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Summary of Transuranic Waste Characterization Programs at the INEL (1979–Present)

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ABSTRACT

This report summarizes past and current Idaho National Engineering Laboratory (INEL) transuranic waste characterization programs with discussion of program purpose, type of data collected, and data references. Detailed information concerning past characterization efforts can be obtained from the references. Summary information has been presented for the current characterization program.

EXECUTIVE SUMMARY

The Idaho National Engineering Laboratory (INEL) has conducted several different transuranic (TRU) waste characterization programs and studies since 1979. These characterization programs have been performed to increase knowledge about the waste in support of long-term management of the waste until final disposal. Over the time that these characterization activities have been conducted, waste management requirements have been evolving to reflect the changing regulatory and technical environment. The ongoing programs have reflected this changing environment with each program having a different purpose, a different set of requirements, and a different set of associated characterization activities. Specific characterization activities have included process knowledge report preparation, real time radiography (RTR) examinations, radioassay (RA) examinations, drum headspace gas sampling, inner bag gas sampling, visual examinations, and core sampling and analysis.

This report will describe the programs involved in data collection activities and provide references for existing summarized data and key TRU waste information sources, with summarized data for the current Waste Isolation Pilot Plant (WIPP) Experimental Test Program (WETP). The four programs detailed in this report are the Characterization and Categorization program, the TRU Waste Sampling Program, waste examination operations, and the WETP.

The Characterization and Categorization program was developed and implemented to confirm that drums shipped from Rocky Flats contained the assigned item description code (IDC). The data collection was not conducted under a specific quality control program and was basically a visual examination, with a gas sample collected from the drum bag. This program examined 70 drums during 1979 and 1980.

The main emphasis in the TRU Waste Sampling Program was on certification issues and analysis of inorganic gases (hydrogen). During the course of the two-year program, 209 containers (drums and boxes) were examined with the experimental RTR system and 212 drums with gas headspace sampling. Solid samples were collected and analyzed for basic compositional analysis on 45 containers.

During the production waste examination operations at the Stored Waste Examination Pilot Plant (SWEPP) from 1985–1989, the main emphasis was certification of drums for shipment to WIPP. During this time, 17,252 containers were examined at SWEPP. A SWEPP examination consisted of RTR and PAN radioassay. Eighty-one of the containers certified during this period were shipped to Rocky Flats and visually examined. The visual examination at Rocky was designed to be a confirmation of the certification process at SWEPP.

The WIPP Experimental Test Program (WETP) encompasses three different waste characterization programs that have been conducted at the INEL since 1991. The three programs discussed are referred to in this document as the Bin Program, the WIPP Waste Characterization Program (WWCP), and the TRU Waste Characterization Program (TWCP). Each program had a different set of objectives and different quality control documentation. However, the quality control has been designed and implemented so that data collected from the first drum in the Bin Program is comparable to data collected from drums in the TRU Waste Characterization Program (TWCP). All drums examined as part of the WETP will have been through RTR, RA, and headspace gas sampling.

A portion of the drums are also shipped to Argonne National Laboratory - West (ANL-W) for visual examinations and core sampling.

The Bin Program was designed to thoroughly characterize a set of drums and load the known contents into specially designed experimental bins for shipment to WIPP to support underground radioactive tests. Over the course of the program, the INEL examined 33 drums. During the visual examination at ANL-W, one drum was found to contain a small can (~8 oz) of liquid and was rejected from inclusion in the program. The remaining 32 drums were loaded into 7 experimental test bins. Changes in philosophy concerning the need and justification for underground radioactive tests at WIPP resulted in a cancellation of the program in the fall of 1993.

The emphasis in the WIPP Waste Characterization Program (WWCP) was on collecting information for the volatile organic compound (VOC) transport model. This model was proposed and developed to provide an alternative to sampling every inner bag in every drum prior to shipment to WIPP. The intention was to develop a model that could predict the highest potential concentration within an inner bag based on a single sample taken from the drum headspace. Over 500 drums were characterized as part of this program. Forty-three of these drums were shipped to ANL-W for visual characterization and inner bag gas sampling.

The TWCP will emphasize characterizing the waste in terms of hazardous constituents as defined by the Resource Conservation and Recovery Act (RCRA). Core sampling of solidified waste forms will allow classification of waste streams as either hazardous or nonhazardous for the target analytes. It is projected that approximately 1,200 drums will be characterized during the course of the TWCP. Of these, approximately 430 drums will receive visual characterization and about 310 drums will be core sampled.

The data collected to date supports the existing process knowledge of the various waste forms. This data refines and enhances what is known about the waste and gives credence to process knowledge for processes that were developed and conducted prior to many of the regulations that exist today. Ongoing characterization activities are designed for continuing support of the need to establish the acceptability of waste for eventual shipment and disposal at WIPP.

CONTENTS

ABSTRACT iii

EXECUTIVE SUMMARY v

ACRONYMS ix

1. INTRODUCTION 1-1

1.1 Basic Definitions 1-1

1.2 Characterization and Categorization (1979–1980) 1-6

1.3 TRU Waste Sampling Program (1983–1985) 1-6

1.4 Production Waste Examination (1985–1989) 1-8

1.5 WIPP Experimental Test Program (1991–1998) 1-9

1.5.1 Bin Program 1-9
1.5.2 WIPP Waste Characterization Program 1-10
1.5.3 TRU Waste Characterization Program 1-11

1.6 Discussion 1-13

2. RTR EXAMINATIONS 2-1

3. VISUAL EXAMINATIONS 3-1

4. HEADSPACE GAS ANALYSIS RESULTS 4-1

5. SOLID SAMPLE ANALYSIS RESULTS 5-1

6. RADIOASSAY ANALYSIS RESULTS 6-1

7. REFERENCES 7-1

Appendix A—Item Description Code Definitions A-1

Appendix B—Summary of Gas Headspace Analysis Results B-1

TABLES

1-1. Summary of INEL TRU Waste Characterization Programs 1-3

1-2. Key INEL-stored TRU waste characterization information 1-1

2-1. Changes in category based on RTR examination 2-2

2-2. Summary weight estimates for homogenous waste forms from Bin Program 2-3

3-1. Weight estimates based on visual examination during the Bin Program 3-2

5-1. Proposed solid sampling for TWCP 5-1

5-2. Total volatile organic compounds target analyte list 5-2

5-3. Semivolatile organic compound target analyte list 5-3

5-4. Total metas target analyte list 5-4

6-1. Radioassay data from the WETP 6-2

ACRONYMS

ANL-W	Argonne National Laboratory-West
CNT	count
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
HFEF	Hot Fuel Examination Facility
IDC	Item Description Code
INEL	Idaho National Engineering Laboratory
IR	infrared
NMD	No Migration Determination
PAN	Passive Active Neutron (assay system)
QAPP	Quality Assurance Program Plan
RA	radioassay
RCRA	Resource Conservation and Recovery Act
RTR	real-time radiography
RWMC	Radioactive Waste Management Complex
SWEPP	Stored Waste Examination Pilot Plant
TIC	Tentatively Identified Compound
TRU	Transuranic
TWCP	TRU Waste Characterization Program
U.S.	United States
VOC	Volatile Organic Compound
WAC	Waste Acceptance Criteria
WCC	Waste Characterization Chamber
WETP	WIPP Experimental Test Program
WIPP	Waste Isolation Pilot Plant
WIPP WAC	WIPP Waste Acceptance Criteria
WWCP	WIPP Waste Characterization Program

Summary of Transuranic Waste Characterization Programs at the INEL (1979–Present) (Draft)

1. INTRODUCTION

The Idaho National Engineering Laboratory (INEL) has conducted several different transuranic (TRU) waste characterization programs and studies since 1979. These characterization programs have been performed to increase knowledge about the waste in support of long-term management of the waste until final disposal. Over the time that these characterization activities have been conducted waste management requirements have been evolving to reflect the changing regulatory and technical environment. The ongoing programs have reflected this changing environment with each program having a different purpose, a different set of requirements, and a different set of associated characterization activities. Specific characterization activities have included process knowledge report preparation, real time radiography (RTR) examinations, radioassay (RA) examinations, drum headspace gas sampling, inner bag gas sampling, visual examinations, and core sampling and analysis. Table 1-1 summarizes data collection for each of these activities. Note that this includes proposed characterization through 1998.

As Table 1-2 shows, a wide range of characterization information has been developed since 1979. This report will emphasize the main programs that were developed and implemented to collect new characterization data. Individual sections of the introduction will describe the data collection activities and specific references for the Characterization and Categorization program, the TRU Waste Sampling Program, waste examination operations, and the Waste Isolation Pilot Plant (WIPP) Experimental Test Program (WETP). Additional sections of this document will provide summary data associated with real time radiography (RTR), visual examinations, headspace gas sampling and analysis, core sampling and analysis, and radioassay (RA). The summarized data is mainly data collected during the WETP. Data from the other programs is available in the references. At the present time there is no actual data in the solid sampling and analysis section. Available solid sample data will be incorporated into the final version of this report.

1.1 Basic Definitions

This section contains basic descriptions and clarifications of waste characterization activities discussed throughout this document.

Real Time Radiography (RTR): The RTR system at the Stored Waste Examination Pilot Plant (SWEPP) allows a specially trained technician to nonintrusively examine the contents of a container using x-ray technology. Since data collected using the RTR system is largely subjective, the skill level of the operator is crucial to the consistency and quality of the data. Historically, the RTR system was developed and used as a certification tool. This means that the emphasis of the RTR system has been on certification issues such as estimating quantities of free liquids and particulates, verifying the content code and identifying

the presence of possible pressurized containers. The majority of available RTR examination data focuses on certification issues. The WIPP Experimental Test Program introduced the concept of using RTR as a characterization tool. In addition to basic certification, the RTR system is now used to quantify actual materials contained in 55 gallon drums for a limited number of homogeneous content codes.

Table 1-1. Summary of INEL TRU Waste Characterization Programs.

Program	RTR exams.	Visual exams.	Headspace gas sampling/ analysis	Inner bag gas sampling/ analysis	Solid sampling/ analysis	Passive active neutron assay	Gamma assay
1979/1980 (Characterization & Categorization)	N/A	70 drums	70 drums	N/A	N/A	N/A	N/A
1983-1985 (TRU Waste Sampling Program)	209 containers	209 containers	212 drums	N/A	45 containers	N/A[a]	N/A
1985-1989 (Production Mode/SWEPP Sampling Program)	17,252 containers	81 containers	N/A	N/A	N/A	17,252 containers	N/A
WIPP Experimental Test Program							
1991-1993 Bin Program	33 drums	33 drums	33 drums	33 drums	N/A	33 drums	N/A
1992-1995 WIPP Waste Characterization Program	521 drums	43 drums	728[b] drums	43 drums	N/A	521 drums	270 drums
1995-1998 (TRU Waste Characterization Program)							
To Date	24 drums	24 drums	24 drums	24 drums	24 drums	24 drums	24 drums
Projected	1197 drums	430 drums	1197 drums	430 drums	310 drums	1197 drums	1197 drums
Totals:	**19,212[c] cont.**	**889 cont.**	**2,240 cont.**	**406 cont.**	**355 cont.**	**19,003 cont.**	**1467 drums**

[a] All containers were reassayed at Rocky Flats.
[b] Some of these drums will ultimately be used in the TWCP.
[c] To Date drums are not part of the the final totals since these are included in the projected numbers.

Table 1-2. Key INEL Stored TRU waste characterization information.

Years	Program description or reference
1979	Characterization and Categorization Study of TRU waste for EGG
1981	WM-F1-81-015, Idaho National Engineering Laboratory Stored Transuranic Waste Characterization: Nonradiological Hazards Identification
1982	WM-F1-82-021, Content Code Assessments for INEL Contact-Handled Stored Transuranic Waste
1985	EGG-WM-6503, TRU Waste Sampling Program: Volume I—Waste Characterization
1985	EGG-WM-6503, TRU Waste Sampling Program: Volume II—Gas Generation Studies
1985	WM-PD-85-014, Waste Characterization for INEL Remote-Handled/Special-Case Stored Transuranic Wastes
1985–89	SWEPP Operations. (Production mode certification)
1988–91	Various Rocky Flats letters concerning hazardous constituents of waste
1989	PSD88-037, Waste Drum Gas Generation Sampling Program at Rocky Flats
1989	EDF RWMC-369, Hazardous Waste Constituents of INEL Contact-Handled Stored Transuranic Waste
1989	EDF RWMC-363, Revision 2, Description of the SWEPP Certified Waste Sampling Program
1990	EDF RWMC-413, Chemical Compatibility of Stored TRU Mixed Waste
1990–94	WIPP Experimental Test Program, which includes: No migration petition QAPP and QAPjP SWEPP Operation Headspace gas Sampling Drum Content Examination Gas generation and transport studies Develop sampling and analytical protocols for sludges
1990	EDF RWMC-421, EPA Hazardous Waste Codes for Transuranic Storage Area (TSA) Item Description Codes. Revision 3 in 1994
1991	WM-PD-88-011-4, Program Plan for Certification of INEL Contact-Handled Stored Transuranic Waste
1993	Transuranic Waste Questionnaire (Non-Rocky Flats Generators)
1993	Low-Level Waste Sampling Program. (Data collection comparable to WIPP Experimental Test Program)
1994	EDF-RWMC-676, Waste Generator Questionnaire
1995	EDF-RWMC-803, Chemical Constituents in Transuranic Storage Area (TSA) Waste
1995	INEL-95/028, Idaho National Engineering Laboratory Code Assessment of the Rocky Flats Transuranic Waste

Visual Examinations:	Visual examinations refer to a variety of activities of physically opening up a container, removing or unpacking the waste, and examining the contents in a systematic fashion. Visual examinations have been used to verify waste form, verify nondestructive examination performed by RTR, measure the size of inner bags, determine physical descriptions, and obtain data on waste acceptance criteria that cannot be determined nondestructively. The objective of the visual examination for each individual program will be discussed in further detail in the appropriate sections.
Headspace Gas Sampling/ Analysis:	Headspace gas sampling and analysis refers to one of two types of possible sampling activities. A gas sample drawn from either the headspace between the drum and 90 ml rigid liner, or from the outermost drum bag is referred to as a headspace gas sample for this paper. The various characterization programs dictated the target analytes. The objectives of the headspace analysis will be discussed with each characterization program as appropriate.
Inner Bag Gas Sampling/ Analysis:	Inner bag gas sampling was first introduced during the initial phases of the WIPP Experimental Test Program to determine the concentrations of gases that might be present within inner layers of containment within the waste containers. The purpose of sampling inner bags is to comply with requirements of the Environmental Protection Agency (EPA) Conditional No Migration Determination (NMD) and to provide data for research projects such as VOC transport modelling and applying various analytical methods to obtain information concerning RCRA hazardous constituents contained in the waste.
Solid Sampling /Analysis:	Solid sampling involves taking a physical sample from a solidified, homogenous waste form (sludges). Unlike gas sampling and analysis, this type of characterization information can be used to determine whether or not a waste should be classified as hazardous. For the TRU Waste Characterization Program (TWCP), the analysis consists of looking for targeted lists of volatile organic compounds (VOCs), semivolatile compounds, and metals.
Passive Active Neutron (PAN) Assay:	The PAN system was developed for use at SWEPP to verify the radioassay data that was supplied by the generator for the drums stored at the Radioactive Waste Management Complex (RWMC). The PAN system quantifies the total amount of TRU activity within a drum, and relative quantities are established based on the isotopic makeup of the waste. Until the introduction of the gamma system, it was assumed that the Rocky Flats waste contained the weapons-grade plutonium mixture produced at Rocky Flats.
Gamma Assay :	The gamma assay system was developed to verify actual radioisotopes present in the waste. It does not provide a total activity, but it does provide relative activities, usually with respect to

Pu-239. The gamma assay measures specific gamma energy spectra and based on attenuation factors, an activity associated with a specific radionuclide can be determined. When used in conjunction with the PAN system, actual quantities of individual isotopes can be established.

1.2 Characterization and Categorization (1979–1980)

References: Luckett, L.L, CSE 81-0022, *Characterization and Categorization Study of TRU Waste for EGG,* April 10, 1981.[1]

Luckett, L.L. and P.T. Faccini, CRD-58, *Characterization and Categorization of TRU Waste for EG&G.*[2]

The Characterization and Categorization program was developed and implemented to confirm that drums shipped from Rocky Flats contained the assigned item description code (IDC), and to determine possible hazardous constituents in the waste. The data collection was not conducted under a specific quality control program and was a visual examination and a gas sample collected from the drum bag. This program examined 70 drums during 1979 and 1980. Appendix A contains a listing of IDCs used throughout the report.

Thirteen of the 70 drums were assigned different IDCs. However, seven of these changes were minor, with drums being reclassified from IDC 336 (Paper and Rags - Moist) to IDC 330 (Paper and Rags - Dry) or conversely from IDC 330 to IDC 336. The six significant changes were as follows.

- 1 drum IDC 004 (Special Setups) to IDC 330 (Paper and Rags - Dry)
- 1 drum IDC 330 (Paper and Rags - Dry) to 480 (Unleached Light Metal)
- 1 drum IDC 480 (Unleached Light Metal) to 330 (Paper and Rags - Dry)
- 1 drum IDC 481 (Unleached Non-ss Metals) to 442 (Leached Raschig Rings)
- 2 drums IDC 481 (Unleached Non-ss Metals) to 339 (Leaded Gloves and Aprons).

The reclassification of six out of 70 drums (9%) is higher than in subsequent programs.

The gas analysis results will not be discussed or presented in any further detail, but can be reviewed in the above reference.

1.3 TRU Waste Sampling Program (1983–1985)

Reference: Clements, Thomas L. Jr. and Donald E. Kudera, *TRU Waste Sampling Program: Volume I--Waste Characterization*, EGG-WM-6503, September 1985.[1]

The TRU Waste Sampling Program was designed with specific objectives and resulted in detailed characterization of the containers involved.

There were four main objectives in the TRU Waste Sampling Program. These were:

1. To provide information on gas generation in newly-generated and stored TRU waste.

2. To evaluate the adequacy of venting/filtering devices (carbon composite filter, Hanford vent clip, and the styrene butadiene gasket) for maintaining safe hydrogen levels in sealed waste drums.

3. To determine the adequacy of the INEL real-time radiography system as a nondestructive certification technique.

4. To examine wastes for compliance with the Waste Isolation Pilot Plant Waste Acceptance Criteria (WIPP WAC).

These objectives were reflected in the data collected by this program, where the main emphasis was on certification issues and inorganic gases (hydrogen). During the course of this two-year program, 209 containers (drums and boxes) were examined with the experimental RTR system and 212 drums were gas headspace sampled. The data collected for this program is available in EGG-WM-6503 and will only be discussed in general terms in this report.

The RTR examinations focused on estimating quantities of free liquids and particulates and identifying the possible existence of compressed gases. RTR also provided a basic description of the waste and packaging, with estimates of quantity of lead, quantity of absorbent material, and packaging efficiency. Using the basic waste form, the volume percent of combustible and pounds of organic material were also estimated.

In this program, visual examination was used to verify the RTR examination and to provide breakdowns on the weights of the individual items located in the waste. Weights were assigned to six broad categories (glass, metal, combustible, sludge, miscellaneous and absorbent) with more specific categories available in each of those categories as follows.

Glass:	Raschig Rings, Other
Metal:	Tantalum, Steel, Stainless Steel, Lead, Other
Combustibles:	Surgeons Gloves, Paper, Cloth, Plastic, Rubber, Other
Sludge:	Organic, Inorganic
Miscellaneous:	Leaded Rubber, Cemented Resins, Molds/Crucibles, Salts, Concrete, Other
Absorbents:	Portland Cement, Oil-Dri

In addition to establishing the weights during visual examination the process was also used to sample and analyze free liquids and to size particulates. This is the most comprehensive visual data available.

The headspace gas sampling and analysis was conducted primarily because of the concern for hydrogen generation within the waste. The original intent of the analysis was to evaluate inorganic gases. The laboratory was also able to provide organic results for constituents occurring at greater than 0.1 vol%. This headspace data is not readily comparable to the headspace data being collected for the WIPP Experimental Test Program (WETP) for a variety of reasons. For example, the drums used in the TRU Sample Program were unvented, whereas current WETP drums have all been vented prior to sampling and analysis. This means that much higher concentrations of H_2 were detected during the TRU Waste Sample Program than is presently the case. Furthermore, present sampling indicates that the majority of the VOCs are detected at less than 0.1 vol% level.

Solid sampling and analysis consisted of pH analyses on 48 sludge drums and an evaluation of the major and minor composition of some drums using infrared (IR) spectroscopy. This compositional analysis indicated bulk compositions of carbonates, nitrates and silicates. Water was a minor constituent in some cases. The pH of the sludges tended to be neutral or slightly basic. These types of analyses are substantially different from the analyses underway for the TWCP, which concentrate on VOCs, semivolatile compounds and total metals. The focus of the TWCP analyses are to determine whether only certain waste streams should be considered hazardous rather than the bulk compositional data provided by the TRU Waste Sample Program.

The radioassay that was conducted during this program was repeated at Rocky Flats with Rocky Flats assay equipment and will not be discussed in this report. The purpose of the reassay was to use a segmented gamma counter for a longer count in order to perform gas generation calculations.

1.4 Production Waste Examination (1985–1989)

References: Arnold, P. M., *EG&G Drum Sampling Program Results FY-1986*, Rockwell International, Rocky Flats Plant, PSD 86-061, October 1986.[4]

Watson, L. E., *EG&G Sampling Program Results FY-1987*, Rockwell International, Rocky Flats Plant, PSD 87-059, December 1987.[5]

Watson, L. E., *EG&G Sampling Program Results FY-1989*, Rockwell International, Rocky Flats Plant, PSD 89-011, February 1989.[6]

During the production waste examination at SWEPP from 1985–1989, the main emphasis of SWEPP operations was certification of drums for shipment to WIPP. During this time, over 17,250 containers were examined at SWEPP. A SWEPP examination consisted of RTR and PAN radioassay. The RTR examination and reporting was the same as that conducted for the TRU Waste Sampling Program. A summary of the number of drums reclassified to a different content code during these examinations is located in Section 2 of this report.

Eighty-one of the containers certified during this period were shipped to Rocky Flats and visually examined. The visual examination at Rocky was designed to be a confirmation of the certification process at SWEPP. Gas sample collection and analysis, solid sample analysis, and weighing individual items were not part of the routine examination. Results of these visual examinations and comparisons to the corresponding RTR examinations are presented in the references cited at the beginning of this section.

1.5 WIPP Experimental Test Program (1991–1998)

The WIPP Experimental Test Program (WETP) encompasses three different programs that have been conducted at the INEL since 1991. Each program has had a different set of objectives and different quality control documentation. However, the quality control has been designed and implemented so that data collected from the first drum in the Bin Program is comparable to data collected from drums in the TRU Waste Characterization Program (TWCP).

The main characterization techniques utilized are RTR, PAN radioassay, gamma assay, headspace gas sampling and analysis, visual examination, and core sampling and analysis. The programs follow rigorous quality assurance/quality control practices as specified by Quality Assurance Program Plans and as implemented by facility specific quality assurance project plans and procedures. All waste characterization data undergoes three levels of validation including independent review at the data generation facility, validation and quality assurance oversight at the INEL project level, and a final review by WIPP personnel in the final reported form. Copies of all data reported to WIPP are maintained by the TRU Waste Department.

1.5.1 Bin Program

References: U.S. Department of Energy, *Quality Assurance Program Plan for the Waste Isolation Pilot Plant Experimental Waste Characterization Program*, Revision 1, Carlsbad Area Office, DOE/EM/48063-1, July 1991.[7]

The Bin Program was designed to thoroughly characterize a set of drums and load the known contents into specially designed experimental bins for shipment to WIPP to support underground radioactive tests. Over the course of the program, the INEL examined 33 drums. During the visual examination at ANL-W, one drum was found to contain a small can (~8 oz) of liquid and was rejected from inclusion in the program. The remaining 32 drums were loaded into 7 experimental test bins. Changes in philosophy concerning the need and justification for underground radioactive tests at WIPP resulted in a cancellation of the program in the fall of 1993.

In addition to the typical RTR certification examination, the Bin Program added the additional requirement for estimated weights of homogeneous waste forms. This was to be accomplished by placing the estimated weight of a given item into one of the following categories:

- Cellulosics
- Plastics

- Rubber
- Corroding metal/steel
- Corroding metal/aluminum
- Noncorroding metal
- Solid inorganics
- Inorganic sludges
- Cements
- Other organics.

In practice this means that estimated quantities and types of packaging material, with absorbents, are recorded by an experienced SWEPP operator. Weights of various types of packaging material are known, so the weights of the identified packaging items and estimated absorbent weights are subtracted from the gross weight of the drum. The remaining difference is the weight of the waste in the drum. If the remaining waste is all one material, then the weight of that material can be estimated with a reasonable amount of accuracy. Section 2 of this report compares weights estimated using RTR data to weights established during the visual examination for a limited number of homogeneous waste drums.

The visual examination emphasized weighing individual inner bags to establish weights of the above categories for all the waste loaded into a given bin. Section 3 of this report provides summary data for the 33 drums examined during the Bin Program.

Drum bag headspace gas samples and inner bag gas samples were collected from these drums prior to bin loading. The samples were analyzed for organic and inorganic gases with quality assurance and quality control conducted according to the reference cited at the beginning of the section. The program-required quantitative limit for most VOCs was 1 part per million by volume (ppmv).

All drums for the Bin Program were assayed using the passive active neutron (PAN) system.

1.5.2 WIPP Waste Characterization Program

References: EG&G Idaho, *Quality Assurance Project Plan for the INEL WIPP Waste Characterization Program*, EGG-WM-10667, July 15, 1994.[8]

Connolly, M. J., etc., *Position for Determining Gas Phase Volatile Organic Compound Concentrations in Transuranic Waste Containers*, INEL-95/0109, Draft, March 1995.[9]

Liekhus, Kevin J., *Characterization of Void Volume VOC Concentration in Vented TRU Waste Drums-Final Report*, INEL-94/0252, December 1994.[10]

The emphasis in the WIPP Waste Characterization Program (WWCP) was collecting information for the volatile organic compound (VOC) transport model. This model was proposed and developed to provide an alternative to sampling every inner bag in every drum prior to shipment to WIPP. The intent was to develop a model that could predict what the highest potential concentration within an inner bag would be based on a single sample taken from the drum headspace.

The RTR examinations were essentially the same as those conducted for the Bin Program.

During the visual examination, dimensions of the inner bags were recorded for the VOC transport model as quickly as possible. Inner bags were not weighed. However, physical descriptions of individual items of waste within each of the drums are available.

During the WWCP, drum gas headspace sampling became routine for every drum examined. Drum headspace samples are the most convenient type of sample to collect from the drums at the Radioactive Waste Management Complex (RWMC) and are now available on more drums (~750) than any samples collected in the past. This number is continuing to grow and will become larger as the drum venting facility comes on-line and drum headspace samples are routinely collected and analyzed as drums are vented. Section 4 contains summary data on the drum headspace samples collected and compiled to date.

Inner bag gas samples were collected on the drums that underwent visual examination.

All drums characterized during the WWCP were radioassayed using the PAN system. The WWCP introduced the gamma assay system, and many of the drums were also assayed using the gamma system. Thus it was determined that many of the sludge drums contain U-235, which was unexpected based on the original assay information provided by Rocky Flats. However, examination of the processes used at Rocky Flats does indicate that U-235 should be present in many of the sludge drums. It is not clear why this information was not included in the original assay data.

1.5.3 TRU Waste Characterization Program

Reference: U.S. Department of Energy, *TRU Waste Characterization Quality Assurance Program Plan*, Revision 0, Carlsbad Area Office, April 30, 1995.[11]

This most recent program is in the beginning stages of data collection, validation, and reporting. As a result there is nothing compiled to date on this program. The TWCP will emphasize characterizing the waste in terms of hazardous constituents as defined by RCRA. Core sampling of solidified waste forms will allow classifications of waste streams as either hazardous or nonhazardous for the target analytes. Waste streams are being sampled such that variations in waste streams should be identifiable based on the year that the waste was packaged.

In addition to certification issues, the RTR and visual examinations will again be focusing on identifying the weights of items within the waste. For this program, the following categories will be used:

- Iron-based Metals/Alloys
- Aluminum-based Metals/Alloys
- Other Metals
- Other Inorganic Materials
- Cellulosics
- Rubber
- Plastics (waste materials)
- Organic Matrix
- Inorganic Matrix
- Soils
- Steel (packaging material)
- Plastics (packaging material).

RTR will be conducted on all drums. Only a portion of the drums will undergo visual examination.

Headspace gas sampling and analysis will continue with drum headspace gas sampling, drum bag gas sampling and inner bag sampling. Program-required detection limits will be relaxed to some extent to allow the use of new cost-saving technologies. Drum headspace gas samples will be collected from all drums. Only those drums selected for visual examination at ANL-W will have drum bag samples and inner bag samples collected and analyzed.

Solid sampling and analysis is being implemented in the TRU Waste Characterization Program. The core sampling will allow classifications of waste streams as hazardous or nonhazardous for the target analytes. Only a portion of the drums characterized in the TWCP will undergo solid sampling and analysis at ANL-W. Section 6 summarizes the projected solid sampling and analyses. The analyses will consist of identifying target lists of VOCs, semivolatile compounds, and total metal analyses. Actual analyses results will be presented at a later date.

At the present time it is expected that PAN and gamma analysis will be conducted on all drums that are part of the TWCP.

1.6 Discussion

The data collected to date supports the existing process knowledge of the various waste forms. This data refines and enhances what is known about the waste and gives credence to process knowledge for processes that were developed and conducted prior to many of the regulations that exist today. Ongoing characterization activities are designed for continuing support of the need to establish the acceptability of waste for eventual shipment and disposal at WIPP.

2. RTR EXAMINATIONS

The RTR system at SWEPP has been in use since the TRU Waste Sample Program was initiated in 1983. It consists of a 420-kV constant-potential x-ray head and imaging system, a recorder, a video processor and monitors. The output from the imaging system is supplied to two closed circuit television cameras. One monitor always presents the images directly from the camera. The operator uses the second monitor to view the processed image. The processed image is generated by adding printed data on the videotape via a character generator. This processed image is stored on a videotape and can be retrieved at a later date for additional review.

Visual examinations have been used to verify the reliability of the RTR system as a certification tool and to check the RTR operator's reliability in correctly identifying the waste form. Less than 2% of the drums that have been visually examined have been miscertified. The principle source of miscertification has been due to undetected free liquids. These liquids have not been detected because of a lack of motion at the gas-to-air interface.

RTR reliability in identifying waste forms is good particularly if broad descriptions are used instead of the relatively specific IDCs. One drum in the Bin Program was examined at SWEPP and shipped to Argonne-West for visual examination under the IDC 338 (Insulation and CWS Filter Media). During the visual examination, it was determined that the IDC was more appropriately 330 (Paper and Rags - Dry). These IDCs would both fit into the broad category of combustible. This is the only IDC change out of over 300 drums examined. Table 2-1 provides some indication of the number of drums in the stored inventory of waste that may be inappropriately labeled based on broad categories. The number of waste form changes is from the containers within the original population incorrectly identified. The final number of containers in a group reflects containers removed from that classification as well as containers added to that group after reclassification. The percent changes in group is the percent of mislabelled containers from within the original number of containers. The largest number of additions to a category was the unknown category. This is due in large part to lead-lined containers being added to this group.

There is growing emphasis on using the RTR system to actually quantify materials in the waste. Table 2-2 summarizes some data on a limited number of homogeneous drums that were examined as part of the Bin Program. This summary data has been corrected so that estimated weights are based on using the same gross weight for the drum. The scale used at SWEPP weighted the drums at 5 - 7 kgs higher than the scale used at Argonne National Laboratory-West (ANL-W). The current practice is to use the scale at SWEPP. Weight estimates were made on an individual drum basis. The basic approach was to subtract standard weights for packaging materials that were identified using the RTR system from the gross weight of the drum. The remaining weight was assumed to be that of the major constituent of the waste.

Table 2-1. Changes in category based on RTR examination.

Waste form	Original number containers	Number of waste form changes	Final number of containers in group	Percent changes in group
Combustibles	9918	26	9907	0.26
Filter	44	0	44	0.00
Graphite	1774	7	1784	0.39
Heterogeneous	258	5	260	1.94
Inorganic Non-Metal	683	18	683	2.64
Salt Waste	893	19	882	2.13
Soil	419	9	415	2.15
Solidified Inorganics	847	22	832	2.6
Solidified Organics	956	30	942	3.13
Uncategorized Metal	1449	10	1445	0.69
Unknown	11	2	58	18.18
Totals	**17252**	**148**	**17252**	**0.86**

Table 2-2. Summary weight estimates for homogeneous waste forms from Bin Program.

Waste Category		IDC 339 (2 drums)	IDC 440 (3 drums)	IDC 442 (10 drums)
Iron-based Metals/Alloys	Total Visual (kg)	0	0	31.0
	Total RTR (kg)	0	0	30.2
	% Difference	0	0	2.6
Other Metals	Total Visual (kg)	80..6	0	0
	Total RTR (kg)	88.0	0	0
	% Difference	-9.2	0	0
Other Inorganic Materials	Total Visual (kg)	0.9	69.9	532.4
	Total RTR (kg)	0.0	71.7	536.4
	% Difference	100.0	-2.6	-0.8
Cellulosics	Total Visual (kg)	0.2	0.3	16.3
	Total RTR (kg)	0.0	0.0	15.6
	% Difference	100.0	100.0	4.3
Rubber	Total Visual (kg)	86.7	0	0
	Total RTR (kg)	88.0	0	0
	% Difference	-1.5	0	0
Plastics (waste materials)	Total Visual (kg)	10.6	40.7	18.6
	Total RTR (kg)	3.0	39.2	16.1
	% Difference	71.7	3.7	1.3

3. VISUAL EXAMINATIONS

The visual examination weight results reported in this section are based on the results of visual examinations conducted at ANL-W in the Hot Fuel Examination Facility (HFEF) as part of the Bin Program. A drum bag gas headspace sample was collected from each drum. Then the individual inner bags were removed and weighed. In order to mitigate the spread of radiological contamination, the individual contents of the inner bags were not removed and weighed separately. So the weights presented in Table 3-1 are estimated based on knowledge of the weights of standard packaging material for individual bags. For the sake of clarity, it should also be noted that the final categories of steel (packaging material) and plastics (packaging material) refer to the drum and rigid poly liner. Plastic bags used in the packaging of the waste is considered to be an integral part of the waste itself.

Inner bags from drums examined as part of the VOC transport model were not weighed. Dimensions of the bags were the important variables for the model development. Time constraints prevented the weighing of individual containers. Detailed descriptions of the wastes are available, and in some instances reasonable weight estimates for the drum could be made. Weight data will be collected again during the examination of debris drums for the TRU Waste Characterization Program.

These limited examinations are consistent with the previous weights found during the TRU Waste Sampling Program. There is a considerable amount of variability from drum to drum, but nothing in this program was outside of the basic ranges that have already been seen.

Table 3-1. Weight estimates based on visual examination during the Bin Program.

Waste Category		IDC 335 (1 Drum)	IDC 336 (1 drum)	IDC 337 (4 drums)	IDC 338 (1 drum)	IDC 339 (2 drums)	IDC 440 (3 drums)	IDC 442 (10 drums)	IDC 480 (9 drums)	IDC 481 (1 drum)
Iron-based Metals/Alloys	High	0.5	5.4	0	0.2	0	0	3.9	77.7	6.6
	Low	0.5	5.4	0	0.2	0	0	0.0	1.2	6.6
	Avg.	0.5	5.4	0	0.2	0	0	3.1	29.9	6.6
Aluminum-based Metals/Alloys	High	0	0	0	0	0	0	0	9.7	8.1
	Low	0	0	0	0	0	0	0	0.0	8.1
	Avg.	0	0	0	0	0	0	0	4.8	8.1
Other Metals	High	0	0.4	0.3	0	48.2	0	0	22.9	0.1
	Low	0	0.4	0.0	0	32.4	0	0	0.0	0.1
	Avg.	0	0.4	0.1	0	40.3	0	0	2.7	0.1
Other Inorganic Materials	High	34.6	1.0	9.6	3.1	0.9	28.0	90.0	2.9	0.01
	Low	34.6	1.0	4.1	3.1	0.0	19.5	34.5	0.7	0.01
	Avg.	34.6	1.0	6.6	3.1	0.5	23.3	53.2	1.7	0.01
Cellulosics	High	13.6	2.2	0.5	11.0	0.2	0.1	2.1	5.4	0
	Low	13.6	2.2	0.01	11.0	0.0	0.1	0.0	0.0	0
	Avg.	13.6	2.2	0.2	11.0	0.1	0.1	1.6	0.8	0
Rubber	High	1.7	1.9	2.9	2.6	52.3	0	0	2.6	1.1
	Low	1.7	1.9	0.1	2.6	34.5	0	0	0.1	1.1
	Avg.	1.7	1.9	1.0	2.6	43.4	0	0	0.7	1.1
Plastics (waste materials)	High	4.0	14.0	24.1	5.3	9.2	16.1	3.1	9.2	2.3
	Low	4.0	14.0	11.0	5.3	1.4	11.6	1.5	2.1	2.3
	Avg.	4.0	14.0	15.1	5.3	5.3	13.6	1.9	4.6	2.3
Organic Matrix	High	0	0	0	0	0	0	0	0.1	0
	Low	0	0	0	0	0	0	0	0.0	0
	Avg.	0	0	0	0	0	0	0	0.0	0
Inorganic Matrix	High	0	0.2	0	0	0	0	0	0	0
	Low	0	0.2	0	0	0	0	0	0	0
	Avg.	0	0.2	0	0	0	0	0	0	0
Soils	High	0	0	0	0	0	0	0	0	0
	Low	0	0	0	0	0	0	0	0	0
	Avg.	0	0	0	0	0	0	0	0	0
Steel (packaging material)	Avg.	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
Plastics (packaging material)	Avg.	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3

4. HEADSPACE GAS ANALYSIS RESULTS

Appendix B contains drum headspace analysis summary data. The data summarized in these tables consists strictly of drum headspace gas samples collected at SWEPP as part of the WETP. A drum headspace sample may also be referred to as a prefilter sample and is collected by puncturing the carbon composite filter with a sampling needle and drawing a sample from between the rigid liner and the drum bag. Drum bag samples (samples collected by puncturing the drum bag) and inner bag samples are also available for a number of drums but have not been included in the summary data. A review of inner bag samples results would indicate the same compounds detected with a very similar range on the maximum and minimum results. For an individual drum, it would be expected that the inner bags will have higher concentrations of compounds that the drum headspace sample.

The data is summarized by Item Description Code (IDC). In this program, when a target analyte is not detected, the minimum detection limit of the analytical system is reported, indicating that the real value is less than this reported number. One statistical approach is to use half the reported value when manipulating undetected values. This is the approach that was used in compiling this summary data. Thus, whenever a target analyte was reported as undetected, half the reported value is used in this summary data. For each target analyte within a given IDC, the average, the maximum, the minimum, and the standard deviation are reported for each set of drums. The final column, labeled CNT, reports the actual number of drums with actual detections of the target analyte.

In addition to the target analytes reported in Appendix B, the analysis results will also frequently contain tentatively identified compounds (TICs). For the most part, these TICs occur at relatively low concentrations. The exception to this occurs in content code 432 (Resins, Leached and Cemented). Trimethylamine, a flammable compound, has been detected consistently and at substantial concentrations in the gas headspace of the drums within this IDC.

Headspace gas sampling data cannot be directly related to concentrations of the detected compounds within the waste. However, preliminary results from core sampling do indicate that headspace analysis results provide some indication of volatile compounds contained in the waste matrix. Headspace gas sampling can provide useful qualitative as well as relative information on compounds within the waste.

Headspace gas sampling conducted as part of the WETP does reinforce previous data collected in the TRU Waste Sampling Program in that the five compounds detected most often and with the highest concentrations are 1,1,1-trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, carbon tetrachloride, methylene chloride, and trichloroethene. In fact 1,1,1-trichloroethane has been detected in almost every drum sampled to date. The highest concentrations of these compounds have been within IDC 003 (Organic Setups), with concentrations of several thousand parts per million routinely detected. Even inorganic debris drums contain measurable amounts of these compounds, but with most detections at less than 100 parts per million. It should be noted that there is a high degree of variability in the concentrations of headspace gases as well as the variety of compounds detected.

5. SOLID SAMPLE ANALYSIS RESULTS

A number of solidified waste forms will be core sampled and analyzed for target volatile, semivolatiles and metals. The coring process will take place in the Waste Characterization Chamber (WCC) at ANL-W. All sampling and analysis will be performed in accordance with the TWCP Quality Assurance Program Plan (QAPP).

Solid sampling and analysis is underway as part of the TWCP; however, the results are still in the process of being validated and will not be provided in this version. Final analysis results will be summarized on an IDC basis in a later revision.

Table 5-1 provides a summary of the projected core sampling that is proposed for the TWCP. This drum sampling should be completed by FY-1998. This number could be increased if the variability of the individual waste stream indicates the need.

Tables 5-2 through 5-4 indicate the target analytes for the core sampling effort.

Table 5-1. Proposed solid sampling for TWCP.

IDC	Description	Number to be sampled
001	First Stage Sludge	56
002	Second Stage Sludge	15
003	Organic Setups	54
004	Special Setups	40
007	Process Sludge	35
292	Cemented Sludge	28
432	Resins, Leached and Cemented	11
700	Organic and Sludge Immobilization System Waste	3
801	Solidified Organics	22
802	Special Setups - Cemented	11
803	Wet Sludge - Cemented	3
807	Cemented Incinerator Sludge	11
817	Cemented Sand, Slag and Crucible Heels	6
818	Cemented Incinerator Ash	1
820	Cemented Soot	1
822	Cemented Resin	5
823	Cemented Miscellaneous Sludge	6
	Total	**308**

Table 5-2. Total volatile organic compounds target analyte list.

Compound	CAS Number
Benzene	71-43-2
Bromoform	75-25-2
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Chlorobenzene	108-90-7
Chloroform	67-66-3
1,4-Dichlorobenzene	106-46-7
ortho-Dichlorobenzene	95-50-1
1,2-Dichloroethane	107-06-2
1,1-Dichloroethylene	75-35-4
Ethyl benzene	100-41-4
Methylene chloride	75-09-2
1,1,2,2-Tetrachloroethane	79-34-5
Tetrachloroethylene	127-18-4
Toluene	108-88-3
1,1,1-Trichloroethane	71-55-6
1,1,2-Trichloroethane	79-00-5
Trichloroethylene	79-01-6
Trichlorofluoromethane	75-69-4
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1
Vinyl chloride	75-01-4
m-xylene	108-38-3
o-xylene	95-47-6
p-xylene	106-42-3
Acetone	67-64-1
Butanol	71-36-3
Ethyl ether	60-29-7
Formaldehyde	50-00-0
Hydrazine[f]	302-01-2
Isobutanol	78-83-1
Methanol	67-56-1
Methyl ethyl ketone	78-93-3
Pyridine[b]	110-86-1

Table 5-3. Semivolatile organic compound target analyte list.

Compound	CAS Number
Cresols	1319-77-3
1,4-Dichlorobenzene	106-46-7
ortho-Dichlorobenzene	95-50-1
2,4-Dinitrophenol	51-28-5
2,4-Dinitrotoluene	121-14-2
Hexachlorobenzene	118-74-1
Hexachloroethane	67-72-1
Nitrobenzene	98-95-3
Polychlorinated Biphenyls (PCBs)	
Aroclor 1016	12674-11-2
Aroclor 1221	11104-28-2
Aroclor 1232	11141-16-5
Aroclor 1242	53469-21-9
Aroclor 1248	12672-29-6
Aroclor 1254	11097-69-1
Aroclor 1260	11096-62-5
Pentachlorophenol	87-86-5
Pyridine	110-86-1

Table 5-4. Total metals target analyte list.

Analyte	CAS number
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-7
Cadmium	7440-43-9
Chromium	7440-47-3
Lead	7439-92-1
Mercury	7439-97-6
Nickel	7440-02-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0
Vanadium	7440-62-2
Zinc	7440-66-6

6. RADIOASSAY ANALYSIS RESULTS

The modified radioassay system in use at SWEPP consists of a passive active neutron (PAN) assay system which employs the differential die-away technique and a high resolution gamma spectroscopy system. During the production mode at SWEPP, the PAN system was calibrated to a standard weapons-grade mix of plutonium. Through the use of the gamma system, it has been established that much of the Rocky Flats waste contains a significant amount of depleted uranium. The current approach is to use the PAN system to quantify the amount of fissile material and the gamma system to establish mass ratios, usually with respect to Pu-239. The following table summarizes radioassay data that has been reported at the INEL since the start of the Bin Program. The average values for U-235 are only for those drums that have been through gamma analysis.

Table 6-1. Radioassay data from the WETP.

IDC	# of drums	# of Gamma	Pu-52 max. (g)	Pu-52 avg. (g)	Am-241 max. (g)	Am-241 avg. (g)	U-235 max. (g)	U-235 avg. (g)
001	48	39	17	3.4	101	3.1	8	1.5
002	5	5	2	1.4	0.17	0.11	0	0
003	22	4	71	3.8	0.13	0.01	0.02	0.01
004	19	5	40	15	0.19	0.06	0.8	0.26
007	69	38	13	1.5	0.33	0.01	19	2
292	12	1	148	21	0.37	0.09	0	0
300	44	34	77	18	0.14	0.03	0	0
302	5	3	9	3.2	0.02	0.01	0	
303	2	2	29	21	0.1	0.04	0	0
312	56	0	56	56	0.1	0.1		
320	11	3	117	21	0.7	0.07	0	0
330	19	6	3.8	8	2	0.18	0	0
335	2	0	13	6.8	0.5	0.25		
336	12	2	5	0.86	0.95	0.09	0	0
337	38	20	6.4	1.9	0.25	0.02	0	0
338	11	1	14	5.8	1	0.25	0	0
339	39	2	97	24	1.3	0.15	0	0
371	24	12	160	45	0.55	0.2	0	0
374	8	0	0.1	0.003	0	0		
376	9	0	6.6	0.8	0.03	0.003		
409	2	1	269	195	12	6.9	0	0
411	7	1	138	85	1.8	1	0	0
414	4	1	178	100	1.4	0.8	0	0
432	38	19	132	22	[illegible]5	0.04	0	0
440	29	15	68	9.1	1.2	0.1	0	0
441	1	1	1.1	1.1	0.003	0.003	0	0
442	27	14	32	5	0.6	0.06	0	0
464	2	1	2.5	1.2	0.005	0.002	0	0
480	82	36	234	15	4.2	0.15	0	0
481	9	2	112	36	1.2	0.4	0	0
482	1	0	32	32	0.05	0.05		
490	1	1	12	12	0.25	0.25	0	0

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Appendix A

Item Description Code Definitions

Appendix A

Item Description Code Definitions

001 First-Stage Sludge
002 Second-Stage Sludge
003 Organic Setups
004 Special Setups
007 Process Sludge
292 Cemented Sludge
300 Graphite Molds
302 Benelex and Plexiglas
303 Scarfed Graphite Chunks
312 Coarse Graphite
320 Heavy Non-SS Metals
330 Paper and Rags - Dry
335 Absolute Filters
336 Paper and Rags - Moist
337 Plastic and Nonleaded Rubber
338 Insulation and CWS Filter Media
339 Leaded Gloves and Aprons
371 Firebrick
374 Blacktop, Concrete, Dirt and Sand
376 Cemented Insulation Filter Media
409 Molten Salts - 30% unpulverized
411 Electrorefining Salt
414 Direct Oxide Reduction Salt
432 Resins, Leached and Cemented
440 Glass
441 Unleached Raschig Rings
442 Leached Raschig Rings
464 Benelex and Plexiglas
480 Unleached Light Metal
481 Unleached Non-ss Metals
482 Metal, scrap
490 CWS Filters

It should be noted that these content code descriptions are not completely consistent with the descriptions used in the Baseline Inventory Report. An effort will be made in the final issue of this document to use descriptions consistent with the Baseline Inventory Report.

Appendix B

Summary of Gas Headspace Analysis Results

IDC: 001 First Stage Sludge

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	388.27	22000.00	0.10	2790.00	62
1,1,2,2-Tetrachloroethane	ppmv	1.58	90.00	0.00	11.41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	387.79	24000.00	0.01	3047.91	32
1,1-Dichloroethane	ppmv	1.68	85.00	0.00	10.76	15
1,1-Dichloroethene	ppmv	1.87	90.00	0.01	11.39	18
1,2,4-Trimethylbenzene	ppmv	0.99	55.00	0.00	6.97	8
1,2-Dichloroethane	ppmv	1.56	90.00	0.00	11.41	1
1,3,5-Trimethylbenzene	ppmv	0.71	38.50	0.00	4.87	5
Acetone	ppmv	5.84	8.50	2.50	2.95	0
Benzene	ppmv	1.82	95.00	0.00	12.03	30
Bromoform	ppmv	1.56	90.00	0.00	11.41	0
Carbon tetrachloride	ppmv	774.56	48000.00	0.07	6095.95	45
Chlorobenzene	ppmv	1.41	80.00	0.00	10.14	0
Chloroform	ppmv	1.57	90.00	0.00	11.41	7
Cyclohexane	ppmv	1.55	85.00	0.00	10.77	9
Ethyl benzene	ppmv	1.38	75.00	0.00	9.50	9
Ethyl ether	ppmv	1.34	70.00	0.00	8.86	0
Hydrogen	vol%	0.03	0.26	0.00	0.05	35
Methane	vol%	0.01	0.02	0.01	0.00	0
Methanol	ppmv	6.81	42.00	2.50	6.57	2
Methyl ethyl ketone	ppmv	5.90	8.50	2.50	2.94	0
Methyl isobutyl ketone	ppmv	6.12	15.00	2.50	3.10	2
Methylene chloride	ppmv	3.87	115.00	0.02	14.71	48
Tetrachloroethene	ppmv	5.51	200.00	0.00	26.98	9
Toluene	ppmv	3.62	80.00	0.00	10.11	59
Trichloroethene	ppmv	10.54	160.00	0.01	27.84	39
cis-1,2-Dichloroethane	ppmv	1.51	85.00	0.00	10.78	1
n-Butanol	ppmv	5.84	8.50	2.50	2.95	0
o-Xylene	ppmv	1.53	85.00	0.00	10.77	10
p/m-Xylene	ppmv	1.72	90.00	0.00	11.40	22

Number of Drums Sampled: 63

IDC: 002 Second Stage Sludge

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	24.85	51.00	14.00	13.50	7
1,1,2,2-Tetrachloroethane	ppmv	0.10	0.22	0.04	0.06	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.18	0.39	0.07	0.11	2
1,1-Dichloroethane	ppmv	0.21	0.64	0.05	0.20	2
1,1-Dichloroethene	ppmv	0.34	0.91	0.13	0.27	2
1,2,4-Trimethylbenzene	ppmv	0.28	0.51	0.[illegible]	0.19	4
1,2-Dichloroethane	ppmv	0.08	0.19	0.03	0.05	0
1,3,5-Trimethylbenzene	ppmv	0.23	0.43	0.06	0.15	4
Acetone	ppmv	8.50	20.50	2.50	6.[illegible]0	0
Benzene	ppmv	0.12	0.24	0.06	0.05	1
Bromoform	ppmv	0.09	0.20	0.03	0.05	0
Carbon tetrachloride	ppmv	0.33	0.48	0.19	0.[illegible]	
Chlorobenzene	ppmv	0.10	0.22	0.04	0.05	0
Chloroform	ppmv	0.09	0.21	0.03	0.05	0
Cyclohexane	ppmv	0.13	0.29	0.05	0.08	0
Ethyl benzene	ppmv	0.15	0.23	0.09	0.[illegible]	3
Ethyl ether	ppmv	0.19	0.42	0.07	0.[illegible]	0
Hydrogen	vol%	0.01	0.04	0.00	0.01	1
Methane	vol%	0.02	0.06	0.01	0.[illegible]	0
Methanol	ppmv	8.50	20.50	2.50	6.[illegible]	0
Methyl ethyl ketone	ppmv	8.50	20.50	2.50	6.0[illegible]	0
Methyl isobutyl ketone	ppmv	8.50	20.50	2.50	6.0[illegible]	0
Methylene chloride	ppm[illegible]	1.02	4.10	0.06	1.6[illegible]	2
Tetrachloroethene	ppmv	0.14	0.46	0.03	0.[illegible]	2
Toluene	ppmv	0.92	1.40	0.39	0.36	7
Trichloroethene	ppmv	6.68	16.00	1.60	4.6[illegible]	7
cis-1,[illegible]-Dichloroethane.	ppmv	0.09	0.19	0.03	0.05	0
n-Butanol	ppmv	8.50	20.50	2.50	6.00	0
o-Xylene	ppmv	0.24	0.39	0.09	0.11	4
p/m-Xylene	ppmv	0.43	0.66	0.23	0.17	6

Number of Drums Sampled: 7

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	7891.53	46000.00	120.00	11730.36	26
1,1,2,2-Tetrachloroethane	ppmv	38.22	135.00	0.18	36.17	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	2856.34	13000.00	14.00	4002.87	22
1,1-Dichloroethane	ppmv	45.29	190.00	1.65	44.18	1
1,1-Dichloroethene	ppmv	51.72	230.00	1.75	51.59	1
1,2,4-Trimethylbenzene	ppmv	28.13	125.00	1.10	28.45	1
1,2-Dichloroethane	ppmv	35.05	115.00	0.15	33.64	0
1,3,5-Trimethylbenzene	ppmv	21.42	95.00	0.75	21.34	1
Acetone	ppmv	8.36	27.00	2.50	4.18	7
Benzene	ppmv	41.20	145.00	0.19	39.13	0
Bromoform	ppmv	37.17	120.00	0.16	35.83	0
Carbon tetrachloride	ppmv	14463.07	52000.00	300.00	14574.35	26
Chlorobenzene	ppmv	35.54	130.00	0.18	33.54	0
Chloroform	ppmv	76.26	820.00	5.50	155.92	7
Cyclohexane	ppmv	43.50	175.00	0.24	41.77	0
Ethyl benzene	ppmv	35.95	140.00	0.19	34.31	0
Ethyl ether	ppmv	49.68	250.00	0.33	54.15	0
Hydrogen	vol%	0.21	4.11	0.00	0.89	7
Methane	vol%	0.01	0.02	0.01	0.00	0
Methanol	ppmv	25.45	190.00	2.50	42.66	6
Methyl ethyl ketone	ppmv	6.66	8.50	2.50	2.64	1
Methyl isobutyl ketone	ppmv	6.53	8.50	2.50	2.76	0
Methylene chloride	ppmv	57.26	220.00	5.00	50.50	3
Tetrachloroethene	ppmv	31.95	120.00	0.15	32.75	1
Toluene	ppmv	40.20	160.00	0.21	38.47	0
Trichloroethene	ppmv	35.19	115.00	1.70	33.52	1
cis-1,2-Dichloroethane	ppmv	34.33	115.00	0.15	32.69	0
n-Butanol	ppmv	6.53	8.50	2.50	2.76	0
o-Xylene	ppmv	38.75	140.00	0.58	36.69	1
p/m-Xylene	ppmv	39.96	140.00	0.88	37.74	1

Number of Drums Sampled: 26

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	33.34	320.00	0.01	71.46	31
1,1,2,2-Tetrachloroethane	ppmv	0.21	2.85	0.00	0.53	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	1.48	36.00	0.01	6.27	15
1,1-Dichloroethane	ppmv	1.70	27.00	0.00	5.18	10
1,1-Dichloroethene	ppmv	1.16	13.00	0.00	2.58	9
1,2,4-Trimethylbenzene	ppmv	0.16	1.80	0.00	0.35	7
1,2-Dichloroethane	ppmv	0.19	2.85	0.00	0.51	0
1,3,5-Trimethylbenzene	ppmv	0.13	1.25	0.00	0.27	2
Acetone	ppmv	29.90	200.00	2.50	37.91	8
Benzene	ppmv	0.37	3.10	0.00	0.58	19
Bromoform	ppmv	0.20	3.00	0.00	0.54	0
Carbon tetrachloride	ppmv	9.28	290.00	0.05	49.63	29
Chlorobenzene	ppmv	0.20	2.55	0.00	0.49	0
Chloroform	ppmv	0.24	3.00	0.00	0.56	5
Cyclohexane	ppmv	61.22	1700.00	0.00	294.68	19
Ethyl benzene	ppmv	0.21	2.40	0.00	0.47	12
Ethyl ether	ppmv	1.06	26.00	0.00	4.44	1
Hydrogen	vol%	0.04	0.16	0.00	0.03	22
Methane	vol%	0.01	0.02	0.01	0.00	0
Methanol	ppmv	1863.27	4900.00	2.50	1655.75	32
Methyl ethyl ketone	ppmv	20.80	65.00	2.50	19.12	1
Methyl isobutyl ketone	ppmv	19.37	65.00	2.50	18.93	0
Methylene chloride	ppmv	1.49	29.00	0.01	4.92	23
Tetrachloroethene	ppmv	0.25	2.80	0.00	0.59	2
Toluene	ppmv	3.10	10.00	0.00	2.34	32
Trichloroethene	ppmv	2.67	47.00	0.01	9.10	18
cis-1,2-Dichloroethane	ppmv	0.19	2.70	0.00	0.49	0
n-Butanol	ppmv	23.77	140.00	2.50	26.85	1
o-Xylene	ppmv	0.22	2.80	0.00	0.53	8
p/m-Xylene	ppmv	0.29	3.00	0.00	0.55	23

Number of Drums Sampled: 34

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	73.31	680.00	0.10	119.72	66
1,1,2,2-Tetrachloroethane	ppmv	0.35	9.90	0.00	1.22	5
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	7.15	47.00	0.04	11.00	58
1,1-Dichloroethane	ppmv	0.48	6.70	0.00	1.07	14
1,1-Dichloroethene	ppmv	0.85	13.00	0.01	1.80	38
1,2,4-Trimethylbenzene	ppmv	0.27	6.80	0.00	0.84	23
1,2-Dichloroethane	ppmv	0.19	1.75	0.00	0.31	3
1,3,5-Trimethylbenzene	ppmv	0.19	4.60	0.00	0.57	18
Acetone	ppmv	5.61	8.50	2.50	2.90	3
Benzene	ppmv	0.24	1.95	0.01	0.34	23
Bromoform	ppmv	0.20	1.90	0.00	0.33	0
Carbon tetrachloride	ppmv	0.52	13.00	0.01	1.59	43
Chlorobenzene	ppmv	0.20	1.60	0.00	0.30	0
Chloroform	ppmv	0.22	1.85	0.00	0.33	6
Cyclohexane	ppmv	0.26	1.75	0.00	0.36	4
Ethyl benzene	ppmv	0.24	1.50	0.00	0.33	15
Ethyl ether	ppmv	0.27	1.90	0.00	0.41	0
Hydrogen	vol%	0.03	0.57	0.00	0.07	16
Methane	vol%	0.01	0.02	0.00	0.00	2
Methanol	ppmv	5.75	29.00	2.50	4.13	1
Methyl ethyl ketone	ppmv	5.43	8.50	2.50	2.97	0
Methyl isobutyl ketone	ppmv	5.91	17.00	2.50	3.46	3
Methylene chloride	ppmv	15.76	260.00	0.01	37.67	56
Tetrachloroethene	ppmv	0.30	1.80	0.00	0.44	15
Toluene	ppmv	1.92	6.00	0.17	1.27	57
Trichloroethene	ppmv	0.98	16.00	0.01	2.42	31
cis-1,2-Dichloroethane	ppmv	0.19	1.70	0.00	0.30	0
n-Butanol	ppmv	5.71	12.00	2.50	3.10	2
o-Xylene	ppmv	0.23	1.75	0.00	0.33	14
p/m-Xylene	ppmv	0.35	2.50	0.01	0.48	27

Number of Drums Sampled: 66

IDC: 292 Cemented Sludge

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	39.14	510.00	0.07	122.52	15
1,1,2,2-Tetrachloroethane	ppmv	0.12	1.25	0.02	0.29	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.19	1.45	0.02	0.34	5
1,1-Dichloroethane	ppmv	0.26	1.75	0.02	0.50	2
1,1-Dichloroethene	ppmv	0.23	2.15	0.03	0.50	2
1,2,4-Trimethylbenzene	ppmv	0.13	1.15	0.01	0.27	2
1,2-Dichloroethane	ppmv	0.10	1.05	0.01	0.24	0
1,3,5-Trimethylbenzene	ppmv	0.10	0.85	0.01	0.20	2
Acetone	ppmv	4.97	8.50	2.50	3.04	0
Benzene	ppmv	0.15	1.30	0.02	0.29	4
Bromoform	ppmv	0.11	1.10	0.01	0.25	0
Carbon tetrachloride	ppmv	1.54	19.00	0.04	4.57	13
Chlorobenzene	ppmv	0.12	1.20	0.02	0.28	0
Chloroform	ppmv	0.20	1.50	0.02	0.42	1
Cyclohexane	ppmv	0.42	1.65	0.03	0.47	11
Ethyl benzene	ppmv	0.14	1.30	0.02	0.30	1
Ethyl ether	ppmv	0.23	2.30	0.03	0.53	0
Hydrogen	vol%	0.11	0.75	0.00	0.18	12
Methane	vol%	0.01	0.07	0.01	0.01	0
Methanol	ppmv	4.97	8.50	2.50	3.04	0
Methyl ethyl ketone	ppmv	4.97	8.50	2.50	3.04	0
Methyl isobutyl ketone	ppmv	4.97	8.50	2.50	3.04	0
Methylene chloride	ppmv	0.59	4.90	0.02	1.26	5
Tetrachloroethene	ppmv	0.11	1.05	0.01	0.24	3
Toluene	ppmv	13.95	38.00	0.34	11.03	17
Trichloroethene	ppmv	0.42	2.50	0.01	0.76	9
cis-1,2-Dichloroethane	ppmv	0.11	1.05	0.01	0.24	0
n-Butanol	ppmv	4.97	8.50	2.50	3.04	0
o-Xylene	ppmv	0.14	1.30	0.02	0.30	1
p/m-Xylene	ppmv	0.16	1.30	0.02	0.31	2

Number of Drums Sampled: 17

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	2.86	43.00	0.01	8.41	41
1,1,2,2-Tetrachloroethane	ppmv	0.01	0.09	0.00	0.01	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.06	0.60	0.01	0.09	36
1,1-Dichloroethane	ppmv	0.02	0.30	0.00	0.04	2
1,1-Dichloroethene	ppmv	0.02	0.17	0.01	0.03	2
1,2,4-Trimethylbenzene	ppmv	0.06	2.00	0.00	0.30	7
1,2-Dichloroethane	ppmv	0.01	0.17	0.00	0.02	4
1,3,5-Trimethylbenzene	ppmv	0.02	0.91	0.00	0.13	3
Acetone	ppmv	8.16	8.50	2.50	1.30	0
Benzene	ppmv	0.04	1.10	0.00	0.16	4
Bromoform	ppmv	0.01	0.09	0.00	0.01	0
Carbon tetrachloride	ppmv	0.07	0.41	0.01	0.07	39
Chlorobenzene	ppmv	0.01	0.08	0.00	0.01	0
Chloroform	ppmv	0.02	0.18	0.00	0.03	5
Cyclohexane	ppmv	0.02	0.19	0.00	0.03	5
Ethyl benzene	ppmv	0.07	2.30	0.00	0.35	3
Ethyl ether	ppmv	0.01	0.07	0.00	0.01	0
Hydrogen	vol%	0.04	0.16	0.00	0.03	14
Methane	vol	0.01	0.02	0.01	0.00	0
Methanol	ppmv	24.53	610.00	2.50	93.21	3
Methyl ethyl ketone	ppmv	8.16	8.50	2.50	1.30	0
Methyl isobutyl ketone	ppmv	8.16	8.50	2.50	1.30	0
Methylene chloride	ppmv	0.50	6.30	0.01	1.49	39
Tetrachloroethene	ppmv	0.01	0.06	0.00	0.01	1
Toluene	ppmv	0.42	7.60	0.01	1.26	35
Trichloroethene	ppmv	0.07	1.50	0.00	0.25	6
cis-1,2-Dichloroethane	ppmv	0.01	0.08	0.00	0.01	0
n-Butanol	ppmv	8.16	8.50	2.50	1.30	0
o-Xylene	ppmv	0.07	2.50	0.00	0.38	3
p/m-Xylene	ppmv	0.20	7.60	0.00	1.17	5

Number of Drums Sampled: 42

IDC: 302 Benelex and Plexiglas

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	58.83	130.00	0.20	55.92	6
1,1,2,2-Tetrachloroethane	ppmv	0.47	1.60	0.02	0.60	2
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.20	0.44	0.06	0.14	1
1,1-Dichloroethane	ppmv	0.18	0.29	0.03	0.08	0
1,1-Dichloroethene	ppmv	0.32	0.68	0.03	0.24	2
1,2,4-Trimethylbenzene	ppmv	0.50	2.30	0.01	0.88	2
1,2-Dichloroethane	ppmv	0.20	0.50	0.01	0.17	1
1,3,5-Trimethylbenzene	ppmv	0.23	0.96	0.01	0.35	1
Acetone	ppmv	7.25	8.50	1.00	3.06	1
Benzene	ppmv	0.27	0.71	0.09	0.22	2
Bromoform	ppmv	1.54	8.50	0.01	3.40	0
Carbon tetrachloride	ppmv	0.20	0.31	0.11	0.06	1
Chlorobenzene	ppmv	0.45	2.00	0.02	0.76	1
Chloroform	ppmv	0.17	0.31	0.04	0.09	1
Cyclohexane	ppmv	0.29	0.72	0.13	0.21	2
Ethyl benzene	ppmv	0.18	0.25	0.12	0.04	1
Ethyl ether	ppmv	1.57	8.50	0.03	3.39	0
Hydrogen	vol%	0.03	0.09	0.02	0.03	1
Methane	vol%	0.01	0.02	0.00	0.01	1
Methanol	ppmv	15.37	43.00	0.74	15.34	3
Methyl ethyl ketone	ppmv	7.12	8.50	0.25	3.36	0
Methyl isobutyl ketone	ppmv	7.12	8.50	0.23	3.37	0
Methylene chloride	ppmv	1.82	8.50	0.19	3.28	2
Tetrachloroethene	ppmv	2.58	9.70	0.01	3.63	4
Toluene	ppmv	25.85	53.00	4.80	19.28	6
Trichloroethene	ppmv	59.60	170.00	0.01	72.75	4
cis-1,2-Dichloroethane	ppmv	0.15	0.28	0.01	0.08	0
n-Butanol	ppmv	8.50	8.50	8.50	0.00	0
o-Xylene	ppmv	0.17	0.29	0.09	0.07	1
p/m-Xylene	ppmv	0.23	0.39	0.12	0.09	1

Number of Drums Sampled: 6

IDC: 303 Scarfed Graphite Chunks

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	2.24	16.00	0.05	5.09	13
1,1,2,2-Tetrachloroethane	ppmv	0.01	0.04	0.01	0.00	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.05	0.17	0.02	0.03	10
1,1-Dichloroethane	ppmv	0.04	0.32	0.01	0.08	1
1,1-Dichloroethene	ppmv	0.02	0.03	0.01	0.00	0
1,2,4-Trimethylbenzene	ppmv	0.01	0.02	0.00	0.00	1
1,2-Dichloroethane	ppmv	0.02	0.16	0.01	0.04	2
1,3,5-Trimethylbenzene	ppmv	0.01	0.02	0.00	0.00	0
Acetone	ppmv	10.38	33.00	8.50	6.79	1
Benzene	ppmv	0.04	0.20	0.01	0.05	7
Bromoform	ppmv	0.02	0.06	0.01	0.01	0
Carbon tetrachloride	ppmv	0.08	0.17	0.03	0.04	12
Chlorobenzene	ppmv	0.01	0.03	0.01	0.00	0
Chloroform	ppmv	0.04	0.35	0.01	0.09	4
Cyclohexane	ppmv	0.02	0.03	0.01	0.00	0
Ethyl benzene	ppmv	0.01	0.03	0.01	0.00	0
Ethyl ether	ppmv	0.02	0.03	0.01	0.00	0
Hydrogen	vol%	0.09	0.88	0.02	0.23	2
Methane	vol%	0.02	0.02	0.02	0.00	0
Methanol	ppmv	9.46	21.00	8.50	3.46	1
Methyl ethyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methyl isobutyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methylene chloride	ppmv	0.61	6.20	0.07	1.68	13
Tetrachloroethene	ppmv	0.01	0.03	0.01	0.00	0
Toluene	ppmv	0.96	4.10	0.12	1.08	13
Trichloroethene	ppmv	0.01	0.03	0.01	0.00	1
cis-1,2-Dichloroethane	ppmv	0.01	0.02	0.01	0.00	0
n-Butanol	ppmv	8.50	8.50	8.50	0.00	0
o-Xylene	ppmv	0.01	0.03	0.01	0.00	0
p/m-Xylene	ppmv	0.01	0.04	0.01	0.00	0

Number of Drums Sampled: 13

IDC: 312 Graphite Course

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	126.60	250.00	3.20	174.51	2
1,1,2,2-Tetrachloroethane	ppmv	0.35	0.70	0.01	0.48	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.42	0.80	0.05	0.53	1
1,1-Dichloroethane	ppmv	0.48	0.95	0.02	0.65	0
1,1-Dichloroethene	ppmv	0.61	1.20	0.02	0.83	0
1,2,4-Trimethylbenzene	ppmv	0.34	0.65	0.04	0.43	1
1,2-Dichloroethane	ppmv	0.30	0.60	0.01	0.41	0
1,3,5-Trimethylbenzene	ppmv	0.24	0.47	0.01	0.32	0
Acetone	ppmv	8.70	9.00	8.40	0.42	1
Benzene	ppmv	0.38	0.75	0.01	0.51	0
Bromoform	ppmv	0.30	0.60	0.01	0.41	0
Carbon tetrachloride	ppmv	0.41	0.60	0.23	0.26	1
Chlorobenzene	ppmv	0.35	0.70	0.01	0.48	0
Chloroform	ppmv	0.80	1.60	0.01	1.12	1
Cyclohexane	ppmv	0.46	0.90	0.02	0.62	0
Ethyl benzene	ppmv	0.35	0.70	0.01	0.48	0
Ethyl ether	ppmv	0.66	1.30	0.03	0.89	0
Hydrogen	vol%	0.01	0.02	0.00	0.01	0
Methane	vol%	0.01	0.02	0.01	0.01	0
Methanol	ppmv	5.75	9.00	2.50	4.59	0
Methyl ethyl ketone	ppmv	5.75	9.00	2.50	4.59	0
Methyl isobutyl ketone	ppmv	5.75	9.00	2.50	4.59	0
Methylene chloride	ppmv	11.60	23.[illegible]	0.20	16.12	2
Tetrachloroethene	ppmv	0.28	0.[illegible]	0.01	0.37	0
Toluene	ppmv	7.10	9.40	4.80	3.25	2
Trichloroethene	ppmv	1.61	3.00	0.22	1.96	2
cis-1,2-Dichloroethane	ppmv	0.30	0.60	0.01	0.41	0
n-Butanol	ppmv	5.75	9.00	2.50	4.59	0
o-Xylene	ppmv	0.35	0.70	0.01	0.48	0
p/m-Xylene	ppmv	0.37	0.70	0.05	0.45	1

Number of Drums Sampled: 2

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	2.74	17.00	0.06	5.07	15
1,1,2,2-Tetrachloroethane	ppmv	0.03	0.29	0.00	0.07	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.12	1.00	0.02	0.24	13
1,1-Dichloroethane	ppmv	0.04	0.41	0.00	0.10	1
1,1-Dichloroethene	ppmv	0.06	0.50	0.01	0.12	0
1,2,4-Trimethylbenzene	ppmv	0.03	0.27	0.00	0.06	4
1,2-Dichloroethane	ppmv	0.04	0.25	0.00	0.06	3
1,3,5-Trimethylbenzene	ppmv	0.02	0.20	0.00	0.05	3
Acetone	ppmv	4.99	12.00	1.20	3.47	3
Benzene	ppmv	0.05	0.31	0.00	0.08	5
Bromoform	ppmv	0.03	0.26	0.00	0.06	0
Carbon tetrachloride	ppmv	0.38	2.90	0.08	0.71	15
Chlorobenzene	ppmv	0.03	0.29	0.00	0.07	0
Chloroform	ppmv	0.12	1.10	0.00	0.27	10
Cyclohexane	ppmv	0.11	0.60	0.00	0.17	3
Ethyl benzene	ppmv	0.07	0.31	0.00	0.10	4
Ethyl ether	ppmv	0.07	0.55	0.00	0.14	0
Hydrogen	vol%	0.01	0.05	0.00	0.01	2
Methane	vol%	0.01	0.02	0.01	0.00	0
Methanol	ppmv	4.53	12.00	2.50	3.22	1
Methyl ethyl ketone	ppmv	5.31	22.00	0.65	5.45	2
Methyl isobutyl ketone	ppmv	3.57	8.50	0.55	2.59	0
Methylene chloride	ppmv	0.42	1.70	0.05	0.54	13
Tetrachloroethene	ppmv	0.02	0.24	0.00	0.06	0
Toluene	ppmv	15.12	170.00	0.03	43.42	15
Trichloroethene	ppmv	0.09	0.54	0.00	0.16	10
cis-1,2-Dichloroethane	ppmv	0.03	0.25	0.00	0.06	0
n-Butanol	ppmv	3.57	8.50	0.65	2.59	0
o-Xylene	ppmv	0.07	0.31	0.00	0.10	3
p/m-Xylene	ppmv	0.15	0.97	0.00	0.29	6

Number of Drums Sampled: 14

IDC: 330 Paper and Rags - Dry

	Units	AVG	MAX	MI	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	308.53	6600.00	0.14	1284.17	25
1,1,2,2-Tetrachloroethane	ppmv	1.24	23.50	0.00	4.57	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	14.33	300.00	0.02	59.50	7
1,1-Dichloroethane	ppmv	2.06	33.00	0.01	6	8
1,1-Dichloroethene	ppmv	2.57	40.50	0.01	7.83	9
1,2,4-Trimethylbenzene	ppmv	1.16	21.50	0.00	4.18	4
1,2-Dichloroethane	ppmv	1.17	20.00	0.00	3	4
1,3,5-Trimethylbenzene	ppmv	0.85	16.00	0.00	3.[illegible]	2
Acetone	ppmv	31.53	270.00	2.50	66.72	9
Benzene	ppmv	2.51	25.00	0.00	4.89	14
Bromoform	ppmv	1.12	20.50	0.00	3.98	0
Carbon tetrachloride	ppmv	9.27	190.00	0.04	37.16	16
Chlorobenzene	ppmv	1.21	23.00	0.00	4.48	0
Chloroform	ppmv	2.22	22.00	0.01	5.74	8
Cyclohexane	ppmv	1.68	31.00	0.01	6.03	3
Ethyl benzene	ppmv	1.48	24.50	0.00	4.78	3
Ethyl ether	ppmv	2.28	44.00	0.01	8.57	0
Hydrogen	vol%	0.02	0.14	0.00	0.02	6
Methane	vol%	0.01	0.02	0.00	0.00	4
Methanol	ppmv	12.16	63.00	2.50	12.45	7
Methyl ethyl ketone	ppmv	7.99	16.00	2.50	2.83	4
Methyl isobutyl ketone	ppmv	6.81	9.00	2.50	2.70	0
Methylene chloride	ppmv	178.42	3000.00	0.02	655.20	16
Tetrachloroethene	ppmv	1.51	19.50	0.01	3.78	13
Toluene	ppmv	7.42	40.00	0.04	9.38	24
Trichloroethene	ppmv	143.17	1600.00	0.02	311.55	23
cis-1,2-Dichloroethane	ppmv	1.59	20.00	0.00	4.10	6
n-Butanol	ppmv	6.81	9.00	2.50	2.70	0
o-Xylene	ppmv	1.37	24.50	0.00	[illegible].76	3
p/m-Xylene	ppmv	1.85	24.50	0.00	4.98	6

Number of Drums Sampled: 27

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	43.45	130.00	0.03	74.94	3
1,1,2,2-Tetrachloroethane	ppmv	0.08	0.20	0.01	0.10	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.09	0.17	0.01	0.07	1
1,1-Dichloroethane	ppmv	0.92	2.70	0.02	1.53	2
1,1-Dichloroethene	ppmv	1.71	5.10	0.01	2.93	1
1,2,4-Trimethylbenzene	ppmv	0.05	0.14	0.01	0.07	0
1,2-Dichloroethane	ppmv	0.17	0.36	0.03	0.17	2
1,3,5-Trimethylbenzene	ppmv	0.05	0.12	0.00	0.06	0
Acetone	ppmv	3.63	8.50	1.20	4.21	0
Benzene	ppmv	0.26	0.44	0.02	0.21	2
Bromoform	ppmv	0.06	0.14	0.01	0.07	0
Carbon tetrachloride	ppmv	0.51	1.40	0.02	0.76	3
Chlorobenzene	ppmv	0.06	0.16	0.01	0.08	0
Chloroform	ppmv	0.75	2.20	0.03	1.24	2
Cyclohexane	ppmv	0.10	0.15	0.06	0.04	2
Ethyl benzene	ppmv	0.07	0.17	0.01	0.09	0
Ethyl ether	ppmv	0.05	0.13	0.01	0.06	0
Hydrogen	vol%	0.03	0.09	0.01	0.04	1
Methanol	ppmv	6.50	8.50	5.50	1.73	0
Methyl ethyl ketone	ppmv	3.26	8.50	0.65	4.53	0
Methyl isobutyl ketone	ppmv	3.20	8.50	0.55	4.58	0
Methylene chloride	ppmv	0.59	0.78	0.22	0.32	3
Tetrachloroethene	ppmv	31.34	94.00	0.01	54.25	1
Toluene	ppmv	0.95	2.00	0.10	0.96	3
Trichloroethene	ppmv	56.68	170.00	0.01	98.13	1
cis-1,2-Dichloroethane	ppmv	0.30	0.86	0.01	0.48	1
n-Butanol	ppmv	3.26	8.50	0.65	4.53	0
o-Xylene	ppmv	0.07	0.18	0.01	0.09	0
p/m-Xylene	ppmv	0.08	0.22	0.01	0.11	0

Number of Drums Sampled: 3

IDC: 336 Paper and Rags - Moist

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	135.46	370.00	0.25	115.75	21
1,1,2,2-Tetrachloroethane	ppmv	1.45	11.50	0.01	2.85	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	56.36	620.00	0.04	176.09	4
1,1-Dichloroethane	ppmv	1.90	16.50	0.02	3.53	6
1,1-Dichloroethene	ppmv	2.31	20.00	0.02	4.44	1
1,2,4-Trimethylbenzene	ppmv	3.13	40.00	0.03	8.80	5
1,2-Dichloroethane	ppmv	1.31	10.00	0.01	2.46	1
1,3,5-Trimethylbenzene	ppmv	1.50	11.00	0.02	2.89	3
Acetone	ppmv	13.44	60.00	1.20	14.52	6
Benzene	ppmv	1.58	12.50	0.03	2.84	3
Bromoform	ppmv	1.27	10.50	0.01	2.45	0
Carbon tetrachloride	ppmv	173.99	3600.00	0.12	785.00	12
Chlorobenzene	ppmv	1.37	11.50	0.01	2.69	0
Chloroform	ppmv	14.52	250.00	0.03	54.10	6
Cyclohexane	ppmv	3.94	30.00	0.03	7.73	3
Ethyl benzene	ppmv	1.70	12.50	0.01	2.96	4
Ethyl ether	ppmv	2.26	22.00	0.02	4.70	0
Hydrogen	vol%	0.02	0.17	0.00	0.04	4
Methane	vol%	0.01	0.02	0.01	0.00	0
Methanol	ppmv	10.75	95.00	2.50	19.55	2
Methyl ethyl ketone	ppmv	6.98	20.00	0.65	4.11	5
Methyl isobutyl ketone	ppmv	6.15	12.00	0.55	3.47	2
Methylene chloride	ppmv	10.31	79.00	0.29	20.28	10
Tetrachloroethene	ppmv	22.32	410.00	0.02	88.98	9
Toluene	ppmv	9.96	51.00	1.20	11.08	19
Trichloroethene	ppmv	166.36	470.00	0.03	159.43	13
cis-1,2-Dichloroethane	ppmv	1.46	10.00	0.01	2.60	4
n-Butanol	ppmv	5.48	9.00	0.60	3.33	0
o-Xylene	ppmv	1.89	12.50	0.04	3.27	4
p/m-Xylene	ppmv	2.61	19.00	0.04	4.85	6

Number of Drums Sampled: 21

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	103.45	920.00	0.31	144.82	44
1,1,2,2-Tetrachloroethane	ppmv	0.36	2.20	0.00	0.39	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	2.09	63.00	0.03	9.45	9
1,1-Dichloroethane	ppmv	1.10	16.00	0.00	2.93	5
1,1-Dichloroethene	ppmv	1.07	14.00	0.01	2.33	12
1,2,4-Trimethylbenzene	ppmv	0.29	2.05	0.02	0.33	5
1,2-Dichloroethane	ppmv	0.31	1.90	0.00	0.34	0
1,3,5-Trimethylbenzene	ppmv	0.23	1.55	0.02	0.26	2
Acetone	ppmv	7.80	33.00	1.20	4.53	6
Benzene	ppmv	0.37	2.40	0.04	0.42	5
Bromoform	ppmv	0.38	1.95	0.00	0.39	0
Carbon tetrachloride	ppmv	5.96	140.00	0.01	22.14	18
Chlorobenzene	ppmv	0.34	2.20	0.00	0.39	0
Chloroform	ppmv	19.09	210.00	0.02	36.21	29
Cyclohexane	ppmv	31.85	590.00	0.00	105.01	8
Ethyl benzene	ppmv	0.77	9.80	0.03	1.81	5
Ethyl ether	ppmv	0.55	4.20	0.01	0.74	0
Hydrogen	vol%	0.01	0.05	0.00	0.00	3
Methane	vol%	0.01	0.02	0.01	0.00	0
Methanol	ppmv	43.50	360.00	2.50	72.36	14
Methyl ethyl ketone	ppmv	6.79	9.00	0.50	2.90	1
Methyl isobutyl ketone	ppmv	6.75	9.00	0.55	2.96	0
Methylene chloride	ppmv	5.62	150.00	0.08	22.59	25
Tetrachloroethene	ppmv	0.68	10.00	0.01	1.58	9
Toluene	ppmv	6.81	22.00	0.29	5.88	43
Trichloroethene	ppmv	39.94	340.00	0.01	82.33	24
cis-1,2-Dichloroethane	ppmv	0.37	2.60	0.00	0.48	4
n-Butanol	ppmv	6.67	9.00	0.60	2.98	0
o-Xylene	ppmv	0.52	3.60	0.03	0.77	4
p/m-Xylene	ppmv	1.58	28.00	0.03	5.08	7

Number of Drums Sampled: 45

IDC: 338 Insulation and CWS Filter Medi

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	80.29	280.00	0.49	91.21	12
1,1,2,2-Tetrachloroethane	ppmv	0.20	0.65	0.01	0.20	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.27	0.95	0.01	0.28	0
1,1-Dichloroethane	ppmv	0.49	2.00	0.01	0.68	3
1,1-Dichloroethene	ppmv	0.75	5.20	0.01	1.45	4
1,2,4-Trimethylbenzene	ppmv	0.16	0.40	0.01	0.13	2
1,2-Dichloroethane	ppmv	0.52	1.50	0.01	0.44	7
1,3,5-Trimethylbenzene	ppmv	0.15	0.44	0.00	0.14	2
Acetone	ppmv	8.60	18.00	1.20	3.62	1
Benzene	ppmv	0.28	1.40	0.00	0.39	3
Bromoform	ppmv	0.20	0.65	0.01	0.21	0
Carbon tetrachloride	ppmv	3.66	36.00	0.01	10.30	4
Chlorobenzene	ppmv	0.18	0.55	0.01	0.18	0
Chloroform	ppmv	0.26	0.74	0.00	0.28	2
Cyclohexane	ppmv	0.18	0.60	0.01	0.18	0
Ethyl benzene	ppmv	0.19	0.55	0.01	0.19	0
Ethyl ether	ppmv	0.33	2.30	0.01	0.63	0
Hydrogen	vol%	0.02	0.07	0.01	0.01	3
Methanol	ppmv	16.62	110.00	5.50	29.41	1
Methyl ethyl ketone	ppmv	7.76	8.50	0.65	2.25	0
Methyl isobutyl ketone	ppmv	7.75	8.50	0.55	2.28	0
Methylene chloride	ppmv	1.69	15.00	0.01	4.22	6
Tetrachloroethene	ppmv	1.45	4.20	0.01	1.23	11
Toluene	ppmv	2.06	5.40	0.03	1.83	11
Trichloroethene	ppmv	111.96	430.00	0.70	152.38	12
cis-1,2-Dichloroethane	ppmv	0.16	0.60	0.01	0.16	1
n-Butanol	ppmv	7.76	8.50	0.65	2.25	0
o-Xylene	ppmv	0.19	0.60	0.01	0.18	0
p/m-Xylene	ppmv	0.21	0.65	0.01	0.21	0

Number of Drums Sampled: 12

IDC: 339 Leaded Gloves and Aprons

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	104.72	1000.00	0.05	226.79	43
1,1,2,2-Tetrachloroethane	ppmv	2.65	70.00	0.01	10.63	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	7.39	180.00	0.01	27.94	21
1,1-Dichloroethane	ppmv	4.05	65.00	0.01	12.81	27
1,1-Dichloroethene	ppmv	3.12	60.00	0.01	9.65	6
1,2,4-Trimethylbenzene	ppmv	1.84	46.50	0.00	7.07	1
1,2-Dichloroethane	ppmv	2.39	55.00	0.02	8.35	25
1,3,5-Trimethylbenzene	ppmv	1.56	38.50	0.00	5.89	1
Acetone	ppmv	14.44	59.00	6.00	11.26	20
Benzene	ppmv	2.04	39.00	0.04	6.06	24
Bromoform	ppmv	2.72	80.00	0.01	12.06	0
Carbon tetrachloride	ppmv	953.61	25000.00	0.01	3824.60	38
Chlorobenzene	ppmv	2.32	60.00	0.01	9.13	0
Chloroform	ppmv	47.75	1100.00	0.06	184.48	41
Cyclohexane	ppmv	21.05	740.00	0.01	111.97	6
Ethyl benzene	ppmv	2.54	65.00	0.02	9.87	17
Ethyl ether	ppmv	2.58	55.00	0.00	8.70	0
Hydrogen	vol%	0.12	0.62	0.00	0.13	36
Methane	vol%	0.01	0.04	0.01	0.01	0
Methanol	ppmv	9.83	110.00	2.50	16.03	2
Methyl ethyl ketone	ppmv	6.82	8.50	1.40	2.64	6
Methyl isobutyl ketone	ppmv	6.54	8.50	0.35	3.07	0
Methylene chloride	ppmv	14.34	270.00	0.26	41.09	35
Tetrachloroethene	ppmv	2.14	55.00	0.00	8.38	2
Toluene	ppmv	7.58	65.00	0.18	10.79	40
Trichloroethene	ppmv	3.85	65.00	0.01	11.55	13
cis-1,2-Dichloroethane	ppmv	2.01	46.50	0.00	7.18	4
n-Butanol	ppmv	6.55	8.50	0.44	3.05	0
o-Xylene	ppmv	2.68	65.00	0.02	9.86	23
p/m-Xylene	ppmv	3.03	75.00	0.04	11.36	24

Number of Drums Sampled: 44

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	56.63	320.00	0.10	87.77	31
1,1,2,2-Tetrachloroethane	ppmv	0.39	6.00	0.00	1.07	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.49	7.00	0.03	1.24	13
1,1-Dichloroethane	ppmv	1.36	26.00	0.01	4.81	2
1,1-Dichloroethene	ppmv	2.67	44.00	0.01	8.42	3
1,2,4-Trimethylbenzene	ppmv	0.34	5.50	0.00	0.9[illegible]	1
1,2-Dichloroethane	ppmv	0.35	5.00	0.01	0.89	9
1,3,5-Trimethylbenzene	ppmv	0.28	4.20	0.00	0.75	2
Acetone	ppmv	7.95	13.00	2.50	2.70	4
Benzene	ppmv	0.45	6.50	0.01	1.15	7
Bromoform	ppmv	0.36	5.50	0.00	0.98	0
Carbon tetrachloride	ppmv	58.60	1800.00	0.06	323.19	22
Chlorobenzene	ppmv	0.39	6.00	0.00	1.07	0
Chloroform	ppmv	2.44	25.00	0.01	5.01	14
Cyclohexane	ppmv	0.53	8.00	0.01	1.43	0
Ethyl benzene	ppmv	0.42	6.50	0.00	1.16	0
Ethyl ether	ppmv	0.75	11.50	0.01	2.06	0
Hydrogen	vol%	0.02	0.03	0.00	0.00	2
Methane	vol%	0.02	0.04	0.01	0.01	0
Methanol	ppmv	12.73	64.00	2.50	11.76	11
Methyl ethyl ketone	ppmv	6.75	8.50	2.50	2.76	0
Methyl isobutyl ketone	ppmv	6.75	8.50	2.50	2.76	0
Methylene chloride	ppmv	3.69	56.00	0.06	10.07	24
Tetrachloroethene	ppmv	1.06	14.00	0.00	2.81	6
Toluene	ppmv	2.16	7.50	0.06	2.18	22
Trichloroethene	ppmv	53.19	530.00	0.01	126.84	18
cis-1,2-Dichloroethane	ppmv	0.41	5.00	0.00	0.98	2
n-Butanol	ppmv	6.75	8.50	2.50	2.76	0
o-Xylene	ppmv	0.43	6.50	0.00	1.16	1
p/m-Xylene	ppmv	0.43	6.50	0.00	1.16	2

Number of Drums Sampled: 31

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	24.80	89.00	0.12	33.76	9
1,1,2,2-Tetrachloroethane	ppmv	0.07	0.22	0.01	0.07	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.23	1.20	0.03	0.37	5
1,1-Dichloroethane	ppmv	0.08	0.22	0.01	0.07	0
1,1-Dichloroethene	ppmv	0.88	3.30	0.02	1.37	3
1,2,4-Trimethylbenzene	ppmv	0.08	0.30	0.01	0.09	2
1,2-Dichloroethane	ppmv	0.07	0.22	0.01	0.07	1
1,3,5-Trimethylbenzene	ppmv	0.04	0.10	0.01	0.03	1
Acetone	ppmv	9.55	25.00	2.50	6.11	1
Benzene	ppmv	0.23	1.30	0.01	0.40	2
Bromoform	ppmv	0.07	0.23	0.01	0.08	0
Carbon tetrachloride	ppmv	0.61	2.60	0.12	0.77	9
Chlorobenzene	ppmv	0.06	0.20	0.01	0.06	0
Chloroform	ppmv	0.08	0.23	0.01	0.08	1
Cyclohexane	ppmv	0.09	0.22	0.01	0.06	2
Ethyl benzene	ppmv	2.38	9.90	0.03	4.14	4
Ethyl ether	ppmv	0.08	0.18	0.01	0.06	0
Hydrogen	vol%	0.01	0.02	0.00	0.00	0
Methane	vol%	0.01	0.02	0.00	0.01	1
Methanol	ppmv	7.61	8.50	2.50	1.96	0
Methyl ethyl ketone	ppmv	7.61	8.50	2.50	1.96	0
Methyl isobutyl ketone	ppmv	7.61	8.50	2.50	1.96	0
Methylene chloride	ppmv	1.53	12.00	0.01	3.93	4
Tetrachloroethene	ppmv	0.05	0.16	0.01	0.05	0
Toluene	ppmv	11.22	38.00	1.00	13.95	9
Trichloroethene	ppmv	4.26	16.00	0.01	6.76	3
cis-1,2-Dichloroethane	ppmv	0.06	0.21	0.01	0.07	0
n-Butanol	ppmv	19.00	110.00	2.50	34.18	1
o-Xylene	ppmv	2.23	8.80	0.03	3.60	5
p/m-Xylene	ppmv	8.10	33.00	0.03	14.20	6

Number of Drums Sampled: 10

IDC: 376 Cemented Insulation, Filters

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	16.42	43.00	0.07	16.47	9
1,1,2,2-Tetrachloroethane	ppmv	0.05	0.10	0.01	0.02	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.12	0.23	0.01	0.07	4
1,1-Dichloroethane	ppmv	0.06	0.10	0.01	0.03	1
1,1-Dichloroethene	ppmv	0.06	0.13	0.01	0.03	0
1,2,4-Trimethylbenzene	ppmv	0.04	0.13	0.00	0.03	1
1,2-Dichloroethane	ppmv	0.05	0.13	0.01	0.03	1
1,3,5-Trimethylbenzene	ppmv	0.02	0.05	0.00	0.01	1
Acetone	ppmv	8.00	8.50	7.50	0.52	0
Benzene	ppmv	0.11	0.42	0.01	0.13	2
Bromoform	ppmv	0.05	0.11	0.01	0.02	0
Carbon tetrachloride	ppmv	0.41	1.20	0.02	0.38	8
Chlorobenzene	ppmv	0.04	0.09	0.00	0.02	0
Chloroform	ppmv	0.07	0.24	0.01	0.06	1
Cyclohexane	ppmv	0.09	0.27	0.01	0.09	2
Ethyl benzene	ppmv	0.05	0.09	0.00	0.02	1
Ethyl ether	ppmv	0.06	0.14	0.00	0.04	0
Hydrogen	vol%	0.02	0.02	0.02	0.00	0
Methane	vol%	0.01	0.02	0.00	0.01	1
Methanol	ppmv	8.00	8.50	7.50	0.52	0
Methyl ethyl ketone	ppmv	8.00	8.50	7.50	0.52	0
Methyl isobutyl ketone	ppmv	8.00	8.50	7.50	0.52	0
Methylene chloride	ppmv	3.15	12.00	0.03	4.25	8
Tetrachloroethene	ppmv	0.03	0.07	0.00	0.02	0
Toluene	ppmv	7.38	29.00	0.00	9.58	8
Trichloroethene	ppmv	1.95	15.00	0.01	4.94	3
cis-1,2-Dichloroethane	ppmv	0.04	0.09	0.01	0.02	0
n-Butanol	ppmv	8.00	8.50	7.50	0.52	0
o-Xylene	ppmv	0.06	0.10	0.01	0.02	2
p/m-Xylene	ppmv	0.26	1.40	0.01	0.43	6

Number of Drums Sampled: 9

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	18.80	32.00	5.60	18.66	2
1,1,2,2-Tetrachloroethane	ppmv	0.08	0.15	0.01	0.09	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.13	0.18	0.09	0.06	1
1,1-Dichloroethane	ppmv	0.11	0.21	0.02	0.13	0
1,1-Dichloroethene	ppmv	0.18	0.26	0.10	0.11	1
1,2,4-Trimethylbenzene	ppmv	0.08	0.10	0.07	0.02	1
1,2-Dichloroethane	ppmv	0.07	0.12	0.01	0.07	0
1,3,5-Trimethylbenzene	ppmv	0.11	0.12	0.10	0.01	1
Acetone	ppmv	8.50	8.50	8.50	0.00	0
Benzene	ppmv	0.09	0.16	0.02	0.09	0
Bromoform	ppmv	0.07	0.13	0.01	0.08	0
Carbon tetrachloride	ppmv	0.33	0.33	0.33	0.00	2
Chlorobenzene	ppmv	0.08	0.15	0.01	0.09	0
Chloroform	ppmv	0.07	0.14	0.01	0.08	0
Cyclohexane	ppmv	0.11	0.20	0.02	0.12	0
Ethyl benzene	ppmv	0.14	0.15	0.14	0.01	1
Ethyl ether	ppmv	0.15	0.28	0.03	0.17	0
Hydrogen	vol%	0.02	0.02	0.02	0.00	0
Methane	vol%	0.02	0.02	0.02	0.00	0
Methanol	ppmv	8.50	8.50	8.50	0.00	0
Methyl ethyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methyl isobutyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methylene chloride	ppmv	0.38	0.56	0.21	0.24	2
Tetrachloroethene	ppmv	0.07	0.12	0.01	0.07	0
Toluene	ppmv	2.65	3.40	1.90	1.06	2
Trichloroethene	ppmv	0.08	0.12	0.04	0.06	1
cis-1,2-Dichloroethane	ppmv	0.07	0.13	0.01	0.08	0
n-Butanol	ppmv	8.50	8.50	8.50	0.00	0
o-Xylene	ppmv	0.14	0.15	0.14	0.01	1
p/m-Xylene	ppmv	0.19	0.23	0.15	0.05	1

Number of Drums Sampled: 2

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	3.02	20.00	[illegible].12	7.48	7
1,1,2,2-Tetrachloroethane	ppmv	0.02	0.06	0.01	0.01	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.06	0.07	0.04	00	5
1,1-Dichloroethane	ppmv	0.03	0.08	0.02	.02	0
1,1-Dichloroethene	ppmv	0.04	0.10	0.02	0.02	0
1,2,4-Trimethylbenzene	ppmv	0.06	0.33	[illegible].01	0.11	1
1,2-Dichloroethane	ppmv	0.02	0.05	0.01	0.01	0
1,3,5-Trimethylbenzene	ppmv	0.05	0.30	0.01	0.10	1
Acetone	ppmv	8.50	8.50	8.50	0.00	0
Benzene	ppmv	0.10	0.26	0.01	0.08	5
Bromoform	ppmv	0.02	0.05	0.01	0.01	[illegible]
Carbon tetrachloride	ppmv	0.26	0.33	0.10	0.07	7
Chlorobenzene	ppmv	0.02	0.06	0.01	0.01	0
Chloroform	ppmv	0.04	0.07	0.01	0.01	4
Cyclohexane	ppmv	0.05	0.08	0.02	0.02	3
Ethyl benzene	ppmv	0.02	0.06	0.01	0.01	0
Ethyl ether	ppmv	0.04	0.11	0.03	0.03	0
Hydrogen	vol%	0.02	0.03	0.00	0.00	0
Methane	vol%	0.02	0.03	0.01	0.00	0
Methanol	ppmv	8.50	8.50	8.50	0.00	0
Methyl ethyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methyl isobutyl ketone	ppmv	8.50	8.50	8.50	[illegible].00	0
Methylene chloride	ppmv	0.35	0.92	0.15	0.26	7
Tetrachloroethene	ppmv	0.02	0.05	0.01	0.01	0
Toluene	ppmv	7.85	12.00	1.30	3.71	7
Trichloroethene	ppmv	0.03	0.06	0.02	0.01	4
cis-1,2-Dichloroethane	ppmv	0.02	0.05	0.01	0.01	0
n-Butanol	ppmv	8.50	8.50	8.50	0.00	0
o-Xylene	ppmv	0.05	0.23	0.01	0.07	1
p/m-Xylene	ppmv	0.07	0.36	0.01	0.12	2

Number of Drums Sampled: 8

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	12.62	23.00	5.00	8.11	4
1,1,2,2-Tetrachloroethane	ppmv	0.10	0.27	0.02	0.11	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	1.71	6.70	0.03	3.32	1
1,1-Dichloroethane	ppmv	0.59	2.20	0.03	1.06	1
1,1-Dichloroethene	ppmv	0.44	1.00	0.04	0.40	2
1,2,4-Trimethylbenzene	ppmv	0.15	0.34	0.03	0.14	1
1,2-Dichloroethane	ppmv	0.08	0.23	0.02	0.09	0
1,3,5-Trimethylbenzene	ppmv	0.13	0.25	0.03	0.10	1
Acetone	ppmv	15.62	37.00	8.50	14.25	1
Benzene	ppmv	0.10	0.29	0.02	0.12	0
Bromoform	ppmv	0.09	0.24	0.02	0.10	0
Carbon tetrachloride	ppmv	12.68	50.00	0.20	24.87	4
Chlorobenzene	ppmv	0.10	0.27	0.02	0.11	0
Chloroform	ppmv	0.60	2.30	0.02	1.12	1
Cyclohexane	ppmv	0.13	0.36	0.03	0.15	0
Ethyl benzene	ppmv	0.14	0.28	0.05	0.10	2
Ethyl ether	ppmv	0.18	0.50	0.04	0.20	0
Hydrogen	vol%	0.02	0.02	0.02	0.00	0
Methane	vol%	0.02	0.02	0.02	0.00	0
Methanol	ppmv	8.50	8.50	8.50	0.00	0
Methyl ethyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methyl isobutyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methylene chloride	ppmv	1.05	3.30	0.03	1.54	2
Tetrachloroethene	ppmv	0.08	0.23	0.02	0.09	0
Toluene	ppmv	4.60	6.30	2.40	1.76	4
Trichloroethene	ppmv	3.49	12.00	0.05	5.71	2
cis-1,2-Dichloroethane	ppmv	0.08	0.23	0.02	0.09	0
n-Butanol	ppmv	8.50	8.50	8.50	0.00	0
o-Xylene	ppmv	0.15	0.28	0.05	0.11	1
p/m-Xylene	ppmv	0.24	0.33	0.05	0.12	2

Number of Drums Sampled: 4

IDC: 432 Resin, Leached and Cemented

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	56.88	310.00	0.06	76.73	37
1,1,2,2-Tetrachloroethane	ppmv	0.30	2.00	0.01	0.36	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.52	5.00	0.04	0.84	12
1,1-Dichloroethane	ppmv	2.15	22.00	0.02	3.97	16
1,1-Dichloroethene	ppmv	10.65	130.00	0.02	28.65	19
1,2,4-Trimethylbenzene	ppmv	0.23	1.40	0.01	0.28	4
1,2-Dichloroethane	ppmv	0.26	1.70	0.01	0.30	1
1,3,5-Trimethylbenzene	ppmv	0.22	1.40	0.01	0.25	2
Acetone	ppmv	8.07	8.50	2.50	1.56	0
Benzene	ppmv	1.86	7.50	0.11	1.89	27
Bromoform	ppmv	0.27	1.80	0.01	0.32	0
Carbon tetrachloride	ppmv	0.46	2.00	0.07	0.44	20
Chlorobenzene	ppmv	0.30	2.00	0.01	0.36	0
Chloroform	ppmv	0.49	5.50	0.02	0.93	4
Cyclohexane	ppmv	0.63	2.90	0.02	0.75	11
Ethyl benzene	ppmv	0.35	2.10	0.01	0.40	5
Ethyl ether	ppmv	0.57	3.80	0.03	0.69	0
Hydrogen	vol%	0.19	5.06	0.02	0.75	32
Methane	vol%	0.02	0.04	0.01	0.01	0
Methanol	ppmv	8.07	8.50	2.50	1.56	0
Methyl ethyl ketone	ppmv	8.07	8.50	2.50	1.56	0
Methyl isobutyl ketone	ppmv	8.07	8.50	2.50	1.56	0
Methylene chloride	ppmv	5.60	140.00	0.04	22.29	14
Tetrachloroethene	ppmv	1.89	22.00	0.01	5.08	10
Toluene	ppmv	14.78	67.00	1.70	14.21	42
Trichloroethene	ppmv	55.46	630.00	0.01	120.50	24
cis-1,2-Dichloroethane	ppmv	0.30	1.75	0.01	0.35	2
n-Butanol	ppmv	8.07	8.50	2.50	1.56	0
o-Xylene	ppmv	0.34	2.10	0.01	0.39	3
p/m-Xylene	ppmv	0.38	2.10	0.01	0.46	6

Number of Drums Sampled: 42

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	26.64	120.00	0.09	29.31	33
1,1,2,2-Tetrachloroethane	ppmv	0.16	0.90	0.01	0.20	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.22	1.05	0.04	0.22	12
1,1-Dichloroethane	ppmv	0.20	1.25	0.01	0.26	1
1,1-Dichloroethene	ppmv	0.27	1.55	0.01	0.36	4
1,2,4-Trimethylbenzene	ppmv	0.13	0.80	0.01	0.16	6
1,2-Dichloroethane	ppmv	0.15	0.75	0.01	0.18	7
1,3,5-Trimethylbenzene	ppmv	0.11	0.60	0.00	0.13	3
Acetone	ppmv	8.74	32.00	2.50	4.62	4
Benzene	ppmv	0.23	0.95	0.01	0.19	12
Bromoform	ppmv	0.13	0.80	0.01	0.16	1
Carbon tetrachloride	ppmv	6.88	83.00	0.09	20.33	29
Chlorobenzene	ppmv	0.14	0.90	0.01	0.18	0
Chloroform	ppmv	1.40	22.00	0.01	3.95	15
Cyclohexane	ppmv	15.82	110.00	0.02	33.97	13
Ethyl benzene	ppmv	0.66	16.00	0.01	2.71	9
Ethyl ether	ppmv	0.25	1.65	0.00	0.35	0
Hydrogen	vol%	0.06	1.09	0.00	0.19	8
Methane	vol%	0.01	0.02	0.01	0.00	0
Methanol	ppmv	10.85	120.00	2.50	19.38	3
Methyl ethyl ketone	ppmv	7.66	12.00	2.50	2.27	1
Methyl isobutyl ketone	ppmv	7.48	8.50	2.50	2.15	1
Methylene chloride	ppmv	1.05	14.00	0.01	2.37	23
Tetrachloroethene	ppmv	0.17	1.70	0.00	0.31	1
Toluene	ppmv	7.81	45.00	0.41	8.76	34
Trichloroethene	ppmv	8.96	130.00	0.01	23.52	18
cis-1,2-Dichloroethane	ppmv	0.13	0.75	0.01	0.15	0
n-Butanol	ppmv	7.38	8.50	2.50	2.30	0
o-Xylene	ppmv	0.87	24.00	0.01	4.09	3
p/m-Xylene	ppmv	3.10	96.00	0.01	16.41	12

Number of Drums Sampled: 34

IDC: 441 Unleached/Leached Raschig Ring

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	39.00	39.00	39.00	0.00	1
1,1,2,2-Tetrachloroethane	ppmv	0.12	0.12	0.12	0.00	[illegible]
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.15	0.15	0.15	0.00	0
1,1-Dichloroethane	ppmv	0.56	0.56	0.56	0.00	1
1,1-Dichloroethene	ppmv	0.22	0.22	0.22	0.00	0
1,2,4-Trimethylbenzene	ppmv	0.09	0.09	0.09	0.00	0
1,2-Dichloroethane	ppmv	0.11	0.11	0.11	0.00	0
1,3,5-Trimethylbenzene	ppmv	0.09	0.09	0.09	0.00	0
Acetone	ppmv	62.00	62.00	62.00	0.00	1
Benzene	ppmv	0.13	0.13	0.13	0.00	0
Bromoform	ppmv	0.11	0.11	0.11	0.00	0
Carbon tetrachloride	ppmv	0.65	0.65	0.65	0.00	1
Chlorobenzene	ppmv	0.12	0.12	0.12	0.00	0
Chloroform	ppmv	0.12	0.12	0.12	0.00	0
Cyclohexane	ppmv	0.17	0.17	0.17	0.00	0
Ethyl benzene	ppmv	0.13	0.13	0.13	0.00	0
Ethyl ether	ppmv	0.24	0.24	0.24	0.00	
Hydrogen	vol%	0.02	0.02	0.02	0.00	
Methanol	ppmv	100.00	100.00	100.00	0.00	[illegible]
Methyl ethyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methyl isobutyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methylene chloride	ppmv	0.16	0.16	0.16	0.00	0
Tetrachloroethene	ppmv	12.00	12.00	12.00	0.00	[illegible]
Toluene	ppmv	0.15	0.15	0.15	0.00	0
Trichloroethene	ppmv	5.50	5.50	5.50	0.00	[illegible]
cis-1,2-Dichloroethane	ppmv	0.11	0.11	0.11	0.00	0
n-Butanol	ppmv	8.50	8.50	8.50	0.00	0
o-Xylene	ppmv	0.13	0.13	0.13	0.00	0
p/m-Xylene	ppmv	0.13	0.13	0.13	0.00	0

Number of Drums Sampled: 1

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	35.71	250.00	0.84	56.31	27
1,1,2,2-Tetrachloroethane	ppmv	0.11	1.00	0.00	0.20	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.19	1.20	0.04	0.24	14
1,1-Dichloroethane	ppmv	0.52	11.00	0.01	2.09	5
1,1-Dichloroethene	ppmv	0.22	1.75	0.01	0.41	3
1,2,4-Trimethylbenzene	ppmv	0.09	0.70	0.00	0.14	2
1,2-Dichloroethane	ppmv	0.14	0.85	0.00	0.18	5
1,3,5-Trimethylbenzene	ppmv	0.08	0.70	0.00	0.14	1
Acetone	ppmv	7.67	8.50	2.50	1.86	0
Benzene	ppmv	0.17	1.10	0.00	0.28	7
Bromoform	ppmv	0.11	0.90	0.00	0.19	0
Carbon tetrachloride	ppmv	0.60	7.50	0.14	1.39	22
Chlorobenzene	ppmv	0.11	1.00	0.00	0.20	0
Chloroform	ppmv	0.19	0.95	0.01	0.23	9
Cyclohexane	ppmv	0.14	1.35	0.01	0.27	0
Ethyl benzene	ppmv	0.14	1.05	0.00	0.24	1
Ethyl ether	ppmv	0.19	1.90	0.00	0.38	0
Hydrogen	vol%	0.01	0.02	0.00	0.00	0
Methane	vol%	0.01	0.01	0.01	0.00	0
Methanol	ppmv	22.92	130.00	2.50	35.60	6
Methyl ethyl ketone	ppmv	7.67	8.50	2.50	1.86	0
Methyl isobutyl ketone	ppmv	7.67	8.50	2.50	1.86	0
Methylene chloride	ppmv	4.08	54.00	0.01	10.66	20
Tetrachloroethene	ppmv	0.09	0.85	0.00	0.17	0
Toluene	ppmv	2.55	17.00	0.06	3.99	25
Trichloroethene	ppmv	1.61	16.00	0.01	3.18	18
cis-1,2-Dichloroethane	ppmv	0.10	0.85	0.00	0.18	0
n-Butanol	ppmv	7.67	8.50	2.50	1.86	0
o-Xylene	ppmv	0.14	1.05	0.00	0.23	2
p/m-Xylene	ppmv	0.17	1.20	0.00	0.29	2

Number of Drums Sampled: 27

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	34.08	68.00	0.17	47.96	2
1,1,2,2-Tetrachloroethane	ppmv	0.10	0.16	0.05	0.07	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.14	0.23	0.06	0.12	0
1,1-Dichloroethane	ppmv	0.11	0.15	0.07	0.06	0
1,1-Dichloroethene	ppmv	0.12	0.16	0.08	0.05	0
1,2,4-Trimethylbenzene	ppmv	0.06	0.10	0.03	0.04	0
1,2-Dichloroethane	ppmv	0.09	0.15	0.04	0.08	0
1,3,5-Trimethylbenzene	ppmv	0.05	0.07	0.03	0.02	0
Acetone	ppmv	8.00	8.50	7.50	0.70	0
Benzene	ppmv	0.17	0.18	0.17	0.00	1
Bromoform	ppmv	0.10	0.16	0.04	0.08	0
Carbon tetrachloride	ppmv	0.35	0.43	0.27	0.11	2
Chlorobenzene	ppmv	0.09	0.14	0.05	0.06	0
Chloroform	ppmv	0.15	0.16	0.15	0.01	1
Cyclohexane	ppmv	0.25	0.36	0.15	0.14	1
Ethyl benzene	ppmv	0.09	0.13	0.05	0.06	0
Ethyl ether	ppmv	0.11	0.13	0.09	0.02	0
Hydrogen	vol%	0.02	0.02	0.02	0.00	0
Methane	vol%	0.02	0.02	0.02	0.00	0
Methanol	ppmv	8.00	8.50	7.50	0.70	0
Methyl ethyl ketone	ppmv	8.00	8.50	7.50	0.70	0
Methyl isobutyl ketone	ppmv	8.00	8.50	7.50	0.70	0
Methylene chloride	ppmv	0.27	0.35	0.20	0.10	1
Tetrachloroethene	ppmv	0.07	0.11	0.04	0.04	0
Toluene	ppmv	8.50	16.00	1.00	10.60	2
Trichloroethene	ppmv	6.52	13.00	0.04	9.16	1
cis-1,2-Dichloroethane	ppmv	0.09	0.15	0.04	0.07	0
n-Butanol	ppmv	8.00	8.50	7.50	0.70	0
o-Xylene	ppmv	0.10	0.15	0.05	0.07	0
p/m-Xylene	ppmv	0.10	0.16	0.05	0.08	0

Number of Drums Sampled: 2

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	154.08	5400.00	0.05	646.09	75
1,1,2,2-Tetrachloroethane	ppmv	0.52	17.50	0.01	2.12	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.73	21.00	0.01	2.57	23
1,1-Dichloroethane	ppmv	1.37	25.00	0.01	3.71	25
1,1-Dichloroethene	ppmv	1.17	30.50	0.01	3.93	18
1,2,4-Trimethylbenzene	ppmv	0.45	16.50	0.01	1.95	7
1,2-Dichloroethane	ppmv	0.47	15.00	0.01	1.83	14
1,3,5-Trimethylbenzene	ppmv	0.40	12.00	0.00	1.49	6
Acetone	ppmv	11.84	55.00	2.50	9.32	20
Benzene	ppmv	0.69	19.00	0.01	2.31	22
Bromoform	ppmv	0.47	15.50	0.01	1.89	0
Carbon tetrachloride	ppmv	1.20	29.00	0.01	3.91	44
Chlorobenzene	ppmv	0.51	17.50	0.01	2.12	0
Chloroform	ppmv	0.81	19.00	0.00	2.93	13
Cyclohexane	ppmv	0.69	23.00	0.01	2.81	1
Ethyl benzene	ppmv	0.65	18.50	0.01	2.27	15
Ethyl ether	ppmv	0.96	33.00	0.00	4.03	1
Hydrogen	vol%	0.02	0.13	0.00	0.02	21
Methane	vol%	0.01	0.02	0.01	0.00	0
Methanol	ppmv	9.96	65.00	2.50	10.83	10
Methyl ethyl ketone	ppmv	7.63	16.00	0.65	2.47	9
Methyl isobutyl ketone	ppmv	7.10	8.50	0.55	2.64	3
Methylene chloride	ppmv	10.15	280.00	0.01	42.91	51
Tetrachloroethene	ppmv	0.97	34.00	0.00	4.30	9
Toluene	ppmv	7.49	46.00	0.02	8.56	71
Trichloroethene	ppmv	19.79	610.00	0.01	78.00	36
cis-1,2-Dichloroethane	ppmv	0.46	15.00	0.01	1.83	1
n-Butanol	ppmv	7.03	8.50	0.65	2.73	1
o-Xylene	ppmv	0.66	18.50	0.01	2.29	15
p/m-Xylene	ppmv	0.93	18.50	0.01	2.80	22

Number of Drums Sampled: 75

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	5.79	29.00	0.14	9.22	10
1,1,2,2-Tetrachloroethane	ppmv	0.02	0.09	0.00	0.02	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.47	4.00	0.01	1.23	8
1,1-Dichloroethane	ppmv	0.27	1.30	0.01	0.49	6
1,1-Dichloroethene	ppmv	0.16	0.84	0.01	0.31	[illegible]
1,2,4-Trimethylbenzene	ppmv	0.01	0.08	0.00	0.02	0
1,2-Dichloroethane	ppmv	0.02	0.08	0.00	0.02	[illegible]
1,3,5-Trimethylbenzene	ppmv	0.01	0.06	0.00	0.01	0
Acetone	ppmv	8.65	28.00	2.50	7.36	1
Benzene	ppmv	0.06	0.51	0.00	0.15	2
Bromoform	ppmv	0.01	0.08	0.00	0.02	0
Carbon tetrachloride	ppmv	0.23	1.50	0.01	0.46	3
Chlorobenzene	ppmv	0.01	0.09	0.00	0.02	0
Chloroform	ppmv	0.05	0.38	0.01	0.11	4
Cyclohexane	ppmv	0.02	0.12	0.00	0.03	0
Ethyl benzene	ppmv	0.02	0.09	0.00	0.02	1
Ethyl ether	ppmv	0.03	0.17	0.01	0.04	0
Hydrogen	vol%	0.04	0.11	0.02	0.03	5
Methane	vol%	0.01	0.01	0.01	0.00	0
Methanol	ppmv	6.95	11.00	2.50	3.16	1
Methyl ethyl ketone	ppmv	7.65	18.00	2.50	4.60	1
Methyl isobutyl ketone	ppmv	6.10	8.50	2.50	3.09	0
Methylene chloride	ppmv	0.17	0.98	0.01	0.29	5
Tetrachloroethene	ppmv	0.01	0.08	0.00	0.02	0
Toluene	ppmv	4.54	25.00	0.01	9.53	5
Trichloroethene	ppmv	2.28	15.00	0.00	5.04	5
cis-1,2-Dichloroethane	ppmv	0.06	0.52	0.00	0.16	[illegible]
n-Butanol	ppmv	6.10	8.50	2.50	3.09	0
o-Xylene	ppmv	0.02	0.09	0.00	0.02	[illegible]
p/m-Xylene	ppmv	0.02	0.09	0.00	0.02	[illegible]

Number of Drums Sampled: 10

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	0.14	0.14	0.14	0.00	1
1,1,2,2-Tetrachloroethane	ppmv	0.01	0.01	0.01	0.00	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.05	0.05	0.05	0.00	1
1,1-Dichloroethane	ppmv	0.13	0.13	0.13	0.00	1
1,1-Dichloroethene	ppmv	0.02	0.02	0.02	0.00	0
1,2,4-Trimethylbenzene	ppmv	0.01	0.01	0.01	0.00	0
1,2-Dichloroethane	ppmv	0.33	0.33	0.33	0.00	1
1,3,5-Trimethylbenzene	ppmv	0.01	0.01	0.01	0.00	0
Acetone	ppmv	17.00	17.00	17.00	0.00	1
Benzene	ppmv	0.64	0.64	0.64	0.00	1
Bromoform	ppmv	0.01	0.01	0.01	0.00	0
Carbon tetrachloride	ppmv	0.13	0.13	0.13	0.00	1
Chlorobenzene	ppmv	0.01	0.01	0.01	0.00	0
Chloroform	ppmv	0.20	0.20	0.20	0.00	1
Cyclohexane	ppmv	0.02	0.02	0.02	0.00	0
Ethyl benzene	ppmv	0.01	0.01	0.01	0.00	0
Ethyl ether	ppmv	0.03	0.03	0.03	0.00	0
Hydrogen	vol%	0.09	0.09	0.09	0.00	1
Methanol	ppmv	8.50	8.50	8.50	0.00	0
Methyl ethyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methyl isobutyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methylene chloride	ppmv	1.30	1.30	1.30	0.00	1
Tetrachloroethene	ppmv	0.01	0.01	0.01	0.00	0
Toluene	ppmv	2.50	2.50	2.50	0.00	1
Trichloroethene	ppmv	0.01	0.01	0.01	0.00	0
cis-1,2-Dichloroethane	ppmv	0.01	0.01	0.01	0.00	0
n-Butanol	ppmv	8.50	8.50	8.50	0.00	0
o-Xylene	ppmv	0.01	0.01	0.01	0.00	0
p/m-Xylene	ppmv	0.01	0.01	0.01	0.00	0

Number of Drums Sampled: 1

IDC: 800 Solidified Sludge-Bldg 774

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	0.10	0.14	0.03	0.04	[illegible]
1,1,2,2-Tetrachloroethane	ppmv	0.02	0.03	0.01	0.00	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.06	0.16	0.02	0.05	4
1,1-Dichloroethane	ppmv	0.02	0.05	0.02	0.01	0
1,1-Dichloroethene	ppmv	0.03	0.06	0.02	0.01	0
1,2,4-Trimethylbenzene	ppmv	0.02	0.03	0.01	0.00	1
1,2-Dichloroethane	ppmv	0.01	0.03	0.01	0.00	0
1,3,5-Trimethylbenzene	ppmv	0.01	0.02	0.01	0.00	0
Acetone	ppmv	6.80	12.00	2.50	4.17	0
Benzene	ppmv	0.14	0.32	0.01	0.12	[illegible]
Bromoform	ppmv	0.02	0.03	0.01	0.00	
Carbon tetrachloride	ppmv	0.09	0.12	0.02	0.04	
Chlorobenzene	ppmv	0.02	0.03	0.01	0.00	
Chloroform	ppmv	0.08	0.29	0.01	0.11	2
Cyclohexane	ppmv	0.02	0.05	0.02	0.01	0
Ethyl benzene	ppmv	0.02	0.04	0.01	0.01	0
Ethyl ether	ppmv	0.04	0.07	0.03	0.01	0
Hydrogen	vol%	0.04	0.09	0.02	0.02	[illegible]
Methane	vol%	0.00	0.01	0.00	0.00	5
Methanol	ppmv	6.80	12.00	2.50	4.17	0
Methyl ethyl ketone	ppmv	6.80	12.00	2.50	4.17	0
Methyl isobutyl ketone	ppmv	6.80	12.00	2.50	4.17	0
Methylene chloride	ppmv	0.05	0.14	0.02	0.04	2
Tetrachloroethene	ppmv	0.01	0.03	0.01	0.00	0
Toluene	ppmv	4.89	9.90	0.05	3.[illegible]	5
Trichloroethene	ppmv	0.01	0.03	0.01	0.00	0
cis-1,2-Dichloroethane	ppmv	0.01	0.03	0.01	0.00	0
n-Butanol	ppmv	6.80	12.00	2.50	4.17	0
o-Xylene	ppmv	0.02	0.04	0.01	0.01	0
p/m-Xylene	ppmv	0.02	0.04	0.01	0.01	0

Number of Drums Sampled: 5

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	1339.33	2400.00	18.00	1212.20	3
1,1,2,2-Tetrachloroethane	ppmv	12.16	23.00	1.00	11.00	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	14.56	27.50	1.20	13.15	0
1,1-Dichloroethane	ppmv	17.13	32.50	1.40	15.55	0
1,1-Dichloroethene	ppmv	21.06	40.00	1.70	19.15	0
1,2,4-Trimethylbenzene	ppmv	11.30	21.50	0.90	10.30	0
1,2-Dichloroethane	ppmv	10.28	19.50	0.85	9.32	0
1,3,5-Trimethylbenzene	ppmv	8.56	16.00	0.70	7.65	0
Acetone	ppmv	8.37	8.50	8.00	0.25	2
Benzene	ppmv	13.01	24.50	1.05	11.73	0
Bromoform	ppmv	10.80	20.50	0.90	9.80	0
Carbon tetrachloride	ppmv	3746.66	7700.00	340.00	3710.32	3
Chlorobenzene	ppmv	12.16	23.00	1.00	11.00	0
Chloroform	ppmv	11.93	21.50	2.80	9.35	1
Cyclohexane	ppmv	16.10	30.50	1.30	14.60	0
Ethyl benzene	ppmv	12.68	24.00	1.05	11.47	0
Ethyl ether	ppmv	22.96	43.50	1.90	20.80	0
Hydrogen	vol%	0.02	0.02	0.02	0.00	1
Methane	vol%	0.00	0.01	0.00	0.00	2
Methanol	ppmv	102.75	180.00	65.00	54.00	4
Methyl ethyl ketone	ppmv	5.50	8.50	2.50	3.46	0
Methyl isobutyl ketone	ppmv	5.50	8.50	2.50	3.46	0
Methylene chloride	ppmv	20.05	38.00	1.65	18.17	0
Tetrachloroethene	ppmv	10.28	19.50	0.85	9.32	0
Toluene	ppmv	14.73	28.00	1.20	13.40	0
Trichloroethene	ppmv	11.40	19.50	4.20	7.68	1
cis-1,2-Dichloroethane	ppmv	10.61	20.00	0.85	9.58	0
n-Butanol	ppmv	5.50	8.50	2.50	3.46	0
o-Xylene	ppmv	12.68	24.00	1.05	11.47	0
p/m-Xylene	ppmv	12.68	24.00	1.05	11.47	0

Number of Drums Sampled: 3

IDC: 802 Solid. Lab. Wastes

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	0.40	0.90	0.12	0.43	2
1,1,2,2-Tetrachloroethane	ppmv	0.21	0.60	0.02	0.33	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.28	0.70	0.07	0.36	2
1,1-Dichloroethane	ppmv	0.30	0.85	0.02	0.47	0
1,1-Dichloroethene	ppmv	0.37	1.05	0.03	0.58	0
1,2,4-Trimethylbenzene	ppmv	0.20	0.55	0.02	0.29	[illegible]
1,2-Dichloroethane	ppmv	0.17	0.50	0.01	0.27	0
1,3,5-Trimethylbenzene	ppmv	0.15	0.41	0.01	0.22	0
Acetone	ppmv	14.16	25.50	8.50	9.81	0
Benzene	ppmv	1.39	3.70	0.08	2.00	3
Bromoform	ppmv	0.17	0.50	0.01	0.27	0
Carbon tetrachloride	ppmv	0.25	0.55	0.07	0.26	2
Chlorobenzene	ppmv	0.21	0.60	0.02	0.33	0
Chloroform	ppmv	0.19	0.55	0.02	0.30	0
Cyclohexane	ppmv	90.06	270.00	0.03	155.83	2
Ethyl benzene	ppmv	0.26	0.65	0.04	0.33	2
Ethyl ether	ppmv	0.39	1.10	0.03	0.61	0
Hydrogen	vol%	0.02	0.02	0.02	0.00	0
Methane	vol%	0.00	0.00	0.00	0.00	3
Methanol	ppmv	472.33	1400.00	8.50	803.38	1
Methyl ethyl ketone	ppmv	14.16	25.50	8.50	9.81	0
Methyl isobutyl ketone	ppmv	14.16	25.50	8.50	9.81	0
Methylene chloride	ppmv	0.89	1.50	0.17	0.67	2
Tetrachloroethene	ppmv	0.17	0.50	0.01	0.27	0
Toluene	ppmv	3.56	4.70	2.60	1.05	3
Trichloroethene	ppmv	0.17	0.50	0.01	0.27	0
cis-1,2-Dichloroethane	ppmv	0.17	0.50	0.01	0.27	0
n-Butanol	ppmv	14.16	25.50	8.50	9.81	0
o-Xylene	ppmv	0.24	0.65	0.02	0.35	1
p/m-Xylene	ppmv	0.35	0.65	0.14	0.26	2

Number of Drums Sampled: 3

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	0.15	0.15	0.15	0.00	1
1,1,2,2-Tetrachloroethane	ppmv	0.02	0.02	0.02	0.00	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.13	0.13	0.13	0.00	1
1,1-Dichloroethane	ppmv	0.03	0.03	0.03	0.00	0
1,1-Dichloroethene	ppmv	0.03	0.03	0.03	0.00	0
1,2,4-Trimethylbenzene	ppmv	0.02	0.02	0.02	0.00	0
1,2-Dichloroethane	ppmv	0.02	0.02	0.02	0.00	0
1,3,5-Trimethylbenzene	ppmv	0.01	0.01	0.01	0.00	0
Acetone	ppmv	8.50	8.50	8.50	0.00	0
Benzene	ppmv	0.17	0.17	0.17	0.00	1
Bromoform	ppmv	0.02	0.02	0.02	0.00	0
Carbon tetrachloride	ppmv	0.14	0.14	0.14	0.00	1
Chlorobenzene	ppmv	0.02	0.02	0.02	0.00	0
Chloroform	ppmv	0.02	0.02	0.02	0.00	0
Cyclohexane	ppmv	0.13	0.13	0.13	0.00	1
Ethyl benzene	ppmv	0.02	0.02	0.02	0.00	0
Ethyl ether	ppmv	0.04	0.04	0.04	0.00	0
Hydrogen	vol%	0.02	0.02	0.02	0.00	0
Methane	vol%	0.00	0.00	0.00	0.00	1
Methanol	ppmv	8.50	8.50	8.50	0.00	0
Methyl ethyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methyl isobutyl ketone	ppmv	8.50	8.50	8.50	0.00	0
Methylene chloride	ppmv	0.14	0.14	0.14	0.00	1
Tetrachloroethene	ppmv	0.02	0.02	0.02	0.00	0
Toluene	ppmv	4.20	4.20	4.20	0.00	1
Trichloroethene	ppmv	0.02	0.02	0.02	0.00	0
cis-1,2-Dichloroethane	ppmv	0.02	0.02	0.02	0.00	0
n-Butanol	ppmv	8.50	8.50	8.50	0.00	0
o-Xylene	ppmv	0.02	0.02	0.02	0.00	0
p/m-Xylene	ppmv	0.05	0.05	0.05	0.00	1

Number of Drums Sampled: 1

IDC: 807 Solid. Bypass Sludge-Bldg 374

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	1.49	2.90	0.08	1.99	2
1,1,2,2-Tetrachloroethane	ppmv	0.01	0.02	0.01	0.00	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.12	0.17	0.08	0.06	2
1,1-Dichloroethane	ppmv	0.02	0.02	0.02	0.00	0
1,1-Dichloroethene	ppmv	0.02	0.03	0.02	0.00	0
1,2,4-Trimethylbenzene	ppmv	0.01	0.01	0.01	0.00	0
1,2-Dichloroethane	ppmv	0.01	0.01	0.01	0.00	0
1,3,5-Trimethylbenzene	ppmv	0.01	0.01	0.01	0.00	0
Acetone	ppmv	5.50	8.50	2.50	4.24	0
Benzene	ppmv	0.05	0.08	0.02	0.04	1
Bromoform	ppmv	0.01	0.01	0.01	0.00	0
Carbon tetrachloride	ppmv	0.20	0.32	0.08	0.16	2
Chlorobenzene	ppmv	0.01	0.02	0.01	0.00	0
Chloroform	ppmv	0.01	0.01	0.01	0.00	0
Cyclohexane	ppmv	0.09	0.16	0.02	0.09	1
Ethyl benzene	ppmv	0.01	0.02	0.01	0.00	0
Ethyl ether	ppmv	0.03	0.03	0.03	0.00	0
Hydrogen	vol	0.01	0.02	0.00	0.01	0
Methane	vol	0.00	0.01	0.00	0.00	1
Methanol	ppmv	5.50	8.50	2.50	4.24	0
Methyl ethyl ketone	ppmv	5.50	8.50	2.50	4.24	0
Methyl isobutyl ketone	ppmv	5.50	8.50	2.50	4.24	0
Methylene chloride	ppmv	0.10	0.14	0.07	0.04	2
Tetrachloroethene	ppmv	0.01	0.01	0.01	0.00	0
Toluene	ppmv	1.48	2.00	0.96	0.7[illegible]	2
Trichloroethene	ppmv	0.01	0.01	0.01	0.00	0
cis-1,2-Dichloroethane	ppmv	0.01	0.01	0.01	0.00	0
n-Butanol	ppmv	5.50	8.50	2.50	4.24	0
o-Xylene	ppmv	0.01	0.02	0.01	0.00	0
p/m-Xylene	ppmv	0.04	0.07	0.01	0.03	1

Number of Drums Sampled: 2

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	0.70	0.70	0.70	0.00	1
1,1,2,2-Tetrachloroethane	ppmv	0.02	0.02	0.02	0.00	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.25	0.25	0.25	0.00	1
1,1-Dichloroethane	ppmv	0.03	0.03	0.03	0.00	0
1,1-Dichloroethene	ppmv	0.03	0.03	0.03	0.00	0
1,2,4-Trimethylbenzene	ppmv	0.02	0.02	0.02	0.00	0
1,2-Dichloroethane	ppmv	0.01	0.01	0.01	0.00	0
1,3,5-Trimethylbenzene	ppmv	0.01	0.01	0.01	0.00	0
Acetone	ppmv	2.50	2.50	2.50	0.00	0
Benzene	ppmv	0.02	0.02	0.02	0.00	0
Bromoform	ppmv	0.02	0.02	0.02	0.00	0
Carbon tetrachloride	ppmv	2.00	2.00	2.00	0.00	1
Chlorobenzene	ppmv	0.02	0.02	0.02	0.00	0
Chloroform	ppmv	0.02	0.02	0.02	0.00	0
Cyclohexane	ppmv	0.23	0.23	0.23	0.00	1
Ethyl benzene	ppmv	0.02	0.02	0.02	0.00	0
Ethyl ether	ppmv	0.03	0.03	0.03	0.00	0
Hydrogen	vol	0.00	0.00	0.00	0.00	0
Methane	vol	0.01	0.01	0.01	0.00	0
Methanol	ppmv	13.00	13.00	13.00	0.00	1
Methyl ethyl ketone	ppmv	2.50	2.50	2.50	0.00	0
Methyl isobutyl ketone	ppmv	2.50	2.50	2.50	0.00	0
Methylene chloride	ppmv	0.03	0.03	0.03	0.00	0
Tetrachloroethene	ppmv	0.01	0.01	0.01	0.00	0
Toluene	ppmv	0.55	0.55	0.55	0.00	1
Trichloroethene	ppmv	0.01	0.01	0.01	0.00	0
cis-1,2-Dichloroethane	ppmv	0.01	0.01	0.01	0.00	0
n-Butanol	ppmv	2.50	2.50	2.50	0.00	0
o-Xylene	ppmv	0.02	0.02	0.02	0.00	0
p/m-Xylene	ppmv	0.02	0.02	0.02	0.00	0

Number of Drums Sampled: 1

IDC: 822 Cemented Resin

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	0.20	0.20	0.20	0.00	1
1,1,2,2-Tetrachloroethane	ppmv	0.05	0.05	0.05	0.00	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.06	0.06	0.06	0.00	0
1,1-Dichloroethane	ppmv	0.07	0.07	0.07	0.00	0
1,1-Dichloroethene	ppmv	0.09	0.09	0.09	0.00	0
1,2,4-Trimethylbenzene	ppmv	0.05	0.05	0.05	0.00	0
1,2-Dichloroethane	ppmv	0.04	0.04	0.04	0.00	0
1,3,5-Trimethylbenzene	ppmv	0.03	0.03	0.03	0.00	0
Acetone	ppmv	2.50	2.50	2	0.00	0
Benzene	ppmv	0.61	0.61	0.61	0.00	1
Bromoform	ppmv	0.04	0.04	0.04	0.00	0
Carbon tetrachloride	ppmv	0.16	0.16	0.16	0.00	1
Chlorobenzene	ppmv	0.05	0.05	0.05	0.00	0
Chloroform	ppmv	0.05	0.05	0.05	0.00	0
Cyclohexane	ppmv	0.18	0.18	0.18	0.00	1
Ethyl benzene	ppmv	0.05	0.05	0.05	0.00	0
Ethyl ether	ppmv	0.10	0.10	0.10	0.00	0
Hydrogen	vol	0.00	0.00	0.00	0.00	0
Methane	vol	0.01	0.01	0.01	0.00	0
Methanol	ppmv	2.50	2.50	2.50	0.00	0
Methyl ethyl ketone	ppmv	2.50	2.50	2.50	0.00	0
Methyl isobutyl ketone	ppmv	2.50	2.50	2.50	0.00	0
Methylene chloride	ppmv	0.08	0.08	0.08	0.00	0
Tetrachloroethene	ppmv	0.04	0.04	0.04	0.00	0
Toluene	ppmv	28.00	28.00	28.00	0.00	1
Trichloroethene	ppmv	0.04	0.04	0.04	0.00	0
cis-1,2-Dichloroethane	ppmv	0.04	0.04	0.04	0.00	0
n-Butanol	ppmv	2.50	2.50	2.50	0.00	0
o-Xylene	ppmv	0.05	0.05	0.05	0.00	0
p/m-Xylene	ppmv	0.05	0.05	0.05	0.00	0

Number of Drums Sampled: 1

	Units	AVG	MAX	MIN	STD DEV	CNT
1,1,1-Trichloroethane	ppmv	93.00	93.00	93.00	0.00	1
1,1,2,2-Tetrachloroethane	ppmv	0.60	0.60	0.60	0.00	0
1,1,2-Trichloro-1,2,2-trifluoroethane	ppmv	0.70	0.70	0.70	0.00	0
1,1-Dichloroethane	ppmv	0.80	0.80	0.80	0.00	0
1,1-Dichloroethene	ppmv	10.00	10.00	10.00	0.00	1
1,2,4-Trimethylbenzene	ppmv	0.55	0.55	0.55	0.00	0
1,2-Dichloroethane	ppmv	0.49	0.49	0.49	0.00	0
1,3,5-Trimethylbenzene	ppmv	0.41	0.41	0.41	0.00	0
Acetone	ppmv	2.50	2.50	2.50	0.00	0
Benzene	ppmv	0.60	0.60	0.60	0.00	0
Bromoform	ppmv	0.50	0.50	0.50	0.00	0
Carbon tetrachloride	ppmv	0.55	0.55	0.55	0.00	0
Chlorobenzene	ppmv	0.60	0.60	0.60	0.00	0
Chloroform	ppmv	0.55	0.55	0.55	0.00	0
Cyclohexane	ppmv	0.80	0.80	0.80	0.00	0
Ethyl benzene	ppmv	0.60	0.60	0.60	0.00	0
Ethyl ether	ppmv	1.10	1.10	1.10	0.00	0
Hydrogen	vol%	0.00	0.00	0.00	0.00	0
Methane	vol%	0.01	0.01	0.01	0.00	0
Methanol	ppmv	2.50	2.50	2.50	0.00	0
Methyl ethyl ketone	ppmv	2.50	2.50	2.50	0.00	0
Methyl isobutyl ketone	ppmv	2.50	2.50	2.50	0.00	0
Methylene chloride	ppmv	0.95	0.95	0.95	0.00	0
Tetrachloroethene	ppmv	1.40	1.40	1.40	0.00	1
Toluene	ppmv	7.50	7.50	7.50	0.00	1
Trichloroethene	ppmv	200.00	200.00	200.00	0.00	1
cis-1,2-Dichloroethane	ppmv	0.50	0.50	0.50	0.00	0
n-Butanol	ppmv	2.50	2.50	2.50	0.00	0
o-Xylene	ppmv	0.60	0.60	0.60	0.00	0
p/m-Xylene	ppmv	0.60	0.60	0.60	0.00	0

Number of Drums Sampled: 1