l							
LCS Analyzed: 07/25/2005 (5G2	5067-BS1)									
Zárcor ium	1.0 i	6.20	mg/l	1.00		101	80-126			
Matrix Spike Analyzed: 07/25/20	005 (5G25067-MS1)				Source: I	OG1423-0	1			
Zircomian	1.02	0.20	ing/l	1.00	МD	102	75-125			
Matrix Spike Dup Analyzed: 07/	/25/2005 (5G25067-N	(ISD1)			Source: I	OG1423-0	1			
Zirconium	1.03	0.20	mg/l	1.00	ND	103	75-125	1	20	



17461 Derian Ave., Suite 100, Irvine, CA 32614 (049) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapoake Dr., Suite 865, San Diego, CA 92123 (858) 505-8595 FAX (858) 505-9689 9830 South 51st St., Suite 8-120, Phoenix, AZ 85044 (480) 785-0033 FAX (490) 785-0051 2520 E. Sunset Rd. #3, Las Vegas IVV 89120 (702) 798-3620 FAX (702) 798-3621

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G14039 Extracted: 07/14/05										
Blank Analyzed: 07/14/2005 (5G14039-1	BLK1)									
Bromide	ND	0.50	:ng/l							
Fluonde	ND	0.50	mg/i							
Nitrate-N	ND	0.15	mg/!							
Nitrite-N	ND	0.15	Rgm							
Sulfate	ΝD	0.59	mg/l							
LCS Analyzed: 07/14/2005 (5G14039-B9	S1)									
Bromide	4 \$8	0.50	mg/l	5.00		98	90-110			
Fluoride	4 68	0.50	mg/l	5.00		94	90-110			
Nitrate-N	1.08	0.15	mg/!	1.13		96	90-110			
Nitrite-N	1.47	0.15	mg/!	1.52		97	90-i10			
Sulfate	9.53	0.50	mg/l	10.0		95	90-110			N4-3
Matrix Spike Analyzed: 07/14/2005 (5G	14039-MS1)				Source: I	OG0829-0	1			
Brounde	4.97	0.50	mg/l	5 00	ND	99	80-120			
Fluoride	4.98	0.50	mg/l	5.00	0.18	96	80-120			
Nitrate-N	6.59	0.15	mg/l	1.13	5.2	i23	80-120			M-iIA
Nitrie-8	1,54	0.15	mg/i	: 52	CZ	10!	80-120			
Matrix Spike Dup Analyzed: 07/14/2005	5 (5G14039-N	ISD1)			Source: 10	OG0 <b>82</b> 9-0	ı			
Bromide	4.71	0.50	mg/l	5.00	МD	94	80-120	5	20	
Pluoride	4.91	0.50	mg/l	5.00	0.18	95	80-120	1	20	
Nitrate-N	6.54	0.15	ng/l	1.13	5.2	119	80-120	ŧ	20	
Nitrite-N	1.50	0.15	mg/I	1.52	ND	99	86-120	3	20	
Batch: 5G14075 Extracted: 07/14/05										
Blank Analyzed: 07/14/2005 (5G14075-I	BLKI)									

**Del Mar Analytical, Irvine** Kathicen A. Robb Project Manager

Phesphorus

0.050



17461 Denian Ave., Suite 100 Invine. CA 92614 (949) 261-1022 FAX (\$49) 260:3297 1014 E. Cocley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (\$69) 370-1046 5484 Chosapeake Dr., Suite 805, San Diego. CA 92123 (868) 505-8696 FAX (868) 505-9689 9830 South 51st St., Suite 9-120, Phoenix, AZ 85944 (480) 795-0043 FAX (480) 775-0851 2520 E. Sunset Rd. #3, Las Vegas. NV 89120 (702) 799-3520 FAX (702) 798-3621

U.S. Filter/Westates Cerbon P.O. Box 3308

Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### INORGANICS

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G14075 Extracted: 07/14/05										
LC\$ Analyzed: 07/14/2005 (5G14075-BS1	)									
Phosphorus	0.915	0.050	mg/i	1.00		92	86-120			
Matrix Spike Analyzed: (7/14/2005 (5G1-	4075-MS1)				Source: 19	OG0784-0	1			
Phosphorus	1.25	0.050	mg/l	00 1	0.37	88	65-130			
Matrix Spike Dup Analyzed: 07/14/2005 (	5G14075-M	SDI)			Source: I	OG0784-0	1			
Phosphorus	1.31	0.050	mg/l	1.00	0.37	94	65-130	5	15	
Batch: 5G14089 Extracted: 07/14/05										
Duplicate Analyzed: 07/14/2005 (5G14089	)-DUP1)				Source: D	OG0808-0	1			
Color	10.0	1.0	Color Units		10			Э	20	piI
Batch: 5G14094 Extracted: 07/14/05										
Duplicate Analyzed: 07/14/2005 (5G14094	-DUP1)				Source: 10	OG0812-0	1			
Resident Chlorina	П	0.10	mg/l		ND				20	
Batch: 5G14118 Extracted: 07/14/05										
Blank Analyzed: 07/14/2005 (5G14118-BI	.K1)									
Surfactants (MBAS)	ZD	0.10	mg/l							
LCS Analyzed: 07/14/2005 (5G14118-BS1	•									
Surfactorits (MBAS)	0.255	0.10	m.g/l	0.250		102	90-110			



17461 Denan Ave., Suite 100, irvine, CA 92614 (949) 261-1022 FAX (949: 260-3297 1014 E. Cocley Dr., Suite A, Coton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite BCS Sar Diego, CA 92123 (858) 505-8599 FAX (858) 505-8599 9330 South 51st St., Suite BC-20 Phoenix, AZ 85044 (480) 785-043 FAX (480) 785-0651 2500 E. Sunsot Rd. #8 Las vegas, NV 89129 (702) 798-3500 FAX (702) 798-3621

U.S. Filter/Westates Carbon P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### **INORGANICS**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G14118 Extracted: 07/14/05										
Matrix Spike Analyzed: 07/14/2005 (5G1	.4118-MS1) 0.271	0.10	mad	0.250	Source: It	OG0 <b>833-</b> 0	30-125			
Surfactants (MBAS)  Matrix Spike Dup Analyzed: 07/14/2005			mg/l	17,2,3(1	Source: It					
Surfactants (MBAS)	0.299	0.10	mg/l	0.250	ND	120	50-125	10	20	
Batch: 5G15045 Extracted: 07/15/05										
Blank Anatyzed: 07/15/2005 (5G15045-B Suifide	LK1) ND	0.10	ing/!							
LCS Analyzed: 07/15/2005 (5G15045-BS Sulfide	1) 0.567	0.00	org/l	0.560		101	80-120			
Matrix Spike Analyzed: 07/15/2005 (5G1					Source: 10					
Suitide	0.547	0.16	mg/l	0.560	0.010	96	70-130			
Matrix Spike Dup Analyzed: 07/15/2005 Sulåde	(5G15045-MS 0.527	SD1) 0 !0	mg/l	0.560	Source: IO 0 010	OG0959-0 92	70-130	4	30	
Batch: 5G15075 Extracted: 07/15/05										
Blank Analyzed: 07/18/2005 (5G15075-B Total Cyande	LK1) ND	0.025	ing/l							
LCS Analyzed: 07/18/2005 (5G15075-BS Total Cvanide	1) 0.191	0.025	mg/l	0.200		96	90-110			



17461 (Penan Avc., Suite 100 Irvine, CA 92614 (949) 261-1022 FAX (949) 260-3297 1014 E. Copiey Dr., Suite A. Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesaneske Dr., Suite Bost, San Dingo, CA 87123 (858) 505-8598 FAX (455) 505-9689 9830 South 51st St., Suite B-120, Phoenix, AZ 85644 (480) 785-043 FAX (480) 785-085 2520 E. Sunsot Rd. #3, Las Vegas, N7 80120 (702) 738-3520 FAX (702) 799-3621

U.S. Filter/Westates Carbon P.O. Box 3308

Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### **INORGANICS**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G15075 Extracted: 07/15/05										
Matrix Spike Analyzed: 07/18/2005 (5G) Total Cyande	5075-MS1) 0.214	0.025	mg/I	0.200	Source: IC	OG0684-0	0 <b>2</b> 70-115			
Matrix Spike Dup Analyzed: 07/18/2005	•	•			Source: 10					
Total Cyanide	0.188	0.025	mg/	0.200	ND	94	70-115	13	15	
Batch: 5G19066 Extracted: 07/19/05										
Blank Analyzed: 07/19/2005 (5G19066-B Total Kinidah) Nitrogen	LK1) ND	C. <b>5</b> 0	:ng/l							
LCS Analyzed: 07/19/2005 (5G19066-BS Tota' Kieldahi Nurogen	1)	0.50	mg/i	(0.0		115	85-120			
LCS Dup Analyzed: 07/19/2005 (5G1906 Tota-Kjeldahl Nitrogen	6-BSD1) 11.2	0.50	mg/l	10.0		112	85-120	3	15	
Matrix Spike Analyzed: 07/19/2005 (5G1	9066-MS1)				Source: 10	)G0863-0	2			
Total Kjo'dald Nitrogen	11.8	0.50	mg/l	110	0.84	110	\$5-120			
Matrix Spike Dup Analyzed: 07/19/2005	(5G19066-M)	SDI)			Source: 10					
Total Kjeldahi Nitrogen	12.3	0.50	mg/l	10.0	0.84	115	85-120	1.	15	
Batch: 5G20078 Extracted: 07/20/05										
Blank Analyzed: 07/20/2005 (5G20078-B	LK1)									
Oil & Grease	ND	5 0	mg/l							



17461 Derian Avel, Suite 100, Irvine, CA 92314 (949) 201-1022 FAX (949) 260-3297 1014 El Cooley Dr., Suite A., Colton, CA 97324 (909) 370-4657 FAX (909) 270-1046 9484 Chasapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689 9830 South 51st St., Suite B-120, Phoenix, AZ 65044 (480) 785-0043 FAX (480) 785-0651 2500 El Surisel Rd. #3, Lasi Vegas, NV 86120 (700) 798-3520 FAX (702) 798-350.1

U.S. Filter/Westates Carbon P.O. Box 3308 Parker, AZ 85344 Attention: Deborah Foster Project ID: TTO

Report Number: IOG0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### INORGANICS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Data Qualifiers
Batch: 5G20078 Extracted: 07/20/05										
LCS Analyzed: 07/20/2005 (5G20078-BS Oil & Grease	16.0 16.0	5.0	mg/l	20.0		80	65-120			M-NRI
LCS Dup Analyzed: 07/20/2005 (5G2007 O. & Grense	<b>'8-BSD1)</b>   5-5	5.0	mg/l	20.0		78	65-120	3	20	
Batch: 5G22080 Extracted: 07/22/05										
Blank Analyzed: 07/22/2005 (5G22080-B Phenels	LK1) ND	01.0	mg/l							
LCS Analyzed: 07/22/2005 (5G22080-BS Phenois	0.508	0.10	mg/l	0.500		102	90-110			
Matrix Spike Analyzed: 07/22/2005 (5G2					Source: 1					
Phenots	0.508	0.10	mg/!	0.500	ND	102	65-155			
Matrix Spike Dup Analyzed: 07/22/2005 Pheno's	(5 <b>G22080-M</b> 9 0.526	S <b>D1)</b> 0.10	mg/i	0.500	Source: It ND	OG090 <b>3-</b> ( 105	08 65-155	3	20	
Batch: 5G22113 Extracted: 07/22/05										
Blank Analyzed: 07/22/2005 (5G22113-B Aranonia-N	LK1) ND	0,50	mg/l							
LCS Analyzed: 07/22/2005 (5G22113-BS Ammonia N	1) 0,993	0,50	mg/l	1 00		99	85-115			



17481 Denah Ave., Suite 100, Irvine CA 92014 (949) 251-1022 FAX (949) 250-3297 1014 E. Cooley Ch., Suite A, Cofton, CA 92324 (909) 370-4667 FAX (909) 370-1046 9484 Chesapeake Dr., Suite 805 San Diego, CA 92123 (858) 505-8596 FAX (858) 505-8599 9830 South 51st St., Suite 3-120, Phaerix, AZ 65044 (480) 785-0043 FAX (480) 785-0551 2520 F. Suinset Rd. #3, Las Vegas, NV 80120 (702) 798-9520 FAX (702) 798-9521

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: 10G0857

Sampled: 07/13/05

Received: 07/14/05

#### METHOD BLANK/QC DATA

#### INORGANICS

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: 5G22113 Extracted: 07/22/05										
Matrix Spike Analyzed: 07/22/2005 (5G2	22113-MS1)									
Ammonu-N	1 74	9 50	mg/i	2.00	MD	87	75 !25			
Matrix Spike Dup Analyzed: 07/22/2005		Source: I	OG0857-0	1						
Ammonia-N	1.83	0.50	mg/!	2.00	ND	92	75-125	5	15	



17461 Derian Ave., Suite 190, Irvine, CA 92814 (949) 261-1022 FAX (949) 260-3297 1014 E. Cooley Dr., Suite A. Collon, CA 92324 (909) 370-4667 FAX (809) 370-1046 9484 Chesaceako Dr., Suite 865, San Diego, CA 92123 (808) 505-3596 FAX (808) 505-9689 9890 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0651 2520 E. Sunset Rd. 43, Cas Vogas, NV 83120 (702) 788-3620 FAX (702) 788-5501

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Fester

Project ID: T10

Report Number: 10G0857

Sampled: 07/13/05 Received: 07/14/05

#### METHOD BLANK/QC DATA

#### DIQUAT/PARAQUAT (EPA 549.2)

		Reporting		Spike	Source		%REC		RPD	Data
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Qualifiers
Batch: C5G1809 Extracted: 07/18/05										
Blank Analyzed: 07/18/2005 (C5G1809-I	BLK1)									
Diquat	ND	4.0	ug/l							
Panageat	ХD	20	ug/i							
LCS Analyzed: 07/18/2005 (C5G1809-B3	§1)									
Diquat	32.5	4.0	ug/i	40.0		81	70-120			
Paraquat	32.7	20	ug/l	40.0		82	65-120			
LCS Dup Analyzed: 07/18/2005 (C5G180	19-BSD1)									
Dispos	32.7	4.0	ug/l	40.0		82	70-120	!	20	
Paraosau	33.1	20	ug/i	40.0		8.3	65-120	!	20	
Matrix Spike Analyzed: 07/18/2005 (C5C	(1809-MS1)				Source: C	OG0352-	01			
Diopat	34.8	4.0	ug/J	46.0	ND	87	70-120			
Paraquat	35.5	20	ug/j	40.0	ND	89	65-120			



17461 Deriah Ave., Suite 100, Irvina, CA 97614 (949) 251-1022 FAX (949) 250-3297 1014 E. Cooley Dr., Suite A, Colton, CA 92224 (909) 370-4667 FAX (969) 370-1046 9454 Chesapeake Dr., Suite 865, San Diego. CA 92123 (859) 505-3536 FAX (858) 505-9689 9930 South 51st St., Suite B-120, Pincenix AZ 85044 (480) 785-0043 FAX (480) 785-0851 8620 E. Surski Rd. #3, Les Vegas. NV 89100 (702) 798-3620 FAX (702) 798-3631

U.S. Filter/Westates Carbon

P.O. Pox 3308 Parker, AZ 85344

Attention: Deborah Foster

Project ID: TTO

Report Number: TOG0857

Sampled: 07/13/05

Received: 07/14/05

#### DATA QUALIFIERS AND DEFINITIONS

Cabbration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
 Laboratory Control Sample recovery was above the method control limits. Analyte not detected, data not impacted.

M-3 Results exceeded the linear range in the MS/MSD and therefore are not available for reporting. The batch was

accepted based on acceptable recovery in the Blank Spike (LCS).

M-HA Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery

information. See Blank Spike (LCS).

M-NRI There was no MS/MSD analyzed with this batch due to insufficient sample volume. See Blank Spike/Blank Spike

Duplicate,

рН р∃ ∈ 7

R-2 The RPD exceeded the method control limit

RL-3 Reporting limit raised due to high concentrations of non-target analytes.

AD Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.

RPD Relative Percent Difference

#### ADDITIONAL COMMENTS

#### For 1,2-Diphenylhydrazine:

The result for 1,2-Diphenylhydrazine is based upon the reading of its breakdown product. Azobenzene.



17461 Denan Ave., Suite 100, Irvine. OA 92614 (949) 261-1022. FAY (949) 260-3297. 1014 E. Crofey Or., Suite 4, Cohon. OA 92224 (909) 370-4667. FAY (509) 370-1046. 94tt4 Chesapeake Dr., Suite 605. San Drego. OA 92103 (868) 505-8596. FAX (855) 505-t/618. 9330 South 51st St., Suite R 120, Phoenix, AZ 85044. (480) 785-0043. FAX (480) 785-0851. 2520 E. Sunset Rd. #3, Las Vrgas. NV 89120. (702) 798-3820. FAX (702) 798-3601.

U.S. Filter/Westates Carbon

P.O. Box 3308 Parker, AZ 85344

Attention: Deborah Fester

Project iD: TTO

Report Number, IOG0857

Sampled: 07/13/05

Received: 07/14/05

#### Certification Summary

#### Del Mar Analytical, Irvine

Matrix	Nelae	Californ		
Water	X	Х		
Water	X	Х		
Water	X	X		
Water	X	X		
Water	X	X		
Water	Х	Х		
Water	X	X		
Wate:	X	X		
Water	X	X		
Water	X	X		
Water	X	X		
Water	X	X		
Water	X	X		
Water	X	X		
Water	N/A	N/A		
Water	X	Х		
Water		X		
Water	X	Х		
	Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water Water	Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X           Water         X		

Nevada and NELAP provide analyte specific accreditations. Analyte specific information for Del Mar Analytical may be obtained by contocring the kilogation or visiting our website at www.dmalabs.com.

#### Subcontracted Laboratories

Del Mar Analytical - Colton California Cert #1/69, Arizona Cert #7/26062 Nevada Cert #0/4-242

1014 E. Cooley Drive, Suite AB - Colton, CA 92324

Samples: 1000857-01

Test America, Inc.

2960 Foster Creighton Drive - Nashville, TN 37204

Analysis Performed 8151A (Herbicides)

Samples: EOC 0857-01



1014 E. Cooley Dr., Suite A. Colton, CA 92324 Ph (909) 370-4667 Fax (909) 370-1046

9484 Chesapsake Drive, Suite 805, San Diego, CA 92123 Ph (619) 505-9596 Fax (619) 505-9689

9830 South 51st Street, Suite B-120, Phoenix, AZ 85044 Ph (480) 785-0043 Fax (480) 785-0851 2520 E. Suneel. Rd., Suite #3, Lee Vegas, NV 89120 Ph (702) 798-3820 Fax (702) 798-3821

#### **SUBCONTRACT ORDER - PROJECT # IOG0857**

SENDING LABORATORY:

Del Mar Analytical, Irvine

17461 Derian Avenue. Suite 100

Irvine, CA 92614 Phone: (949) 261-1022

Fax: (949) 261-1228

Project Manager: Kathleen A. Robb

RECEIVING LABORATORY:

Del Mar Analytical - Colton 1014 E. Cooley Drive, Suite AB

Colton, CA 92324

Phone: (909) 370-4667 Fax: (909) 370-1046

Analysis	Expiration	Due	Comments	
Sample ID: 10G0857-01	Water Sampled	: 07/13/05 14:00		
549.1-Diquat	07/20/05 14:00	07/25/05 12:00	std TAT- sub to DMAC-see comments	
Containers Supplied:				
L Brown Poly (10G)8.	57-01V)			

All containers intact: Yes No Custody Seals Present: Yes No	SAMPLE INTECRITY:  Sample labels/COC agree: Yes No Samples Preserved Property: Yes No	Samples Received On Ice:: Samples Received at (temp):	Yes   No
Va Banli	L. Greco	7-14/-05	存"
Released By Anthony Greco	Date Time Received By 7-14-05 150-0 Apples	m 1/H/as	Time
Released By	Date Time Received By	Date	Time Page 1 of 1



17461 Derian, Irvine, CA 90614 (949). 22 FAX (949) 260-329, 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (902) 375-4646 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (856) 505-8596 FAX (856) 505-9680 9830 Soith 51st St., Sinte B-120, Phoemiz AZ 85044 (480) 785-0643 FAX (480) 785-0643 FAX (480) 785-0643 FAX (470) 798-3621

### **CHAIN OF CUSTODY FORM**

Client Name/Address:		P.(	). #:		ANALYSIS REQUIRED											
		Pro	oject:													
											-	e.				
1																
Project Manager/Phone No	umber:	Ph	one Number	r:							-				•	
Sampler:	1	Fa	x Number:									. • • • • • •				
Sample Description	Sample Matrix	Container Type	# of Containers	Sampling Date/Time	Preservation			1	L	L	·				Special Instructions	
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#### ATTACHMENT G

# EXCERPT FROM 2003 WORKING DRAFT RISK ASSESSMENT WORKPLAN FOR THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REACTIVATION FACILITY:

APPENDIX A
PROTOCOL FOR PROVIDING INFORMATION
FROM THE COLORADO RIVER INDIAN TRIBES TO WESTATES
(PREPARED BY THE COLORADO RIVER INDIAN TRIBES)

EXCERPT FROM 2003 WORKING DRAFT RISK ASSESSMENT WORKPLAN FOR THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REACTIVATION FACILITY

# APPENDIX A PROTOCOL FOR PROVIDING INFORMATION FROM THE COLORADO RIVER INDIAN TRIBES TO WESTATES (Prepared by the Colorado River Indian Tribes)

Westates and/or its Consultants need to provide a written request for risk assessment information to the Colorado River Indian Tribes (CRIT) Attorney Generals (AG) office or its designee.

The CRIT AG office will process the request and determine the disposition of the information requested. The disposition may include one of the following:

- a) Non-sensitive standard EPA guidance information
- b) Non-sensitive site-specific information
- c) Sensitive site-specific information

Information requests that qualify under conditions (a) non-sensitive standard and/or (b) non-sensitive site specific, will be processed as follows:

- (1) If the response to Westates request is to be in writing, the CRIT AG office or its designee will determine the appropriate CRIT department or person to respond to the information request. The written response will be provided to the CRIT AG office for review and will be submitted by CRIT AG office to Westates.
- (2) If response is to be verbal (i.e., telephone conversation, meeting, etc.), the CRIT AG office will determine the appropriate CRIT department or person for disseminating information. A representative of the CRIT AG office or their designee must be present for all communications. No direct contact can be made without a representative of the AG office present. The CRIT AG office or their designee will provide a written summary of phone call or meeting to Westates.
- (3) If the requested information qualifies under condition (c) sensitive site-specific, the AG office will process the information according to the protocol listed under separate cover, entitled, "Process for Evaluating Human and Ecological Health Risks Specific to the Colorado Indian River Tribes". This is a confidential process designed to achieve the following two objectives:
  - (a) To ensure protection of human health and ecological risks specific to cultural, medicinal, and/or spiritual practices of the Colorado River Indian Tribes that may be affected by the Westates facility operations, and
  - (b) To ensure the confidentiality of this sensitive information within the tribes.

The CRIT AG office or its designee will prepare an appropriate and relevant written response to Westates for inclusion into all risk assessment documents. This response is intended to satisfy any federal or state risk assessment requirements for the Westates facility operations.

Finally, the intent of this protocol is to ensure that Westates' information needs are met in an appropriate and timely manner and that the CRIT AG office is completely aware of any information the tribe may provide to Westates and/or its consultants. The CRIT AG office will be responsible for obtaining Tribal Council permission for all information requests.

#### ATTACHMENT G

EXCERPT FROM 2003 WORKING DRAFT RISK ASSESSMENT WORKPLAN FOR THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REACTIVATION FACILITY

# PROCESS FOR EVALUATING HUMAN AND ECOLOGICAL HEALTH RISKS SPECIFIC TO THE COLORADO RIVER INDIAN TRIBES

(Prepared by the Colorado River Indian Tribes)

The US EPA guidance to be used by Westates in conducting risk assessment for the facility is a prescriptive document with a standard set of exposure scenarios to be evaluated for potential human health and ecological risk. It is important that exposures to the tribes specific to cultural, medicinal, and/or spiritual activities or special dietary needs be evaluated in the risk assessment. It is equally important that these sacred practices remain confidential.

In order to adequately assess potential public health and ecological risk to the tribes and maintain strictest confidentiality, the following process will be used.

#### Human Health

- ARCADIS risk assessor will design a series of questions to determine potential
  exposures for CRIT members that may not be accounted for in traditional USEPA
  risk assessment.
- 2. Information for this assessment of human health risks to be collected via a confidential questionnaire.
- 3. A follow up telephone conversation to clarify information and/or to seek additional information will be conducted after receipt of the questionnaires and preliminary review. This follow up will include the ARCADIS risk assessor, and a knowledgeable tribe member or designee. The follow up conversation will be conducted, as appropriate, for each tribe.
- 4. Human health information to be gathered from each of the tribes, to include, but not limited to the following:
  - plants, soil, animals used in cultural, medicinal, spiritual practices or special dietary needs
  - type of potential exposure during these practices, ie, ingestion, inhalation, and/or dermal contact with plants, soil, animals
  - how often/how long is the exposure (ie, 2 hours a day, every day, or once a year, etc.)
  - how much plant, soil, animal matter is used in the practice (one plant, two
    plants, only the roots, only leaves, only the animal hide, handful of soil, etc.)
  - type plants and/or animals used in practices
  - multiple exposures, i.e., is an individual likely to be exposed to one or more of these practices.
- 5. Information to be collated and compared to risk exposure calculations already prescribed in USEPA guidance and/or developed by Westates to determine the following:
  - Is the tribe specific exposure accounted for in the existing EPA guidance?

#### ATTACHMENT G

#### EXCERPT FROM 2003 WORKING DRAFT RISK ASSESSMENT WORKPLAN FOR THE SIEMENS WATER TECHNOLOGIES CORP. CARBON REACTIVATION FACILITY

- If not, and the exposure is significant, can existing EPA guidance be modified?
- If not, exposure equations based on the information from the tribes will be created to assess exposure.
- 6. All information collected will be held in strictest confidence and returned to the tribe after all final risk assessment evaluations have been made.
- 7. It will not be necessary for assessment procedures for exact rituals or medicinal recipes be disclosed even to ARCADIS risk assessors.
- 8. Exposure to receptors due to subsistence fishing, hunting, and agriculture developed by Westates consultants will be reviewed by ARCADIS risk assessor to make sure full exposure is accounted for in the risk assessment.
- 9. ARCADIS will prepare text for inclusion in the risk assessment. This text is will summarize potential risks relative to tribal-specific cultural, medicinal, and/or spiritual activities or special dietary needs evaluated in the risk assessment. This text will be general and reviewed by Tribal council prior to release to Westates.

#### **Ecological Health**

- ARCADIS risk assessor to work with tribal environmental officials to identify state and federal threatened and endangered species and species of special concern. The precise locations of prime habitat, nesting areas, etc. do not need to be provided even to ARCADIS. However, all potential critical habitat and threatened and endangered species and species of special concern, need to be identified.
- 2. ARCADIS will help the tribe prepare confidential survey information to be used in the ecological risk assessment. This may include, but not limited to the following:
  - Review the list of state and federal Threatened and Endangered Species/Species of Special Concern to determine if said species exist on tribal lands
  - Determine nature and extent of critical habitat and/or threatened and endangered species/species of special concern
  - Identify any flora/fauna species of specific tribal concern relative to cultural, medicinal, spiritual practices for each tribe.
  - Determine if existing ecological risk assessment will address all of these special ecological receptors
  - Identify methods for addressing these receptors, e.g. surrogate species, etc. to be included in the ecological risk assessment.
- 3. ARCADIS will prepare text for inclusion in the risk assessment. This text is will summarize potential risks to threatened and endangered species, species of special concern, and any tribal-specific species relative to cultural, medicinal, and/or spiritual activities. This text will be general and reviewed by Tribal council prior to release to Westates.

## Process Flow Chart (Prepared by the Colorado River Indian Tribes)

