**Pacific Northwest
National Laboratory**

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**Regulatory Data Quality Objectives
Supporting Tank Waste Remediation
System Privatization Project**

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December 1998

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Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RLO 1830

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A Compilation of Regulated Organic Constituents Not Associated with the Hanford Site, Richland, Washington, KD Wiemers, RT Hallen, H Babad, LK Jagoda, K Meier, PNNL-11927, Pacific Northwest National Laboratory, Richland, Washington.

Rationale for Selection of Pesticides, Herbicides, and Related Compounds from the Hanford SST/DST Waste Considered for Analysis in Support of the Regulatory DQO (Privatization), KD Wiemers, P Daling, K Meier, PNNL-12039, Pacific Northwest National Laboratory, Richland, Washington.

An Approach for the Analysis of Regulatory Analytes in High Level Radioactive Waste Stored at Hanford, Richland, Washington, KD Wiemers, M Miller, ME Lerchen, PNNL-11942, Pacific Northwest National Laboratory, Richland, Washington.

An Assessment of the Stability and the Potential for In-Situ Synthesis of Regulated Organic Compounds in High Level Radioactive Waste Stored at Hanford, Richland, Washington, KD Wiemers, H Babad, RT Hallen, ME Lerchen, LP Jackson, PNNL-11943, Pacific Northwest National Laboratory, Richland, Washington.

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Acknowledgments

The authors would like to acknowledge the following staff for their contributions to these documents:

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- II Rationale for Selection of Pesticides, Herbicides and Related Compounds from the Hanford SST/DST Waste Considered for Analysis in Support of the Regulatory DQO (Privatization)
- III An Assessment of the Stability and the Potential for In-Situ Synthesis of Regulated Organic Compounds in High Level Radioactive Waste Stored at Hanford, Richland, Washington
- IV An Approach for the Analysis of Regulatory Analytes in High Level Radioactive Waste Stored at Hanford, Richland, Washington

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Abbreviations and Acronyms

ASIL	acceptable source impact level
BC	below the cut-point
CAS#	chemical abstract service number
CFR	<i>Code of Federal Regulations</i>
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy, Richland Operations Office
DQO	data quality objective
DST	double-shell tank
ECD	electron capture detector
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
EQL	estimate quantitation limit
ETF	Effluent Treatment Facility
GC/MS	gas chromatography/mass spectrometry
HASQARD	<i>Hanford Analytical Services Quality Assurance Requirements Documents</i>
HDW	Hanford Defined Waste
HEAST	Health Effects Summary Tables
HLW	high-level waste
HTCE	Historical Tank Content Estimate
ICP	inductively coupled plasma
ICP/MS	inductively coupled plasma/mass spectrometer
IHLW	immobilized high-level waste
ILAW	immobilized low-activity waste
IRIS	Integrated Risk Information System
LAW	low-activity waste
LDR	land disposal restriction
MDL	minimum detection limit
NPH	normal paraffin hydrocarbon
OWVP	Operational Waste Volume Projection
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PNNL	Pacific Northwest National Laboratory
QA	quality assurance
QC	quality control
RAWP	risk assessment work plan
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
RPD	relative percent difference
RSD	relative standard deviation
SLRA	screening level risk assessment
SST	single-shell tank
SVOA	semivolatile organic analysis
TAP	toxic air pollutant
TBP	tributyl phosphate
TCDD	tetrachlorodibenzo-p-dioxin

TCLP	toxicity characteristic leaching procedure
TCD	tank characterization database
TCR	tank characterization report
THF	tetrahydrofuran
TIC	tentatively identified compound
Tri-Party Agreement	<i>Hanford Federal Facility Agreement and Consent Order</i>
TSCA	<i>Toxic Substances Control Act</i>
TSD	Treatment Storage Disposal
TWINS	Tank Waste Information Network System
TWRS	Tank Waste Remediation System
TWRSOUP	TWRS Operational and Utilization Plan
UHC	underlying hazardous constituents
UTS	universal treatment standards
VOA	volatile organic analysis
WAC	<i>Washington Administrative Code</i>
WDOH	Washington Department of Health
WIRD	Waste Information Requirements Document
WSPS	Waste Stream Profile Sheet

1.0 Introduction

1.1 Background and Scope

This document describes the results of the data quality objective (DQO) process undertaken to define the Tank Waste Remediation System (TWRS) Privatization Project data needs for waste generated by the U.S. Department of Energy (DOE) and its predecessors. This waste was generated from historical practices and is currently stored in double-shell tanks (DST) and single-shell tanks (SST) at the Hanford Site. Hereafter, this document is referred to as the Regulatory DQO.

It is anticipated that the information needs identified here and the information needs identified in other TWRS DQOs will be defined in a Waste Information Requirements Document (WIRD) to be submitted annually to the Washington State Department of Ecology (Ecology) in accordance with the *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1994) Milestone M-44-00A *et seq.* as applicable. The WIRD identifies annual characterization deliverables to support safe storage, retrieval, and disposal of tank waste. The WIRD describes the characterization deliverables to be issued each year based on existing Tri-Party Agreement milestones and specifies the contents of these deliverables. TWRS waste management activities are or will be covered under the DOE-held Hanford Site final status *Resource Conservation and Recovery Act of 1976* (RCRA) permit, WA 7890008967, except for the eventual disposal of the immobilized high-level waste (IHLW) at the proposed federal repository.

The primary drivers for characterization under this DQO are the waste characterization requirements pursuant to RCRA regulations and the corresponding state requirements (hereafter collectively referred to as RCRA requirements). Under RCRA, the generator is required to designate the waste and determine the applicability of land disposal restrictions (LDR).¹ Ecology has determined that DOE, the waste generator, has adequately designated the existing waste. Based on the designation, DOE has determined that LDR are applicable to tank waste. Designation and LDR information on newly accepted waste is gathered through the use of the Waste Stream Profile Sheets (WSPS). Data needs defined in this DQO are intended to support, in part, LDR waste analysis and recordkeeping activities for existing legacy waste. Ecology has also determined that because TWRS waste is legacy waste, point-of-generation data may be found through current characterization, if not already available. This determination does not mean that Ecology considers this waste to be newly generated. Ecology and DOE have agreed that if the compound is not detected in the source tank waste and the compound is not expected to be generated within the treatment facility, then additional analysis for the compound within the treatment facility and the final waste form will not be required.

Ecology and DOE have agreed that additional tank waste characterization data would facilitate permitting and compliance activities for treatment and disposal of the waste. In particular, data needs relating to compliance activities associated with delisting, risk assessment, and permitting for treatment and disposal need to be addressed. Therefore, in addition to the RCRA considerations described above,

¹40 *Code of Federal Regulations* (CFR) 261, 40 CFR 268.7; *Washington Administrative Code* (WAC) 173-303-070, WAC 173-303-140.

Ecology and DOE agreed to evaluate characterization needs to address air emissions and polychlorinated biphenyls (PCB) management.

For air emissions, Ecology and DOE agreed that along with the other regulatory inputs, inclusion of the promulgated lists for Class A and Class B toxic air pollutants (TAP) (WAC 173-460) would be sufficient. Additionally, while PCBs are regulated under RCRA, consideration was also given to the possibility that PCBs may be present at levels triggering waste management requirements under the *Toxic Substances Control Act* (TSCA). While there is no historical process knowledge or empirical data for tank waste at or above TSCA-regulated levels, potential impacts to required treatment levels are significant enough that prudence dictates examining tank wastes for PCBs.

Figure 1.1 provides a schematic of the relationship between the source tanks, staged waste, treatment facility, and storage and disposal facilities and identifies potential points for sampling to satisfy characterization needs. The waste feed will be staged in the source tank or an intermediate staging tank before transfer to the treatment facility. Staging may involve a number of preparation steps including decanting of supernate, mixing of solid and liquid phases, chemical adjustments to meet contract specifications, and/or blending of waste from several source tanks. After treatment, the immobilized waste form will be transported to the disposal facility.

The data needs identified through the DQO process described in this document will be applied to the analysis of waste stored in double-shell and single-shell source tanks. Tank waste analysis needs identified under this DQO will ideally be satisfied while the waste is in static storage. All Phase I candidate feed tank wastes are static with respect to future transfers, with the exception of Tank C-106 waste that is scheduled to be transferred to AY-102 before the end of fiscal year 1999. Priority for analysis requested in this DQO is to be given to Phase I candidate tank waste. Application of this DQO to less homogeneous Phase II tank waste will likely be during mobilization and/or retrieval activities.

Additional analysis to support regulatory compliance will occur in the process of retrieving and staging for treatment and prior to delivery to the treatment facility. If necessary, subsequent DQO(s) will address additional data needs. It is anticipated that the results from predecessor DQO(s) will in part drive the data needs of subsequent DQO(s).

This Regulatory DQO process addresses data needs for non-radioactive waste constituents and characteristics. It is understood that knowledge of the radionuclide content will be needed for permitting the treatment facility. Radionuclide data will be available through other DQO(s), most notably the Low-Activity Waste (LAW) Feed DQO (Wiemers and Miller 1997) and the High-Level Waste (HLW) Feed DQO (Wiemers et al. 1998).

1.2 Data Quality Objectives

The objectives of this Regulatory DQO process are to:

- identify the analytes that are needed to address regulatory issues and which are known or potentially present in the tank waste,
- identify analytes to test for through sampling and laboratory analysis,

Figure 1.1. A Schematic of the Relationship Between Double-Shell Tank and Single-Shell Tank Waste Source Tanks; High-Level Waste and Low-Activity Waste Feed Staging, Treatment, and Disposal Functions; and the Potential Points for Characterization to Support Regulatory Compliance.

- identify the appropriate analytical methods that provide acceptable detection capability and quality, and
- obtain source tank waste data on the identified analytes using the identified methods and quality expectations.

1.3 Participants

The following personnel actively participated in this Regulatory DQO:

- DOE managers, supported by Pacific Northwest National Laboratory (PNNL) technical staff and
- Ecology RCRA managers and supporting chemists and permitting staff.

Attendance, discussion, decisions, agreements, and actions items are documented in meeting minutes which are available in the administrative record.

This DQO process was undertaken during contract negotiations for TWRS Privatization Phase I Part B-1.² Representatives from the TWRS Privatization treatment facility contractor were not present during this DQO process, although Ecology recommended their participation. DOE obtained the contractor input in parallel with the DQO process due to contractual issues and proprietary processes. This input was incorporated similarly to other draft technical input, and does not necessarily have traceability to formal transmittal records.

1.4 Schedule

This DQO process identifies data needs to support delisting, LDR compliance, risk assessment, and permitting for treatment and disposal. These compliance driven activities are anticipated to require additional data collection until their completion.

DOE has placed requirements on performing contractors for identification of a detailed approach for delisting the treated HLW (DE-AC06-96RL13308 - Mod. No. A006). An initial draft on a documented approach to delisting is due for DOE review November 1999 with a final for DOE review and approval due April 2000. Data as requested under this DQO will, in part, validate the proposed approach and provide a basis for DOE's decision. The vitrified HLW product must be delisted in order to meet the planned waste acceptance criteria at the proposed national repository for treated high-level waste.

²DOE has authorized BNFL to proceed with Part B-1 of the TWRS Privatization Project (August 24, 1998, Contract Number DE-AC06-96RL13308).

The treatment facility's permitting and associated risk assessment efforts are in progress with initial draft deliverables scheduled for first quarter fiscal year 1999. Key near-term events in the treatment facility's permitting and risk assessment efforts along with anticipated dates are as follows:

- Initial submittal of the treatment facility's draft RCRA Part B dangerous waste permit application (DWPA) and thermal treatment facility risk assessment work plan (RAWP) to Ecology (May 1999)
- Initial screening level risk assessment (SLRA) (August 1999)
- Submittal of final RAWP for Ecology approval (August 1999)
- Begin running risk assessment models in accordance with Ecology approved RAWP (November 1999)
- Submittal of final DWPA to Ecology for inclusion in the Hanford RCRA Permit (WA 7890008967) (May 2000)
- Ecology issues modification to the Hanford RCRA Permit for the draft treatment facility permit conditions (July 2000).

The following activities are important in continuing data needs for permitting of the treatment facility and regulatory compliance in feed delivery to the treatment facility:

- Initiate construction (July 2001)
- Initiate pretreatment hot start (April 2006)
- Initiate HLW hot start (February 2007)
- Initiate HLW treatment services (July 2008)
- Initiate LAW hot start (January 2008)
- Initiate LAW treatment services (April 2009).

The treatment of waste under TWRS Privatization is scheduled to occur in two phases. Priority for this Regulatory DQO is to be given to Phase I candidate tank waste. The selection of feed source tanks must remain flexible to allow for accommodation of other tank farm operations, safety issue resolution, and the treatment facility requirements. DOE contract negotiations may also influence selection of tank waste. A description of the candidate waste feed selection process is updated and published each year in the TWRS Operational and Utilization Plan (TWRSOUP) (Kirkbride et al. 1997). The candidate Phase I tanks are not scheduled to be receivers for future waste transfers from evaporator campaigns and salt well pumping. All Phase I candidate feed tank wastes are static with respect to future transfers, with the exception of Tank C-106 the partial contents of which are scheduled to be transferred to Tank AY-102 before the end of fiscal year 1999. Eleven tank wastes, 9 DSTs and 2 SSTs have been selected as primary feed source candidates for the first treatment phase. These tanks are AN-102, AN-103, AN-104, AN-105, AN-107, AW-101, AZ-101, AZ-102, AY-102, C-106, and C-104. Two additional tank waste feed sources have been assigned for contingency batches, SY-101 and C-102.

1.5 Data Quality Objective Process

The TWRS DQO process is implemented per guidance based on the U.S. Environmental Protection Agency's (EPA's) DQO Process document (EPA 1994a). This Regulatory DQO document will be revised as new information warrants.

1.6 Approach to Analyte Selection and Analysis

Analytes considered under the scope of this Regulatory DQO were selected from a large universe of regulated constituents using a technically defensible decision logic. The logic selected compounds plausible to be in the waste and of potential concern relative to the treatment facility risk assessment and permitting activities. It is envisioned that this analyte selection process will be the first in a series of such processes to identify analysis needs in support of characterization for regulatory compliance.

The general approach to analyte selection for this Regulatory DQO process is represented conceptually in Figure 1.2. The conceptual model shows the relationship between groups of analytes to be considered from the beginning of this Regulatory DQO process through disposal of the final waste form. The relative areas of each circle and overlaps between circles are not necessarily scaled to the number of analytes represented. A comparison of the conceptual and implemented analyte selection logic is provided in Table 4.9.

The analyte selection process begins with the starting universe of regulated analytes represented by Circle A. Circle B represents available historical information and data, some of which overlaps with the starting analyte list. Circle C represents the data that will be obtained primarily from the source tanks. Circle C contains regulated analytes not previously detected or analyzed for in the waste, plausible to be present in the tank waste, and of higher toxicity relative to other regulated analytes. Circle C also contains regulated analytes previously detected and for which confirmation of their presence and concentration would be helpful in the treatment facility risk assessment planning. Circle D represents the data that are anticipated to be gathered at multiple points downstream from the source tanks. These points include but are not limited to the staged feed, the treatment facility process control points, and treated waste form along with associated secondary wastes. The requested analyte sets at each downstream characterization point are not necessarily the same. The information included in Circle A and not in Circles B, C, and D is composed of regulated analytes thought unlikely to exist in the tank waste either because it is unlikely that such chemicals were used at Hanford or that the constituent is unstable in the waste matrix and unlikely to be synthesized in situ. The characterization requirements at these later points will be defined in subsequent DQOs or other documentation. This DQO scope is limited to analysis of waste in the source tanks as represented in Circle C.

Figure 1.2. Conceptual Model for Selection of Analytes To Be Considered for Analysis.

2.0 Statement of Problem

The following problem statement was agreed to by DOE and Ecology during the initial phases of the DQO process:

There is a considerable knowledge base regarding the tank waste. However, it has not been compiled or verified to establish that sufficient information exists to meet RCRA compliance requirements. This information is needed for meeting generator compliance requirements and providing adequate information for the treatment plant risk assessment work plan development.

In particular, it has not been established that existing waste characterization data will meet waste generator characterization requirements as stated under WAC 173-303. The Washington State program includes the entire federal program. Thus, all subsequent citations will reference federal requirements for clarity purposes (40 CFR 268.7, "Land Disposal Restrictions, Waste Analysis and Record Keeping," and 40 CFR 261, "Identification and Listing of Hazardous Waste"). Ecology has determined that all state-only LDR will be met through vitrification.³

In agreeing on this problem statement and in subsequent discussions, the following points have been made and are provided here for additional context and clarification:

- RCRA compliance requirements for tank waste characterization are covered under Tri-Party Agreement Milestone M-44-00 *et seq.* and the Hanford Site RCRA permit (currently interim status for DST and SST System Units).
- Ecology has stated that additional data are required under RCRA regardless of whether tank waste is to be treated.
- Regulatory driven data needs identified in the LAW Feed DQO (Wiemers and Miller 1997, developed for TPA Target Date M-60-14-T01) and the HLW Feed DQO (Wiemers et al. 1998, developed for TPA Target Date M-51-04A-T01) were not entirely accepted by Ecology; this document supplements those DQOs.
- Data gathered through this effort will provide an initial understanding of the tank waste to support meeting the regulatory data needs for the tank waste treatment facility. Additional data needs regarding the tank waste feeds and other concerns are anticipated to be identified as the project is further refined.
- Data requirements for treatment facility operations and immobilized waste forms will be established under the Hanford Site-wide permit (WA 7890008967) through the permit modification process.

³This agreement, that all state-only LDR will be met through vitrification, is documented in the DQO meeting minutes.

- Data requirements for waste feed deliveries between the DST System Unit and the planned waste treatment facility unit will be established under the Hanford Site-wide permit (WA 7890008967) through the permit modification process.

3.0 Decisions/Questions

The correct type, quantity, and quality of data needed are determined by understanding the decisions to which data will be applied. Asking principal study questions and defining the alternative actions resulting from answering the questions are used to generate a decision statement. The result of this Regulatory DQO is a list of analytes, methods, target estimate quantitation limits (EQLs), and quality control (QC) criteria to support the decisions identified in the following text.

The regulations discussed in the decisions include those pertinent to LDRs pursuant to 40 CFR 268.7 and WAC 173-303-140; petitions for exemption or exclusion (delisting) per 40 CFR 260.20, 40 CFR 260.22, and WAC 173-303-910; and obtaining data to support development of a risk assessment work plan as required for permitting the treatment facility. DOE has completed tank waste designation pursuant to WAC 173-303-070 (Double-Shell Tank System Part A, Form 3, September 1996). This DQO did not focus on compliance needs for the liquid effluents as the treatment facility concept requires all liquid effluents to be further managed in existing permitted DOE facilities.

3.1 Decisions

Question #1: Do existing waste characterization data meet requirements for generators under 40 CFR 268.7, "Land Disposal Restrictions, Waste Analysis and Recordkeeping"?

Alternative Actions: Data meet requirements and allow selection of treatment alternative and disposal per the regulations.

Data do not meet requirements and additional data will be gathered to support treatment and disposal.

Data do not meet requirements and the waste remains in storage.

Decision #1: Determine whether there are sufficient data to meet 40 CFR 268.7 that allow selection of the treatment alternative and eventual disposal of the waste.

Question #2: Is there sufficient generator information to support development of a risk assessment for the treatment facility?

Alternative Actions: Sufficient information is available to adequately identify analytes driving risk assessment for the treatment facility.

Available information is insufficient to support the risk assessment and permitting activities for the treatment facility and additional data will be gathered.

Available information is insufficient to support the risk assessment and permitting activities for the treatment facility. Conservative values for plausible tank constituent concentrations will be assumed. These assumptions may lead to a risk assessment that drives prohibitively small treatment facility throughput rates and inappropriately conservative control technologies. Cost and schedule impacts for design, permitting, construction, and operation of the treatment facility will be incurred.

Decision #2: Determine whether identification and quantification of analytes driving risk assessment for the treatment facility is sufficient to allow preparation of the treatment facility risk assessment supporting appropriate design, permitting, construction, and operation.

Question #3: Is there sufficient generator characterization information to support future development and submittal of a delisting petition⁴ in accordance with 40 CFR 260.20, 40 CFR 260.22, and WAC 173-303-910?

Alternative Actions: Sufficient data of appropriate quality are available and allow submittal of the petition.

Available data are of insufficient quality for submittal of the petition and additional data will be gathered.

Available data are of insufficient quality for submittal of the petition and the delisting package may be rejected. There is a risk of IHLW not meeting the repository requirements.

Decision #3: Determine the amount and quality of generator characterization data needed to support the delisting petition.

⁴Question #3 pertains to delisting the vitrified product, which is a requirement for the IHLW and an option for immobilized low-activity waste (ILAW). Delisting requires a strategy that shows the regulator and public that the waste does not need to be managed under Subtitle C of RCRA. The Hanford Site Effluent Treatment Facility (ETF) Delisting Petition, which was granted in 1992, is an example (DOE-RL 1993). Data obtained from tank waste characterization and data from the treatment process itself will support the petition for delisting a particular treated waste stream.

3.2 Data Quality Objective Implementation Logic for Review of Historical Data Adequacy

A generic logic for determining whether historical data and inventories for a given tank waste are sufficient to address the decisions is presented in Figure 3.1. Some variation in implementation of the logic may be required due to differences in the HLW feed and LAW feed retrieval and staging scenarios.

Implementation of the logic results in a decision as to what additional information from analysis of waste stored in the source tanks is required to support generator's characterization requirements.

Completeness of the data is judged by comparing the analytes and test parameters measured with the analytes requested in Tables 4.4, 4.7, and 4.8 and the associated acceptance criteria information presented in Section 8.0.

For purposes of discussion, each logic diagram element has been numbered relative to each applicable decision sequence shown. The cited input sources may be replaced with equivalent documentation at a future date. The references apply to the most recent revision at the time this Regulatory DQO was issued. Additional sources may be sought if the referenced documents are not updated. Data collected before May 1989 may be used if they are validated with post-May 1989 data.

Gate 1: Are any major waste transfers planned between the scheduled sampling date and the scheduled date for staging the feed [GATE 1]?

Because transfer of wastes within the tank farm may significantly impact the composition of the source tank waste, highest priority for sampling and characterization will be given to those tank wastes for which no transfer activities are planned up to the scheduled staging date.

Two input sources [1-1] will be used to determine [1-2] the transfer activity for a given tank waste relative to the planned dates and final transfer to the intermediate feed staging tank:

- TWRSOUP (Kirkbride et al. 1997) will provide the scheduled date for staging.
- Operational Waste Volume Projection (OWVP) (Koreski 1997) identifies the planned waste transfers, from which a determination of dates of future transfers may be identified.

If major transfer activities are not planned for the source tank before feed staging, the tank waste is a candidate for sampling and characterization (continue to Gate 2). Conversely, if a significant number of transfers or transfer of a large quantity of waste are planned,⁵ do not sample, but perform sample collection after the transfers [1-3] [continue to Endfunction B].

⁵Major transfer [quantities] and significant number of transfers refer to any transfer which may affect the knowledge of the candidate tank waste composition to the extent that uncertainties in the staged feed composition relative to contract and/or permit limits present an unacceptable risk to meeting requirements. Configuration control of the tank waste contents will be used by DOE and its contractors to manage this risk. The impact of historical and planned transfers on analytical data and waste composition, respectively, will be evaluated on a tank by tank basis under Gates 1 and 2 of the tank waste selection logic.

Figure 3.1. Regulatory Data Quality Objective Implementation Logic (Page 1 of 3)

Figure 3.1. Regulatory Data Quality Objective Implementation Logic. (Page 2 of 3)

Figure 3.1. Regulatory Data Quality Objective Implementation Logic. (Page 3 of 3)

ENDFUNCTION A

Collect sample and conduct analyses in compliance with Section 8.0. The analyses are to support completion of the data request. When multi-analyte techniques are employed, consideration is to be given to obtaining replicate data for analytes of concern.

ENDFUNCTION B

If sample collection and multiple-analyte techniques are required to support other DQOs, all analytes/properties measured via these techniques are to be reported in support of TWRS Privatization.

Notes:

^(a)Kirkbride et al. (1997).

^(b)Koreski (1997).

^(c)Stanton, G.A. 1998. *Baseline Sampling Schedule*. Change 09-0X (internal memorandum). Lockheed Martin Hanford Company, Richland, Washington.

^(d)Agnew (1997).

^(e)Hanlon (1998).

^(f)Individual tank characterization reports. When available, technical reports, TWINS Tank Characterization Database and vapor database and the standard inventory (Kupfer 1997) may be used as supporting input sources.

DQO = data quality objective.

HDW = Hanford defined waste.

OWVP = Operational Waste Volume Projection.

TCR = tank characterization report.

TWINS = Tank Waste Information Network System.

TWRS = Tank Waste Remediation System.

TWRSOUP = TWRS Operational and Utilization Plan.

Gate 2: Have any major tank waste transfers occurred between the last sampling event and the current event [GATE 2]?

The representativeness of existing characterization information relative to the current tank contents will depend, in part, on the number, quantity, and type of waste transfers that have occurred since the last sampling event.

Input sources [2-1] to be used to determine [2-2] the historical transfer activity for a given tank waste relative to the most recent sampling event:

- Baseline Sampling Schedule (Stanton memo)⁶ is updated, as needed, to reflect the most current sampling schedule and will be used to identify previous sampling events and planned future sample dates.
- The Hanford Defined Waste (HDW) document (Agnew 1997, previously known as the Historical Tank Content Estimate [HTCE]), which describes transfers through December 31, 1993.
- Waste Tank Summary reports (e.g., Hanlon 1998) will provide a complementary source of recent waste transfer information.
- Tank characterization reports (TCR) provide tank specific information.

If, since the most recent sampling event, a significant number of transfers or transfer of a large quantity of waste has occurred, or a dissimilar waste type has been transferred to the source tank, then the tank waste is a candidate for sampling and characterization [2-3] (continue to Endfunction A).⁷

If, since the most recent sampling event, significant waste transfers have not been associated with the source tank, further consideration is required to determine whether additional sampling and characterization are required (continue to Gate 3).

NOTE: Chemical reactions occurring with time, also known as aging, may also alter the waste composition and properties. Although there is insufficient scientific information to quantitatively predict the extent of change due to aging, a large body of data exists which may be used to define the general abundance and nature of the aging products. Consideration may also be given as to the representativeness of the data relative to the period of time elapsed since the last sampling event.

Gate 3: Are data available for analytes and parameters in Tables 4.4, 4.7, and 4.8 [GATE 3]?

Decision Gate 3 addresses the quantity of data. The quantity is defined by the number of samples to be collected from each tank and whether data is available for all of the analytes listed in Tables 4.4, 4.7,

⁶Stanton, G.A. 1998. *Baseline Sampling Schedule*. Change 09-0X (internal memorandum). Lockheed Martin Hanford Company, Richland, Washington.

⁷Wastes classified as static may undergo a limited amount of chemical adjustments (i.e., caustic addition) or blending with other static or well-characterized waste streams. Tank waste that undergoes significant blending may need to be reanalyzed. Refer also to Gate 1 criteria relative to waste transfers.

and 4.8. The existing data are compared to a required number of samples specified in Section 8.0 and the analytes listed in Tables 4.4, 4.7, and 4.8.

The first step requires consolidation of all analytical data and information identified. The tank characterization reports will be used as primary input sources from which the list of reported analytes and physical properties will be derived [3-1]. When available, technical reports, the Tank Waste Information Network System (TWINS) Tank Characterization Database (TCD) and vapor database, and the standard inventory (Kupfer 1997) may be used as supporting input sources.

A list of analytes measured in the tank waste is prepared and compared to the analyte list required for this Regulatory DQO in Tables 4.4, 4.7, and 4.8 [3-2].

If the list of reported analytes is incomplete (when compared with Tables 4.4, 4.7, and 4.8), then the tank waste is to be sampled and characterized [3-3] (continue to Endfunction A). The analyses are to support completion of the data requested in this Regulatory DQO. When multi-analyte techniques are employed, consideration is to be given to obtaining replicate data for previously reported analytes of concern. If the list of reported analytes is complete when compared to Tables 4.4, 4.7, and 4.8, then further assessment of the characterization information is required (continue to Gates 4 and 5).

Gate 4: Were data collected after May 1989 [GATE 4]?

The historical data for the analytes listed in Tables 4.4, 4.7, and 4.8 will be compiled [4-2] from the input sources [4-1] and dates of collection compared to May 1989. Any data collected after May 1989 will be used and data before May 1989 that is validated with post-May 1989 data will be considered for the quality evaluation step [Gate 5]. If data after May 1989 for given analytes are not available, the tank will be sampled [4-3] (continue to Endfunction A).

Gate 5: Do data meet criteria in Section 8.0 of this document [GATE 5]?

The historical data are compared with performance criteria described in Section 8.0 [5-1]. If characterization information meets the criteria set forth in this Regulatory DQO process, sampling specifically for Regulatory DQO analytes is not required [5-3]. If the data do not meet the criteria in Section 8.0, then the tank waste will be considered by DOE and Ecology for sampling to support the Regulatory DQO [5-2] (continue to Endfunction A).

4.0 Inputs

4.1 Summary of Analyte Selection Logic

This section defines the decision logic constructed and implemented as a part of the Regulatory DQO process for selection and prioritization of regulated analytes to be characterized in source tank waste. The logic provides a technically defensible basis for evaluating the potential presence of the regulated compounds in the tank waste and provides prioritization for analysis based on toxicity and the applicability of analytical methods. Each step in the logic was developed and implemented by a team of scientists and DOE and Ecology representatives. The results were concurred with jointly by DOE and Ecology.

The logic is shown in Figure 4.0a, described briefly here and described in more detail in subsequent sections. The logic involves five primary decision steps.

1. What are the appropriate analytes to consider as inputs to the logic?
2. Are the regulated analytes used in industries not associated with the Hanford Site?
3. Would the regulated analytes be stable in the tank waste environment?
4. Is the compound of higher toxicity relative to other regulated analytes?
5. Is there an analytical method for the analyte and the method adaptable to the waste matrix?

The first step, inputs, results in a set of regulated organic constituents for consideration. Regulated organic analytes previously reported as detected were evaluated separately from the "non-detects." The evaluation included number of detects, relative toxicity and carcinogenicity, and applicable analytical methods. Regulated, non-organic constituents and characteristics were also assessed separately. After filtering for plausible and known regulated organic compounds in steps 2 and 3, compounds that have further data needs which may be met through sampling and analysis were identified.

Process knowledge was used in three areas of the analyte selection logic:

- the historical data from previous tank waste sampling was used in the inputs to identify regulated and not reported, and regulated and detected analytes,
- knowledge of processes used at the Hanford Site was used to identify analytes not associated with the Hanford Site, and
- tank chemistry based on process history, general literature information, and previous analyses of tank waste samples used to assess the stability of compounds in the tank waste environment.

4.1.1 Inputs

An input list was created from analytes identified in regulations agreed to be applicable by Ecology and DOE, and in previous waste analyses (see Figure 4.0b). To manage these compounds in a logical fashion, constituents were grouped together into organic constituents and non-organic constituents. Non-organic constituents were evaluated separately as described in Section 4.11. The organic compounds

Figure 4.0a. Simplified Analyte Selection Logic for Organic Regulated Compounds.

Figure 4.0b. Representation of Input List Development for Analyte Selection Logic.

were separated into two groups of interest: (1) regulated and not reported (referred to as non-detected) and (2) regulated and detected.⁸ All subsequent steps in the logic focus on selecting and prioritizing these regulated organic analytes for future characterization based on the following technical decisions. Decision steps described in Sections 4.1.2 to 4.1.4 established the plausibility of the regulated compound's presence in the tank waste.

4.1.2 Industries Not Associated with Hanford

The regulated non-detected organic compounds were evaluated to assess potential use at the Hanford Site (Attachment I). This evaluation was based on published information on predominant uses from a number of commercial databases and best professional judgment. Compounds identified as not associated with the Hanford Site were eliminated from the selection of regulated organic compounds. Compounds previously identified in tank waste were not removed in the Industry evaluation.

4.1.3 Stability

The remaining regulated non-detected compounds were evaluated for stability in the tank waste environment (Attachment III). Compounds assessed as unlikely to be stable in the tank waste were excluded from further consideration.

4.1.4 Toxicity

The regulated organic compounds were also reviewed for their possible toxicity and carcinogenicity (Appendix C). Compounds were ranked by their assigned toxicity and carcinogenicity. A numerical threshold was used to assign "higher" and "lower" toxicity classes. Compounds with assigned values above the threshold remained in the selection process.

4.1.5 Methods

The regulated compounds were then reviewed against analytical methods from SW-846 (EPA 1997) and the specific selection criteria provided the final list of analytes for the characterization in support of the Regulatory DQO.

4.2 Regulated Organic Analyte Selection Logic

The detailed logic for selection of organic compounds for analysis is shown in Figures 4.1 through 4.6. Each decision is identified with a "D" and each database query is identified with a "Q." A database referred to as the Regulatory DQO database was compiled to implement this logic. The figures and text reference both decisions and queries as applicable. Outputs from selected database queries are provided

⁸Non-regulated detected compounds were not directly applicable to this DQO and were removed from further consideration for sampling and analysis. These compounds were considered in assessing the stability of regulated compounds in the tank waste environment (Attachment III).

in Appendix B. The appendix includes a reference table that links each output data table with a query. The brief explanations below describe the figures and steps in the decision logic process:

Figure 4.1: "Development of Potential Organic Single-Shell Tank/Double-Shell Tank Waste Positive Detect List."

The logic used to prepare a list of positive detects of organic SST/DST waste constituents based on previously reported analytical data.

Figure 4.2: "Regulatory Data Quality Objective Input Lists and Logic to Segregate Regulated Detected and Non-detected Compounds and Evaluate Detected Compounds for Toxicity and Carcinogenicity."

The logic to:

- define Regulatory DQO Input List,
- list compounds that are regulated and have not been reported in TWINS Tank Characterization Database and vapor database, and
- list compounds that are regulated and have been reported in the referenced TWINS databases.

This logic also separates the list of regulated detected compounds into three groups: (1) those of higher toxicity, (2) those of lower toxicity that have been detected at least 10 times, and (3) those of lower or unknown toxicity that have been detected fewer than 10 times.

Figure 4.3: "Logic to Assess Non-detected, Regulated Compounds from Industries Not Associated with Hanford."

The logic to assess whether the non-detected, regulated compounds were likely to be used at Hanford.

Figure 4.4: "Logic for Stability, Toxicity, and Carcinogenicity Assessments."

The logic to evaluate non-detected, regulated compounds for stability in the tank waste environment and for toxicity and carcinogenicity.

Figure 4.5: "Analytical Methods Assessment for Compounds with Higher Toxicity."

The logic to evaluate if compounds with higher toxicity are amenable for analyses by SW-846 analytical methods.

Figure 4.6: "Analytical Methods Assessment for Compounds with Lower Toxicity and Priority Regulated Compounds for Characterization in Support of the Regulatory Data Quality Objective."

The logic to compare analytical methods used to characterize higher toxicity/carcinogenicity compounds versus methods to characterize compounds of lower toxicity/carcinogenicity. The logic concludes with a final list of priority regulated organic compounds for analysis in tank waste.

The discussions in the following sections first address the starting lists for analytes in this Regulatory DQO. Two lists were compiled for examination:

- the list of organic compounds detected in the SST/DST waste (Section 4.3) and
- the regulatory analyte input list (Section 4.4).

After explaining the analyte input list, the following three groups of analytes (based on the logic in Figures 4.1 through 4.6) are presented:

- regulated, non-detected compounds of higher toxicity (Section 4.5),
- regulated, detected compounds of higher toxicity (Section 4.6), and
- regulated compounds, detected ≥ 10 times and of lower toxicity (Section 4.7).

The decision logic concludes with an evaluation of selected analytes versus potential analytical methods. All actions discussed in the following sections are based on agreements between DOE and Ecology unless specifically stated.

4.3 Organic Compounds Detected in Single-Shell Tank/Double-Shell Tank Waste

Over 9,000 analytical records were reviewed from the TWINS Tank Characterization Database (SST and DST solids and liquids) and the TWINS SST vapor database (databases obtained on October 25, 1997). The information obtained from the TWINS databases, including the number of detects reported was used to create the Regulatory DQO database. The analytical data presented in the TWINS databases were assumed to be verified against the analytical records. The referenced TWINS databases values were used as presented without any further validation.

4.3.1 Regulatory Data Quality Objective Database Refinement

Operations completed to refine the Regulatory DQO database for application to the analyte selection logic include:

Treatment of Tentatively Identified Compounds. Compounds reported as tentatively identified compounds (TICs) are identified by comparison of mass spectra from the sample to libraries of spectra. The identification and quantitation are not confirmed by the running of standards on the instrument used to analyze the sample. Therefore, significant uncertainty is associated in the identity and quantification of TICs. TICs are identified by either a compound name from best match from the library, as a compound class (e.g., aromatic), or are reported as an unknown.

Figure 4.1. Development of Potential Organic Single-Shell Tank/
Double-Shell Tank Waste Positive Detect List.

^(a)Any vapor, solid, or liquid sample result above detection limits that was not qualified as rejected.

Where duplicate results existed, and one result was detected, a detected was included. Where duplicate results were presented and one result was rejected, the results were considered a positive detect.

DST = double-shell tank.
SST = single-shell tank.
TWINS = Tank Waste Information Network System
TCD = Tank Characterization Database.

Figure 4.2. Regulatory Data Quality Objective Input List and Logic to Segregate Regulated Detected and Non-detected Compounds and Evaluate Detected Compounds for Toxicity and Carcinogenicity.

CAS# = chemical abstract service number.
 DQO = data quality objective.
 DST = double-shell tank.
 PCB = polychlorinated biphenyl.
 SST = single-shell tank.

TAP = toxic air pollutant.
 UHC = underlying hazardous constituents.
 UTS = universal treatment standards.
 WSPS = waste stream profile sheet.

Figure 4.3. Logic to Assess Non-detected, Regulated Compounds from Industries Not Associated with Hanford.

Figure 4.4. Logic for Stability, Toxicity, and Carcinogenicity Assessments.

Figure 4.5. Analytical Methods Assessment for Compounds with Higher Toxicity.

Figure 4.6. Analytical Methods Assessment for Compounds with Lower Toxicity and Priority Regulated Compounds for Characterization in Support of the Regulatory Data Quality Objective.

The TIC data in the vapor phase versus the solid/liquid phases were managed differently in the Regulatory DQO database due to the availability of verified data. The TICs identified in the TWINS vapor database represent the majority of reported data for regulated analytes in tank waste. For this reason, the vapor phase TIC data were retained in the Regulatory DQO database for assessment of "number of detects." The TICs reported in the TWINS Tank Characterization Database included a large number of analytical artifacts specifically excluded by EPA. The Tank Characterization Database TICs were flagged as TICs in the Regulatory DQO database and were not counted as detects.

Removal of Non-organics, Quality Control Reagents, and Artifacts. The original TWINS data were filtered to exclude inorganic analytes and test parameters, analytical quality control reagents (i.e., analytical method surrogates and internal standards), and analytical artifacts (i.e., siloxanes from gas chromatography column degradation). Non-organic analytes and test parameters are considered separately in Section 4.11.

Consolidation of Chemical Abstract Service Numbers. Cross-references were performed in the TWINS Tank Characterization Database and vapor database on chemical names, and a list of synonyms consisting of over 7,500 entries was reviewed. One specific, commonly used chemical name was assigned to each chemical abstract service number (CAS#). The final list of unique compounds considered in this DQO was consolidated to 1,227. The CAS# is used as the key field for comparison of compounds across the database and with other databases. For example, methylene chloride and dichloromethane were consolidated as dichloromethane with CAS# 75-09-2. Compounds that were listed as mixtures specifying more than one compound were not included in the assessment. For example, xylene (CAS# 1330-20-7) was removed since the individual isomers (para, meta, and ortho) were included as individual compounds.

Oregon Graduate Institute Data. The Oregon Graduate Institute data were flagged in the TWINS vapor database stating that either no approved quality assurance (QA) documentation existed, or that a significant QA deficiency was associated with the reported results. All Oregon Graduate Institute analytes retained in the Regulatory DQO database were confirmed by analyses from other laboratory(ies).

4.3.2 Identification of Positive Detects

The remaining data were reviewed for determination of "positive detect" status. A positive response is defined as one or more detects that are not qualified as a reject or reported at or below the analytical detection limit. Duplicate samples with one reported detect were counted as a positive detect.

4.3.3 Consideration of Additional Analytical Data Inputs

The compounds with positive responses from the analyses of 242A Evaporator process condensate, slurry, and feed from 1994 (campaign #1) to 1996 (campaign #2) were also included in the SST/DST waste compound list (WHC 1994a, 1994b, 1994c; WHC 1995a, 1995b; WHC 1996a, 1996b).

Organic species were measured in liquid phase waste samples as part of the organic safety program (Campbell et al. 1996a, 1996b). The list of regulated compounds considered in this Regulatory DQO does not include these organic species with the exception of tributyl phosphate (TBP), formate, and oxalate. These three compounds were also positive detects as reported in TWINS Tank Characterization

Database and/or vapor database and are included in the Regulatory DQO Input List. Therefore, the compounds measured by Campbell were not added to the inventory of detected compounds.

4.3.4 Final List of Detected Organic Single-Shell Tank/ Double-Shell Tank Waste Compounds

The compiled list of organic SST/DST waste compounds assigned as "detects" is presented in Appendix B, Table B-1 (Figure 4.1, Q1, 1,227 compounds). The detected analytes were compared with the Regulatory DQO Input List (Section 4.5).

4.4 Regulatory Data Quality Objective Analyte Input Lists

The Regulatory DQO analyte input lists include the:

- Toxic Air Pollutant (TAP) lists Classes A (WAC 173-460-150) and B (WAC 173-460-160),
- Underlying Hazardous Constituents (UHC) list (40 CFR 268.2(i)),
- Universal Treatment Standards (UTS) list (40 CFR 268.48),
- Double Shell Tank RCRA Part A permit application, except waste code F039 (DOE-RL 1996a), and
- Double Shell Tank Waste Stream Profile Sheet constituents.

The following sections discuss each of the inputs considered for inclusion. Appendix B provides the lists and shows the compounds common and unique to the various lists. The combined Regulatory DQO analyte input list contains 850 compounds (Figure 4.2, Q2).

4.4.1 Toxic Air Pollutants

The TAP lists include carcinogenic and noncarcinogenic toxic compounds. The compounds in the TAP lists were promulgated by the Washington State Department of Health (WDOH) for regulation of air pollutants. Class A pollutants are known and probable carcinogens listed in WAC 173-460-150. The Class B pollutants are toxic compounds listed in WAC 173-460-160 and are substances that are not simple asphyxiant or nuisance particulates. The Class B compounds would be considered in evaluating the risk of airborne material potentially exiting a newly permitted facility. The Class A and B compounds are used by the State of Washington in regulating offgas emission control systems. Ecology and DOE agreed that information regarding the TAP Classes A and B compounds may be useful in the risk assessment to support the treatment facility's permitting process.

4.4.2 Underlying Hazardous Constituents and Universal Treatment Standards

The RCRA LDR regulations require the generator to determine the Underlying Hazardous Constituents (UHC) pursuant to 40 CFR 268.7 through testing or knowledge of the waste. In addition,

LDR regulations have required treatment standards, the Universal Treatment Standards (UTS) at 40 CFR 268.48 for individual waste constituents. The UTS list is a consolidated listing containing all UTS and UHC constituents.⁹ During the DQO process, consideration was given to both UTS and UHC constituents to ensure that evaluation of these compounds was addressed.

4.4.3 Double-Shell Tank *Resource Conservation and Recovery Act of 1976* Part A Permit Application

The DST RCRA Part A permit application (DOE-RL 1996a) lists the waste codes applicable to DST waste based on previous waste designation. For specific waste codes, specific treatment criteria apply. The DST waste codes include all the SST waste codes and include metals, organic compounds, and select characteristics such as ignitability. The F039 waste codes are included in the DST RCRA permit and apply to waste resulting from landfill leachate. To date, no landfill leachate has been added to the tanks; therefore, F039 compounds were not included in the Regulatory DQO database. Should landfill leachate be added to tanks, the waste will be characterized before it is added to the tanks. The waste is required to be treated using particular technologies and/or standards under RCRA based on the applicable waste codes. Future demonstration that particular treatment standards have been met will in many cases be dependent on waste feed characterization data.

4.4.4 Double-Shell Tank Waste Stream Profile Sheets

The DST WSPS describe newly generated waste that is to be stored in the DST system. Since 1996, a profile is required to be provided by the generator and approved by TWRS before acceptance of the waste into the DST system in accordance with the DST Waste Acceptance Criteria. The DST WSPS have included organics, metals, select radionuclides (total alpha, plutonium-239/240, and uranium-235) and other waste properties such as pH and specific gravity (hereafter referred to as "test parameters") (WHC 1996c). Radionuclides are not specifically addressed in this Regulatory DQO. Test parameters are addressed in Section 4.11.

Flammable gas prevention is evaluated as part of the DST waste acceptance criteria. The criteria for evaluating flammable gas waste transfer issues is in the Compatibility DQO (Mulkey and Miller 1997). The Flammable Gas DQO (Bauer 1997) addresses the steady state flammable gas condition of a tank. Presently the Flammable Gas DQO includes analysis of compounds which may have an effect on flammability. The analytes in the Flammable Gas DQO are evaluated for inclusion into the Compatibility DQO analyte list when the DQO is revised. The Compatibility DQO is used as a rationale for safety analytes to be included in the DST Waste Acceptance Plan. Ecology requested and DOE agreed to include the Flammable Gas DQO analytes in the Regulatory DQO analyte input list.

⁹As defined at 40 CFR 268.2(i), "Underlying hazardous constituent means any constituent listed in §268.48, Table UTS-Universal Treatment Standards, except fluoride, vanadium, and zinc, which can reasonably be expected to be present at the point of generation of the hazardous waste, at a concentration above the constituent-specific UTS treatment standards."

4.4.5 Inputs Considered and Dismissed

Two inputs were considered and dismissed from inclusion in the regulatory analyte input list, Appendix VIII of 40 CFR Part 261 and the ETF Delisting Petition (DOE-RL 1993).

Appendix VIII. The Appendix VIII list of compounds applies to delisting (40 CFR Part 261). The Appendix VIII list of compounds was considered and dismissed as a potential input for this Regulatory DQO. The decision not to include the Appendix VIII list was based on a letter from T. Cusack to J.C. Armbruster dated August 27, 1996, and an agreement between DOE and Ecology as to the meaning of the letter (Appendix A).

Effluent Treatment Facility. Ecology reviewed the ETF Delisting Petition (DOE-RL 1993) to determine whether additional compounds should be added to the regulatory list based on ETF data needs. The ETF has its own permit and the effluent has undergone delisting. The ETF generates a specific treatment plan for each waste feed. The plan is provided to the regulators for approval before processing waste. This is done to ensure that the permit is met. Ecology and the DOE agreed that since a plan will be generated by ETF for treatment of new waste feed, and since the ETF Delisting Petition dealt with many of the same compounds in the regulatory lists that are part of this DQO, no additional analytes should be added to the source tank characterization based on ETF data needs.

4.4.6 Consolidation of Chemical Abstract Service Number Assignments

Isomers and congeners¹⁰ were evaluated for potential consolidation of CAS#. Polychlorinated biphenyls (PCBs), dioxins and furans, and cresols were consolidated as follows. This consolidation of CAS# assignments resulted in 845 compounds following Figure 4.2, Q2a.

Polychlorinated Biphenyls. Since the individual PCBs are similar in their chemical behavior, toxicity, and carcinogenicity, the various Aroclors (e.g., PCB-1242, PCB-1248, PCB-1254, PCB-1260) were combined as "total PCBs" (CAS# 1336-36-3).

Dioxin and Furans. During the analyte selection logic steps of queries Q1, Q2, Q3, and Q4, any compounds listed from the group of dioxins and furans were compared to the list of detected compounds from the TWINS Tank Characterization Database and vapor database. To ensure matching of information throughout the remaining database operations, all listed dioxins and furans except tetrahydrofuran (THF) were grouped together and 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) (CAS# 1746-01-6) was used as a representative indicator compound for the dioxins/furan group in the Regulatory DQO database. TCDD was selected as the indicator for the dioxin/furan group because it has the highest toxicity ranking within this group. THF was excluded from this grouping of dioxins and furans since it was a known process chemical at Hanford. THF was tracked through the analyte selection logic separate from TCDD.

Cresols. In the case of the cresols (meta, ortho, and para), the individual isomers have different chemical behavior and; therefore, were not combined and remained as individual isomers. "Total

¹⁰A congener is a compound within the same chemical class (e.g., furans or dioxins).

cresols" had a TAP toxicity ranking assigned of III, but the individual isomers had no rankings (refer to Appendix C). Therefore, the TAP toxicity ranking from the "total cresols" was assigned to the three individual isomers.

4.4.7 Organic Regulatory Data Quality Objective Input List

Since this analyte selection logic applies to organics only, all other compounds, such as inorganics and organometallics, and test parameters were excluded. These excluded compounds and parameters are considered in a separate logic described in Section 4.11 (Figure 4.2, Q3, 222 compounds). The final organic Regulatory DQO analyte input list consists of 623 compounds (Figure 4.2, Q4).

4.5 Selection of Regulated Non-Detected Compounds of Higher Toxicity

The next step in the analyte selection process was to separate the regulatory analytes into two groups: analytes that were detected in the SST/DST waste and analytes that were not previously reported (Figure 4.2, D3). The detected compounds from Figure 4.1, Q1 were compared with the regulatory compounds (Figure 4.2, Q4) in D3. The regulated analytes were separated into 477 compounds that have not been reported as previously detected (Figure 4.2, Q6) and 146 compounds meeting the detected criteria (Section 4.2.1.2) (Figure 4.2, Q5). The detected, regulated compounds were next evaluated for relative toxicity (Section 4.6). The non-detected regulated compounds were evaluated for potential exclusions and/or uses in industrial applications not associated with Hanford (Section 4.5.1), stability in tank waste environment (Section 4.5.2), and relative toxicity/carcinogenicity (Section 4.5.3).

4.5.1 Used in Industrial Applications Not Associated with Hanford

The input lists selected for this Regulatory DQO originated from non-nuclear industries and therefore include a large number of compounds not associated with the operations at the Hanford Site. Industry uses for each non-detected or reported regulated compound were identified and used in the evaluation of industry applications not associated with the Hanford Site (Attachment I). This evaluation of compounds involved several steps: identification of "special interest" compounds, examination of published site inventories, and assignment of predominant industry uses.

Identification of "Special Interest" Compounds. As a part of the evaluation of compounds not associated with Hanford, several compounds of known or suspected association with Hanford were identified (Figure 4.3). These compounds were retained for further consideration. The compounds included polycyclic aromatic hydrocarbons (PAHs), pesticides and herbicides, ghost compounds (compounds with a plausible, but undocumented, path to Hanford tank inventories), and those which may be present in the tank waste as a result of in-situ synthesis.

Polycyclic Aromatic Hydrocarbons (PAHs). Since it has been established that at one point in time, the waste tanks were lined with tar (a material that mainly consists of PAHs), PAHs were not eliminated on the basis of industry use and were retained for further consideration (Figure 4.3, Q7, 14 compounds).

Pesticides and Herbicides. DOE and Ecology agreed that chlorinated pesticides and herbicides were likely to have been used during early Hanford Site operations. Therefore, the chlorinated pesticides

and herbicides were not eliminated for industry uses (Figure 4.3, Q9, 39 compounds). The detailed discussion of the technical rationale for selection of pesticide and herbicide compounds in support of the Regulatory DQO is included in Attachment II.

Ghosts. Regulated compounds that are suspected to have been used at the Hanford Site, however, not documented in existing inventories were evaluated as "ghosts." For example, PCBs used in electrical equipment and residuals may have entered into the tanks (Figure 4.3, Q11, 1 compound).

Synthesis. Synthesis of compounds during waste storage in the tanks was evaluated and is discussed fully in Attachment III. The potential for synthesis focuses primarily on the materials known to be placed in the tank such as the solvents and complexants. The aging products were considered, particularly the material generated by cleavage and oxidation of normal paraffin hydrocarbons (NPHs). The possibility of generating halogen or nitrogen substituted aromatics from materials detected and known to be stable to tank conditions was evaluated. Generation of halo substituted carbon compounds or nitro aliphatic compounds was also considered.

The criteria used to identify stable and unstable chemicals was based on the reactivity of functional groups. This same criteria was applied to any regulated compound potentially synthesized "in-situ," i.e., in the tank waste matrix. However, if synthesized compounds with high-vapor pressures were formed continuously, in even low concentrations, these compounds might be identified in the dome vapor space in the tank. This leads one to believe that most of these compounds could only be present at less than steady-state concentrations as they are removed/isolated from the reactive environment, such as being swept out of the tank waste into the dome space or as a less likely alternative, adhere to the tank solids.

While considering the synthetic pathways, examples were noted to explain the detection of regulated compounds that were not otherwise added to the tanks (i.e., nitriles). No equally credible synthetic pathways could be proposed to add regulated compounds not previously detected (Figure 4.3, D8).

Inventory. A comparison was performed (Figure 4.3, Q13, 7 compounds) of the regulated compounds to two existing Hanford inventories (Klem 1990; Agnew 1997) to ensure that compounds from the existing Hanford inventory would not be removed during the Hanford industry association assessment.

Industries Not Associated with Hanford. The remaining regulatory compounds from D9 (Figure 4.3, Q14, 416 compounds) were reviewed by the technical staff of PNNL, Ecology, and independent consultants for specific compounds typically used in industries or applications not associated with Hanford activities (Figure 4.3, Q15, 207 compounds). The Effluent Treatment Facility (ETF) Delisting Petition (DOE-RL 1993) was used as the basis for establishing a list of industry categories that are not associated with Hanford activities. The categories are as follows:

- pesticides,
- military,
- dyestuff,
- pharmaceutical,
- solvent,
- consumer,
- group/mixture, and
- polymer.

A discussion of each category is presented with examples of compounds present. Material Safety Data Sheets, the Merck Index, and other technical databases were consulted to evaluate the potential uses of each compound. The detailed list of compounds in each category is presented in Attachment I.

Pesticides. Compounds included in this category and referred to in this logic as pesticides, include pesticides, miticides, insecticides, fungicides, rodenticides, and herbicides. Attachment II provides a detailed discussion of the method to identify the pesticides that were excluded and included in the logic. Examples of compounds potentially not used at Hanford are TEPP, (synonyms nifost; vaptone; tetron; killax; moropal; tetraethyl pyrophosphate; ethyl pyrophosphate; tetraethyl ester diphosphonic acid), CAS# 107-49-3; and naled, (synonyms: bromochlorphos, dimethyl-1,2-dibromo-2,2-dichloroethyl; dibrom; phosphoric acid 1,2-dibromo-2,2-dichloroethyl dimethyl ester; 1,2-dibromo-2,2-dichloroethyl dimethyl phosphate; alvora) CAS# 300-76-5.

Military. This category includes compounds such as explosives and chemical war agents. Examples of compounds include nitrogen mustard N-oxide (CAS# 126-85-2) and nitroglycerin (CAS# 55-63-0).

Dyestuff. This category includes compounds used in the fabrication of dyes or actual dyes used in all types of materials, food, textiles, etc. Examples of these compounds include xylydine (CAS# 1300-73-8) and o-Anisidine (CAS# 90-04-0).

Pharmaceuticals. This category includes chemicals used in making pharmaceuticals. An example of a compound used in pharmaceuticals is safrole (CAS# 94-59-7).

Solvent. This category includes solvents that were not used in Hanford processes. An example is epichlorohydrin (CAS# 106-89-8). It is a solvent for natural and synthetic resins, gums, cellulose esters and ethers, paints, varnishes, nail enamels and lacquers, and cements for celluloid. It is used in surface-active agents, pharmaceuticals, insecticides, agricultural chemicals, textile chemicals, coatings, adhesives, plasticizers, glycidyl esters, ethymyl-ethylenic alcohol, and fatty acid derivatives.

Consumer. This category includes chemicals used in consumer products. An example is isosafrole (CAS# 120-58-1) used to manufacture Heliotropin; to modify oriental perfumes; to strengthen soap perfumes; in small quantities together with methyl salicylate in root beer and sarsaparilla flavors.

Group/Mixtures. This category includes mixtures such as turpentine and asphalt.

Polymers. This category includes chemicals used to make polymers such as neoprene and rubbers. 4,4'-methylenebisbenzenamine dihydrochloride (CAS# 13552-44-8) is used as a closed-system intermediate in the production of 4,4'-methylenediphenyl diisocyanate, which is used in rigid urethane foams for insulation material, in semiflexible polyurethane foams for automobile safety cushioning, and in the manufacture of elastomers such as spandex fibers. It is also used as a curing agent for epoxy resins (as cross-linking agent), in the manufacture of 4,4'-methylenebis (cyclohexanamine), in the formation of a polyamide imide or a polyester imide (which is used as a wire coating), in the preparation of azo dyes, as a reagent for the determination of tungsten and sulfates, as a corrosion inhibitor for iron under acidic conditions, as a curative for neoprene rubber, in a heat-sensitive hair-setting cream, and in the formulation of polyurethanes for encapsulating instruments for measuring water flow.

Dioxins and Furans. If the compound was a dioxin or furan (other than tetrahydrofuran [THF]), it was also removed (Figure 4.3, Q16-1, 1 compound). Dioxins/furans are toxic by-products of incomplete combustion of halogenated materials. Since the treatment facility will need to manage the generation and associated risk of having these compounds as a result of the thermal treatment process, no further evaluation for dioxins and furans was performed. Tetrahydrofuran was a known process chemical at Hanford and was therefore retained for further consideration.

Analytes Removed for Industry Uses. Non-detected, regulated compounds that were used in industries unrelated to Hanford were removed from further consideration in the Regulatory DQO analyte selection logic (Figure 4.3, Q16-2, 208 compounds). The regulated compounds remaining after D11 (Figure 4.3, Q16-3, 208 compounds) were combined with the analytes excluded above in D6, D7, D8, and D9 (Figure 4.3, Q17, 269 compounds) and are carried forward to the stability in tank waste environment evaluation (Figure 4.4).

4.5.2 Stability in Tank Waste Environment

The compounds from Figure 4.3, Q17 (269 compounds) were regulated constituents expected or likely present in the DST/SST waste and were next reviewed for stability in the highly alkaline ($\text{pH} > 9.0$), nitrate/nitrite rich (oxidizing), and radioactive waste tank environments. Each compound was evaluated separately by a team of organic chemists familiar with tank waste conditions. DOE and Ecology concurrence was reached for each compound assignment. A detailed discussion of stability of chemical compounds in the SST/DST waste is included in Attachment III.

Compounds that could potentially survive for significant periods in the tanks (>1 year) were considered as stable. Possible reactions in the alkaline, highly concentrated oxidizing (nitrate/nitrite), radioactive, and elevated temperature matrix include:

- addition (condensation and radical coupling),
- elimination (dehydrohalogenation),
- hydrolysis,
- oxidation,
- radical reductive dehalogenation, and
- substitution (nucleophilic displacement by hydroxide ion).

In addition, possible degradation (aging) of solvents and complexants and radiolytic reactions were considered. The compounds were screened on a compound-by-compound basis and the susceptibility of the functional group to the previous list of reactions was evaluated. In the absence of literature references, professional judgment was used to assess the compound's reactivity. In-situ synthesis is closely linked with the evaluation of waste stability and is discussed in Attachment III. From the reviewed compounds, 179 regulated compounds were considered unstable in the tank waste (Figure 4.4, Q18R).

Stability of Salts. The tank wastes range in alkalinity from a pH of greater than 9 for some SSTs (Wodrich et al. 1992) to those exceeding pH 12 due to the sodium hydroxides. The carboxylic acids and phenols have a wide range of acid dissociation constant (pK_a) values but most values are less than 10, so acids and phenols will exist in the salt form in the tanks waste material. However, for the stability evaluation if either the acid or its salt form were deemed stable, both forms were treated as stable. That is, for this Regulatory DQO, the simple acid-base reaction of an acidic compound was not considered to

constitute instability if no other reactive functional group is present. The relative environmental risk associated with the dissociated versus the undissociated species is dependent on the treatment process and environmental conditions. No compounds were removed from further consideration based on reversible dissociation reactivity.

Other Factors Considered. The boiling point and solubility of organic compounds in the tank waste were considered as evaluation criteria for inclusion/exclusion of analytes for potential analyses. However, the solubility information available for organic compounds is based on solubility in aqueous neutral solutions and the tank waste is aqueous, alkaline (pH >9), and with high salt concentration. Therefore, no rational criteria could be established for solubility of organics in the present tank matrix. Based on similar logic, a criterion (or a cut-point) for the boiling point for organic compounds could not be established. It is acknowledged that constituents with a low boiling point may be removed during the mixing and transfer of waste feed before the waste is sent to the treatment facility.

4.5.3 Toxicity and Carcinogenicity

Ninety non-detected compounds were considered stable (Figure 4.4, Q19R) and were evaluated for toxicity and carcinogenicity. The detailed technical rationale on the selection criteria for toxic and carcinogenic compounds is included in Appendix C. The toxicity and carcinogenicity rankings were based on information obtained through the UHCs, Class B Toxic Air Pollutants, and slope factors.

Underlying Hazardous Constituents (UHC) Toxicity Ranking Criteria. For the UHCs, each compound's toxicity ranking was determined by Rust Federal Services of Hanford, Inc. in accordance with the method provided under the "Dangerous Waste Regulations" at WAC 173-303-100(5)(b), book designation procedure. This method ranks compounds into toxic categories of X, A, B, C, and D as shown in Table 4.1. The compounds assigned higher toxicity are those with rankings of X, A, or B.

Table 4.1. Toxic Categories Used for Ranking Compounds.

Toxic Ranking Category*	Fish LC ₅₀ (mg/L)	Oral (Rat) LD ₅₀ (mg/kg)	Inhalation (Rat) LC ₅₀ (mg/L)	Dermal (Rabbit) LD ₅₀ (mg/kg)
X	<0.01	<0.5	<0.02	<2
A	0.01 ≤ 0.1	0.5 ≤ 5	0.02 ≤ 0.2	2 ≤ 20
B	0.1 ≤ 1	5 ≤ 50	0.2 ≤ 2	20 ≤ 200
C	1 ≤ 10	50 ≤ 500	2 ≤ 20	200 ≤ 2,000
D	10 - 100	500 - 5,000	20 - 200	2,000 - 20,000

*Toxicity decreases from X to D.

Class A and Class B Toxic Air Pollutant Toxicity Ranking Criteria. The measure of toxicity used for Class B TAPs is based on their assigned acceptable source impact levels (ASIL) as promulgated under WAC 173-460. The ASIL is given in micrograms per cubic meter for a continuous 24-hr period. The smaller the ASIL value, the more toxic the compound.

The process used for this assessment was to sort all TAPs Class B compounds by their ASIL, from highly toxic to less toxic compounds. The compounds were then broken into groups as shown in Table 4.2.

Table 4.2. Prioritization Grouping of Acceptable Source Impact Level Values.

ASIL Toxicity Range	Toxic Ranking Category*
$<1 \mu\text{g}/\text{m}^3$ - 24 hr	I
$1 \mu\text{g}/\text{m}^3$ to $10 \mu\text{g}/\text{m}^3$ - 24 hr	II
$>10 \mu\text{g}/\text{m}^3$ to $100 \mu\text{g}/\text{m}^3$ - 24 hr	III
$>100 \mu\text{g}/\text{m}^3$ to $1,000 \mu\text{g}/\text{m}^3$ - 24 hr	IV
$>1,000 \mu\text{g}/\text{m}^3$ - 24 hr	V

*Toxicity decreases from I to V.

ASIL = acceptable source impact level.

Based on comparison of compounds regulated as both an UHC and Class B TAP, compounds with rankings of I and II were considered higher toxicity (see Table 4.1). "Total cresols" had a TAP toxicity ranking assigned of III, but the individual isomers had no rankings. Therefore, the TAP toxicity ranking from the "total cresols" was assigned to the three individual isomers.

No specific ranking, other than carcinogenicity was conducted for the Class A TAP constituents.

Carcinogenicity - Slope Factors for Inhalation. Slope factors for regulated compounds screened for toxicity and carcinogenicity were obtained from the EPA Integrated Risk Information System (IRIS) and the Health Effects Summary Tables (HEAST) databases. The carcinogenicity rankings were assigned by using the greater of the available slope factors from IRIS and HEAST, taking the logarithm and sorting the results into the groups as shown in Table 4.3. The cutoff point was set at slope factor = 1. Compounds below slope factor = 1 are designated as below the cut-point (BC). Compounds with slope factors of I-v are considered of higher toxicity.

The weight of evidence is an EPA classification system for characterizing the extent to which the available data indicate that an agent is a human carcinogenicity. The evidence is based on published information and professional judgment. EPA has examined the compounds in the IRIS and HEAST databases and indicated the weight-of-evidence classification. The weight of evidence of the compounds was reviewed. Because the cut-point for inclusion of compounds was set conservatively low, the weight of evidence was not a discriminating parameter for the evaluation of toxicity/carcinogenicity.

The compounds without a toxicity or carcinogenicity ranking in the IRIS or HEAST databases were removed from further consideration in the Regulatory DQO. The IRIS and HEAST databases are commonly used by EPA during a risk assessment for toxicity data. Compounds with no readily available ranking must be individually researched and data obtained through literature search. Ecology and DOE agreed that this level of effort is not customary or necessary. Therefore, these compounds without a toxicity or carcinogenicity ranking were removed from further consideration in the Regulatory DQO.

Table 4.3. Prioritization Grouping of log₍₁₀₎ Slope Factors.

Carcinogenicity Ranking Category*	Log ₍₁₀₎ Slope Factor	Range of Slope Factors
i	>3.5	>3,162
ii	3.5 to >3.0	3,162 to >1,000
iii	3.0 to >2.0	1,000 to >100
iv	2.0 to >1.0	100 to >10
v	1.0 to 0	10 to 1
BC	<0	<1

*Carcinogenicity decreases from i to v.

Analyte Selection Based on Toxicity and Carcinogenicity. Of the 90 input compounds from the stability assessment (D13), 25 were assigned higher toxicity (rankings of X, A, B, I, II, i, ii, iii, iv, or v) (Figure 4.4, Q23). The regulated, non-detected compounds with lower or unknown toxicity and carcinogenicity ranking(s) were removed from further consideration at D13 (Figure 4.4, Q24, 65 compounds). Higher toxicity and/or carcinogenicity, regulated, stable, and non-detected compounds were next evaluated for potentially applicable analytical methods (Section 4.8; Figure 4.5).

4.6 Selection of Detected Compounds with Higher Toxicity

Previous discussion has focused on the non-detected compounds. This section and Section 4.7 describe the logic path specific to the detected regulated compounds. The detected compounds from Figure 4.1, Q1, were compared with the regulatory compounds from Figure 4.2, Q4, at D3. This decision separated the regulated compounds into 477 non-detected compounds (Section 4.5) and 146 detected compounds (Figure 4.2, Q5).

The 146 detected regulated organic compounds were screened for toxicity and carcinogenicity. The basis for the toxicity and carcinogenicity rankings is discussed in Appendix C. Of these 146 compounds, 19 were assigned higher toxicity based on a ranking of X, A, B, I, II, i, ii, iii, iv, or v (Figure 4.2, Q5-1). The compounds of higher toxicity and/or carcinogenicity continue to Figure 4.5 for analytical method assessment (Section 4.8). The regulated detected compounds with lower toxicity and carcinogenicity were considered separately with respect to first the number of detects (Section 4.7) and then applicable analytical methods (Section 4.9).

4.7 Selection of Compounds Detected ≥ 10 Times and of Lower Toxicity

After the toxicity and carcinogenicity screening of the 146 detected regulated analytes (Figure 4.2, Q5-2), the remaining 127 lower toxicity and/or carcinogenicity compounds were reviewed for the number of detections reported in the TWINS Tank Characterization Database and vapor database (Figure 4.2, D5). There were 42 compounds that were reported as positive detects (Section 4.2.1.2) in the referenced TWINS databases with less than 10 detects (Figure 4.2, Q5-4). The number "10" was selected as it appeared to be a natural breakpoint in the number of detects reported in these TWINS

databases. In general, there were either a very low number (e.g., 1 to 6) of detects for a particular compound or many (e.g., more than a hundred); therefore, 10 detections provided a conservative break point in the number of detections.

Detected compounds with lower toxicity were considered, because large concentrations of a compound with lower toxicity could have an impact on the risk associated with treatment of the waste. A majority of lower toxicity compounds were detected in the vapor phase and are reported as TICs. This leads to a large uncertainty in the value of the data (refer to Section 4.3.1). Further analyses of the lower toxicity detected compounds are requested with the implication that should such analyses show that these compounds are not present, further consideration of the compounds being derived from the source tank waste would not be required. The compounds with 10 or more positive detections and of lower toxicity and carcinogenicity ranking continue on to Figure 4.6 for the analytical method assessment (Figure 4.2, Q5-3, 85 compounds).

4.8 Analytical Methods for Compounds of Higher Toxicity

The technical details for this section can be found in Attachment IV. The SW-846 was used as a basis for identifying analytical methods applicable to the regulated compounds (1) detected and with higher toxicity and/or carcinogenicity ranking(s) and (2) non-detected, considered stable in the tank waste matrix and ranked higher in toxicity and/or carcinogenicity. Because this data will be used in future compliance activities under WAC 173-303, sampling and analysis methods should conform to the requirements of WAC 173-303-110, "Sampling and Testing Methods."

In Figure 4.5, Q31, the regulated non-detected, stable compounds with higher toxicity (from Figure 4.4, Q23, 25 compounds) and the regulated detected compounds with higher toxicity (from Figure 4.2, Q5-1, 19 compounds) were combined (44 compounds). Analytes listed in SW-846 methods were compared to the combined list of compounds (Figure 4.5, D14). From this comparison, 28 compounds can be analyzed by SW-846 methods. However, many analytes from the UHC and the TAPs lists do not have SW-846 methods. The analytes that are not part of SW-846 were further examined (Figure 4.5, D15). If the analyte was of a similar chemical functional group applicable to an existing method, the SW-846 method was listed as a method that might be amended to accommodate regulated compounds of interest.

For 16 compounds, existing analytical methods from SW-846 could be modified (e.g., by adding the appropriate calibration standards) for analysis (Figure 4.5, Q34). Methods were selected based on those providing the most reliable identification (gas chromatography/mass spectrometry [GC/MS]) and methods allowing the greatest number of analytes per method. This allows cost-effective identification and quantitation of the analytes. Methods identified as "suggested" may be adaptable to compounds with no published methods. New calibration standards may be required.

From D14 and D15, all 44 regulated compounds of higher toxicity and/or carcinogenicity can be associated with an analytical method from SW-846 (Figure 4.5, Q32 and Q34).

It is uncertain whether the SW-846 organic methods will effectively quantify tank waste constituents. The waste sample matrix is much more complex than the groundwater or other effluent streams in agriculture or industrial settings, for which SW-846 methods were developed. These issues are addressed further in Section 8.0.

The methods selected for regulated compounds with higher toxicity and/or carcinogenicity were next used as a basis for identifying which detected, lower toxicity and/or carcinogenicity compounds would be considered for analysis (Figure 4.6, Q41).

4.9 Analytical Methods for Compounds of Lower Toxicity

The regulated detected compounds that were detected 10 times or more were evaluated to determine if detections might be due to common laboratory contamination during the analysis process. The criteria for this evaluation were taken from the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (EPA 1994b). The guidelines state that acetone, 2-butanone, methylene chloride, and the common phthalates are considered laboratory contaminants. At this point it is not possible to evaluate if the reported concentration in TWINS Tank Characterization Database and vapor database was due to actual concentrations present in the analysis samples or due to laboratory contamination during the analysis process. It is very likely that the reported detections of these compounds were due to contamination. During this analyte evaluation, acetone, 2-butanone, and methylenechloride were identified in both vapor and liquid phase. These compounds are very likely to react with sodium hydroxide in the tank waste environment, degrading to other compounds. However, inadequate quality control data were available from the liquid phase to discern whether these analytes were present or were laboratory contaminants. Therefore, these three compounds remain on the analyte list in Table 4.4. These compounds were not eliminated as possible laboratory contaminants. In D16 two compounds [bis(2-ethylhexyl)-phthalate; diethyl-phthalate] were removed due to possible lab contamination (Figure 4.6, Q37).

The remaining 83 compounds were compared to the list of analytical methods obtained in Figure 4.6, Q41, from the regulated compounds with higher toxicity. From this comparison, 81 of the detected compounds may be analyzed by the same analytical methods that were used for the analyses of the regulated compounds with higher toxicity (Figure 4.6, Q39 total). Two compounds (Figure 4.6, Q40b), n-valeraldehyde and acetaldehyde, need to be analyzed by analytical methods not required for the higher toxicity compounds. These compounds were not considered for analysis at this time. Many of the detected, lower toxicity compounds will require additional standards and method validation to ensure the method will work for the analytes in question. The proposed steps for methods validation are discussed in Section 8.0.

Table 4.4. Priority Regulated Organic Compounds for Characterization in Support of the Regulatory Data Quality Objective (125 Compounds). (Page 1 of 3)

CAS #	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking	SW-846 Method	Modified Method
100-00-5	p-Nitrochlorobenzene		II			8270C
100-25-4	1,4-Dinitrobenzene	B	II		8270C	
100-41-4	Ethyl benzene	D	IV		8260B	
100-42-5	Styrene		IV		8260B	
10061-01-5	cis-1,3-Dichloropropene				8260B	
10061-02-6	trans-1,3-Dichloropropene				8260B	
106-35-4	3-Heptanone		IV			8260B
106-42-3	p-Xylene	D	V		8260B	
106-46-7	1,4-Dichlorobenzene	D			8270C	
106-93-4	Ethylene dibromide	C		BC	8260B	
106-97-8	Butane		V			8260B
106-99-0	1,3-Butadiene			V		8260B
107-02-8	Acrolein	B	I		8260B	
107-05-1	3-Chloropropene	A	II		8260B	
107-06-2	1,2-Dichloroethane	D		BC	8260B	
107-12-0	Propionitrile	B			8260B	
107-13-1	Acrylonitrile	B		BC	8260B	
107-87-9	2-Pentanone		V		8260B	
108-10-1	4-Methyl-2-pentanone	D	IV		8260B	
108-38-3	m-Xylene	D	V		8260B	
108-87-2	Methylcyclohexane		V			8260B
108-88-3	Toluene	D	IV		8260B	
108-90-7	Chlorobenzene	D	IV		8260B	
108-94-1	Cyclohexanone	C	IV		8260B	
108-95-2	Phenol	C	III		8270C	
109-66-0	n-Pentane		V			8260B
109-99-9	Tetrahydrofuran		V			8270C
110-12-3	5-Methyl-2-hexanone		IV			8260B
110-43-0	2-Heptanone		IV			8260B
110-54-3	n-Hexane		IV		8260B	
110-82-7	Cyclohexane		V			8260B
110-83-8	Cyclohexene		V			8260B
110-86-1	Pyridine	C	III		8270C	
111-65-9	n-Octane		V			8260B
111-84-2	n-Nonane		V			8260B
118-74-1	Hexachlorobenzene	C		V	8081A	
120-82-1	1,2,4-Trichlorobenzene	D	IV		8270C	
121-44-8	Triethylamine	C	II			8260B
122-39-4	N,N-Diphenylamine	D	III		8270C	
123-19-3	4-Heptanone		IV			8260B
123-38-6	n-Propionaldehyde		V		8260B	
123-86-4	Acetic acid n-butyl ester		V			8260B
123-91-1	1,4-Dioxane	D			8260B	
126-73-8	Tributyl phosphate		II			8270C
126-98-7	2-Methyl-2-propenenitrile	B	II		8260B	

Table 4.4. Priority Regulated Organic Compounds for Characterization in Support of the Regulatory Data Quality Objective (125 Compounds). (Page 2 of 3)

CAS #	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking	SW-846 Method	Modified Method
127-18-4	1,1,2,2-Tetrachloroethene	D		BC	8260B	
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol		III			8270C
1321-64-8	Pentachloronaphthalene		II			8270C
1335-87-1	Hexachloronaphthalene		I			8270C
1335-88-2	Tetrachloronaphthalene		II			8270C
1336-36-3	Polychlorinated biphenyls (PCBs)	B		BC	8082	
141-78-6	Acetic acid ethyl ester	D	V		8260B	
142-82-5	n-Heptane		V			8260B
144-62-7	Oxalic acid		II			(9056)
2234-13-1	Octachloronaphthalene		I		8081A	
287-92-3	Cyclopentane		V			8270C
309-00-2	Aldrin	A		iv	8081A	
319-84-6	alpha-BHC	C		v	8081A	
319-85-7	beta-BHC			v	8081A	
3825-26-1	Ammonium perfluorooctanoate		I			8330
4170-30-3	2-Butenaldehyde (2-Butenal)		III		8260B	
465-73-6	Isodrin	B			8081A	
50-32-8	Benzo(a)pyrene			v	8270C	
53-70-3	Dibenz[a,h]anthracene			v	8270C	
541-73-1	1,3-Dichlorobenzene				8270C	
56-23-5	Carbon tetrachloride	D		BC	8260B	
563-80-4	3-Methyl-2-butanone		V			8260B
57-14-7	1,1-Dimethylhydrazine		II	v		8270C
58-89-9	gamma-BHC (Lindane)	B			8081A	
591-78-6	2-Hexanone		III		8260B	
60-34-4	Methylhydrazine		II			8270C
60-57-1	Dieldrin	X		iv	8081A	
62-75-9	N-Nitroso-N,N-dimethylamine	B		iv	8270C	
624-83-9	Methyl isocyanate		I			8330
627-13-4	Nitric acid, propyl ester		IV			8270C
64-17-5	Ethyl alcohol		V		8260B	
64-18-6	Formic acid		III			(9056)
64-19-7	Acetic acid		III			(9056)
67-56-1	Methyl alcohol (Methanol)	D	IV		8260B	
67-63-0	2-Propyl alcohol (Isopropanol; Propan-2-ol)		V		8260B	
67-64-1	2-Propanone (Acetone)		V		8260B	
67-66-3	Chloroform	D		BC	8260B	
684-16-2	Hexafluoroacetone		II			8260B
71-23-8	n-Propyl alcohol (1-propanol)		V		8260B	
71-36-3	n-Butyl alcohol	D	IV		8260B	
71-43-2	Benzene	D		BC	8260B	
71-55-6	1,1,1-Trichloroethane	D	V		8260B	
72-20-8	Endrin	A	I		8081A	
74-83-9	Bromomethane	C	II		8260B	

Table 4.4. Priority Regulated Organic Compounds for Characterization in Support of the Regulatory Data Quality Objective (125 Compounds). (Page 3 of 3)

CAS #	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking	SW-846 Method	Modified Method
74-87-3	Chloromethane	C	IV	BC	8260B	
75-00-3	Chloroethane	D	V		8260B	
75-01-4	1-Chloroethene	D		BC	8260B	
75-05-8	Acetonitrile	C	IV		8260B	
75-09-2	Dichloromethane (Methylene Chloride)	D		BC	8260B	
75-15-0	Carbon disulfide	D	III		8260B	
75-21-8	Oxirane	B		BC	8260B	
75-34-3	1,1-Dichloroethane	D	V		8260B	
75-35-4	1,1-Dichloroethene	C	III	BC	8260B	
75-43-4	Dichlorofluoromethane		IV			8260B
75-45-6	Chlorodifluoromethane		V			8260B
75-65-0	2-Methyl-2-propanol		IV		8260B	
75-69-4	Trichlorofluoromethane		V		8260B	
75-71-8	Dichlorodifluoromethane		V		8260B	
76-13-1	1,2,2-Trichloro-1,1,2-trifluoroethane		V		8260B	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane		V		8260B	
76-44-8	Heptachlor	B		v	8081A	
78-87-5	1,2-Dichloropropane	D			8260B	
78-92-2	1-Methylpropyl alcohol(2-butanol)		IV			8260B
78-93-3	2-Butanone	D	IV		8260B	
79-00-5	1,1,2-Trichloroethane	D	IV	BC	8260B	
79-01-6	1,1,2-Trichloroethylene			BC	8260B	
79-10-7	2-Propenoic acid		I			8270C
79-34-5	1,1,2,2-Tetrachloroethane	D	III	BC	8260B	
8001-35-2	Toxaphene	C		v	8081A	
82-68-8	Pentachloronitrobenzene (PCNB)	B	II		8270C	
87-68-3	Hexachlorobutadiene	B	I	BC	8270C	
87-86-5	Pentachlorophenol	B				8270C
88-85-7	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	B			8151A	
88-89-1	Picric acid		I			8330
92-52-4	1,1'-Biphenyl		II			8270C
95-47-6	o-Xylene	D	V		8260B	
95-50-1	1,2-Dichlorobenzene	D	IV		8270C	
96-22-0	3-Pentanone		V			8260B
98-86-2	Acetophenone	D	V		8270C	
98-95-3	Nitrobenzene	D	II		8270C	

CAS# = chemical abstract service number.

TAP = toxic air pollutants.

UHC = underlying hazardous constituents.

4.10 Priority Regulated Organic Compounds for Characterization in Support of Regulatory Data Quality Objective

The priority regulated organic compounds for characterization in source tank waste consist of three groups:

1. non-detected, stable in tank waste, higher toxicity (25 compounds);
2. detected, higher toxicity (19 compounds); and
3. detected, lower toxicity, common method with higher toxicity (81 compounds).

The priority compound list, 125 compounds, proposed SW-846 method, and associated toxicity ranking are given in Table 4.4.

4.11 Non-Organic Compounds and Test Parameters Selection Rationale

There were 222 regulated parameters and non-organic constituents identified in the Regulatory DQO Input List and considered separately from the regulated organic analytes (Figure 4.2, D2). The distribution between inorganic and organometallic constituents, radionuclides, chemical groups and mixtures, and chemical properties is shown in Table 4.5.

Table 4.5. Summary of Regulated Compounds To Be Considered.

Constituent/Parameter	Number
Regulated inorganic constituents	165
Regulated organometallic constituents	10
Regulated radionuclides	3
Regulated chemical groups and mixtures	35
Regulated chemical properties	10
Total constituents/parameters to be considered in separate logic	222

A final list of inorganic constituents to be analyzed was obtained by:

- listing all inorganic compounds and metals in the starting regulatory lists,
- identifying the metals/ions associated with the compound,
- consolidating the list of metals/ions (Table 4.6),
- comparing the resulting regulated list to the Hanford Site inventories (Klem 1990; Agnew 1997),
- considering analytical methods applicability to HLW samples, and
- assessing alternative sources of information.

The final list of inorganic constituents and the recommended SW-846 method are provided in Table 4.7. The rationale for deriving the final list for analysis is addressed in terms of analytes retained and analytes excluded for analysis, and those for which alternatives to direct analysis are provided. The specific analytes and justifications for these actions are provided in the following sections.

Table 4.6. Unique Regulatory Inorganic Constituents. (Page 1 of 2)

CAS #	Ion	Constituent	Not Found in Hanford Inventory	Not in ICD 19 (DOE-RL 1996b)	Not in ICD 20 (DOE-RL 1996b)	SW-846 Method (EPA 1997)	Modified Method
7429-90-5	Al	Aluminum				6010B	
7664-41-7	NH ₄ /NH ₃	Ammonia/ Ammonium					350.3
7440-36-0	Sb	Antimony				6010B	
7440-38-2	As	Arsenic				6010B	
7440-39-3	Ba	Barium				6010B	
7440-41-7	Be	Beryllium				6010B	
7440-69-9	Bi	Bismuth		X		6020	
7440-42-8	B	Boron		X		6010B	
24959-67-9	Br	Bromide		X	X	9056	
7440-43-9	Cd	Cadmium				6010B	
7440-70-2	Ca	Calcium				6010B	
1333-86-4	C	Carbon		X	X	9060	
3812-32-6	CO ₃	Carbonate ^{(a)(b)}		X			130
7440-46-2	Cs	Cesium		X		6020	
16887-00-6	Cl	Chloride				9056	
18540-29-9	Cr	Chromium				6010B ^(c)	
7440-48-4	Co	Cobalt				6010B	
7440-50-8	Cu	Copper				6010B	
57-12-5	CN	Cyanide		X		9010B	
16984-48-8	F	Fluoride				9056	
7440-56-4	Ge	Germanium	X	X	X	6020	
7440-58-6	Hf	Hafnium	X	X	X	6020	
14280-30-9	OH	Hydroxide		X	X		310.1
7440-74-6	In	Indium	X	X	X	6020	
7553-56-2	I	Iodine		X	X		345.1
7439-89-6	Fe	Iron				6010B	
7439-92-1	Pb	Lead				6010B	
7439-93-2	Li	Lithium		X		6010B	
7439-95-4	Mg	Magnesium				6010B	
7439-96-5	Mn	Manganese		X		6010B	
7439-97-6	Hg	Mercury				7470A/7471A	
7439-98-7	Mo	Molybdenum				6010B	
7440-02-0	Ni	Nickel				6010B	
7697-37-2	NO ₃	Nitrate				9056	
14797-65-0	NO ₂	Nitrite				9056	

Table 4.6. Unique Regulatory Inorganic Constituents. (Page 2 of 2)

CAS #	Ion	Constituent	Not Found in Hanford Inventory	Not in ICD 19 (DOE-RL 1996b)	Not in ICD 20 (DOE-RL 1996b)	SW-846 Method (EPA 1997)	Modified Method
7727-37-9	N	Nitrogen		(d)	(d)		350.1/350.3
7440-04-2	Os	Osmium	X	X	X	7550	
14265-44-2	PO ₄	Phosphate			X	9056	
7723-14-0	P	Phosphorus				6010B	
7440-06-4	Pt	Platinum			X	255.1/255.2	
7440-09-7	K	Potassium				6010B	
7440-16-6	Rh	Rhodium	(e)	X		6020	
7782-49-2	Se	Selenium				6010B	
7440-21-3	Si	Silicon		X			6010B
7440-22-4	Ag	Silver				6010B	
7440-23-5	Na	Sodium				6010B	
14808-79-8	SO ₄	Sulfate			X	9056	
18496-25-8	S	Sulfides		X		9031	
14265-45-3	SO ₃	Sulfite		X	X		377.1
7440-25-7	Ta	Tantalum		X		6020	
13494-80-9	Te	Tellurium	X	X		6020	
7440-28-0	Tl	Thallium	X	X		6010B	
7440-31-5	Sn	Tin			X	7870	
7440-32-6	Ti	Titanium					6010B
7440-33-7	W	Tungsten		X			6010B
7440-61-1	U	Uranium	(e)				6010B
7440-62-2	V	Vanadium				6010B	
7440-65-5	Y	Yttrium					6010B
7440-66-6	Zn	Zinc				6010B	
7440-67-7	Zr	Zirconium					6010B

Notes: (a)Carbonate originates from the DST WSPS and is not required for risk assessment.

(b)TIC analysis requested in LAW Feed DQO (Wiemers and Miller 1997).

(c)Total Cr analysis requested. Refer to Section 4.11.3.

(d)Nitrogen is measured as ammonia, ammonium, or nitrate as requested in the LAW and HLW Feed DQOs (Wiemers and Miller 1997; Wiemers et al. 1998).

(e)Analytes that have been measured in tank waste and are not in the Hanford Inventory documents (Klem 1990; Agnew 1997).

CAS# = chemical abstract service number.

DQO = data quality objective.

DST = double-shell tank.

EPA = U.S. Environmental Protection Agency.

HLW = high-level waste.

ICD = Interface Control Document.

LAW = low-activity waste.

TIC = total inorganic carbon.

WSPS = waste stream profile sheet.

Table 4.7. Inorganic Constituents of Potential Regulatory Concern.

CAS#	Cation	Constituent
7440-22-4	Ag	Silver
7429-90-5	Al	Aluminum
7440-38-2	As	Arsenic
7440-42-8	B	Boron
7440-39-3	Ba	Barium
7440-41-7	Be	Beryllium
7440-69-9	Bi	Bismuth
7440-70-2	Ca	Calcium
7440-43-9	Cd	Cadmium
7440-48-4	Co	Cobalt
18540-29-9	Cr	Chromium
7440-46-2	Cs	Cesium
7440-50-8	Cu	Copper
7439-89-6	Fe	Iron
7439-97-6	Hg	Mercury
7440-09-7	K	Potassium
7439-93-2	Li	Lithium
7439-95-4	Mg	Magnesium
7439-96-5	Mn	Manganese
7439-98-7	Mo	Molybdenum
7440-23-5	Na	Sodium
7440-02-0	Ni	Nickel
7723-14-0	P	Phosphorus
7439-92-1	Pb	Lead
7440-06-4	Pt	Platinum
7440-16-6	Rh	Rhodium
63705-05-5	S	Total Sulfur
7440-36-0	Sb	Antimony
7782-49-2	Se	Selenium
7440-21-3	Si	Silicon
7440-31-5	Sn	Tin
7440-25-7	Ta	Tantalum
7440-28-0	Tl	Thallium
7440-61-1	U	Uranium
7440-62-2	V	Vanadium
7440-33-7	W	Tungsten
7440-65-5	Y	Yttrium
7440-66-6	Zn	Zinc
7440-67-7	Zr	Zirconium
7664-41-7	NH ₄ /NH ₃	Ammonia/Ammonium
Total Cations: 39		

CAS#	Anion	Constituent
24959-67-9	Br	Bromide
16887-00-6	Cl	Chloride
57-12-5	CN	Cyanide
16984-48-8	F	Fluoride
7553-56-2	I	Iodine
14797-65-0	NO ₂	Nitrite
7697-37-2	NO ₃	Nitrate
14280-30-9	OH	Hydroxide
14265-44-2	PO ₄	Phosphate
18496-25-8	S	Sulfides
14265-45-3	SO ₃	Sulfite
14808-79-8	SO ₄	Sulfate
Total Anions: 12		

Shaded cells are not requested at this time as the constituent requires a unique analysis and alternative methods for estimating concentration are provided for consideration.

CAS# = chemical abstract service number.

4.11.1 Regulated Analytes Not Included in Site Inventory and Retained for Analysis

Uranium. Uranium is not in the referenced Hanford inventory (Klem 1990; Agnew 1997) but given the type of reactor fuel used, it is included for analysis.

Rhodium. Rhodium has been detected in HLW and is included for analysis (Esch 1997a).

Thallium. Thallium is not listed in the inventory but is of significant concern for toxicity, is more frequently used in the industry than metals dismissed from further consideration in this DQO (refer to Section 4.11.2.), is of concern for RCRA, and therefore, is included for analysis.

4.11.2 Regulated Analytes Excluded from Consideration for Analysis

Regulated Analytes not Included in Site Inventory, Seldom Used in Industry and not Retained for Analysis. The following analytes listed on the regulatory list, were not listed in the Klem (1990) and Agnew (1997) inventories, are seldom used in nuclear industry, and are not proposed for analyses: germanium, hafnium, osmium, indium, and tellurium.

Carbon. Inorganic carbon is included on regulatory starting lists (TAPs) as graphite, dust, or main group carbon compounds (e.g., COS, COF₂, CBr₄). The graphite and dust were determined to be nuisance compounds in bulk quantities (e.g., particulate concerns). The main group carbon compounds are unlikely to be stable in the tank waste matrix. Inorganic carbon will not be requested for analysis.

4.11.3 Regulated Analytes with Alternatives to Direct Analysis

Platinum. Platinum is a regulated metal and is not included for analysis as it requires a unique and difficult analysis method. Platinum was analyzed for in tank C-106 waste and a result of 3.07 E+1 (30.7) $\mu\text{g/g}$ dried solids was reported (Esch 1997a). Platinum is not requested as part of the Regulatory DQO.

Sulfite and Sulfides. Sulfite is difficult to measure in tank waste samples due to matrix interference with the spectrophotometric method used for sulfite analysis. Measurements of sulfate and sulfur in tank waste suggests that total sulfur analysis would bound the sulfur-ion concentrations (Esch 1997b, 1997c). Therefore, total sulfur will be analyzed instead of sulfite and sulfide.

Total Cesium. Total cesium is difficult to measure. It can be measured using gamma spectroscopy and inductively coupled plasma mass spectrometry (ICP/MS) summing the cesium-137, cesium-135, and cesium-134 isotope concentrations. In most cases, tank waste analysis for privatization will include cesium-137. Total cesium may be estimated using the ratio of cesium total to cesium-137 of 3:1 (Esch 1997a). Total cesium will not be requested as part of the Regulatory DQO.

Total Chromium Versus Hexavalent Chromium. For this Regulatory DQO, total chromium will be measured by ICP. Chromium will not be speciated, it is left to the data user to manage for chromium appropriately. Often there is guidance or other requirements regarding chromium valence states. For example, the latest guidance from EPA regarding chromium speciation for hazardous waste combustion facilities states, "... unless site-sampling or process-specific information is provided, the worst-case

assumption--that 100 percent of the facility chromium emissions are in the hexavalent form--should be used." (EPA, July 1998)

Radionuclides. For the purpose of this Regulatory DQO, it is assumed that the radionuclide analyses requested in the LAW Feed DQO (Wiemers and Miller 1997) and HLW Feed DQO (Wiemers et al. 1998) will be sufficient to meet permitting needs.

4.11.4 Rationale for Test Parameters and Characteristics

Figure 4.2, Q3, Appendix B, Table B.3 list the non-organic regulatory compounds and parameters to be considered. After evaluation of the inorganic, metals, and organometallic compounds, several parameters remain. Table 4.8 lists the parameter and the reason for inclusion in this Regulatory DQO.

Table 4.8. Test Parameters and Characteristics for Analysis
in Support of the Regulatory Data Quality Objective.

Test Parameter/Characteristics	Reason for Inclusion
Ignitability	Waste characteristic included in DST Part A List ^(a)
Corrosivity (pH)	Waste characteristic included in DST Part A List ^(a)
Separable organics	Contract requirement ^(b)
Specific gravity	Required for concentration calculation
Percent solids	Contract requirement ^(b)
Percent moisture	Contract requirement ^(b)

DST = double-shell tank.

(a) DOE-RL 1996a

(b) DOE-RL 1996b

4.12 Summary of Inputs

The conceptual approach to the analyte selection process is discussed in Section 1.6. In order to relate the approach to the logic, a comparison of the information in Figure 1.2 versus the decision logic is presented in Table 4.9.

The logic allowed prioritization of the analytes for analyses. Tables 4.4, 4.7, and 4.8 list the analytes, parameters, and characteristics of potential regulatory concern including:

- non-detected regulated organic compounds of higher toxicity,
- detected regulated organic compounds of higher toxicity,
- regulated organic compounds, detected ≥ 10 times and of lower toxicity,
- inorganics, and
- parameters and characteristics.

The sample collection strategy, final method selection and validation, and QC criteria are defined in Section 8.0.

Table 4.9. Comparison of Conceptual Model with Analyte Selection Logic for Organic and Inorganic Compounds.

Information from Model (Figure 1.2)	Information from Logic (Figures 4.2 through 4.6)	Tables
Circle A (starting list of analytes)	Consists of the following starting analyte lists: TAP, UHC, DST Part A, UTS and DST WSPS (Figure 4.2)	Appendix B, Table B.2
Circle B historical data, inventories, process knowledge.	The set of compounds, which includes analytes that are regulated organic compounds with a positive analytical detect in SST/DST waste.	Table B.5.
Circle C (regulated analytes plausible to be considered for analysis in Hanford tank waste)	Analytes selected for analysis (Figure 4.6). Scope of this DQO	Tables 4.4, 4.7, and 4.8.
Circle A minus C (starting list of analytes not applicable to Regulatory DQO)	The set of compounds that are on the input list that are not considered for additional analyses. These analytes are: <ul style="list-style-type: none"> • non-detected compounds used by industries not associated with Hanford (Figure 4.3), • non-detected and unstable in the tank waste environment (Figure 4.4), • non-detected, stable in tank waste environment, and of lower toxicity/carcinogenicity (Figure 4.4), • detected <10 times and of lower toxicity/carcinogenicity (Figure 4.2), and • detected, common laboratory contaminants (Figure 4.6). 	Germanium, hafnium, osmium, indium, tellurium, carbon, nitrogen. Appendix B, Table B.18. Appendix B, Table B.21. Appendix B, Table B.23. Appendix B, Table B.8. Appendix B, Table B.30.
Circle B minus C (regulated analytes, applicable to Hanford tank waste and not considered for measurement in source tanks)	Compounds with ≥ 10 detects, lower toxicity/carcinogenicity, common laboratory contaminants and/or not analyzed by methods applicable to higher toxicity compounds (Figures 4.5 and 4.6).	Appendix B, Tables B.30 and B.32.
Circle D (staged feed, and other downstream processes)	Compounds that may be identified as requiring further analysis in the staged feed and other downstream processes. For example, these compounds may be indicator compounds of significant risk drivers based on preliminary risk screening performed by the treatment contractor. The identification of these compounds is outside the scope of this DQO. The identity of these compounds is unknown at this time.	

DQO = data quality objective.

DST = double-shell tank.

SST = single-shell tank.

TAP = toxic air pollutant.

UHC = underlying hazardous constituents.

UTS = universal treatment standards.

WSPS = waste stream profile sheet.

5.0 Boundaries

Boundaries include identification of specific tank wastes to which the DQO applies and any strata within the tank waste. The waste in the boundary of this Regulatory DQO is the material in the source tanks (see Figure 1.1). This Regulatory DQO applies in effect to all DSTs and SSTs and will be applied in a number of steps thus allowing assessment and refinement based on newly gathered data. Currently, two steps are defined. The first step addresses selection and validation of methods and the Holding Time and Storage Conditions study. Step 2 includes consideration of all DSTs and SSTs that are not part of Step 1. DOE and Ecology have agreed to analyze some archived and recently collected Phase I candidate LAW and HLW samples. Analysis of archive samples initiates Step 2, Complete Implementation. Analysis of archive samples is to be initiated concurrently with the Holding Time and Storage Conditions study.

The strata within a tank waste must also be considered in identifying sampling boundaries. The boundaries within an unmixed tank will be modeled as though the waste was composed of strata, including consideration of floating crust, supernate, saturated supernate or slurry, and solids (sludge). The initial strata assignments will be based on historical records, such as core sample analyses and fill history. The evaluation by substrata is needed for defining the sampling and compositing strategy. Composites are to be prepared representing supernate and solids fractions.

This Regulatory DQO process does not establish additional characterization requirements that may apply in the future to the staged waste feed. Further, this Regulatory DQO does not establish requirements of the treatment contractor to confirm the composition of the waste received by the generator, or any other characterization needs related to the treatment, storage, and disposal activities. It is anticipated by Ecology and DOE that the data gathered through implementation of this Regulatory DQO will support the establishment of characterization requirements for these future activities.

6.0 Decision Rules

Decision rules define the actions required as a result of exceeding or not exceeding an action level. For this DQO, the decision rules and action levels apply to the ability of DOE, as the generator, to meet the need for characterization of their waste currently stored in the source tanks. Because the treatment facility risk assessment planning information was not available during this DQO process and no action levels are provided in other applicable regulations, Ecology and DOE agreed that the EQLs associated with the applicable SW-846 methods will be used as target action limits for method acceptability until additional inputs to action levels are available. In addition to EQLs, QC requirements for the selected analyses are specified in Section 8.0.

The analysis of a tank waste currently stored in the source tank will be considered complete if the target EQLs and QC requirements are satisfied for the analytes specified in this Regulatory DQO. When a constituent is analyzed for and not found above the EQL, in an agreed-upon number of samples with agreed-upon analytical methods and detection limits, this constituent is considered to be not present from the feed source in all downstream locations. The number of samples and the analytical methods and detection limits to be used to make this determination will be the subject of negotiations between DOE and Ecology once initial studies are completed.

DOE and Ecology have agreed to revisit the analyte list, sample and analysis methods' requirements, and the list of source tanks to be analyzed throughout the implementation of this Regulatory DQO. The first re-evaluation will occur during the Step 1, methods selection and validation, as described in Section 8.0.

7.0 Decision Error Assessment

The purpose of this step in the DQO process is to assess the consequences of making an incorrect decision as a result of an error, to estimate the allowable error rate, and to use this information to calculate the number of samples (EPA 1994a). The parameters listed below are considered in the error assessment and used to calculate the number of samples.

- level of false positives, Type I error with probability α ,
- level of false negatives, Type II error with probability β ,
- action level, and
- variance (standard deviation or relative standard deviation [RSD]).

Normally, the result of the decision error assessment is a recommendation as to the number of samples and the sampling design. Typically, the Type I and II errors, action levels, and variance are known or estimated and the number of samples calculated based on these parameters.

The action levels other than defaulting to EQLs were unknown at the time of preparation of this Regulatory DQO. The following explains why there are no action limits related to each of the decisions presented in Section 3.0.

Decision #1 is related to characterizing the waste to meet RCRA generator requirements for LDRs and has no action levels applicable to the source tank waste. Decision #2 is the development of the risk assessment work plan. The risk assessment work plan is incomplete at this time. Target action levels will ultimately be derived from the potential risk screening levels and will be available after completion of the risk assessment work plan or preliminary risk screening. Decision #3 is related to delisting. Delisting requires meeting treatment concentration limits for select analytes. However, these treatment limits are applied to the final waste form (e.g., IHLW or ILAW) not to the source tanks. Since the boundary of the Regulatory DQO is the source tanks, the limits for delisting are not applicable.

The variance is normally calculated from historical data. This was done for the metals and radionuclides in Section 6.0 of the LAW Feed DQO (Wiemers and Miller 1997) and HLW Feed DQO (Wiemers et al. 1998) using the envelope limits from the contract between DOE and the treatment contractor as the action limits. Most of the organic data are from the vapor concentrations measured in the headspace of the tank. Much of this data is based on tentative identification and has a high uncertainty. Therefore, the team agreed that there are insufficient organic data of the appropriate quality to calculate a variance.

Variance for inorganics was calculated and compared to the contract envelope limits in the LAW Feed DQO (Wiemers and Miller 1997) and HLW Feed DQO (Wiemers et al. 1998), but these envelope limits are not directly related to the Regulatory DQO. Since no action levels are available for either organics or inorganics for the Regulatory DQO, and there is a lack of appropriate information for a variance calculation for organics, no statistical design is presented for the Regulatory DQO. The number of samples is based on the information that pertains to inorganics in Sections 6.0 and 7.0 of the LAW Feed DQO and HLW Feed DQOs.

Without action limits, a discussion of the consequence of taking an incorrect action is not appropriate. It is envisioned that the decision error will be calculated once the risk assessment work plan information and/or additional data are available.

There are several questions of concern in regard to uncertainty and the number of samples.

1. When will enough data be generated to assess whether sufficient samples have been collected from a given tank?
2. Are sufficient subsamples being collected from each composite?
3. When will a sufficient number of tanks be sampled?

In order to assess Question #1, one must have an action level other than the EQL and variance estimates based on two or more samples from a given tank. Samples will be composited for each of two risers for the HLW feed candidate tanks. Samples will be collected and composited from one riser for the LAW feed candidate tanks. For this project, composite samples for both the solid and liquid fractions will be prepared. A composite represents an average of the tank waste composition. One cannot estimate from a composite sample whether a sufficient number of samples are collected from each level in the tank. Previous data presented in the LAW Feed DQO (Wiemers and Miller 1997) support collection of material from five levels. When data are obtained from Step 1 and more risk limits are available, an evaluation as to the acceptability of the error can be made for the number of samples from the HLW.

In order to address Question #2, an action level other than the EQL is needed and the variance estimates from Step 1 sampling is needed. One caution is given, if one chooses to use the error evaluation for Step 1 to predict errors in sampling and analysis of Step 2, one is assuming that the waste types are similar.

The following approach may be used to estimate whether a sufficient number of tanks have been sampled to achieve a given decision (α , β) (Question #3).

- Tanks should be grouped by similar waste constituents.
- Data from two or more tanks in each "group," collected by similar sampling and analytical methods should be available.
- Action limits other than the EQL are needed.

Once this information is available, tank to tank variance within and between groupings of tanks will be available and the number of tanks to sample in each group may be estimated.

A discussion of the number of samples based on the LAW Feed DQO (Wiemers and Miller 1997) and HLW Feed DQO (Wiemers et al. 1998) is presented in Section 8.0.

8.0 Optimization Guidelines

The optimization guidelines for this Regulatory DQO are addressed in two steps. Step 1, "Method Selection and Validation," provides guidance for validation of methods required for analysis under RCRA using EPA protocols. Step 1 is described in Section 8.1. Step 2, "Complete Implementation," provides guidelines for implementing this Regulatory DQO to characterize source tank waste. Step 2 is described in Section 8.2. During both Step 1 and Step 2, the respective guidelines are to be reviewed as new information is obtained. New information includes that from analyses of source tanks and from the treatment facility permitting activities. The review will ensure that the characterization efforts have been optimized to meet the end-user needs. Sample collection and compositing requirements and quality control criteria applicable to both Step 1 and Step 2 are described in Sections 8.3 and 8.4, respectively.

8.1 Step 1, Method Selection and Validation

The objective of Step 1 is to validate the methods required for implementation of this Regulatory DQO on tank waste. Table 8.1 lists the SW-846 methods that were derived from the DQO process. The lists of priority regulated compounds are provided in Tables 4.4 and 4.7. The methods will be validated per EPA protocol in accordance with SW-846 and WAC 173-303-110. The method validation will consist of three activities: (1) verify the ability of the performing laboratory(ies) to meet the SW-846 minimum detection limit (MDL) for the required method(s), (2) establish the estimated quantitation limits (EQL) and quality control (QC) using liquid and sludge tank waste samples, and (3) conduct the Holding Time and Storage Conditions study. The results from these activities will be reported to DOE and Ecology as requested under this Regulatory DQO. These agencies will then jointly decide how to proceed in Step 2.

To select methods, the requirements in the regulations must be considered. The primary regulations for consideration are those pertaining to the LDR and delisting requirements in the context of generator information to be provided to a waste treatment facility. The LDR regulations are found at 40 CFR 268 and WAC 173-303-140. Also important in LDR compliance are regulations relating to petitions for exemptions or exclusions (e.g., delisting, 40 CFR 260.20 and 260.22, WAC 173-303-072 and -910) and petitions for variance (40 CFR 268.6, WAC 173-303-910). Furthermore, SW-846 methods are acceptable for regulatory characterization needs under WAC 173-303-110.

The LDR regulations require use of SW-846 for toxicity characteristic leaching procedure (TCLP). In addition, if a petition for LDR exemption is ever submitted as part of the final LDR determination (WAC 173-303-910(6)(a)), SW-846 methods are required. If any petition is submitted, per WAC 173-303-910, SW-846 methods must be used. If SW-846 methods cannot be used, the petitioner must explain why the methods cannot be used. This regulatory logic is in agreement with the information presented in the *Selection of Analytical Methods for Mixed Waste Analysis at the Hanford Site* (DOE-RL 1994).

Both state and Federal regulations apply for delisting. The delisting regulations require the use of SW-846 methods or submittal of a petition to use alternate methods for delisting a treated waste. These regulations will apply to the IHLW and are considered by DOE as an option for the ILAW.

Table 8.1. Selected SW-846 Methods for Implementation of the Regulatory Data Quality Objective.

Regulated Organic Constituents
8081A, Organochlorine Pesticides by Gas Chromatography (GC)/Electron Capture Detector (ECD)
8082, Polychlorinated Biphenyl (PCBs) by GC/ECD
8151A, Chlorinated Herbicides by GC
8260B, Volatile Organic Analysis (VOA) by GC/Mass Spectrometry (MS)
8270C, Semivolatile Organic Analysis (SVOA) by GC/MS
8330, Nitroaromatics and Nitramines by HPLC (for picric acid, methyl isocyanate, ammonium perfluorooctanoate)
Regulated Inorganic Constituents
310.1, Hydroxide, Alkalinity by Titration ^(a)
345.1, Iodide, Titration ^(a)
350.3, Ammonia by Selective Ion Electrode with Double Standard Addition ^(a)
6010B, Metals by Inductively Coupled Plasma (ICP) or 6020 ICP/MS ^(b)
7470A/7471A, Mercury by Cold Vapor Atomic Absorption
9010B, Cyanide by Dissolution of Complexed Cyanides, Microdistillation, Spectrophotometric
9056, Anions by Ion Chromatography

^(a)EPA methods for *Chemical Analysis of Water and Wastes* (EPA 1995).

^(b)For this Regulatory Data Quality Objective, total Cr will be measured by ICP. Assumptions regarding the oxidation state of Cr in the waste are the responsibility of the data user. (Refer to Section 4.11.3.)

Note: Test parameters identified in Table 4.8 are to be measured for all tank waste selected for analysis under this DQO, unless adequate data is available.

Regulations for permitting miscellaneous units (WAC 173-303-680) should also be considered as these are applicable to the thermal treatment facility permitting. Under the provisions of these regulations, consideration must be given during permitting to risk assessment requirements under WAC 173-303-807. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design, construction, and operating requirements; detection and monitoring requirements; and requirements for responses to releases of dangerous waste or dangerous constituents from the unit. Specifically, the waste analysis must have included an analysis of this waste feed sufficient to provide all information required by WAC 173-303-807 or 173-303-806 (3) and (4). Generally, data collected per SW-846 protocol is desirable in supporting such permitting activities.

Characterization in this document applies to waste in the source tank, before staging for transfer to the treatment facility. Knowledge regarding the analytes of concern from the source tank waste will minimize risk to the DOE and facilitate compliance with delisting and LDR requirements. The waste feed staging/transfer schedule imposes significant constraints on analytical turnaround times. In addition, discovery in the staged feed of constituents not within the treatment facility permit presents a significant risk to the DOE of idle facility costs (estimated at \$3M/day). Final verification of organic and metal constituents that are regulated as UHC/UTS and delisting analytes will be very difficult in the

solidified waste form. After treatment, data on the untreated waste that indicates specific analytes are or are not present could be used with process knowledge to demonstrate that treatment standards are met. Because SW-846 methods are required for delisting and for TCLP testing under LDR, the preferred methods for analysis of source tank waste are from SW-846. If SW-846 methods are used during characterization of the source tank waste, these data will be available for use in the delisting petition and for evaluating whether LDR is met.

If methods other than SW-846 are selected, a petition for acceptance of the proposed method will need to be developed for delisting. To avoid petitions, SW-846 methods are the first methods of choice. In addition, it is highly desirable to provide sufficient information to exclude analytes not detected in the waste, and to ensure comparability with analysis of the final waste form. If SW-846 methods do not meet validation criteria presented in this Regulatory DQO, methods other than SW-846 will be considered but must be acceptable to regulators as stipulated under WAC 173-303-110.

The EPA methods have not been validated for Hanford's high-level radioactive tank waste. It is recognized that due to the radioactivity and complex sample matrix for tank waste it is likely that the SW-846 methods will need to be modified or alternative methods selected as stipulated under WAC 173-303-110. The WAC 173-303-910 indicates that if alternate methods are required, one must explain or show with data why the SW-846 methods are not acceptable. Specific method limitations may include sample size, holding times, storage requirements, and matrix interference.

An approach agreed to by the Ecology and DOE to provide a technical basis for modification of an existing SW-846 method or selection of the alternative methods consistent with the SW-846 is described in detail in Attachment IV. The following outlines the Step 1 implementation strategy requested under this Regulatory DQO. A logic flowsheet for Step 1 is provided in Figure 8.1.

1. Performing laboratory(ies) prepare a detailed test plan for MDL, EQL, and QC measurements. The plan will be reviewed and approved by DOE and Ecology.
2. Performing laboratory(ies) demonstrates the ability to achieve the MDL for the required SW-846 methods in accordance with Hanford Analytical Services Quality Assurance Requirements Documents (HASQARD) (DOE 1997). The MDLs are to be met for both liquid and solids standards.
3. If MDLs are met, the performing laboratory(ies) demonstrates the ability to achieve target EQLs and QC in both a liquid and a solid (sludge) tank waste matrix. The waste samples are to be supernate from a Phase I candidate LAW feed tank waste with a high concentration of organic constituents relative to other tank waste and solid (sludge) phase from a Phase I candidate HLW feed tank waste. Target EQLs and QC for solids is to be in the range given for low-concentration soil and high-concentration soil and sludges, or equivalent. Target EQLs and QC for liquid waste matrices have not been agreed to by Ecology and DOE and will be addressed during review/approval of the test plan. For single analytes with no EQLs listed in a specific SW-846 method, no special target EQL is required provided the analytes with EQL criteria for that method meet the target EQL criteria for that method as specified in SW-846.

Figure 8.1. Regulatory DQO Implementation Logic Summary Flowsheet

Step 1, Method Selection and Validation (a)

Step 2, Complete Implementation

(a) Document regulatory agency approval of method(s) per WAC 173-303-110 and WAC 173-303-910, as applicable.

(b) Archive sample analysis to be initiated after validation of methods (MDL, EQL, and QC), concurrent with Step 1 Holding Time and Storage Conditions study.

4. Performing laboratory(ies) reports results including information as detailed under WAC 173-303-910, Petitions, and the HASQARD (DOE 1997, Volume 4, Section 5). Changes (substitutions, deviations) relative to the standard SW-846 procedure and the reason for the changes are to be documented and included in the report.
5. DOE and Ecology review results with performing laboratory(ies).
6. If MDL, EQL, and QC results, performing laboratory(ies) prepare a detailed test plan for Holding Time and Storage Conditions study. The study is to be conducted based on the method described by Maskarinec and Bayne (1996). DOE and Ecology will review and approve the test plan.
7. Performing laboratory(ies) conduct Holding Time and Storage Conditions study on both a liquid and a solid (sludge) tank waste matrix. The waste samples are to be supernate from a Phase I candidate LAW feed tank waste with a high concentration of organic constituents relative to other tank waste and solid (sludge) phase from a Phase I candidate HLW feed tank waste. The waste samples are to be from the same source tank as used for the EQL and QC demonstration (Step 3), unless otherwise agreed to by DOE and Ecology.
8. Performing laboratory(ies) prepare technical report summarizing the Holding Time and Storage Condition study results. DOE and Ecology review report.
9. DOE and Ecology jointly determine whether changes are warranted in Step 2 implementation based on Step 1 results. Note that consistent with DOE and Ecology agreement, Step 2 implementation on archive samples will be concurrent with the Step 1 Holding Time and Storage Condition study.

Step 1 will result in selection and validation of the analytical methods requested in this DQO for the performing laboratory(ies) per EPA protocol, and analysis of a minimum of two Phase I candidate tank wastes. The Step 1 approach incorporates a number of checkpoints for the purpose of review by DOE and Ecology. DOE and Ecology will use the results from Step 1 in refining the selected methods, analytes, and additional tank waste to characterize in Step 2. As available, data needs identified during the treatment facility permitting process and LDR/Delisting will be used as input to the refinement process.

8.2 Step 2, Complete Implementation

The objective of Step 2 is to provide the remaining characterization data needed to support the key drivers identified in the problem statement of this DQO. The general steps envisioned in the Step 2 approach are identified in Figure 8.1. DOE and Ecology agreed to begin analysis of some archive samples concurrent with the Step 1 Holding Time and Storage Condition study. Analysis of archive samples will initiate Step 2 activities.

The list of analytes, methods, and tank waste selected for analysis will be reviewed as new information is available. The new information may consist of characterization data, input from the treatment facility permitting process LDR/Delisting information needs and DOE's Privatization Phase II strategy and developments. If additional characterization needs are identified, the Regulatory DQO will

be updated as needed and these needs will be prioritized and scheduled through the WIRD. Samples will be initially collected from the Phase I candidate feed source tanks (Kirkbride 1997).

The following outlines the initial Step 2 activities requested under this Regulatory DQO:

1. Performing laboratory(ies) prepare a detailed test plan for analysis of some archive samples. DOE and Ecology review the test plan. The archive samples are to be from Phase I tank waste. The time between sample collection and planned sample analysis is to be one year or less. Analysis of archive samples will be for SVOAs, metals, PCBs, and/or pesticides, depending on the archive sample volume and archive storage conditions. Analyses with RCRA holding times of less than 30 days (VOAs, mercury, ammonia, iodide, cyanide, sulfide, hydroxide, and anions) will not be attempted for archive samples. Analysis of all constituents (VOAs, etc.) will be considered after review of the holding time and storage condition data, and future data needs.
2. Performing Laboratory(ies) complete analysis of archive samples using methods selected and validated (MDL, EQL, and QC) in Step 1. These analyses are to begin before completion of the holding time study.
3. Performing laboratory(ies) report data through pathways agreed to by DOE and Ecology and defined in the test plan. If SW-846 requirements are met, the reported data will be flagged as such in site reports and databases.
4. DOE and Ecology review results collected to date and current status of data needs. DOE and Ecology jointly determine whether changes are warranted in Step 2 implementation.
5. Prioritization and scheduling of characterization needs are documented through the WIRD. If data needs are met, the DQO is closed out.

Implementation of Step 2 will result in the remaining characterization data needed to support the key drivers identified in the problem statement of this Regulatory DQO.

8.3 Sample Collection and Compositing Requirements

These guidelines apply to both Step 1 and Step 2. Interim review(s) of newly obtained data and identified permitting needs will be used to re-evaluate the sample collection and compositing requirements during this Regulatory DQO implementation process.

8.3.1 Collection Strategies

The sampling strategy is to be tailored to the individual source tank waste.¹¹ In general, tank wastes consist of one or more of the following major strata types: saltcake, crust, supernate, slurry, sludge, and hard pan. The saltcake, crust, and slurry are composed primarily of salts that upon dilution will dissolve. The sludge contains interstitial liquid and insoluble salts and minerals. A hard pan strata may reside at the bottom of a source tank and consist primarily of insoluble materials. The degree to which stratification exists within a tank is dependent on the fill history, waste storage conditions, the waste types and tank farm activities such as mixing and retrieval operations. The primary source of feed for the LAW treatment facility will consist of the soluble waste fractions: crust, supernate, slurry, and/or saltcake. The primary source of feed for the IHLW product will be sludge/insoluble solids.

Sample collection for this Regulatory DQO will be driven to obtain representative samples of the various soluble and insoluble strata, with the exception of the hard pan.¹² Representative fractions from each strata type will be used to prepare solid and liquid composites. Minimum requirements for sampling as a function of potential tank waste stratification profiles and in-tank mixing are presented in Table 8.2. The table should be examined with Figure 8.2 which schematically represents sample collection, compositing and analysis strategies. For candidate HLW feed source tanks sampling from two risers maximally separated is requested. Sampling from two risers is requested as knowledge of waste homogeneity in unmixed tank waste with relatively large fractions of insoluble solids is limited. Sampling from two risers will also help to define the homogeneity of post mixed waste, a currently unknown parameter for the HLW feed source tanks. Sampling from one riser is recommended for LAW feed sources based on previous work by Welsh (1991a, 1991b, 1993, and 1997) which suggests these water soluble wastes can be expected to be relatively homogenous across the width of the tank.

Selection of a tank waste sample collection strategy will require an understanding of the tank waste stratification. Modifications to these strategies may be required to address specific waste types. Examples of the Privatization Phase I feed source tanks are provided in Table 8.2 for each set of requirements based on the current state of knowledge with respect to the waste stratification and the waste management plans for these tank wastes. A large majority of the Phase II feed sources are expected to originate from the SSTs. Analysis of Phase II feed source tanks for this Regulatory DQO is expected to occur predominately during retrieval, after which the waste will be more homogenous.

¹¹The sample collection strategy for this Regulatory DQO is not directly dependent on the planned retrieval and staging operations. The extent of additional analysis required for the staged waste feed will, in part, depend on the extent of the retrieval and staging operations. In-tank pretreatment, retrieval, and staging scenarios may include in-line or in-tank dilution, decant of the tank waste supernate, mixing before retrieval, blending with other waste(s), chemical adjustments such as caustic addition, transfers to an intermediate staging tank(s) or feed to the treatment facility directly from the source tank, and retrieval of a range of batch sizes. The analysis of the staged feed is not within the scope of this Regulatory DQO.

¹²The hard pan strata is being managed as part of Privatization Phase II. Sampling and retrieval technologies for hard pan materials are currently being developed.

Table 8.2. Minimum Sample Collection Requirements for Regulatory Data Quality Objective Implementation.

Reference Number	Sample Collection Type	Feed Source	Mixing Status	Riser	Minimum Number of Vertical Levels ^(a)				Phase I Example ^(b)
					Crust	Supernate	Slurry	Sludge	
I	Grab	HLW/LAW	After	2	NA	5 or every 2 ft			AZ-101
II	Grab or Core	HLW/LAW	Before	2	NA	3 or every 2 ft	NA	3 or every 2 ft	AZ-101 AZ-102
III	Grab	HLW	After	2	NA	5 or every 2 ft			C-106/ AY-102
IV	Grab or Core	HLW	Before	2	NA	3 or every 2 ft	NA	3 or every 2 ft	C-102 C-104 C-106
V	Grab or Core	LAW	Before	1	NA	5 including 3 supernate and 1 sludge			AN-102 AN-107
VI	Core	LAW	Before	1	1	4 including 1 sludge			AN-103 AN-104 AN-105
VII	Grab	LAW	Before	1	NA	5 including 3 supernate and 1 sludge			AW-101
VIII	Grab or Core	LAW	Before	1	NA	5 including minimum of 2 convective layer and 2 non-convective layer			SY-101 SY-103

^(a)Minimum sample collection requirements are specified in terms of the minimum number of levels to be sampled or maximum vertical depth separation, whichever represents the optimum number of samples relative to representation of the predicted tank waste strata.

^(b)Either C-106/AY-102 or C-104 may be used for solid matrices method validation and holding time studies. Either AN-102, AN-107, AW-101, SY-101 or SY-103 may be used for the liquid matrices method validation and holding time studies. The availability of archive samples for initiation of Step 2 has not yet been determined.

HLW = high-level waste.

LAW = low-activity waste.

NA = not applicable.

Figure 8.2. Sample Collection and Compositing Strategy for the Regulatory Data Quality Objective.

8.3.2 Compositing and Liquid/Solid Separation

The compositing and analysis strategy is shown schematically in Figure 8.2. A whole tank composite from each riser sampled is to be prepared based on a representative weight fraction of each strata. The liquid composite consists of liquid decanted from the whole tank composite and liquid removed during the filtration/centrifuging step.¹³ A second solids/liquid separation step is requested as a part of the solids composite analysis to reduce the error associated with obtaining representative aliquots of moderate or greater concentrated slurries. The solids composite will consist of the solids remaining after decanting and filtering or centrifuging.

A material balance using the weight of the waste sample materials is to be maintained for each step throughout the compositing activities. The density of the liquid composite and solid composite, and the weight percent (wt%) dried solids of the solids composite before and after the filtration/centrifugation step are to be measured. A sample of the whole tank composite is to be archived.

8.4 Quality Control Procedures

These guidelines apply to both Step 1 and Step 2. Interim review(s) of newly obtained data and identified permitting needs will be used to re-evaluate the quality control requirements during this Regulatory DQO implementation process.

Precision and accuracy are to be determined as specified in SW-846 and companion sections of HASQARD. Attachment IV provides additional clarification of the quality control requirements.

Matrix spikes and surrogates as defined in SW-846 will be used to assess bias (also known as accuracy). The matrix spike compound recovery listed in the appropriate SW-846 methods will be used as the initial advisory limits for bias. Spike recoveries for organics vary by analyte and by method. Spike recoveries for metals and anions are 75 to 125 percent for most methods. For analytes without a SW-846 spike recovery criteria, 75 to 125 percent will be used.

Duplicates and matrix spike duplicates are used to assess precision. The relative percent difference (RPD) between two sample duplicates is used or the RSD is used if three or more samples from the same location are evaluated. The precision for organic methods varies depending on the analyte and method and is specified in each method. For inorganic methods, the RPD is typically specified as ± 20 percent. For analytes without a SW-846 RPD criteria ± 20 percent RPD will be used. For those methods that do not have specified RSD or tables such as those presented in 8270C, Table 7, ± 20 percent RSD will be used.

The matrix spikes and duplicates must be taken through sample preparation and analysis, as appropriate. For example, no preparation is needed for the titration for hydroxide, but sample preparation is appropriate for organic SVOAs.

¹³Record the method used for solid/liquid separation. During centrifuge and separation steps, additional liquid may be required for sample transfer, etc. This liquid should come from the original sample liquid. If the original tank waste liquid cannot be used for the separation process, the composition of any alternative rinse solution(s) used is to be reported.

9.0 References

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- 40 CFR 260.22. "Hazardous Waste Management System: Petitions to amend Part 261 to exclude a waste produced at a particular facility." *U.S. Code of Federal Regulations*, as amended.
- 40 CFR 261. "Identification and Listing of Hazardous Waste." *U.S. Code of Federal Regulations*, as amended.
- 40 CFR 268.7. "Land Disposal Restrictions, Waste Analysis and Record Keeping." *U.S. Code of Federal Regulations*, as amended.
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Appendix A

Appendix VIII Letter/Agreement

89905.960827

DEPARTMENT OF ECOLOGY

August 27, 1996

TO: J.C. Armbruster, SWRO
FROM: Thomas Cusack, HWTR/NWP
SUBJECT: Dangerous Waste Constituent List

Thank you for your question. You would like to know the use of the dangerous waste constituent list found at WAC 173-303-9905 in using or interpreting the DW Regulations. You would also like to know where in the DW Regs this list is referenced. As you noted, most of the items in that list are also listed as P or U listed dangerous wastes. However, there is a reason and purpose for this list.

The first place the list can be used is in Section -016(1)(b). Here the list is used in determining if a material which is not a solid or dangerous waste per designation, should be a dangerous waste for the purposes outlined in Section -016(1)(b).

You will find the list referenced in Section -016(6)(c)(1)(B). The list is used as a criteria in evaluating solid wastes and in making the determination if the waste should be considered inherently waste-like when recycled.

"Dangerous waste constituents" are defined in Section -040.

The dangerous waste constituent list is referenced in Section -072(4). Here it is used as one factor for determining if a listed waste should be exempt from the DW Regulations. This is considered delisting under the federal RCRA program. So be careful, Ecology cannot delist a federal RCRA waste.

Finally, you will find the list referenced in Section -646(1)(c) for corrective action purposes.

I hope this helps. If you find any other place where this list is used or referenced, please let me know. Thanks.

Appendix 8 Letter

DOE and Ecology agree that the intent of the letter from Thomas Cusack, to J.C. Armbruster is to state that the Appendix VIII list does not apply to the characterization required in the Regulatory DQO. (Letter is attached.)

Nancy Welliver 4-2-98
Nancy Welliver, U.S. Department of Energy Date

[Signature] 4/13/98
Washington Department of Ecology Date

Appendix B

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Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 1 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
100-00-5	p-Nitrochlorobenzene		3
100-41-4	Ethyl benzene		423
100-42-5	Styrene	3	195
100-47-0	Benzonitrile		5
100-51-6	Benzyl alcohol		19
100-52-7	Benzaldehyde		9
100-71-0	2-Ethylpyridine		3
100-73-2	3,4-Dihydro-2H-pyran-2-carboxaldehyde		3
100-97-0	Hexamethylenetetramine		18
1002-16-0	Amyl nitrate		28
1002-17-1	2,9-Dimethyldecane		3
1002-43-3	3-Methylundecane		46
1002-68-2	trans-3-Undecene		1
1002-84-2	n-Pentadecanoic acid		30
10061-01-5	cis-1,3-Dichloropropene		27
10061-02-6	trans-1,3-Dichloropropene	1	28
1008-80-6	Naphthalene, decahydro-2,3-dimethyl-		15
101-84-8	Diphenyl ether		6
101300-62-3	Silane, (4,5-dimethyl-1,4-cyclohexadiene-1,2-diyl)bis(trimethyl-		1
10203-30-2	3-Dodecanol		1
10264-17-2	N-Hexylbutyramide		1
103-23-1	Bis(2-ethylhexyl) adipate		1
103-65-1	Propylbenzene		7
10374-14-8	2-Ethylcyclobutanone		1
10374-74-0	7-Tetradecene		7
104-50-7	4-Hydroxyoctanoic acid lactone		6
104-61-0	4-Hydroxynonanoic acid lactone		3
104-76-7	2-Ethyl-1-hexanol		103
104-90-5	2-Methyl-5-ethylpyridine		2
10486-19-8	Tridecanal		1
105-21-5	4-Hydroxyheptanoic acid lactone		14
105-42-0	4-Methyl-2-hexanone		6
106-35-4	3-Heptanone	7	158
106-42-3	p-Xylene		35
106-46-7	1,4-Dichlorobenzene		120
106-65-0	Butanedioic acid, dimethyl ester	4	0
106-68-3	3-Octanone		10
106-72-9	2,6-Dimethyl-5-heptenal		3
106-88-7	1,2-Epoxybutane		1
106-93-4	Ethylene dibromide		45
106-97-8	Butane		535
106-98-9	1-Butene		91
106-99-0	1,3-Butadiene		46
1066-40-6	Trimethylsilanol	32	9
1069-53-0	2,3,5-Trimethylhexane		85
107-01-7	2-Butene		14
107-02-8	Acrolein		22

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 2 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
107-05-1	3-Chloropropene		4
107-06-2	1,2-Dichloroethane	1	15
107-12-0	Propionitrile		593
107-13-1	Acrylonitrile		1
107-16-4	2-Hydroxyacetone		1
107-18-6	2-Propen-1-ol		5
107-31-3	Formic acid, methyl ester		1
107-39-1	2,4,4-Trimethyl-1-pentene		3
107-46-0	Hexamethyldisiloxane	29	0
107-75-5	3,7-Dimethyl-7-hydroxyoctanal		1
107-83-5	Pentane, 2-methyl-		111
107-87-9	2-Pentanone		211
107-92-6	Butanoic acid		4
1072-05-5	2,6-Dimethylheptane		27
1073-11-6	4-Methyl-4-vinylbutyrolactone		1
1074-17-5	1-Methyl-2-propylbenzene		1
108-03-2	1-Nitropropane		3
108-05-4	Acetic acid vinyl ester		1
108-08-7	2,4-Dimethylpentane		4
108-10-1	4-Methyl-2-pentanone	1	374
108-20-3	Bis(isopropyl) ether		1
108-29-2	4-Hydroxypentanoic acid lactone		8
108-30-5	Succinic acid anhydride		2
108-38-3	m-Xylene		24
108-39-4	m-Cresol		7
108-47-4	2,4-Dimethylpyridine		2
108-48-5	2,6-Dimethylpyridine		1
108-67-8	1,3,5-Trimethylbenzene		202
108-87-2	Methylcyclohexane		132
108-88-3	Toluene	52	738
108-89-4	4-Methylpyridine		8
108-90-7	Chlorobenzene		66
108-93-0	Cyclohexanol		1
108-94-1	Cyclohexanone		192
108-95-2	Phenol		19
108-99-6	3-Methylpyridine		8
1083-56-3	1,4-Diphenylbutane		2
109-06-8	2-Methylpyridine		1
109-08-0	2-Methylpyrazine		18
109-21-7	Butanoic acid, butyl ester		21
109-66-0	n-Pentane		446
109-67-1	1-Pentene		45
109-68-2	2-Pentene		4
109-69-3	n-Chlorobutane		7
109-74-0	n-Butyronitrile		464
109-75-1	3-Butenenitrile		3
109-93-3	Divinyl ether		1
109-97-7	Pyrrole		1

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 3 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
109-99-9	Tetrahydrofuran	1	562
110-00-9	Furan		15
110-12-3	5-Methyl-2-hexanone		12
110-13-4	2,5-Hexanedione		1
110-27-0	Tetradecanoic acid, 1-methylethyl ester		13
110-36-1	Tetradecanoic acid, butyl ester		8
110-43-0	2-Heptanone		209
110-54-3	n-Hexane		623
110-59-8	Pentanenitrile		433
110-60-1	1,4-Butanediamine		2
110-62-3	n-Valeraldehyde		54
110-71-4	1,2-Dimethoxyethane		1
110-82-7	Cyclohexane		256
110-83-8	Cyclohexene	19	2
110-86-1	Pyridine		279
110-93-0	6-Methyl-5-hepten-2-one		1
111-06-8	Hexadecanoic acid, butyl ester		1
111-13-7	2-Octanone		177
111-27-3	n-Hexanol		31
111-65-9	n-Octane		492
111-66-0	1-Octene		15
111-70-6	n-Heptanol		38
111-71-7	n-Heptaldehyde		70
111-76-2	2-Butoxyethanol	6	7
111-84-2	n-Nonane	22	528
111-87-5	n-Octyl alcohol		26
111-90-0	Ethanol, 2-(2-ethoxyethoxy)-	4	0
1112-39-6	Dimethoxydimethylsilane		5
1115-11-3	2-Methyl-2-butenal		8
1116-90-1	4-Methyl-1,4-hexadiene		1
1117-59-5	Pentanoic acid, hexyl ester		3
1118-58-7	1,3-Dimethyl-1,3-butadiene		10
112-12-9	2-Undecanone		7
112-30-1	n-Decanol		1
112-31-2	n-Decaldehyde	4	36
112-40-3	n-Dodecane	177	576
112-41-4	1-Dodecene		7
112-42-5	Undecanol		1
112-44-7	Undecanaldehyde		4
112-53-8	Dodecanol		3
112-54-9	Dodecanaldehyde		5
112-72-1	n-Tetradecanol		2
112-80-1	cis-9-Octadecenoic acid		6
112-88-9	1-Octadecene		1
112-92-5	n-Octadecanol		5
112-95-8	n-Eicosane		9
1120-06-5	2-Decanol		3
1120-21-4	n-Undecane	128	614

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 4 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
1120-36-1	1-Tetradecene		10
1120-64-5	4,5-Dihydro-2-methyloxazole		14
1121-05-7	2,3-Dimethyl-2-cyclopentenone		1
1121-07-9	N-Methyl-2,5-pyrrolidinedione		5
1121-33-1	2,4-Dimethylcyclopentanone		1
115-07-1	Propene		102
115-10-6	Dimethyl ether		23
115-11-7	2-Methylpropene		209
117-81-7	Bis(2-ethylhexyl) phthalate	33	1
117-84-0	Di-n-octylphthalate	2	
1184-60-7	2-Fluoropropene		5
1191-95-3	Cyclobutanone		4
1191-96-4	Ethylcyclopropane		15
1191-99-7	2,3-Dihydrofuran		11
1192-18-3	cis-1,2-Dimethylcyclopentane		2
1192-33-2	3,3-Dimethylcyclobutanone		1
1192-51-4	3-Methyl-2,4-furandione		3
1196-92-5	Phenol, 4-(aminomethyl)-2-methoxy-		1
120-40-1	N,N-Bis(2-Hydroxyethyl)dodecanamide	1	0
120-82-1	1,2,4-Trichlorobenzene	1	51
122-39-4	N,N-Diphenylamine		22
123-05-7	2-Ethylhexaldehyde		8
123-15-9	2-Methylpentanal		5
123-19-3	4-Heptanone		44
123-25-1	Succinic acid, diethyl ester		1
123-32-0	2,5-Dimethylpyrazine		2
123-38-6	n-Propionaldehyde		56
123-51-3	3-Methyl-1-butanol		4
123-72-8	n-Butyl aldehyde		330
123-73-9	trans-2-Buten-1-al		2
123-75-1	Pyrrolidine		1
123-79-5	Hexanedioic acid, dioctyl ester	8	5
123-86-4	Acetic acid n-butyl ester		25
123-91-1	1,4-Dioxan		19
123-95-5	Octadecanoic acid, butyl ester		3
123-96-6	2-Octanol		9
124-11-8	1-Nonene		2
124-12-9	n-Octanonitrile		53
124-13-0	n-Octaldehyde	1	63
124-18-5	n-Decane	73	583
124-19-6	Nonaldehyde	1	69
126-73-8	Tributyl phosphate	40	73
126-98-7	2-Methyl-2-propenenitrile		1
127-18-4	1,1,2,2-Tetrachloroethene	2	415
127-19-5	N,N-Dimethylacetamide		2
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol	2	13
129-00-0	Pyrene	6	
13029-08-8	2,2'-Dichlorobiphenyl		4

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 5 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
13040-03-4	(+)-cis-Verbenol		1
13049-35-9	2,2'-Diethylbiphenyl		6
13151-06-9	7-Methyl-1-octene		2
13151-34-3	3-Methyldecane		23
13151-35-4	5-Methyldecane		15
13151-74-1	Decane, 3-cyclohexyl-		9
13151-75-2	Decane, 4-cyclohexyl-		1
13151-99-0	cis-1,4-Dimethylcyclooctane		4
13286-73-2	Tridecane, 3-ethyl-		6
13287-21-3	6-Methyltridecane		38
13287-23-5	8-Methylheptadecane		1
13287-24-6	9-Methylnonadecane		3
1330-20-7	Xylene	30	5
1331-43-7	Diethylcyclohexane		1
13360-61-7	1-Pentadecene		4
13475-75-7	Pentadecane, 8-hexyl-		2
13475-78-0	5-Ethyl-2-methylheptane		3
13475-82-6	2,2,4,6,6-Pentamethylheptane		8
135-98-8	2-Phenylbutane		3
136-77-6	4-Hexyl-1,3-dihydroxybenzene		2
13603-07-1	Piperidine, 3-methyl-1-nitroso-	4	0
137-32-6	2-Methylbutyl alcohol		5
138-86-3	4-Isopropenyl-1-methylcyclohexene		4
13828-31-4	Cyclohexene, 1-methyl-3-(1-methylethyl)-		1
13861-97-7	2(3H)-Furanone, dihydro-4,4-dimethyl-		1
13925-00-3	2-Ethylpyrazine		9
140-79-4	Piperazine, 1,4-dinitroso-	4	0
141-62-8	Decamethyltetrasiloxane		2
141-78-6	Acetic acid ethyl ester		10
141-79-7	4-Methyl-3-penten-2-one		9
14129-48-7	4-Octen-3-one		3
142-30-3	2,5-Dimethyl-2,5-dihydroxy-3-hexyne		3
142-62-1	n-Hexanoic acid		2
142-78-9	Dodecanamide, N-(2-hydroxyethyl)-		1
142-82-5	n-Heptane		626
142-91-6	Crodamol IPP		67
142-96-1	Di-n-butyl ether		15
14255-23-3	2,4-Dimethyl-2-hexene		1
143-07-7	n-Dodecanoic acid		18
143-08-8	n-Nonyl alcohol		19
143-28-2	9-cis-Octadecenol		1
144-62-7	Oxalic acid	1969	0
14476-37-0	4-Undecanone		1
1453-24-3	1-Ethylcyclohexene		1
1453-58-3	3-Methylpyrazole		8
1454-84-8	Nonadecyl alcohol		1
1454-85-9	n-Heptadecyl alcohol		1
1462-84-6	2,3,6-Trimethylpyridine		2

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 6 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
1467-79-4	Cyanamide, dimethyl-		3
14676-29-0	2-Methyl-3-ethylheptane		19
14686-13-6	trans-2-Heptene		8
14686-14-7	trans-3-Heptene		6
1472-09-9	n-Octylcyclopropane		7
14720-74-2	2,2,4-Trimethylheptane		3
1482-15-1	1-Pentyn-3-ol, 3,4-dimethyl-		1
14850-23-8	trans-4-Octene		4
14898-79-4	(R)-2-Butanol		1
149-57-5	2-Butylbutanoic acid	3	1
14905-56-7	2,6,10-Trimethyltetradecane		12
14919-01-8	trans-3-Octene		4
1506-02-1	Ethanone, 1-(5,6,7,8-tetrahydro-3,5,5,6,8,8-hexamethyl-2-naphthalenyl)-		1
151-18-8	3-Aminopropionitrile		3
15232-85-6	1-Pentylcyclohexene		7
1526-17-6	2-Fluoro-6-nitrophenol	4	0
1534-26-5	3-Tridecanone		74
1534-27-6	3-Dodecanone		42
156-59-2	1,2-cis-Dichloroethene		34
1560-88-9	2-Methyloctadecane		3
1560-92-5	2-Methylhexadecane		5
1560-93-6	2-Methylpentadecane		13
1560-96-9	2-Methyltridecane		70
1560-97-0	2-Methyldodecane		8
1565-80-6	(S)-2-Methyl-1-butanol		1
1565-81-7	3-Decanol		3
1568-20-3	1H-Pyrazole, 4,5-dihydro-5-methyl-		3
15726-15-5	3-Methyl-4-heptanone		3
1574-41-0	cis-1,3-Pentadiene		3
15869-80-4	3-Ethylheptane		3
15869-89-3	2,5-Dimethyloctane		4
15869-92-8	3,4-Dimethyloctane		3
15869-93-9	3,5-Dimethyloctane		5
15877-57-3	3-Methylpentanal		6
15890-40-1	cis-1,2-trans-3-Trimethylcyclopentane		3
15892-23-6	DL-Butan-2-ol		1
15918-07-7	5-Methyl-4-nonene		1
15932-80-6	2-Isopropylidene-5-methylcyclohexanone		3
1604-34-8	6,10-Dimethyl-2-undecanone		1
16106-59-5	4,5-Dimethyl-1-hexene		3
1615-70-9	1-Cyano-1,3-butadiene		1
1618-22-0	2,6-Dimethyldecalin		21
1620-14-0	Diethylaminoacetone	2	0
1630-94-0	1,1-Dimethylcyclopropane		12
1632-70-8	5-Methylundecane		43
16339-12-1	N-Nitrosomethoxymethylamine		1
1638-16-0	2-Propanol, 1,1-[(1-methyl-1,2-ethanediyl)bis(oxy)]bis-(9CI)	2	0

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 7 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
1640-89-7	Ethylcyclopentane		6
16519-68-9	2,6-Diethylcyclohexanone		1
1653-30-1	2-Undecanol		1
1653-31-2	2-Tridecanol		1
16536-57-5	Cis-2-Bromocyclohexanol	1	0
16538-93-5	Cyclooctane, butyl-		1
16580-24-8	1-Isopropyl-3-methylcyclohexane		3
16605-91-7	2,3-Dichloro-1,1'-biphenyl		3
16606-02-3	2,4',5-Trichlorobiphenyl		3
16624-06-9	Cyclooctanemethanol, .alpha.,.alpha.-dimethyl-		3
16745-94-1	3,4-Dimethyl-1-hexene		9
16746-85-3	4-Ethyl-1-hexene		2
16747-25-4	2,2,3-Trimethylhexane		1
16747-28-7	2,3,3-Trimethylhexane		3
16778-26-0	1,4,4-Trimethylcyclohexan-2-oneacetic acid enol lactone		19
16778-70-4	1-Ethyl-1,2,4-triazole		3
1678-91-7	Ethylcyclohexane		17
1678-92-8	n-Propylcyclohexane		9
1678-93-9	n-Butylcyclohexane		14
1678-97-3	1,2,3-Trimethylcyclohexane		4
1678-98-4	Isobutylcyclohexane		3
1679-08-9	2,2-Dimethylpropanethiol		3
1703-52-2	2-Ethyl-5-methylfuran		2
1708-29-8	2,5-Dihydrofuran		9
1712-64-7	2-Propyl nitrate		9
1713-33-3	1-Methylcyclohexene epoxide		2
1717-00-6	1,1-Dichloro-1-fluoroethane		33
17301-22-3	2,5-Dimethylundecane		1
17301-23-4	2,6-Dimethylundecane		90
17301-24-5	2,7-Dimethylundecane		3
17301-25-6	2,8-Dimethylundecane		4
17301-26-7	Undecane, 2,9-dimethyl-		5
17301-27-8	2,10-Dimethylundecane		42
17301-28-9	3,6-Dimethylundecane		4
17301-29-0	3,7-Dimethylundecane		25
17301-30-3	3,8-Dimethylundecane		10
17301-31-4	3,9-Dimethylundecane		4
17301-32-5	4,7-Dimethylundecane		36
17301-33-6	4,8-Dimethylundecane		12
17301-94-9	4-Methylnonane		27
17302-23-7	4,5-Dimethylnonane		7
17302-28-2	2,6-Dimethylnonane		44
17302-32-8	3,7-Dimethylnonane		12
17302-33-9	6-Methylundecane		33
17312-50-4	2,5-Dimethyldecane		9
17312-53-7	3,6-Dimethyldecane		24
17312-55-9	3,8-Dimethyldecane		13
17312-57-1	3-Methyldodecane		11

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 8 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
17312-58-2	3-Ethylundecane		2
17312-60-6	6-Ethylundecane		1
17312-62-8	5-Propyldecane		4
17312-63-9	5-Butylnonane		7
17312-64-0	2,2-Dimethylundecane		1
17312-68-4	4,4-Dimethylundecane		6
17312-73-1	5,5-Dimethylundecane		3
17312-74-2	5-Ethyl-5-methyldecane		2
17312-76-4	6,6-Dimethylundecane		1
17312-77-5	2,3-Dimethylundecane		7
17312-78-6	3,4-Dimethylundecane		27
17312-80-0	2,4-Dimethylundecane		22
17312-81-1	3,5-Dimethylundecane		1
17312-82-2	4,6-Dimethylundecane		7
17312-83-3	5,7-Dimethylundecane		6
17351-34-7	14-Pentadecenoic acid		3
17429-02-6	4-Hydroxy-4-methylcyclohexanone		1
17453-93-9	5-Methyldodecane		6
17453-94-0	5-Ethylundecane		13
1750-51-2	Naphthalene, decahydro-1,6-dimethyl-		12
1757-42-2	3-Methylcyclopentanone		4
1759-58-6	trans-1,3-Dimethylcyclopentane		1
17622-46-7	2-Cyclohexen-1-one, 4-ethyl-3,4-dimethyl-		4
1779-19-7	1,3,6-Trioxacyclooctane		3
17851-53-5	Butyl isobutyl phthalate		2
1795-15-9	n-Octylcyclohexane		17
1795-16-0	n-Decylcyclohexane		3
1795-21-7	n-Decylcyclopentane		1
1795-27-3	cis,cis-1,3,5-Trimethylcyclohexane		1
1795-48-8	Isopropyl isocyanate		1
1825-61-2	Methoxytrimethylsilane	32	0
18294-04-7	Oxalic acid, bis(trimethylsilyl) ester		8
18344-37-1	2,6,10,14-Tetramethylheptadecane		1
1838-59-1	Formic acid, 2-propenyl ester		1
1839-63-0	1,3,5-Trimethylcyclohexane		8
1840-42-2	Fluorotrinitromethane		3
18433-98-2	2,5-Dimethyl-3-isopentylpyrazine		1
18435-22-8	3-Methyltetradecane		13
18435-45-5	1-Nonadecene		1
18521-07-8	3-Octen-2-ol, 2-methyl-, (Z)-		3
18669-52-8	2,3-Dimethyl-1,4-hexadiene		1
18829-55-5	trans-2-Heptenal		4
18829-56-6	trans-2-Nonenal		3
1886-75-5	Di-tert-Butyl sulfone		9
1888-57-9	2,5-Dimethyl-3-hexanone		3
1921-70-6	2,6,10,14-Tetramethylpentadecane		16
19269-28-4	3-Methylhexanal		3
1932-92-9	Propionic acid, 2-propynyl ester		1

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 9 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
19341-98-1	trans-1,2-Diethylcyclobutane		2
1937-62-8	trans-9-Octadecenoic acid, methyl ester		2
19398-37-9	3-Decene		4
19549-80-5	4,6-Dimethyl-2-heptanone		1
19549-87-2	2,4-Dimethyl-1-heptene		48
19550-03-9	2,3-Dimethyl-2-hexanol		1
19550-73-3	trans-3,4-Dimethylcyclopentanone		1
1975-78-6	n-Decanonitrile		3
19780-10-0	5-Dodecanone		17
19780-59-7	3-Ethyl-2-methyl-2-heptanol		2
19780-63-3	3-Ethyl-2-methyl-2-pentanol		1
19781-07-8	2,7-Octanediol, 2,7-dimethyl		2
19781-27-2	6-Ethyl-3-octanol		2
20063-97-2	trans-2-Decene		2
20184-91-2	4-Nonyne		1
20192-66-9	1,2-Cyclohexanediol, cyclic carbonate, trans-		3
20193-21-9	1-Butanamine, N-propyl-	4	0
20278-85-7	2,3,5-Trimethylheptane		1
2030-84-4	4-Dodecene		3
20324-33-8	2-Propanol, 1-[2-(2-methoxy-1-methylethoxy)-1-	4	0
2040-07-5	2,4,5-Trimethylacetophenone		2
2049-95-8	2-Methyl-2-phenylbutane		2
2050-67-1	3,3'-Dichlorobiphenyl		2
2050-68-2	4,4'-Dichlorobiphenyl		3
2050-78-4	n-Decyl nitrate		2
2051-30-1	2,6-Dimethyloctane		18
2051-49-2	n-Hexanoic acid anhydride		1
2051-60-7	2-Chlorobiphenyl		7
2051-61-8	3-Chlorobiphenyl		5
2051-62-9	4-Chlorobiphenyl		3
206-44-0	Fluoranthene	1	
20633-11-8	n-Hexyl nitrate		29
20633-12-9	n-Heptyl nitrate		6
20633-13-0	n-Nonyl nitrate		3
20691-89-8	N-Methyl-4-hydroxymethylpiperidine		1
20698-91-3	D-(-)-Mandelic acid methyl ester		1
20743-95-7	p-Butoxymethoxybenzene		1
20754-04-5	3-Methyl-4-octanone		2
2090-38-2	1,2,4,5-Tetramethylcyclohexane		1
2091-29-4	9-Hexadecenoic acid		30
20959-33-5	7-Methylheptadecane		1
21078-65-9	2-Ethyl-1-decanol		3
21164-95-4	7,9-Dimethylhexadecane		7
2132-84-5	2-Phenylheptane		2
21328-57-4	1,5-Dimethylcyclooctane		4
2136-70-1	Ethylene glycol monotetradecyl ether		1
21964-48-7	1,12-Tridecadiene		1

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 10 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
22026-12-6	6-Tridecanone		20
22058-71-5	Methylamine, N-(1-methylhexylidene)-		1
2213-23-2	2,4-Dimethylheptane		96
2216-30-0	2,5-Dimethylheptane		5
2216-33-3	3-Methyloctane		10
2216-34-4	4-Methyloctane		15
2216-87-7	3-Undecanone		10
2223-52-1	1,1,4,4-Tetramethylcyclohexane		3
22319-25-1	4-Methyl-3-hepten-2-one		3
22319-29-5	5-Ethyl-2,4-dimethyl-4-hepten-3-one		2
2243-27-8	Nonanonitrile		50
22431-09-0	Methanamine, N-(1-methylbutylidene)-		6
2244-07-7	n-Undecanonitrile		2
2345-27-9	2-Tetradecanone		16
23462-75-1	Tetrahydropyran-3-one		2
2371-19-9	3-Methyl-2-heptanone		10
2384-85-2	3-Decyne		6
2402-06-4	trans-1,2-Dimethylcyclopropane		2
2408-37-9	1,1,3-Trimethyl-2-cyclohexanone		4
2415-72-7	n-Propylcyclopropane		17
24251-86-3	5,8-Diethyldodecane		5
2432-55-5	Butanethioic acid, S-decyl ester		6
2437-56-1	1-Tridecene		11
24405-16-1	trans-4-Methyl-5-hydroxyhexanoic acid lactone		8
2452-99-5	1,2-Dimethylcyclopentane		56
2456-28-2	n-Decyl ether		6
2490-48-4	2-Methylhexadecan-1-ol		2
24949-38-0	6-Tridecene		7
24949-42-6	7-Methyl-6-tridecene		15
25013-16-5	tert-Butyl-4-methoxyphenol		1
2508-29-4	5-Amino-1-pentanol		5
2511-91-3	Pentylcyclopropane		3
25117-24-2	4-Methyltetradecane		11
25117-31-1	5-Methyltridecane		9
25117-32-2	5-Methyltetradecane		1
2532-58-3	cis-1,3-Dimethylcyclopentane		4
2548-87-0	trans-2-Octenal		3
2549-67-9	2-Ethylaziridine		11
2562-37-0	1-Nitrocyclohexene	2	0
2610-95-9	5-Methyl-5-hydroxyhexanoic acid lactone		3
2613-66-3	1-Methyl-cis-3-ethylcyclopentane		2
26215-90-7	4-Tridecanone		3
26248-42-0	Tridecanol		1
2639-63-6	Butyric acid, hexyl ester		1
26465-81-6	3,3-Dimethylindanone		1
26496-20-8	4-Tetradecanone		3
26537-19-9	p-tert-Butylbenzoic acid methyl ester		2
26730-12-1	4-Methyltridecane		40

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 11 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
26730-14-3	7-Methyltridecane		45
2719-61-1	2-Phenyldodecane		1
2719-62-2	6-Phenyldodecane		4
2719-63-3	5-Phenyldodecane		2
2719-64-4	4-Phenyldodecane		2
27392-16-1	Cyclohexanecarboxylic acid, 2-tert-butyl-, trans-		1
27675-36-1	cis-1-Nitropropene		3
27750-45-4	Benzenepropanoic acid, .alpha.-[(trimethylsilyl)oxy]-, trimethylsilyl ester		1
279-23-2	Bicyclo[2.2.1]heptane		5
280-65-9	Bicyclo[3.3.1]nonane		3
2801-84-5	2,4-Dimethyldecane		4
28019-94-5	4,5-Dimethyl-2-pyrazoline		2
2815-57-8	1,2,3-Trimethylcyclopentane		4
2815-58-9	1,2,4-Trimethylcyclopentane		6
28290-01-9	2,3,3-Trimethylcyclobutanone		4
28292-42-4	3-Aminoheptane	4	0
2847-72-5	4-Methyldecane		48
28473-21-4	Nonanol		4
286-08-8	Bicyclo[4.1.0]heptane		1
2865-82-9	4-Methyl-4-hydroxyhexanoic acid lactone		3
287-23-0	Cyclobutane		7
287-92-3	Cyclopentane		16
288-16-4	Isothiazole		2
288-88-0	1H-1,2,4-Triazole		1
2882-96-4	3-Methylpentadecane		1
2883-05-8	2-cyclohexyloctane		3
289-95-2	Pyrimidine		6
28981-49-9	Ethylcyclododecane		1
290-37-9	Pyrazine		92
29006-00-6	6-Methoxyhexan-2-one		2
29052-10-6	Butyric acid, ester with p-hydroxybenzonitrile		1
29053-04-1	1-Isobutyl-3-methylcyclopentane		16
2922-51-2	2-Heptadecanone		2
29354-98-1	Hexadecanol		1
29366-35-6	11-Methyl-4-dodecanone		1
294-62-2	Cyclododecane		16
295-17-0	Cyclotetradecane		8
295-65-8	Cyclohexadecane		5
2958-76-1	2-Methyldecalin		42
29799-19-7	Cyclohexane, 1-(1,5-dimethylhexyl)-4-methyl-		3
2980-69-0	4-Methylundecane		48
29887-79-4	trans-1,3-Dimethoxycycloheptane		3
300-57-2	3-Phenylpropene		3
30135-88-7	Bromofluorobenzene	4	0
3054-63-5	4,9-Dipropyldodecane		3
3054-92-0	2,3,4-Trimethyl-3-pentanol		2
30692-16-1	5-Tridecanone		9

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 12 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
3073-66-3	1,1,3-Trimethylcyclohexane		30
3074-71-3	2,3-Dimethylheptane		15
31053-55-1	2-Methoxy-5-methylthiophene		3
31081-17-1	2-Methyl-5-propylnonane		1
31081-18-2	3-Methyl-5-propylnonane		8
311-89-7	Tri(perfluorobutyl)amine		1
31295-56-4	2,6,11-Trimethyldodecane		19
31681-26-2	alpha-Propyl-2-furanacetaldehyde		2
3178-29-8	4-Propylheptane		2
32064-72-5	2-Nonen-4-one		3
3221-61-2	2-Methyloctane		4
32281-85-9	2-Isopropyl-1,3-dimethylcyclopentane		10
32669-86-6	Cyclohexane, cyclopropyl-		8
3290-53-7	2-Methyl-3-phenylpropene		1
33083-83-9	5-Undecanone		9
33342-89-1	1-Propanone, 1-[4-[(trimethylsilyl)oxy]phenyl]-		1
334-48-5	Decanoic acid		3
33933-82-3	5,9-Dimethyl-2-decanone		1
34303-81-6	cis-3-Hexadecene		3
34314-82-4	Furan, 3-(1,1-dimethylethyl)-2,3-dihydro-		4
34379-54-9	Furan, 2,3-dihydro-4-(1-methylpropyl)-, (S)-		1
3438-46-8	4-Methyl-1,3-diazine		3
3452-09-3	1-Nonyne		4
3457-90-7	1,3-Propanediol, dinitrate		1
3457-91-8	1,4-Butanediol, dinitrate		6
3457-92-9	1,5-Pentanediol, dinitrate		7
34883-39-1	2,5-Dichlorobiphenyl		3
3522-94-9	2,2,5-Trimethylhexane		2
3524-73-0	5-Methyl-1-hexene		7
35468-97-4	1-Acetoxyhept-1-ene		3
35507-09-6	cis-7-Hexadecene		10
35996-97-5	Pentadecanoic acid, butyl ester		1
3604-14-6	1,2-Dimethyldecalin		3
3622-84-2	Benzenesulfonamide, N-butyl-		123
3638-35-5	1-Isopropylcyclopropane		10
36542-63-9	Dichlorohexane	2	0
3664-60-6	7-Octen-2-one		4
36653-82-4	n-Hexadecanol		30
37050-03-6	3,4-Nonadiene		3
37148-64-4	Benzeneacetic acid, .alpha.,4-bis[(trimethylsilyl)oxy]-, trimethylsilyl ester		4
3760-54-1	N-Formylpyrrolidine		2
3760-63-2	N,N-Dimethyl-3-benzoylpropylamine		1
3761-94-2	1-Methylcycloheptanol		3
3769-23-1	4-Methyl-1-hexene		1
3777-69-3	2-Pentylfuran		3
3777-71-7	2-Heptylfuran		2
3788-32-7	Isobutylcyclopentane		3

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 13 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
3789-85-3	Benzoic acid, 2-[(trimethylsilyl)oxy]-, trimethylsilyl ester		61
3796-70-1	trans-6,10-Dimethyl-5,9-undecadien-2-one		1
38165-93-4	Propanedioic acid, [(trimethylsilyl)oxy]-, bis(trimethylsilyl) ester		1
38447-22-2	Hexanedioic acid, bis(1-methylpropyl) ester		1
3879-26-3	cis-6,10-Dimethyl-5,9-undecadien-2-one		7
38851-70-6	Cyclopropane, 1-butyl-2-methyl-, trans-		1
3891-98-3	2,6,10-Trimethyldodecane		49
3892-00-0	2,6,10-Trimethylpentadecane		12
3913-02-8	2-Butyloctanol		7
3913-81-3	trans-2-Decenal		2
39168-02-0	Furan, tetrahydro-2,4-dimethyl-, trans-		3
3944-36-3	1-Isopropoxy-2-propanol		1
39515-51-0	3-Phenoxybenzaldehyde		2
39899-08-6	3-Methyl-3-hepten-2-one		1
403-19-0	2-Fluoro-4-nitrophenol	6	0
4032-86-4	3,3-Dimethylheptane		1
4032-93-3	2,3,6-Trimethylheptane		6
4050-45-7	trans-2-Hexene		4
40702-26-9	1,3,4-Trimethyl-3-cyclohexene-1-carboxaldehyde		3
4088-60-2	cis-2-Butenol		4
41239-48-9	2,5-Diethyltetrahydrofuran		3
41446-60-0	cis-7-Tetradecene		3
41446-61-1	cis-6-Tetradecene		4
41446-66-6	trans-5-Tetradecene		4
41446-67-7	cis-3-Tetradecene		1
41446-68-8	trans-3-Tetradecene		6
41464-49-7	2,3,3',5'-Tetrachlorobiphenyl		6
4170-30-3	2-Butenaldehyde		37
41744-75-6	16-Methyl-1-heptadecanol		1
4176-04-9	Bicyclo[4.1.0]heptan-3-one, 4,7,7-trimethyl-, [1R-(1.alpha.,4.alpha.,6.alpha.)]-		1
4179-38-8	2-Octylfuran		4
41977-32-6	Cyclopropane, 1,2-dibutyl-		3
41977-33-7	Cyclopropane, 1-pentyl-2-propyl-		2
41977-34-8	Cyclopropane, 1-butyl-1-methyl-2-propyl-		4
41977-43-9	Cyclopropane, 1,1,2-trimethyl-3-(2-methylpropyl)-		4
41977-48-4	Bicyclo[4.1.0]heptane, 3-methyl-7-pentyl-		3
420-56-4	Fluorotrimethylsilane		1
421-50-1	1,1,1-Trifluoro-2-propanone		1
4229-91-8	2-Propylfuran		4
4254-15-3	(S)-1,2-Propanediol		3
42565-49-1	2,2,6,6-Tetramethyl-10-undecen-4-one		3
42604-04-6	Cycloheptane, methoxy-		1
4272-06-4	4-Undecanol		3
42786-06-1	4H-1,2,4-Triazol-3-amine, 4-ethyl-		2
4291-79-6	1-Methyl-2-propylcyclohexane		6
4291-80-9	1-Methyl-3-propylcyclohexane		8

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 14 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
4292-75-5	n-Hexylcyclohexane		35
4292-92-6	Pentylcyclohexane		53
4312-99-6	Pentyl vinyl ketone		2
4316-65-8	3,5,5-Trimethyl-1-hexene		1
4337-65-9	Hexanedioic acid, mono(2-ethylhexyl) ester		1
4342-25-0	3,6-Dioxo-2,4,5,7-tetrasilaoctane, 2,2,4,4,5,5,7,7-octamethyl-		3
4390-04-9	2,2,4,4,6,8,8-Heptamethylnonane		3
4457-62-9	2,5-Dipropyltetrahydrofuran		3
4485-09-0	4-Nonanone		2
4485-13-6	4-Propyl-3-heptene		1
4516-69-2	1,1,3-Trimethylcyclopentane		5
4536-87-2	3-Phenylundecane		1
4536-88-3	2-Phenylundecane		4
4537-15-9	5-Phenylundecane		3
4551-51-3	cis-Hexahydroindan		3
4573-09-5	2,2,5-Trimethylcyclopentanone		2
460-13-9	1-Fluoropropane		1
463-82-1	2,2-Dimethylpropane		13
4631-98-5	Cyclohexanol, 4-(1,1,3,3-tetramethylbutyl)-		4
470-65-5	Cyclohexanol, 4-methyl-1-(1-methylethyl)-		3
4737-43-3	(1-Methylbutyl)cyclopentane		5
4786-20-3	2-Butenenitrile		4
4799-62-6	5-Methoxy-1-pentanol		1
4806-61-5	Ethylcyclobutane		1
4810-09-7	3-Methyl-1-heptene		2
4826-62-4	2-Dodecenal		1
4850-28-6	cis,trans-1,2,4-Trimethylcyclopentane		9
486-25-9	Fluorenone		1
4866-55-1	Cyclopropane, 1,2-dimethyl-3-methylene-, cis-		4
489-20-3	Cyclopentane, 1-isopropyl-2,3-dimethyl-		6
4911-70-0	2,3-Dimethyl-2-pentanol		6
4923-77-7	cis-1-Ethyl-2-methylcyclohexane		4
4926-78-7	cis-1-Ethyl-4-methylcyclohexane		14
493-02-7	trans-Decalin	5	49
4941-53-1	5-Undecene		34
49622-16-4	2,5-Dimethyl-2-undecene		1
50-00-0	Formaldehyde		3
502-56-7	5-Nonanone		6
502-69-2	6,10,14-Trimethyl-2-pentadecanone		3
5026-76-6	6-Methyl-1-heptene		2
504-60-9	1,3-Pentadiene		4
5049-61-6	Aminopyrazine	4	0
505-57-7	2-Hexenal		2
50639-02-6	2-Methyl-5-undecanone		26
50746-53-7	trans-1-Allyl-2-methylcyclopentane		1
50876-31-8	Cyclohexane, 1,1,3,5-tetramethyl-, trans-		2
50876-32-9	Cyclohexane, 1,1,3,5-tetramethyl-, cis-		5
50915-91-8	1-Butyl-2-ethylcyclopropene		4

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 15 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
50991-08-7	1,1'-Bicyclohexyl, 2-methyl-, cis-		3
50991-09-8	1,1'-Bicyclohexyl, 2-methyl-, trans-		1
5115-98-0	3-Piperidinecarboxamide, N-methyl-		3
512-85-6	2,3-Dioxabicyclo[2.2.2]oct-5-ene, 1-methyl-4-(1-methylethyl)-		1
51284-29-8	Cyclohexane, (1,2-dimethylpropyl)-		1
513-35-9	2-Methyl-2-butene		3
513-81-5	2,3-Dimethyl-1,3-butadiene		4
51411-24-6	6,10-Dodecadien-1-ol, 3,7,11-trimethyl-		1
5145-01-7	2(3H)-Furanone, dihydro-3,5-dimethyl-		3
51595-87-0	2-Heptanone, 6-(2-furanyl)-6-methyl-		2
5166-53-0	5-Methyl-3-hexen-2-one		3
5171-86-8	3,3,4,4-Tetraethyl hexane		1
51953-17-4	4(3H)-Pyrimidinone		3
5204-80-8	2-Ethyl-4-pentenal		1
5205-34-5	5-Decanol		3
52588-78-0	3,4-Undecadiene-2,10-dione, 6,6-dimethyl-		1
526-73-8	1,2,3-Trimethylbenzene		2
52663-58-8	2,3,4',6-Tetrachlorobiphenyl		4
527-84-4	1-Isopropyl-2-methylbenzene		1
52896-87-4	4-Isopropylheptane		2
52896-90-9	3-Ethyl-5-methylheptane		3
53229-39-3	Oxirane, (1-methylbutyl)-		3
53366-38-4	(2-Methylbutyl)cyclopentane		4
53398-83-7	Butanoic acid, trans-2-hexenyl ester		4
534-22-5	2-Methylfuran		2
535-77-3	1-Isopropyl-3-methylbenzene		2
53535-33-4	Heptanol		3
5364-83-0	1-Cyclohexyl-1-propene		2
538-68-1	n-Pentylbenzene		2
53833-32-2	2-n-Propyl-4,5-dimethyloxazole		8
53907-60-1	cis-1,1,3,4-Tetramethylcyclopentane		1
53907-75-8	2-Methyl-2-pentyloxirane		1
540-97-6	Dodecamethylcyclohexasiloxane	1	0
54004-41-0	4-Methyl-2-propylpentanol		1
541-01-5	Heptasiloxane, hexadecamethyl-		3
541-02-6	Decamethylcyclopentasiloxane	1	0
541-05-9	Cyclotrisiloxane, hexamethyl-		182
541-35-5	n-Butylamide	4	7
541-73-1	1,3-Dichlorobenzene		57
542-44-9	Hexadecanoic acid, 2,3-dihydroxypropyl ester		2
542-55-2	Formic acid, 2-methylpropyl ester		2
54244-79-0	5-Methyl-1-decene		3
543-29-3	Isobutyl nitrate		1
543-49-7	2-Heptanol		6
543-87-3	3-Methylbutyl nitrate		8
544-16-1	n-Butyl nitrite		10
544-63-8	n-Tetradecanoic acid		60
544-76-3	n-Hexadecane	2	77

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 16 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
54411-00-6	Cyclohexane, 1-methyl-4-(1-methylbutyl)-		11
54411-01-7	1-Methyl-2-pentylcyclohexane		8
54411-02-8	Cyclohexane, 1-methyl-3-pentyl-		6
5454-28-4	Heptanoic acid, butyl ester		3
54549-80-3	Cyclopentane, 2-ethyl-1,1-dimethyl-		1
5458-16-2	Pentane, 2-cyclopropyl-		1
54658-01-4	3-Methoxyhexane		7
54676-39-0	Cyclohexane, 2-butyl-1,1,3-trimethyl-		49
54774-28-6	2-Furanmethanol, tetrahydro-5-methyl-, trans-		1
54823-94-8	Cyclohexane, 1-(cyclohexylmethyl)-2-methyl-, trans-		3
54823-98-2	Cyclohexane, 1-(cyclohexylmethyl)-4-methyl-, trans-		4
54824-04-3	Cyclohexane, 1-(cyclohexylmethyl)-2-methyl-, cis-		1
54832-83-6	1H-Indene, octahydro-2,2,4,4,7,7-hexamethyl-, trans-		3
54833-48-6	2,6,10,15-Tetramethylheptadecane		1
54845-26-0	3-Heptene, 2,2,3,5,5,6,6-heptamethyl-		4
54845-28-2	trans-2-hexenyl ester-2-hexenoic acid		1
54934-90-6	Cyclohexane, 1,1'-(1-methylethylidene)bis-		3
54934-93-9	Cyclohexane, 1-(cyclohexylmethyl)-2-ethyl-, cis-		7
54934-95-1	Cyclohexane, 1-(cyclohexylmethyl)-4-ethyl-, cis-		3
54965-05-8	Cyclohexane, 1,1,3-trimethyl-2-(3-methylpentyl)-		15
5500-21-0	Cyclopropyl nitrile		4
55030-62-1	4,8-Dimethyltridecane		25
55045-07-3	2-Methyl-8-propyldodecane		22
55045-08-4	2-Methyl-6-propyldodecane		13
55045-11-9	5-Propyltridecane		13
55045-12-0	4,11-Dimethyltetradecane		8
55045-13-1	6,9-Dimethyltetradecane		1
55045-14-2	4-Ethyltetradecane		1
55170-92-8	2-Undecene, 4,5-dimethyl-, [R*,R*-(E)]-		1
55282-34-3	2,4,6-Trimethyl-1-n-octadecylcyclohexane		3
55334-40-2	Benzeneacetic acid, .alpha.,4-bis[(trimethylsilyl)oxy]-, methyl ester		4
55373-86-9	7-Hexyldocosane		1
55429-85-1	Benzeneethanamine, N-[(pentafluorophenyl)methylene]-.beta.,4-bis[(trimethylsilyl)oxy]-		1
55494-10-5	2-Hexenedioic acid, bis(trimethylsilyl) ester, (E)-		1
556-67-2	Octamethylcyclotetrasiloxane		199
55702-46-0	2,3,4-Trichlorobiphenyl		3
55702-61-9	4,4,5-Trimethyl-2-hexene		3
558-37-2	3,3-Dimethyl-1-butene		2
55937-92-3	Bicyclo[4.1.0]heptane, 2-methyl-7-pentyl-		1
55956-20-2	2-Oxazolidinone, 3-allyl-5-methyl-		10
56-23-5	Carbon tetrachloride		181
560-21-4	2,3,3-Trimethylpentane		4
56052-85-8	2-Pentene, 5-(pentyloxy)-, (E)-		2
56052-94-9	cis-3,4-Epoxyheptane		3
562-49-2	3,3-Dimethylpentane		7
56292-65-0	2,5-Dimethyldodecane		24

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 17 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
56292-66-1	2,5-Dimethyltridecane		2
56292-69-4	2,5-Dimethyltetradecane		2
563-45-1	3-Methyl-1-butene		11
563-46-2	2-Methyl-1-butene		6
563-78-0	2,3-Dimethyl-1-butene		4
563-79-1	2,3-Dimethyl-2-butene		4
563-80-4	3-Methyl-2-butanone		34
565-59-3	2,3-Dimethylpentane		64
565-61-7	3-Methyl-2-pentanone		11
565-67-3	2-Methyl-3-pentanol		3
565-69-5	2-Methyl-3-pentanone		9
565-80-0	2,4-Dimethyl-3-pentanone		2
56554-96-2	2-Octadecenal		2
56728-10-0	3,4,5-Trimethyl-1-hexene		3
5675-51-4	1,12-Dodecanediol		1
56851-45-7	4-Methyl-2-dodecene		2
57-10-3	n-Hexadecanoic acid	3	67
57-11-4	n-Octadecanoic acid		1
57-14-7	1,1-Dimethylhydrazine		6
57-55-6	1,2-Propanediol		23
5715-25-3	4,5-Dimethylcyclohexen-2-one		3
5746-58-7	Tetradecanoic acid, 12-methyl-, (S)-		6
575-37-1	1,7-Dimethylnaphthalene		2
5756-43-4	Ethyl n-hexyl ether		1
57706-88-4	3-Octanol, 3,7-dimethyl-, (+-)-		2
578-54-1	2-Ethylaniline		3
57905-86-9	1,1,2,3,3-Pentamethylcyclobutane		1
581-40-8	2,3-Dimethylnaphthalene		1
583-57-3	1,2-Dimethylcyclohexane		3
583-58-4	3,4-Dimethylpyridine		1
584-94-1	2,3-Dimethylhexane		10
585-74-0	3'-Methylacetophenone		2
5857-36-3	2,2,4-Trimethyl-3-pentanone		6
589-34-4	3-Methylhexane		84
589-38-8	3-Hexanone		49
589-43-5	2,4-Dimethylhexane		68
589-53-7	4-Methylheptane		5
589-63-9	4-Octanone		17
589-81-1	3-Methylheptane		52
589-82-2	3-Heptanol		47
589-90-2	1,4-Dimethylcyclohexane		54
589-93-5	2,5-Dimethylpyridine		3
59-50-7	4-Chloro-3-methylphenol	1	
59-89-2	N-Nitrosomorpholine	3	1
590-01-2	Propionic acid, butyl ester		4
590-18-1	cis-2-Butene		2
590-36-3	1,1-Dimethylbutanol		17
590-50-1	4,4-Dimethyl-2-pentanone		38

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 18 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
590-66-9	1,1-Dimethylcyclohexane		2
590-86-3	3-Methylbutanal		4
591-24-2	3-Methylcyclohexanone		3
591-76-4	2-Methylhexane		61
591-78-6	2-Hexanone	11	248
591-87-7	Acetic acid, 2-propenyl ester		1
591-95-7	1,2-Pentadiene		4
5910-87-2	trans,trans-2,4-Nonadienal		3
5910-89-4	2,3-Dimethylpyrazine		4
5911-04-6	3-Methylnonane		3
592-13-2	2,5-Dimethylhexane		13
592-27-8	2-Methylheptane		19
592-41-6	1-n-Hexene		49
592-42-7	1,5-Hexadiene		4
592-45-0	1,4-Hexadiene		12
592-76-7	1-n-Heptene		31
592-77-8	2-Heptene		13
592-78-9	3-Heptene		3
592-84-7	Formic acid, butyl ester		5
592-98-3	3-Octene		1
593-08-8	2-Tridecanone		31
593-45-3	n-Octadecane		10
594-11-6	Methylcyclopropane		2
594-70-7	2-Methyl-2-nitropropane		54
594-82-1	2,2,3,3-Tetramethylbutane		7
59681-06-0	2,6,10,14,18,22-Tetracosahexaene, 2,6,10,19,23-pentamethyl-, (all-E)-		1
598-32-3	2-Hydroxy-3-butene		22
598-58-3	Methyl nitrate		26
598-61-8	1-Methylcyclobutane		2
5989-27-5	(R)-4-Isopropenyl-1-methyl-1-cyclohexene		1
599-70-2	Ethyl phenyl sulfone		4
59983-39-0	(S)-1-Amino-2-(methoxymethyl)pyrrolidine		1
60-00-4	Ethylene diamine tetraacetic acid (EDTA)	13	
60-34-4	Methylhydrazine		3
60-35-5	Acetamide		3
600-14-6	2,3-Pentanedione		1
600-24-8	2-Nitrobutane		2
6031-02-3	2-Phenylhexane		1
6032-29-7	1-Methylbutanol		10
6044-71-9	6-Methyldodecane		9
6064-27-3	6-Dodecanone		27
60643-93-8	3-Hexene, 2,3,4,5-tetramethyl-, (Z)-		5
6069-98-3	1-Methyl-cis-4-isopropylcyclohexane		10
608-25-3	2,6-Dihydroxytoluene		2
608-33-3	2,6-Dibromophenol	2	0
609-26-7	2-Methyl-3-ethylpentane		4
6094-02-6	2-Methyl-1-hexene		1

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 19 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
611-14-3	2-Ethyltoluene		172
61141-57-9	Cyclohexene, 1-ethyl-6-ethylidene-		2
61141-72-8	4,6-Dimethyldodecane	2	24
61141-79-5	Cyclohexane, 1,2-diethyl-1-methyl-		9
61141-80-8	Cyclohexane, 1,2-diethyl-3-methyl-		12
61142-20-9	Cyclohexane, (4-methylpentyl)-		13
61142-23-2	Cyclohexane, (2,2-dimethylcyclopentyl)-		10
61142-24-3	Cyclohexane, 1,2,4,5-tetraethyl-, (1.alpha.,2.alpha.,4.alpha.,5.alpha.)-		2
61142-37-8	Cyclohexane, (1,2-dimethylbutyl)-		2
61142-38-9	Cyclohexane, (3-methylpentyl)-		1
61142-40-3	4-Undecene, 4-methyl-		6
61142-41-4	Cyclooctane, ethenyl-		3
61142-47-0	2-Pentene, 2-methoxy-		2
61142-66-3	Cyclopentene, 5-hexyl-3,3-dimethyl-		3
61142-68-5	Cyclopentane, 1-hexyl-3-methyl-		11
61142-70-9	Cyclohexane, 2,4-diethyl-1-methyl-		11
6117-97-1	4-Methyldodecane		47
613-93-4	N-Methylbenzamide		1
6137-06-0	4-Methyl-2-heptanone		6
6137-12-8	4-Ethyl-3-hexanone		1
6137-26-4	4-Dodecanone		3
614-99-3	2-Furancarboxylic acid, ethyl ester	4	0
616-45-5	2-Pyrrolidinone	4	2
617-29-8	2-Methyl-3-hexanol		3
617-78-7	3-Ethylpentane		1
617-94-7	2-Phenyl-2-propanol		22
6175-49-1	2-Dodecanone		6
61886-62-2	3-Hexadecyne		3
62-75-9	N-Nitroso-N,N-dimethylamine		62
620-14-4	3-Ethyltoluene		1
62016-14-2	Octane, 2,5,6-trimethyl-		4
62016-18-6	Octane, 5-ethyl-2-methyl-		3
62016-19-7	Octane, 6-ethyl-2-methyl-		13
62016-30-2	Octane, 2,3,3-trimethyl-		2
62016-34-6	Octane, 2,3,7-trimethyl-		10
62016-37-9	2,4,6-Trimethyloctane		24
621-64-7	N-Nitroso-di-n-propylamine	1	
62108-21-8	6-Ethyl-2-methyldecane		1
62108-25-2	Decane, 2,6,7-trimethyl-		14
62108-26-3	2,6,8-Trimethyldecane		3
62108-27-4	Decane, 2,4,6-trimethyl-		6
62108-31-0	Heptane, 4-ethyl-2,2,6,6-tetramethyl-		3
62183-55-5	Octane, 3-ethyl-2,7-dimethyl-		1
62185-53-9	Nonane, 5-(2-methylpropyl)-		5
62199-50-2	Cyclopentane, 1-butyl-2-propyl-		1
62199-51-3	Cyclopentane, 1-pentyl-2-propyl-		9
622-96-8	4-Ethyltoluene		4

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 20 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
62237-96-1	Decane, 2,2,5-trimethyl-		24
62237-97-2	Decane, 2,2,6-trimethyl-		3
62238-01-1	2,2,8-Trimethyldecane		1
62238-08-8	Cyclopropane, 1-ethyl-2-pentyl-		3
62238-11-3	2,3,5-Trimethyldecane		3
62238-12-4	Decane, 2,3,6-trimethyl-		16
62238-13-5	Decane, 2,3,7-trimethyl-		9
62238-14-6	Decane, 2,3,8-trimethyl-		6
62238-33-9	Cyclohexane, 1-ethyl-2-propyl-		6
623-37-0	3-Hexanol		3
623-56-3	2-Methyl-4-hexanone		2
623-87-0	1,3-Glycerol dinitrate		1
62338-08-3	3-Hexene, 3-ethyl-2,5-dimethyl-		5
62338-09-4	2,2,3-Trimethyldecane		3
62338-45-8	Bicyclo[2.2.2]octane, 1,2,3,6-tetramethyl-		1
62338-47-0	4-Decene, 3-methyl-, (E)-		3
6236-88-0	trans-1-Ethyl-4-methylcyclohexane		8
624-16-8	4-Decanone		6
624-42-0	6-Methyl-3-heptanone		7
624-43-1	Glycerol 1-nitrate		1
624-64-6	trans-2-Butene		2
624-83-9	Methyl isocyanate		1
624-91-9	Nitrous acid, methyl ester		47
624-95-3	3,3-Dimethylbutanol		3
625-25-2	2-Methyl-2-heptanol		4
625-58-1	Nitric acid, ethyl ester		89
625-65-0	2,4-Dimethyl-2-pentene		6
625-74-1	2-Methyl-1-nitropropane		1
625-84-3	2,5-Dimethylpyrrole		1
625-86-5	2,5-Dimethylfuran		1
626-97-1	Pentanamide	4	0
627-05-4	1-Nitrobutane		12
627-13-4	Nitric acid, propyl ester		72
627-20-3	cis-2-Pentene		13
627-27-0	3-Butene-1-ol		2
627-59-8	5-Methyl-2-hexanol		3
628-28-4	Methyl butyl ether		3
628-44-4	2-Methyl-2-octanol		3
628-61-5	2-Chlorooctane		1
628-73-9	n-Hexanenitrile		438
628-80-8	Methyl pentyl ether		4
6281-96-5	N-Isobutylformamide		1
629-08-3	n-Heptanenitrile		142
629-23-2	3-Tetradecanone		8
629-50-5	n-Tridecane	106	654
629-54-9	n-Hexadecanamide		1
629-59-4	n-Tetradecane	155	538
629-60-7	Tridecanenitrile		1

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 21 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
629-62-9	n-Pentadecane	120	146
629-70-9	Hexadecyl acetate		4
629-73-2	1-n-Hexadecene		10
629-76-5	n-Pentadecanol		1
629-78-7	n-Heptadecane	2	65
629-80-1	Hexadecanaldehyde		1
629-89-0	1-Octadecyne		3
629-92-5	n-Nonadecane		3
629-94-7	n-Heneicosane		1
6295-06-3	Glyoxylic acid, butyl ester		2
630-01-3	n-Hexacosane		1
630-18-2	2,2-Dimethylpropanenitrile		8
630-19-3	2,2-Dimethylpropionaldehyde		10
6304-50-3	2,2,4,9,11,11-hexamethyl-Dodecane		1
6305-52-8	2-butyldecahydro-Naphthalene		3
637-50-3	1-Phenylpropene		3
637-64-9	Tetrahydrofurfuryl acetate		3
637-88-7	1,4-Cyclohexanedione		3
637-92-3	Ethyl tert-butyl ether		1
638-04-0	cis-1,3-Dimethylcyclohexane		9
638-36-8	2,6,10,14-Tetramethylhexadecane		13
63830-68-2	4-Nonene, 2,3,3-trimethyl-, (Z)-		7
64-17-5	Ethyl alcohol		552
64-18-6	Formic acid	360	0
64-19-7	Acetic acid		56
6418-41-3	3-Methyltridecane		24
6418-43-5	3-Methylhexadecane		2
6418-44-6	3-Methylheptadecane		4
643-58-3	2-Methylbiphenyl		4
6434-78-2	trans-2-Nonene		2
645-56-7	4-Propylphenol		1
645-62-5	2-Ethyl-2-hexenal		3
646-04-8	trans-2-Pentene		1
66-25-1	Hexanaldehyde		88
66552-62-3	1,5-Dimethyldecalin		9
66553-50-2	Cyclopentane, 1-methyl-2-(4-methylpentyl)-, trans-		1
666-14-8	Glycolate	9	0
66826-95-7	Cyclohexane, 1-(cyclohexylmethyl)-4-methyl-		3
67-56-1	Methyl alcohol		594
67-63-0	2-Propyl alcohol		191
67-64-1	2-Propanone (Acetone)	62	831
67-66-3	Chloroform	1	118
67-72-1	Hexachloroethane		
6711-26-8	2-isopropenyl-2,5-dimethyl-Cyclohexanone		1
6728-26-3	trans-2-Hexenal		5
6728-31-0	cis-4-Heptenal		5
674-76-0	trans-4-Methyl-2-pentene		4
6765-39-5	1-Heptadecene		1

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 22 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
67730-63-6	4,6-Decadiene, 3,8-dimethyl-, [S-[R*,R*-(E,E)]]-		7
6783-92-2	1,1,2,3-tetramethyl-Cyclohexane		29
6789-80-6	cis-3-Hexenal		3
6836-38-0	6-Dodecanol		5
68443-63-0	Hexanoic acid, 2-ethyl-, butyl ester		2
6876-23-9	trans-1,2-Dimethylcyclohexane		18
6898-74-4	N-Ethylidenebutanamine		4
691-37-2	4-Methyl-1-pentene		24
693-54-9	2-Decanone		16
693-62-9	trans-4-Undecene		1
693-98-1	2-Methyl-1H-imidazole		3
694-05-3	1,2,3,6-Tetrahydropyridine		4
694-87-1	Bicyclo[4.2.0]octa-1,3,5-triene		1
695-06-7	4-Hydroxyhexanoic acid lactone		20
696-29-7	(1-Methylethyl)cyclohexane		1
69687-91-8	2-Hexenoic acid, 4-methylphenyl ester		3
6975-98-0	2-Methyldecane		37
69770-96-3	Cyclopentanone, 2-methyl-4-(2-methylpropyl)-		1
7012-37-5	2,4,4'-Trichlorobiphenyl		3
7045-71-8	2-Methylundecane		51
7058-01-7	(1-methylpropyl)-Cyclohexane		14
706-14-9	4-Hydroxydecanoic acid lactone		2
7094-26-0	1,1,2-Trimethylcyclohexane		4
71-23-8	n-Propyl alcohol		606
71-36-3	n-Butyl alcohol	23	775
71-41-0	n-Pentyl alcohol		30
71-43-2	Benzene	12	638
71-50-1	Acetate	329	0
71-55-6	1,1,1-Trichloroethane	22	221
710-04-3	5-Hydroxyundecanoic acid lactone		1
7112-02-9	Octanamide, N-(2-hydroxyethyl)-		4
7116-86-1	5,5-Dimethyl-1-hexene		4
7154-80-5	3,3,5-Trimethylheptane		6
717-21-5	2-Propen-1-one, 3-(2-furanyl)-1-phenyl-		1
719-22-2	2,6-Di-tert-butyl-1,4-benzoquinone		15
72014-90-5M	1,4-Pentadiene, 2,3,4-trimethyl- and others		1
7206-14-6	trans-3-Dodecene		9
7206-15-7	trans-4-Dodecene		6
7206-17-9	trans-6-Dodecene		4
7206-28-2	cis-5-Dodecene		3
7225-64-1	Heptadecane, 9-octyl-		1
7239-23-8	cis-3-Dodecene		2
7250-80-8	N-Hexylbenzenesulfonamide		3
72993-32-9	1-butyl-2-ethyl-Cyclopentane		5
7367-38-6	5-Butyl-4-nonene		11
7385-78-6	3,4-Dimethyl-1-pentene		5
74-82-8	Methane		93
74-83-9	Bromomethane		22

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 23 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
74-84-0	Ethane		1
74-87-3	Chloromethane	4	194
74-98-6	n-Propane		230
74-99-7	Methylacetylene		9
7433-56-9	trans-5-Decene		5
74367-34-3	Propanoic acid, 2-methyl-, 3-hydroxy-2,4,4-trimethylpentyl ester		5
74381-40-1	Propanoic acid, 2-methyl-, 1-(1,1-dimethylethyl)-2-methyl-1,3- propanediyl ester		18
74421-09-3	Cyclopentane, 1,1,3-trimethyl-3-(2-methyl-2-propenyl)-		4
74630-08-3	3-ethyl-1-Octene		23
74630-30-1	4-methyl-(Cis)-2-Decene		2
74630-39-0	4-methyl-1-Undecene		10
74630-40-3	8-methyl-1-Undecene		2
74630-42-5	7-methyl-1-Undecene		6
74630-44-7	8-methyl-(Cis)-2-Undecene		5
74630-48-1	2-methyl-(Cis)-3-Undecene		4
74630-61-8	6-methyl-(trans)-2-Undecene		1
74630-62-9	7-methyl-(Cis)-5-Undecene		1
74630-66-3	7-methyl-(trans)-5-Undecene		1
74630-69-6	5-methyl-(Cis)-4-Undecene		1
74645-98-0	2,7,10-Trimethyldodecane		14
74646-36-9	1-Dodecyn-4-ol		3
74646-37-0	1-Tridecyn-4-ol		3
74663-66-4	1,5-diethyl-2,3-dimethyl-Cyclohexane		4
74663-86-8	1-ethyl-2-heptyl-Cyclopropane		4
74663-91-5	1-heptyl-2-methyl-Cyclopropane		4
74685-30-6	trans-5-Eicosene		1
74752-97-9	3-ethyl-2-methyl-(Cis)-1,3-Hexadiene,		1
74793-02-5	2,2'-Bioxepane		16
74810-41-6	Cyclohexane, (2-ethyl-1-methylbutylidene)-		2
74810-42-7	Cyclohexane, (2-ethyl-1-methyl-1-butenyl)-		3
75-00-3	Chloroethane		82
75-01-4	1-Chloroethene		26
75-02-5	1-Fluoroethene		5
75-05-8	Acetonitrile		713
75-07-0	Acetaldehyde		103
75-09-2	Dichloromethane (Methylene Chloride)	15	567
75-12-7	Formamide		1
75-15-0	Carbon disulfide		16
75-19-4	Cyclopropane		105
75-21-8	Oxirane		1
75-28-5	2-Methylpropane		49
75-34-3	1,1-Dichloroethane		29
75-35-4	1,1-Dichloroethene		113
75-43-4	Dichlorofluoromethane		20
75-45-6	Chlorodifluoromethane		12
75-50-3	Trimethylamine		1

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 24 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
75-52-5	Nitromethane		8
75-55-8	2-Methylaziridine		5
75-65-0	2-Methyl-2-propanol		144
75-68-3	1,1-Difluoro-1-chloroethane		87
75-69-4	Trichlorofluoromethane		790
75-71-8	Dichlorodifluoromethane		252
75-77-4	Trimethylchlorosilane		11
75-83-2	2,2-Dimethylbutane		15
75-84-3	2,2-Dimethyl-1-propanol		9
75-85-4	2-Methyl-2-butanol		8
75-97-8	3,3-Dimethyl-2-butanone		42
75-98-9	2,2-Dimethylpropionic acid		23
75011-90-4	1H-Pyrazole, 4,5-dihydro-5-propyl-		1
75163-97-2	2,6-dimethyl-Octadecane		2
75268-01-8	1H-Azepin-1-amine, N-ethylidenehexahydro-		4
753-89-9	1-Chloro-2,2-dimethylpropane		1
758-86-1	2,3-Dimethyl-1,4-pentadiene		1
76-09-5	2,3-Dimethyl-2,3-butanediol		1
76-13-1	1,2,2-Trichlorotrifluoroethane		255
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane		31
762-62-9	4,4-Dimethyl-1-pentene		6
763-29-1	2-Methyl-1-pentene		19
763-93-9	3-Hexen-2-one		1
764-96-5	cis-5-Undecene		3
764-97-6	trans-5-Undecene		2
7642-09-3	cis-3-Hexene		4
766-15-4	4,4-Dimethyl-1,3-dioxane		1
7667-60-9	trans, cis-1,2,4-Trimethylcyclohexane		3
7688-21-3	cis-2-Hexene		8
7726-08-1	N-(2-Hydroxyethyl)decanamide		2
774-40-3	Benzeneacetic acid, .alpha.-hydroxy-, ethyl ester		1
777-22-0	(2-Octyl)benzene		1
78-46-6	Dibutyl butanephosphonate		41
78-76-2	2-Bromobutane		2
78-78-4	2-Methylbutane		29
78-79-5	2-Methyl-1,3-butadiene		8
78-82-0	2-Cyanopropane		1
78-83-1	2-Methylpropyl alcohol		7
78-84-2	2-Methylpropionaldehyde		4
78-85-3	2-Methyl-2-propenal		5
78-87-5	1,2-Dichloropropane		13
78-92-2	1-Methylpropyl alcohol		66
78-93-3	2-Butanone	27	642
78-94-4	3-Buten-2-one		70
79-00-5	1,1,2-Trichloroethane		111
79-01-6	1,1,2-Trichloroethylene	1	113
79-09-4	Propanoic acid		5
79-10-7	2-Propenoic acid		1

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 25 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
79-16-3	N-Methylacetamide		1
79-20-9	Methyl acetate		4
79-29-8	2,3-Dimethylbutane		1
79-34-5	1,1,2,2-Tetrachloroethane		51
80-39-7	N-Ethyl-4-methylbenzenesulfonamide		1
814-78-8	3-Methylene-2-butanone		4
819-97-6	Butanoic acid, 1-methylpropyl ester		1
81983-71-3	1,1-dimethyl-2-propyl-Cyclohexane		18
820-29-1	5-Decanone		5
821-41-0	5-Hexene-1-ol		3
821-55-6	2-Nonanone		55
821-74-9	4,5-Nonadiene		1
821-95-4	1-Undecene		9
821-96-5	cis-2-Undecene		3
822-50-4	trans-1,2-Dimethylcyclopentane		7
83-32-9	Acenaphthene	1	
83321-16-8	3-Cyclopenten-1-one, 2,3,4-trimethyl-		1
84-64-0	Butyl cyclohexyl phthalate		2
84-66-2	Diethyl phthalate		24
84-74-2	Di-n-butylphthalate	2	2
85-68-7	Butylbenzylphthalate	3	
85-69-8	Butyl 2-ethylhexyl phthalate		1
86-73-7	Fluorene		1
865-40-7	Nitrosomethane		3
87-68-3	Hexachlorobutadiene		42
871-71-6	N-Butylformamide		3
871-83-0	2-Methylnonane		4
872-05-9	1-Decene		12
872-56-0	Isopropylcyclobutane		4
873-94-9	3,3,5-Trimethylcyclohexanone		5
88-06-2	2,4,6-Trichlorophenol	1	
88-75-5	2-Nitrophenol	1	
883-93-2	2-Phenylbenzothiazole		5
89-82-7	Cyclohexanone, 5-methyl-2-(1-methylethylidene)-, (R)-		1
90-12-0	1-Methylnaphthalene		1
91-17-8	Decahydronaphthalene		3
91-20-3	Naphthalene	2	4
91-57-6	2-Methylnaphthalene		3
92-51-3	1,1'-Bicyclohexyl		1
92-52-4	1,1'-Biphenyl		7
922-65-6	1,4-Pentadien-3-ol		1
924-46-9	1-Propanamine, N-methyl-N-nitroso-	2	0
925-78-0	3-Nonanone		1
926-42-1	1-Propanol, 2,2-dimethyl-, nitrate		16
926-82-9	3,5-Dimethylheptane		1
928-45-0	Butyl nitrate		77
928-68-7	6-Methyl-2-heptanone		91
93-55-0	1-Phenyl-1-propanone		3

Table B.1. Compounds with a Positive Analytical Detect for Single-Shell Tank/
Double-Shell Tank Waste (1,227 Compounds). (Page 26 of 26)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits
930-18-7	cis-1,2-Dimethylcyclopropane		2
930-22-3	1,2-Epoxy-3-butene		8
930-36-9	1-Methylpyrazole		1
930-57-4	Butylcyclopropane		12
948-65-2	2-Phenylindole		1
95-16-9	Benzothiazole		9
95-47-6	o-Xylene		411
95-48-7	o-Cresol		2
95-50-1	1,2-Dichlorobenzene		27
95-57-8	2-Chlorophenol	1	
95-63-6	1,2,4-Trimethylbenzene		270
95-95-4	2,4,5-Trichlorophenol	1	
96-14-0	3-Methylpentane		90
96-17-3	2-Methylbutyraldehyde		7
96-22-0	3-Pentanone		10
96-37-7	Methylcyclopentane		45
96-41-3	Cyclopentanol		12
96-48-0	4-Hydroxybutyric acid lactone		18
96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide	1	
97-87-0	Propanoic acid, 2-methyl-, butyl ester		2
M97-95-0	2-Ethyl-1-butanol		18
97-99-4	Tetrahydrofurfuryl alcohol		2
98-06-6	t-Butylbenzene		4
98-54-4	4-tert-Butylphenol		3
98-82-8	(1-Methylethyl)benzene		2
98-83-9	Methylstyrene		3
98-86-2	Acetophenone		43
98-95-3	Nitrobenzene		5
99-08-1	3-Methylnitrobenzene		3
99-28-5	2,6-Dibromo-4-nitrophenol	2	0
99-82-1	1-Isopropyl-4-methylcyclohexane		3
99-99-0	4-Nitrotoluene		3
993-07-7	Trimethylsilane		3
998-35-6	5-Propylnonane		1
CITRATE	Citrate	16	0
ETOX	Extractable total organic halides	91	0
HEDTA	TrisodiumHydroxyethylethylenediaminetriacetate (HEDTA)	13	
NA13	Subsurface total organic carbon		
NA14	Surface total organic carbon		
NA29	Total organic carbon (TOC)	2833	

CAS# = chemical abstract service number.

TWINS = Tank Waste Information Network System. Solid/liquid hits were recorded from the Tank Characterization Database. Vapor hits were recorded from the vapor database.

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 1 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
100-01-6	4-Nitroaniline		X	X		X		
100-02-7	4-Nitrophenol		X	X		X		
100-21-0	Phthalic acid			X				
100-25-4	1,4-Dinitrobenzene			X		X		
100-37-8	Diethylaminoethanol		X					
100-41-4	Ethyl benzene			X	X	X		
100-42-5	Styrene		X					
100-44-7	Benzyl chloride		X					
100-61-8	N-Methylbenzenamine		X					
100-63-0	Phenylhydrazine		X					
100-74-3	N-Ethylmorpholine		X					
100-75-4	N-Nitrosopiperidine			X		X		
10025-67-9	Sulfur monochloride		X					
10025-87-3	Phosphorus oxychloride		X					
10026-13-8	Phosphorus pentachloride		X					
10035-10-6	Hydrogen bromide		X					
10049-04-4	Chlorine dioxide		X					
10061-01-5	cis-1,3-Dichloropropene			X		X		
10061-02-6	trans-1,3-Dichloropropene			X		X		
101-14-4	4,4'-Methylenebis(2-chloroaniline)	X		X		X		
101-27-9	Barban					X		
101-55-3	4-Bromophenylphenyl ether			X		X		
101-68-8	Methylene bis(phenyl isocyanate)		X					
101-77-9	4,4-Methylene dianiline	X						
101-80-4	4,4'-Diaminodiphenyl ether	X						
101-84-8	Diphenyl ether		X					
101-90-6	Diglycidyl resorcinol ether	X		X				
10102-43-9	Nitric oxide		X					
102-54-5	Dicyclopentadienyl iron		X					
102-81-8	2-N-Dibutylaminoethanol		X					
10210-68-1	Cobalt carbonyl as Co		X					
1024-57-3	Heptachlor Epoxide			X		X		
1024-57-D	Heptachlor epoxide isomers			X				
10294-33-4	Boron tribromide		X					
1031-07-8	Endosulfan Sulfate			X		X		
105-46-4	sec-Butyl acetate		X					
105-60-2	Caprolactam, vapor		X					
105-60-2a	Caprolactam, dust		X					
105-67-9	2,4-Dimethylphenol			X		X		
10595-95-6	N-Nitrosomethylethylamine	X		X		X		
106-35-4	3-Heptanone		X					
106-42-3	p-Xylene			X	X	X		
106-44-5	4-Methylphenol			X	X	X		
106-46-7	1,4-Dichlorobenzene	X		X		X		
106-47-8	4-Chloroaniline			X		X		
106-49-0	p-Toluidine		X					
106-50-3	p-Phenylenediamine		X	X				

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 2 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
106-51-4	p-Benzoquinone		X					
106-87-6	Vinyl cyclohexene dioxide		X					
106-88-7	1,2-Epoxybutane		X					
106-89-8	Epichlorohydrin	X						
106-92-3	Allyl glycidyl ether		X					
106-93-4	Ethylene dibromide	X		X		X		
106-97-8	Butane		X					
106-99-0	1,3-Butadiene	X						
10605-21-7	Carbendazim					X		
107-02-8	Acrolein		X	X		X		
107-05-1	3-Chloropropene		X	X		X		
107-06-2	1,2-Dichloroethane	X		X	X	X		
107-07-3	Ethylene chlorohydrin		X					
107-12-0	Propionitrile			X		X		
107-13-1	Acrylonitrile	X		X		X		
107-15-3	Ethylene diamine		X					
107-18-6	2-Propen-1-ol		X					
107-19-7	Propargyl alcohol		X					
107-20-0	Chloroacetaldehyde		X					
107-21-1	Ethylene glycol		X					
107-30-2	Chloromethyl methyl ether	X						
107-31-3	Formic acid, methyl ester		X					
107-41-5	Hexylene glycol		X					
107-49-3	Tetraethyl pyrophosphate		X					
107-66-4	Dibutylphosphate		X					
107-87-9	2-Pentanone		X					
107-98-2	Propylene glycol monomethyl ether		X					
108-03-2	1-Nitropropane		X					
108-05-4	Acetic acid vinyl ester		X					
108-10-1	4-Methyl-2-pentanone		X	X	X	X		
108-11-2	Methyl isobutyl carbinol		X					
108-18-9	Diisopropylamine		X					
108-20-3	Bis(isopropyl) ether		X					
108-21-4	Isopropyl acetate		X					
108-24-7	Acetic anhydride		X					
108-31-6	Maleic anhydride (2,5-Furandione)		X					
108-38-3	m-Xylene			X	X	X		
108-39-4	m-Cresol		X	X		X		
108-43-0	Chlorophenols	X						
108-44-1	m-Toluidine		X					
108-46-3	Resorcinol (1,3-Benzenediol)		X					
108-60-1	Bis(2-Chloroisopropyl) ether			X		X		
108-83-8	Diisobutyl ketone		X					
108-84-9	sec-Hexyl acetate		X					
108-87-2	Methylcyclohexane		X					
108-88-3	Toluene		X	X	X	X		
108-90-7	Chlorobenzene		X	X	X	X		

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 3 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
108-91-8	Cyclohexylamine		X					
108-93-0	Cyclohexanol		X					
108-94-1	Cyclohexanone		X	X	X	X		
108-95-2	Phenol		X	X		X		
108-98-5	Thiophenol		X					
109-59-1	Isopropoxyethanol		X					
109-60-4	n-Propyl acetate		X					
109-66-0	n-Pentane		X					
109-73-9	n-Butylamine		X					
109-79-5	n-Butyl mercaptan		X					
109-86-4	2-Methoxyethanol		X					
109-87-5	Methylal		X					
109-89-7	Diethylamine		X					
109-94-4	Ethyl formate		X					
109-99-9	Tetrahydrofuran		X					
110-12-3	5-Methyl-2-hexanone		X					
110-19-0	Isobutyl acetate		X					
110-43-0	2-Heptanone		X					
110-49-6	2-Methoxyethyl acetate		X					
110-54-3	n-Hexane		X					
110-54-3D	Hexane, other isomers		X					
110-62-3	n-Valeraldehyde		X					
110-75-8	2-Chloroethyl vinyl ether			X		X		
110-80-5	2-Ethoxyethanol		X		X			
110-82-7	Cyclohexane		X					
110-83-8	Cyclohexene		X					
110-86-1	Pyridine		X	X	X	X		
110-91-8	Morpholine		X					
111-15-9	2-Ethoxyethyl acetate		X					
111-30-8	Glutaraldehyde		X					
111-40-0	Diethylene triamine		X					
111-42-2	Diethanolamine		X					
111-44-4	Bis(2-chloroethyl) ether	X		X		X		
111-46-6D	Glycol ethers		X					
111-65-9	n-Octane		X					
111-76-2	2-Butoxyethanol		X					
111-84-2	n-Nonane		X					
111-91-1	Bis(2-Chloroethoxy)methane			X		X		
1114-71-2	Pebulate			X		X		
11141-16-5	PCB-1232			X				
1120-71-4	1,3-Propane sultone	X						
1129-41-5	Metolcarb (3-methylcholanthrene)					X		
1134-23-2	Cycloate			X				
114-26-1	Propoxur		X	X		X		
115-29-7	Endosulfan		X					
115-86-6	Triphenyl phosphate		X					
115-90-2	Fensulfothion		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 4 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
117-79-3	2-Aminoanthraquinone	X						
117-81-7	Bis(2-ethylhexyl) phthalate	X		X		X		
117-84-0	Di-n-octylphthalate			X		X		
118-52-5	1,3-Dichloro-5,5-Dimethyl hydantoin		X					
118-74-1	Hexachlorobenzene	X		X		X		
118-96-7	2,4,6-Trinitrotoluene		X					
1189-85-1	tert-Butyl chromate, as CrO3		X					
119-38-0	Isolan					X		
119-90-4	3,3'-Dimethoxybenzidine	X						
119-93-7	3,3'-Dimethylbenzidine.	X						
120-12-7	Anthracene			X		X		
120-58-1	Isosafrole			X		X		
120-80-9	Catechol		X					
120-82-1	1,2,4-Trichlorobenzene		X	X		X		
120-83-2	2,4-Dichlorophenol			X		X		
12079-65-1	Manganese cyclopentadienyl tricarbonyl		X					
121-14-2	2,4-Dinitrotoluene		X	X	X	X		
121-44-8	Triethylamine		X	X		X		
121-45-9	Trimethyl phosphite		X					
121-69-7	Dimethylaniline		X					
121-75-5	Malathion		X					
121-82-4	Cyclonite		X					
12108-13-3	Methylcyclopentadienylmanganese tricarbonyl		X					
12125-02-9	Ammonium chloride (fume)		X					
122-39-4	N,N-Diphenylamine		X	X		X		
122-42-9	Propham					X		
122-60-1	Phenyl glycidyl ether		X					
122-66-7	1,2-Diphenylhydrazine	X		X		X		
123-19-3	4-Heptanone		X					
123-31-9	Hydroquinone		X	X				
123-38-6	n-Propionaldehyde		X					
123-42-2	Diacetone alcohol		X					
123-51-3	3-Methyl-1-butanol		X					
123-86-4	Acetic acid n-butyl ester		X					
123-91-1	1,4-Dioxan	X		X		X		
123-92-2	Isoamyl acetate		X					
124-40-3	Dimethylamine		X					
124-48-1	Dibromochloromethane			X		X		
126-72-7	Tris(2,3-dibromopropyl) phosphate			X		X		
126-73-8	Tributyl phosphate		X					
126-85-2	Nitrogen mustard N-oxide	X						
126-98-7	2-Methyl-2-propenenitrile		X	X		X		
126-99-8	Chloroprene	X		X		X		
12604-58-9	Ferrovandium dust		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 5 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
12672-29-6	PCB-1248			X				
127-18-4	1,1,2,2-Tetrachloroethene	X		X	X	X		
127-19-5	N,N-Dimethylacetamide		X					
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol		X					
129-00-0	Pyrene			X		X		
129-15-7	2-Methyl-1-nitroanthraquinone	X						
1300-73-8	Xylidine		X					
1303-86-2	Boron oxide		X					
1303-96-4Ca	Borates, anhydrous		X					
1303-96-4Cb	Borates, pentahydrate		X					
1303-96-4Cc	Borates, decahydrate		X					
1304-82-1	Bismuth telluride		X					
1305-62-0	Calcium hydroxide		X					
1305-78-8	Calcium oxide		X					
1309-37-1	Iron oxide fume, Fe ₂ O ₃ as Fe		X					
1309-48-4	Magnesium oxide fume		X					
1309-64-4	Antimony trioxide, as Sb		X					
131-11-3	Dimethyl phthalate		X	X		X		
1310-58-3	Potassium hydroxide		X					
1310-73-2	Sodium hydroxide		X				X	
13121-70-5	Cyhexatin		X					
1314-13-2	Zinc oxide, fume		X					
1314-20-1	Thorium dioxide	X						
1314-62-1	Vanadium pentoxide		X		X			
1314-80-3	Phosphorus pentasulfide		X					
1319-77-3	Cresol polymers				X			
1319-77-3a	Cresols, syn Cresylic acid		X					
132-64-9	Dibenzofuran	X						
1321-64-8	Pentachloronaphthalene		X					
1321-65-9	Trichloronaphthalene		X					
1321-74-0	Divinyl benzene		X					
133-06-2	Captan		X					
133-90-4	Chloramben		X					
1330-20-7	Xylene			X	X	X		
1332-21-4	Asbestos (fibrous)	X						
1333-86-4	Carbon black		X					
1335-87-1	Hexachloronaphthalene		X					
1335-88-2	Tetrachloronaphthalene		X					
1336-36-3	Polychlorinated biphenyls (PCBs)	X		X		X	X	
1338-23-4	Methyl ethyl ketone peroxide		X					
134-32-7	alpha-Naphthylamine	X		X				
13463-40-6	Iron pentacarbonyl, as Fe		X					
13494-80-9C	Tellurium & compounds as Te		X					
135-20-6	Cupferron	X						
135-88-6	N-Phenyl-2-naphthylamine			X				
13530-65-9	Zinc chromates		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 6 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
13552-44-8	4,4-Methylenedianiline dihydrochloride	X						
136-78-7	Sesone		X					
137-05-3	Methyl-2-cyanoacrylate		X					
137-26-8	Thiram		X					
137-30-4	Ziram			X		X		
138-22-7	n-Butyl lactate		X					
13838-16-9	Enflurane		X					
139-65-1	4,4'-Thiodianiline	X		X				
139-91-3	5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone)	X						
1395-21-7	Subtilisins		X					
140-57-8	Aramite			X		X		
140-88-5	Ethylacrylate		X					
141-32-2	Butylacrylate		X					
141-43-5	Ethanolamine		X					
141-66-2	Dicrotophos		X					
141-78-6	Acetic acid ethyl ester		X	X	X	X		
141-79-7	4-Methyl-3-penten-2-one		X					
142-64-3	Piperazine dihydrochloride		X					
142-82-5	n-Heptane		X					
14265-44-2	Phosphate							X
14280-30-9	Hydroxide						X	
143-50-0	Kepone			X		X		
144-62-7	Oxalic acid		X					
14484-64-1	Ferbam		X					
1477-55-0	m-Xylene-a,a'-diamine		X					
14797-65-0	Nitrite						X	X
148-01-6	Dinitolamide		X					
14808-79-8	Sulfate							X
14977-61-8	Chromylchloride		X					
150-76-5	4-Methoxyphenol		X					
151-56-4	Ethyleneimine		X					
151-67-7	Halothane		X					
156-60-5	1,2-trans-Dichloroethene			X	X	X		
156-62-7	Calcium cyanamide		X					
1563-38-8	Carbofuran phenol					X		
1563-66-2	Carbofuran		X	X		X		
1582-09-8	Trifluralin		X					
1615-80-1	N,N'-Diethylhydrazine	X						
16219-75-3	Ethylidene norbornene		X					
1634-04-4	Methyl tert-butyl ether		X					
1646-88-4	Aldicarb sulfone			X		X		
16752-77-5	Methomyl		X	X		X		
16842-03-8	Cobalt hydrocarbonyl		X					
16887-00-6	Chloride						X	X
1694-09-3	Benzyl violet 4b	X						

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 7 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
16984-48-8	Fluoride		X	X		X		X
1746-01-6	TCDD (Dioxin/Furan Indicator)	X		X				
17702-41-9	Decaborane		X					
17702-57-7	Formparanate					X		
17804-35-2	Benomyl		X	X		X		
1836-75-5	Nitrofen	X						
1888-71-7	Hexachloropropylene			X		X		
189-55-9	Dibenzo[a,i]pyrene	X						
189-64-0	Dibenzo[a,h]pyrene	X						
191-24-2	Benzo(g,h,i)perylene			X		X		
191-30-0	Dibenzo(a,l)pyrene	X						
1912-24-9	Atrazine		X					
1918-02-1	Picloram		X					
192-65-4	Dibenzo[a,e]pyrene	X		X		X		
19287-45-7	Diborane		X					
1929-77-7	Vernolate			X		X		
1929-82-4	Nitrapyrin		X					
193-39-5	Indeno(1,2,3-cd)pyrene	X		X		X		
19624-22-7	Pentaborane		X					
2008-41-5	Butylate			X		X		
2032-65-7	Methiocarb			X		X		
2039-87-4	o-Chlorostyrene		X					
205-82-3	Benzo[j]fluoranthene	X						
205-99-2	Benzo(b)fluoranthene	X		X		X		
206-44-0	Fluoranthene			X		X		
207-08-9	Benzo(k)fluoranthene	X		X		X		
208-96-8	Acenaphthylene			X		X		
20816-12-0	Osmium tetroxide		X					
2104-64-5	EPN		X					
21087-64-9	Metribuzin		X					
21351-79-1	Cesium hydroxide		X					
2179-59-1	Allyl propyl disulfide		X					
218-01-9	Chrysene			X		X		
2212-67-1	Molinate			X		X		
22224-92-6	Fenamiphos		X					
2234-13-1	Octachloronaphthalene		X					
2238-07-5	Diglycidyl ether		X					
224-42-0	Dibenz[a,j]acridine	X						
226-36-8	Dibenz[a,h]acridine	X						
22781-23-3	Bendiocarb			X		X		
22961-82-6	Bendiocarb phenol					X		
2303-17-5	Triallate					X		
23135-22-0	Oxamy			X		X		
23422-53-9	Formetanate hydrochloride					X		
23564-05-8	Thiophanate-methyl					X		
2385-85-5	Mirex	X						
23950-58-5	Pronamide			X		X		

Table B.2. Consolidated List of Compounds Used as Input for Regulatory
Data Quality Objective List (850 Compounds). (Page 8 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
2425-06-1	Captafol		X					
2426-08-6	n-Butyl glycidyl ether		X					
2465-27-2	Auramine (technical grade)	X						
25013-15-4	Vinyl toluene		X					
2551-13-7	Trimethyl benzene		X					
2551-62-4	Sulfur hexafluoride		X					
25639-42-3	Methylcyclohexanol		X					
26140-60-3	Terphenyls		X					
2631-37-0	Promecarb					X		
26419-73-8	Tirpate					X		
2646-17-5	Oil orange SS	X						
26628-22-8	Sodium azide		X					
26952-21-6	Iso-octyl alcohol		X					
2698-41-1	o-Chlorobenzylidene malonitrile		X					
2699-79-8	Sulfuryl fluoride		X					
27154-33-2	Trichlorofluoroethane				X			
28434-86-8	3,3'-Dichloro-4,4'-diaminodiphenyl ether	X						
287-92-3	Cyclopentane		X					
29191-52-4	Anisidine (o-,p- isomers)		X					
2921-88-2	Chlorpyrifos		X					
2971-90-6	Clopidol		X					
298-00-0	Methyl parathion		X	X		X		
298-02-2	Phorate		X	X		X		
298-04-4	Disulfoton		X	X		X		
299-84-3	Ronnel		X					
299-86-5	Crufomate		X					
300-76-5	Naled		X					
301-04-2	Lead acetate	X						
302-01-2	Hydrazine	X						
302-70-5	Nitrogen mustard N-oxide hydrochloride	X						
30402-14-3D	Tetrachlorodibenzofurans			X				
30402-15-4D	Pentachlorodibenzofurans			X				
30558-43-1	A2213					X		
3068-88-0	B-Butyrolactone	X						
309-00-2	Aldrin	X		X		X		
314-40-9	Bromacil		X					
315-18-4	Mexacarbate			X		X		
319-84-6	alpha-BHC	X		X		X		
319-85-7	beta-BHC	X		X		X		
319-86-8	delta-BHC			X		X		
330-54-1	Diuron		X					
33213-65-9	Endosulfan II			X		X		
333-41-5	Diazinon		X					
3333-52-6	Tetramethyl succinonitrile		X					
334-88-3	Diazomethane		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 9 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
3383-96-8	Temephos		X					
3424-82-6	o,p'-DDE (2,4'-DDE)			X		X		
34465-46-8D	Hexachlorodibenzo-p-dioxins			X				
34590-94-8	Dipropylene glycol methyl ether		X					
353-50-4	Carbon oxyfluoride		X					
35400-43-2	Sulprofos		X					
3547-04-4	DDE (p,p'- Dichlorodiphenyldichloroethylene)	X						
36088-22-9D	Pentachlorodibenzo-p-dioxins			X				
3687-31-8	Lead arsenate, as Pb3 (A2O4)2		X					
3689-24-5	Tetraethylthiopyrophosphate (TEDP)		X					
3697-24-3	5-Methylchrysene	X						
3761-53-3	Ponceau MX	X						
3812-32-6	Carbonate							X
3825-26-1	Ammonium perfluorooctanoate		X					
4016-14-2	Isopropyl glycidyl ether (IGE)		X					
4098-71-9	Isophorone diisocyanate		X					
4170-30-3	2-Butenaldehyde		X					
41903-57-5D	Tetrachlorodi-benzo-p-dioxins			X				
420-04-2	Cyanamide		X					
460-19-5	Cyanogen		X					
463-51-4	Ketene		X					
463-58-1	Carbon oxide sulfide (COS)		X					
465-73-6	Isodrin			X		X		
4685-14-7	Paraquat		X					
479-45-8	Tetryl		X					
50-00-0	Formaldehyde	X						
50-29-3	4,4-DDT	X		X		X		
50-32-8	Benzo(a)pyrene	X		X		X		
504-29-0	2-Aminopyridine		X	X				
506-77-4	Cyanogen chloride		X					
509-14-8	Tetranitromethane		X					
51-28-5	2,4-Dinitrophenol		X	X		X		
51-79-6	Ethyl carbamate (urethane)		X					
510-15-6	Chlorobenzilate	X		X		X		
5124-30-1	Methylene-bis-(4-cyclo- hexylisocyanate)		X					
52-85-7	Famphur			X		X		
528-29-0	Dinitrobenzene, all isomers		X	X				
52888-80-9	Prosulfocarb					X		
53-19-0	o,p'-DDD (2,4'-DDD)			X		X		
53-70-3	Dibenz[a,h]anthracene	X		X		X		
53-96-3	2-Acetylaminofluorene	X		X		X		
531-82-8	N-(4-(5-Nitro-2-furyl)-2- thiazolyl)acetamide	X						
532-27-4	a-Chloroacetophenone		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 10 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
534-52-1	4,6-Dinitro-o-cresol		X	X		X		
54-11-5	Nicotine		X	X				
540-59-0	1,2-Dichloroethylene		X					
540-73-8	1,2-Dimethylhydrazine	X						
540-84-1	2,2,4-Trimethylpentane		X					
540-88-5	tert-Butyl acetate		X					
541-73-1	1,3-Dichlorobenzene			X		X		
541-85-5	Ethyl amyl ketone		X					
542-75-6	1,3-Dichloropropene		X					
542-88-1	Dichloromethyl ether	X						
542-92-7	Cyclopentadiene		X					
55-18-5	N-Nitrosodiethylamine	X		X		X		
55-38-9	Fenthion		X					
55-63-0	Nitroglycerin		X					
552-30-7	Trimellitic anhydride		X					
55285-14-8	Carbosulfan					X		
55406-53-6	3-Iodo-2-propynyl n-butylcarbamate			X				
555-84-9	1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone	X						
556-52-5	Glycidol		X					
55684-94-1D	Hexachlorodibenzofurans			X				
55720-99-5	Chlorinated diphenyl oxide		X					
55738-54-0	trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl-1,3,4-oxadiazole	X						
558-13-4	Carbon tetrabromide		X					
56-23-5	Carbon tetrachloride	X		X	X	X		
56-38-2	Parathion		X	X		X		
56-49-5	3-Methylcholanthrene			X		X		
56-55-3	Benzo(a)anthracene	X		X		X		
563-12-2	Ethion		X					
563-80-4	3-Methyl-2-butanone		X					
57-12-5	Cyanide		X	X		X		
57-12-5a	Cyanide (amenable)			X		X		
57-14-7	1,1-Dimethylhydrazine		X					
57-24-9	Strychnine		X					
57-47-6	Physostigmine					X		
57-57-8	B-Propiolactone		X					
57-64-7	Physostigmine salicylate					X		
57-74-9	Chlordane	X		X		X		
57-74-D	Chlordane (alpha and gamma isomers)			X				
5714-22-7	Sulfur pentafluoride		X					
58-89-9	gamma-BHC (Lindane)	X		X		X		
58-90-2	2,3,4,6-Tetrachlorophenol			X		X		

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 11 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
583-60-8	o-Methylcyclohexanone		X					
584-84-9	2,4-Toluene diisocyanate	X						
59-50-7	4-Chloro-3-methylphenol			X		X		
59-87-0	Nitrofurazone	X						
59-89-2	N-Nitrosomorpholine	X		X		X		
591-78-6	2-Hexanone		X					
592-62-1	Methyl azoxymethyl acetate	X						
593-60-2	Vinyl bromide		X					
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)		X					
594-42-3	Perchloromethyl mercaptan		X					
594-72-9	1,1-Dichloro-1-nitroethane		X					
5952-26-1	Diethylene glycol, dicarbamate					X		
59669-26-0	Thiodicarb					X		
60-11-7	p-Dimethylaminoazobenzene		X	X		X		
60-29-7	Ethyl ether		X	X	X	X		
60-34-4	Methylhydrazine		X					
60-35-5	Acetamide		X					
60-57-1	Dieldrin	X		X		X		
600-25-9	1-Chloro-1-nitropropane		X					
602-87-9	5-Nitroacenaphthene	X						
603-34-9	Triphenyl amine		X					
606-20-2	2,6-Dinitrotoluene			X		X		
608-93-5	Pentachlorobenzene			X		X		
61-82-5	Amitrole	X						
613-35-4	N,N-Diacetylbenzidine	X						
615-53-2	N-Nitroso-N-methylurethane	X						
62-44-2	Phenacetin			X		X		
62-53-3	Aniline	X	X	X		X		
62-73-7	Dichlorvas		X					
62-74-8	Fluoroacetic acid, sodium salt (Fratol)		X					
62-75-9	N-Nitroso-N,N-dimethylamine	X		X		X		
621-64-7	N-Nitroso-di-n-propylamine	X		X		X		
624-83-9	Methyl isocyanate		X					
626-17-5	m-Phthalodinitrile		X					
626-38-0	sec-Amyl acetate		X					
627-13-4	Nitric acid, propyl ester		X					
628-63-7	n-Amyl acetate		X					
628-96-6	Ethylene glycol dinitrate		X					
63-25-2	Carbaryl		X	X		X		
63-92-3	Phenoxybenzamine hydrochloride	X						
630-20-6	1,1,1,2-Tetrachloroethane			X	X	X		
636-21-5	o-Toluidine hydrochloride	X						
638-21-1	Phenylphosphine		X					
64-00-6	m-Cumenyl methylcarbamate					X		
64-17-5	Ethyl alcohol		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory
Data Quality Objective List (850 Compounds). (Page 12 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
64-18-6	Formic acid		X					
64-19-7	Acetic acid		X					
64-67-5	Diethyl sulfate		X					
64091-91-4	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone	X						
6423-43-4	Propylene glycol dinitrate		X					
644-64-4	Dimetilan					X		
66-27-3	Methyl methanesulfonate			X		X		
67-45-8	Furazolidone	X						
67-56-1	Methyl alcohol		X	X	X	X		
67-63-0	2-Propyl alcohol		X					
67-64-1	2-Propanone (Acetone)		X	X	X	X		
67-66-3	Chloroform	X		X	X	X		
67-72-1	Hexachloroethane		X	X	X	X		
68-11-1	Thioglycolic acid		X					
68-12-2	Dimethylformamide		X					
680-31-9	Hexamethylphosphoramide	X						
681-84-5	Methyl silicate		X					
684-16-2	Hexafluoroacetone		X					
684-93-5	N-Nitroso-N-methylurea		X					
68476-85-7	Liquified petroleum gas		X					
6923-22-4	Monocrotophos		X					
696-28-6	Dichlorophenylarsine	X						
71-23-8	n-Propyl alcohol		X					
71-36-3	n-Butyl alcohol		X	X	X	X		
71-43-2	Benzene	X		X	X	X		
71-55-6	1,1,1-Trichloroethane		X	X	X	X		
72-20-8	Endrin		X	X		X		
72-43-5	Methoxychlor		X	X		X		
72-54-8	4,4-DDD			X		X		
72-55-9	4,4-DDE			X		X		
74-83-9	Bromomethane		X	X		X		
74-87-3	Chloromethane		X	X		X		
74-88-4	Iodomethane		X	X		X		
74-89-5	Methylamine		X					
74-90-8	Hydrogen cyanide		X					
74-93-1	Thiomethanol		X					
74-95-3	Dibromomethane			X		X		
74-96-4	Ethyl bromide		X					
74-97-5	Bromochloromethane		X					
74-99-7	Methylacetylene		X					
7421-93-4	Endrin aldehyde			X		X		
7429-90-5	Aluminum		X				X	X
7429-90-5Ca	Aluminum, Al alkyls		X					
7429-90-5Cb	Aluminum, as AL pyro powders		X					
7429-90-5Cc	Aluminum, as Al soluble salts		X					
7429-90-5Ce	Aluminum, as Al welding fumes		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 13 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
7439-89-6	Iron						X	X
7439-89-6D	Iron salts, soluble as Fe		X					
7439-92-1	Lead			X		X		
7439-92-1D	Lead compounds	X						
7439-96-5	Manganese						X	
7439-96-5Ca	Manganese dust & compounds		X					
7439-96-5Cb	Manganese fume		X					
7439-97-6	Mercury			X	X	X		
7439-97-6Ca	Mercury, Aryl & inorganic compd		X					
7439-97-6Cb	Mercury, as Hg Alkyl compounds		X					
7439-97-6Cc	Mercury, vapors except alkyl		X					
7439-98-7Ca	Molybdenum, insoluble cpds		X					
7439-98-7Cb	Molybdenum, as Mo soluble cpds		X					
7440-02-0	Nickel			X		X	X	X
7440-02-0C	Nickel compounds	X						
7440-06-4	Platinum, metal		X					
7440-06-4C	Platinum, soluble salts as Pt		X					
7440-09-7	Potassium							X
7440-16-6	Rhodium Metal		X					
7440-16-6Ca	Rhodium, insoluble compounds		X					
7440-16-6Cb	Rhodium, soluble compounds		X					
7440-21-3	Silicon							X
7440-22-4	Silver		X	X	X	X		
7440-22-4Da	Silver, soluble compounds as Ag		X					
7440-23-5	Sodium						X	X
7440-25-7C	Tantalum, metal & oxide dusts		X					
7440-28-0	Thallium			X		X		
7440-28-0C	Thallium, soluble compounds, Tl		X					
7440-31-5	Tin, oxide & inorganic except SnH4		X					
7440-31-5a	Tin, metal		X					
7440-31-5C	Tin, organic compounds, as Sn		X					
7440-33-7Ca	Tungsten, insoluble compounds		X					
7440-33-7Cb	Tungsten, soluble compounds		X					
7440-36-0	Antimony			X		X		
7440-36-0C	Antimony & compounds as Sb		X					
7440-38-2	Arsenic			X	X	X		
7440-38-2C	Arsenic and inorganic arsenic compounds	X						
7440-39-3	Barium			X	X	X		X
7440-39-3Da	Barium, soluble compounds Ba		X					
7440-41-7	Beryllium			X		X		
7440-41-7a	Beryllium powder	X						
7440-42-8	Boron							X
7440-43-9	Cadmium	X		X	X	X		
7440-47-3	Chromium		X	X		X	X	X

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 14 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
7440-47-3Da	Chromium, hexavalent metal and compounds	X						
7440-47-3Db	Chromium (II) compounds, as Cr		X					
7440-47-3Dc	Chromium (III) compounds, Cr		X					
7440-48-4a	Cobalt as Co metal dust and fume		X					
7440-50-8	Copper		X					
7440-50-8C	Copper, Dusts and mists, as Cu		X					
7440-58-6	Hafnium		X					
7440-61-1C	Uranium, insoluble & soluble		X					
7440-62-2	Vanadium			X		X		
7440-65-5C	Yttrium, metal and compounds as Y		X					
7440-66-6	Zinc			X		X		X
7440-67-7	Zirconium						X	X
7440-67-7C	Zirconium compounds, as Zr		X					
7440-69-9	Bismuth							X
7440-70-2	Calcium							X
7440-74-6C	Indium, & compounds as In		X					
7446-27-7	Lead phosphate	X						
75-00-3	Chloroethane		X	X		X		
75-01-4	1-Chloroethene	X		X		X		
75-04-7	Ethylamine		X					
75-05-8	Acetonitrile		X	X		X		
75-07-0	Acetaldehyde	X						
75-08-1	Ethyl mercaptan		X					
75-09-2	Dichloromethane (Methylene Chloride)	X		X	X	X		
75-12-7	Formamide		X					
75-15-0	Carbon disulfide		X	X	X	X		
75-21-8	Oxirane	X		X		X		
75-25-2	Tribromomethane	X		X		X		
75-27-4	Bromodichloromethane			X		X		
75-31-0	Isopropylamine		X					
75-34-3	1,1-Dichloroethane		X	X		X		
75-35-4	1,1-Dichloroethene		X	X		X		
75-43-4	Dichlorofluoromethane		X					
75-44-5	Phosgene		X					
75-45-6	Chlorodifluoromethane		X					
75-47-8	Iodoform		X					
75-50-3	Trimethylamine		X					
75-52-5	Nitromethane		X	X				
75-55-8	2-Methylaziridine		X					
75-56-9	Propylene oxide	X						
75-61-6	Difluorodibromomethane		X					
75-63-8	Trifluorobromomethane		X					
75-65-0	2-Methyl-2-propanol		X					
75-69-4	Trichlorofluoromethane		X	X		X		
75-71-8	Dichlorodifluoromethane		X	X		X		

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 15 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
75-74-1	Tetramethyl lead, as Pb		X					
75-99-0	2,2-Dichloropropionic acid		X					
7550-45-0	Titanium tetrachloride		X					
7553-56-2	Iodine		X					
7572-29-4	Dichloroacetylene		X					
7580-67-8	Lithium hydride		X					
759-73-9	N-Nitroso-N-ethylurea	X						
759-94-4	EPTC			X		X		
76-01-7	Pentachloroethane			X		X		
76-03-9	Trichloroacetic acid		X					
76-06-2	Chloropicrin		X					
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane		X					
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane		X					
76-13-1	1,2,2-Trichlorotrifluoroethane		X	X	X	X		
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane		X					
76-15-3	Chloropentafluoroethane		X					
76-22-2	Camphor, synthetic		X					
76-44-8	Heptachlor	X		X		X		
7616-94-6	Perchloryl fluoride		X					
7631-90-5	Sodium bisulfite		X					
764-41-0	1,4-Dichloro-2-butene	X						
7646-85-7	Zinc chloride fume		X					
7647-01-0	Hydrogen chloride		X					
765-34-4	Glycidylaldehyde	X						
7664-38-2	Phosphoric acid		X					
7664-39-3	Hydrogen fluoride		X					
7664-41-7	Ammonia		X				X	
7664-93-9	Sulfuric acid		X					
76737-07-2	Boron trifluoride		X					
768-52-5	N-Isopropylaniline		X					
7681-57-4	Sodium metabisulfite		X					
7697-37-2	Nitric acid/Nitrate		X				X	X
77-47-4	Hexachlorocyclopentadiene		X	X		X		
77-73-6	Dicyclopentadiene		X					
77-78-1	Dimethyl sulfate	X						
7719-09-7	Thionyl chloride		X					
7719-12-2	Phosphorus trichloride		X					
7722-84-1	Hydrogen peroxide		X					
7722-88-5	Tetrasodium pyrophosphate		X					
7723-14-0	Phosphorus		X					
7726-95-6	Bromine		X					
7758-97-6	Lead chromate, as Cr		X					
7773-06-0	Ammonium sulfamate		X					
7782-41-4	Fluorine		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 16 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
7782-49-2	Selenium			X	X	X		
7782-49-2C	Selenium compounds, as Se		X					
7782-50-5	Chlorine		X					
7782-65-2	Germanium tetrahydride		X					
7783-06-4	Hydrogen sulfide		X					
7783-07-5	Hydrogen selenide, as Se		X					
7783-41-7	Oxygen difluoride		X					
7783-54-2	Nitrogen trifluoride		X					
7783-60-0	Sulfur tetrafluoride		X					
7783-79-1	Selenium hexafluoride, as Se		X					
7783-80-4	Tellurium hexafluoride, as Te		X					
7784-42-1	Arsine		X					
7786-34-7	Mevinphos		X					
7789-30-2	Bromine pentafluoride		X					
7790-91-2	Chlorine trifluoride		X					
78-00-2	Tetraethyl lead		X					
78-10-4	Ethyl silicate		X					
78-30-8	Triorthocresyl phosphate		X					
78-34-2	Dioxathion		X					
78-59-1	Isophorone		X					
78-83-1	2-Methylpropyl alcohol		X	X	X	X		
78-87-5	1,2-Dichloropropane	X		X		X		
78-92-2	1-Methylpropyl alcohol		X					
78-93-3	2-Butanone		X	X	X	X		
7803-51-2	Phosphine		X					
7803-52-3	Stibine		X					
7803-62-5	Silicon tetrahydride		X					
789-02-6	o,p'-DDT (2,4'-DDT)			X		X		
79-00-5	1,1,2-Trichloroethane		X	X	X	X		
79-01-6	1,1,2-Trichloroethylene	X		X	X	X		
79-04-9	Chloroacetyl chloride		X					
79-06-1	Acrylamide	X		X		X		
79-09-4	Propanoic acid		X					
79-10-7	2-Propenoic acid		X					
79-11-8	Chloroacetic acid		X					
79-20-9	Methyl acetate		X					
79-24-3	Nitroethane		X					
79-27-6	Acetylene tetrabromide		X					
79-34-5	1,1,2,2-Tetrachloroethane		X	X		X		
79-41-4	Methacrylic acid		X					
79-44-7	Dimethylcarbamoyl chloride		X					
79-46-9	2-Nitropropane	X						
794-93-4	Panfuran S (dihydroxymethylfuratrizine)	X						
80-62-6	Methyl methacrylate		X	X		X		
8001-35-2	Toxaphene	X		X		X		
8001-58-9	Creosote	X						

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 17 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
8002-74-2	Parafin wax fume		X					
8003-34-7	Pyrethrum		X					
8006-64-2	Turpentine		X					
8012-95-1	Oil mist, mineral		X					
8022-00-2	Methyl demeton		X					
8030-30-6	Rubber solvent (Naphtha)		X					
8032-32-4	VM & P Naphtha		X					
8052-42-4	Asphalt (petroleum) fumes		X					
8065-48-3	Demeton		X					
81-81-2	Warfarin (>0.3%)		X					
81-81-2a	Warfarin (<0.3%)		X					
82-68-8	Pentachloronitrobenzene (PCNB)		X	X		X		
822-06-0	Hexamethylene diisocyanate		X					
83-26-1	Pindone		X					
83-32-9	Acenaphthene			X		X		
83-79-4	Rotenone		X					
838-88-0	4,4'-Methylenebis(2-methylaniline)	X						
84-66-2	Diethyl phthalate		X	X		X		
84-74-2	Di-n-butylphthalate		X	X		X		
8496-25-8	Sulfide			X		X		
85-00-7	Diquat		X					
85-01-8	Phenanthrene			X		X		
85-44-9	Phthalic anhydride		X	X		X		
85-68-7	Butylbenzylphthalate			X		X		
86-30-6	N-Nitrosodiphenylamine	X		X		X		
86-50-0	Azinphos-methyl		X					
86-73-7	Fluorene			X		X		
86-88-4	alpha-Naphthylthiourea		X					
87-65-0	2,6-Dichlorophenol			X		X		
87-68-3	Hexachlorobutadiene		X	X	X	X		
87-86-5	Pentachlorophenol	X		X		X		
88-06-2	2,4,6-Trichlorophenol	X		X		X		
88-72-2	Nitrotoluene		X					
88-74-4	2-Nitroaniline			X		X		
88-75-5	2-Nitrophenol			X		X		
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb			X		X		
88-89-1	Picric acid		X					
89-72-5	o-sec-Butylphenol		X					
90-04-0	o-Anisidine	X						
91-20-3	Naphthalene		X	X		X		
91-22-5	Quinoline		X					
91-58-7	2-Chloronaphthalene			X		X		
91-59-8	2-Naphthylamine			X		X		
91-80-5	Methapyrilene			X		X		
91-94-1	3,3'-Dichlorobenzidine	X						
92-52-4	1,1'-Biphenyl		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 18 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
92-67-1	4-Aminobiphenyl	X		X		X		
92-84-2	Phenothiazine		X					
92-87-5	Benzidine	X						
92-93-3	4-Nitrobiphenyl		X					
924-16-3	N-Nitrosodi-n-butylamine	X		X		X		
93-72-1	Silvex (2,4,5-TP)			X		X		
93-76-5	2,4,5-T		X	X		X		
930-55-2	N-Nitrosopyrrolidine			X		X		
94-36-0	Benzoyl Peroxide		X					
94-59-7	Safrole			X		X		
94-75-7	2,4-D	X		X		X		
944-22-9	Fonofos		X					
95-13-6	Indene		X					
95-47-6	o-Xylene			X	X	X		
95-48-7	o-Cresol		X	X	X	X		
95-49-8	o-Chlorotoluene		X					
95-50-1	1,2-Dichlorobenzene		X	X	X	X		
95-53-4	o-Toluidine (2-methylaniline)	X						
95-54-5	1,2-Phenylenediamine					X		
95-57-8	2-Chlorophenol			X		X		
95-80-7	Toluene-2,4-diamine	X						
95-94-3	1,2,4,5-Tetrachlorobenzene			X		X		
95-95-4	2,4,5-Trichlorophenol		X	X	X	X		
959-98-8	Endosulfan I			X		X		
96-09-3	Styrene oxide		X					
96-12-8	1,2-Dibromo-3-chloropropane		X	X		X		
96-18-4	1,2,3-Trichloropropane		X	X		X		
96-22-0	3-Pentanone		X					
96-33-3	Methyl acrylate		X					
96-45-7	Ethylenethiourea	X						
96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide		X					
97-56-3	o-Aminoazotoluene	X						
97-63-2	Ethyl methacrylate			X		X		
97-77-8	Disulfiram		X					
98-00-1	Furfuryl alcohol		X					
98-01-1	Furfural		X					
98-07-7	Benzotrichloride		X					
98-51-1	p-tert-Butyltoluene		X					
98-82-2	Cumene		X					
98-83-9	Methylstyrene		X					
98-86-2	Acetophenone		X	X		X		
98-87-3	Benzal chloride			X		X		
98-95-3	Nitrobenzene		X	X	X	X		
99-55-8	5-Nitro-o-toluidine			X		X		
999-61-1	2-Hydroxypropyl acrylate		X					

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 19 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
HxCDD	HxCDDs (All Hexachlorodibenzo- p-dioxins)					X		
HxCDF	HxCDFs (All Hexachlorodibenzofurans)					X		
I127	Pu-239/240						X	
I175	U-235						X	
I176	U-gross						X	
I4	Aluminum smelter polyaromatic hydrocarbon emissions	X						
I51	Cotton dust, raw		X					
NA1	Chlorinated fluorocarbons, N.O.S.				X			
NA115	Viscosity						X	
NA117	Ignitability (Flash Point)						X	
NA118	Color						X	
NA12	Organics, separable						X	
NA2	Specific gravity (SPG)						X	
NA20	Welding fumes		X					
NA21	Polyaromatic hydrocarbons (PAH)	X						
NA22	Fine mineral fibers		X					
NA23	Fibrous glass dust		X					
NA24	Dioxins and furans	X						
NA25	Coke oven emissions	X						
NA28	% solids						X	
NA29	Total organic carbon (TOC)						X	
NA3	% moisture						X	
NA30	Total suspended solids						X	
NA31	DW, WP02, persistent DW halogenated hydrocarbons				X			
NA32	EHW, WP01, persistent DW halogenated hydrocarbons				X			
NA33	DW, WT02, toxic dangerous waste				X			
NA34	EHW, WT01, toxic dangerous waste				X			
NA38	Total Alpha (AT)						X	
NA6	pH						X	X
NA7	Energetics						X	
PeCDD	PeCDDs (All Pentachlorodibenzo- p-dioxins)					X		
PeCDF	PeCDFs (All Pentachlorodibenzofurans)					X		
TCDD	TCDDs (All Tetrachlorodibenzo-p- dioxins)					X		
TCDF	TCDFs (All Tetrachlorodibenzofurans)					X		

Table B.2. Consolidated List of Compounds Used as Input for Regulatory Data Quality Objective List (850 Compounds). (Page 20 of 20)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A- DST/ SST	UTS	DST WSPS	Flammable Gases
UN6	Isopropyl oils	X						
UN8	Nitrofurans	X						

CAS# = chemical abstract service number.
DST = double-shell tank.
SST = single-shell tank.
TAP = toxic air pollutant.
UHC = underlying hazardous constituents.
UTS = universal treatment standards.
WSPS = Waste Stream Profile Sheet.

Table B.3. Regulated Organic Mixtures, Non-organic Regulated Compounds, and Waste Properties to be Considered Separately (222 Compounds). (Page 1 of 5)

CAS#	Constituent
10025-67-9	Sulfur monochloride
10025-87-3	Phosphorus oxychloride
10026-13-8	Phosphorus pentachloride
10035-10-6	Hydrogen bromide
10049-04-4	Chlorine dioxide
10102-43-9	Nitric oxide
10210-68-1	Cobalt carbonyl as Co
1024-57-D	Heptachlor epoxide isomers
102-54-5	Dicyclopentadienyl iron
10294-33-4	Boron tribromide
110-54-3D	Hexane, other isomers
111-46-6D	Glycol ethers
1189-85-1	tert-Butyl chromate, as CrO ₃
12079-65-1	Manganese cyclopentadienyl tricarbonyl
12108-13-3	Methylcyclopentadienylmanganese tricarbonyl
12125-02-9	Ammonium chloride (fume)
12604-58-9	Ferrovanadium dust
1303-86-2	Boron oxide
1303-96-4Ca	Borates, anhydrous
1303-96-4Cb	Borates, pentahydrate
1303-96-4Cc	Borates, decahydrate
1304-82-1	Bismuth telluride
1305-62-0	Calcium hydroxide
1305-78-8	Calcium oxide
1309-37-1	Iron oxide fume, Fe ₂ O ₃ as Fe
1309-48-4	Magnesium oxide fume
1309-64-4	Antimony trioxide, as Sb
1310-58-3	Potassium hydroxide
1310-73-2	Sodium hydroxide
1314-13-2	Zinc oxide, fume
1314-20-1	Thorium dioxide
1314-62-1	Vanadium pentoxide
1314-80-3	Phosphorus pentasulfide
1319-77-3	Cresol polymers
1332-21-4	Asbestos (fibrous)
1333-86-4	Carbon black
13463-40-6	Iron pentacarbonyl, as Fe
13494-80-9C	Tellurium & compounds as Te
13530-65-9	Zinc chromates
14265-44-2	Phosphate
14280-30-9	Hydroxide
14797-65-0	Nitrite
14808-79-8	Sulfate
14977-61-8	Chromylchloride
156-62-7	Calcium cyanamide
16842-03-8	Cobalt hydrocarbonyl
16887-00-6	Chloride

Table B.3. Regulated Organic Mixtures, Non-organic Regulated Compounds, and Waste Properties to be Considered Separately (222 Compounds). (Page 2 of 5)

CAS#	Constituent
16984-48-8	Fluoride
17702-41-9	Decaborane
19287-45-7	Diborane
19624-22-7	Pentaborane
20816-12-0	Osmium tetroxide
21351-79-1	Cesium hydroxide
2551-62-4	Sulfur hexafluoride
26628-22-8	Sodium azide
2699-79-8	Sulfuryl fluoride
301-04-2	Lead acetate
30402-14-3D	Tetrachlorodibenzofurans
30402-15-4D	Pentachlorodibenzofurans
34465-46-8D	Hexachlorodibenzo-p-dioxins
353-50-4	Carbon oxyfluoride
36088-22-9D	Pentachlorodibenzo-p-dioxins
3687-31-8	Lead arsenate, as Pb3 (A2O4)2
3812-32-6	Carbonate
41903-57-5D	Tetrachlorodi-benzo-p-dioxins
460-19-5	Cyanogen
463-58-1	Carbon oxide sulfide (COS)
506-77-4	Cyanogen chloride
55684-94-1D	Hexachlorodibenzofurans
558-13-4	Carbon tetrabromide
57-12-5	Cyanide
57-12-5a	Cyanide (amenable)
5714-22-7	Sulfur pentafluoride
57-74-D	Chlordane (alpha and gamma isomers)
7429-90-5	Aluminum
7429-90-5Ca	Aluminum, Al alkyls
7429-90-5Cb	Aluminum, as AL pyro powders
7429-90-5Cc	Aluminum, as Al soluble salts
7429-90-5Ce	Aluminum, as Al welding fumes
7439-89-6	Iron
7439-89-6D	Iron salts, soluble as Fe
7439-92-1	Lead
7439-92-1D	Lead compounds
7439-96-5	Manganese
7439-96-5Ca	Manganese dust & compounds
7439-96-5Cb	Manganese fume
7439-97-6	Mercury
7439-97-6Ca	Mercury, Aryl & inorganic cmpd
7439-97-6Cb	Mercury, as Hg Alkyl compounds
7439-97-6Cc	Mercury, vapors except alkyl
7439-98-7Ca	Molybdenum, insoluble cpds
7439-98-7Cb	Molybdenum, as Mo soluble cpds
7440-02-0	Nickel
7440-02-0C	Nickel compounds

Table B.3. Regulated Organic Mixtures, Non-organic Regulated Compounds, and Waste Properties to be Considered Separately (222 Compounds). (Page 3 of 5)

CAS#	Constituent
7440-06-4	Platinum, metal
7440-06-4C	Platinum, soluble salts as Pt
7440-09-7	Potassium
7440-16-6	Rhodium Metal
7440-16-6Ca	Rhodium, insoluble compounds
7440-16-6Cb	Rhodium, soluble compounds
7440-21-3	Silicon
7440-22-4	Silver
7440-22-4Da	Silver, soluble compounds as Ag
7440-23-5	Sodium
7440-25-7C	Tantalum, metal & oxide dusts
7440-28-0	Thallium
7440-28-0C	Thallium, soluble compounds, Tl
7440-31-5	Tin, oxide & inorganic except SnH ₄
7440-31-5a	Tin, metal
7440-31-5C	Tin, organic compounds, as Sn
7440-33-7Ca	Tungsten, insoluble compounds
7440-33-7Cb	Tungsten, soluble compounds
7440-36-0	Antimony
7440-36-0C	Antimony & compounds as Sb
7440-38-2	Arsenic
7440-38-2C	Arsenic and inorganic arsenic compounds
7440-39-3	Barium
7440-39-3Da	Barium, soluble compounds Ba
7440-41-7	Beryllium
7440-41-7a	Beryllium powder
7440-42-8	Boron
7440-43-9	Cadmium
7440-47-3	Chromium
7440-47-3Da	Chromium, hexavalent metal and compounds
7440-47-3Db	Chromium (II) compounds, as Cr
7440-47-3Dc	Chromium (III) compounds, Cr
7440-48-4a	Cobalt as Co metal dust and fume
7440-50-8	Copper
7440-50-8C	Copper, Dusts and mists, as Cu
7440-58-6	Hafnium
7440-61-1C	Uranium, insoluble & soluble
7440-62-2	Vanadium
7440-65-5C	Yttrium, metal and compounds as Y
7440-66-6	Zinc
7440-67-7	Zirconium
7440-67-7C	Zirconium compounds, as Zr
7440-69-9	Bismuth
7440-70-2	Calcium
7440-74-6C	Indium, & compounds as In
7446-27-7	Lead phosphate
74-90-8	Hydrogen cyanide

Table B.3. Regulated Organic Mixtures, Non-organic Regulated Compounds, and Waste Properties to be Considered Separately (222 Compounds). (Page 4 of 5)

CAS#	Constituent
75-44-5	Phosgene
7550-45-0	Titanium tetrachloride
7553-56-2	Iodine
75-74-1	Tetramethyl lead, as Pb
7580-67-8	Lithium hydride
7616-94-6	Perchloryl fluoride
7631-90-5	Sodium bisulfite
7646-85-7	Zinc chloride fume
7647-01-0	Hydrogen chloride
7664-38-2	Phosphoric acid
7664-39-3	Hydrogen fluoride
7664-41-7	Ammonia
7664-93-9	Sulfuric acid
76737-07-2	Boron trifluoride
7681-57-4	Sodium metabisulfite
7697-37-2	Nitric acid/Nitrate
7719-09-7	Thionyl chloride
7719-12-2	Phosphorus trichloride
7722-84-1	Hydrogen peroxide
7722-88-5	Tetrasodium pyrophosphate
7723-14-0	Phosphorus
7726-95-6	Bromine
7758-97-6	Lead chromate, as Cr
7773-06-0	Ammonium sulfamate
7782-49-2	Selenium
7782-49-2C	Selenium compounds, as Se
7782-50-5	Chlorine
7782-65-2	Germanium tetrahydride
7783-06-4	Hydrogen sulfide
7783-07-5	Hydrogen selenide, as Se
7783-41-7	Oxygen difluoride
7783-54-2	Nitrogen trifluoride
7783-60-0	Sulfur tetrafluoride
7783-79-1	Selenium hexafluoride, as Se
7783-80-4	Tellurium hexafluoride, as Te
7784-42-1	Arsine
7789-30-2	Bromine pentafluoride
7790-91-2	Chlorine trifluoride
78-00-2	Tetraethyl lead
7803-52-3	Stibine
7803-62-5	Silicon tetrahydride
8002-74-2	Parafin wax fume
8012-95-1	Oil mist, mineral
8030-30-6	Rubber solvent (Naphtha)
8032-32-4	VM & P Naphtha
8496-25-8	Sulfide
HxCDD	HxCDDs (All Hexachlorodibenzo-p-dioxins)

Table B.3. Regulated Organic Mixtures, Non-organic Regulated Compounds, and Waste Properties to be Considered Separately (222 Compounds). (Page 5 of 5)

CAS#	Constituent
HxCDF	HxCDFs (All Hexachlorodibenzofurans)
I127	Pu-239/240
I175	U-235
I176	U-gross
I4	Aluminum smelter polyaromatic hydrocarbon emissions
I51	Cotton dust, raw
NA1	Chlorinated fluorocarbons, N.O.S.
NA115	Viscosity
NA117	Ignitability (Flash Point)
NA118	Color
NA12	Organics, separable
NA2	Specific gravity (SPG)
NA20	Welding fumes
NA21	Polyaromatic hydrocarbons (PAH)
NA22	Fine mineral fibers
NA23	Fibrous glass dust
NA24	Dioxins and furans
NA25	Coke oven emissions
NA28	% solids
NA3	% moisture
NA30	Total suspended solids
NA31	DW, WP02, persistent DW halogenated hydrocarbons
NA32	EHW, WP01, persistent DW halogenated hydrocarbons
NA33	DW, WT02, toxic dangerous waste
NA34	EHW, WT01, toxic dangerous waste
NA38	Total Alpha (AT)
NA6	pH
NA7	Energetics
PeCDD	PeCDDs (All Pentachlorodibenzo-p-dioxins)
PeCDF	PeCDFs (All Pentachlorodibenzofurans)
TCDD	TCDDs (All Tetrachlorodibenzo-p-dioxins)
TCDF	TCDFs (All Tetrachlorodibenzofurans)
UN6	Isopropyl oils
UN8	Nitrofurans

CAS# = chemical abstract service number.

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 1 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
100-00-5	p-Nitrochlorobenzene		X					
100-01-6	4-Nitroaniline		X	X		X		
100-02-7	4-Nitrophenol		X	X		X		
100-21-0	Phthalic acid			X				
100-25-4	1,4-Dinitrobenzene			X		X		
100-37-8	Diethylaminoethanol		X					
100-41-4	Ethyl benzene			X	X	X		
100-42-5	Styrene		X					
100-44-7	Benzyl chloride		X					
100-61-8	N-Methylbenzenamine		X					
100-63-0	Phenylhydrazine		X					
100-74-3	N-Ethylmorpholine		X					
100-75-4	N-Nitrosopiperidine			X		X		
10061-01-5	cis-1,3-Dichloropropene			X		X		
10061-02-6	trans-1,3-Dichloropropene			X		X		
101-14-4	4,4'-Methylenebis(2-chloroaniline)	X		X		X		
101-27-9	Barban					X		
101-55-3	4-Bromophenylphenyl ether			X		X		
101-68-8	Methylene bis(phenyl isocyanate)		X					
101-77-9	4,4'-Methylene dianiline	X						
101-80-4	4,4'-Diaminodiphenyl ether	X						
101-84-8	Diphenyl ether		X					
101-90-6	Diglycidyl resorcinol ether	X		X				
102-81-8	2-N-Dibutylaminoethanol		X					
1024-57-3	Heptachlor Epoxide			X		X		
1031-07-8	Endosulfan Sulfate			X		X		
105-46-4	sec-Butyl acetate		X					
105-60-2	Caprolactam, vapor		X					
105-60-2a	Caprolactam, dust		X					
105-67-9	2,4-Dimethylphenol			X		X		
10595-95-6	N-Nitrosomethylethylamine	X		X		X		
106-35-4	3-Heptanone		X					
106-42-3	p-Xylene			X	X	X		
106-44-5	4-Methylphenol			X	X	X		
106-46-7	1,4-Dichlorobenzene	X		X		X		
106-47-8	4-Chloroaniline			X		X		
106-49-0	p-Toluidine		X					
106-50-3	p-Phenylenediamine		X	X				
106-51-4	p-Benzoquinone		X					
106-87-6	Vinyl cyclohexene dioxide		X					
106-88-7	1,2-Epoxybutane		X					
106-89-8	Epichlorohydrin	X						
106-92-3	Allyl glycidyl ether		X					
106-93-4	Ethylene dibromide	X		X		X		
106-97-8	Butane		X					
106-99-0	1,3-Butadiene	X						

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 2 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
10605-21-7	Carbendazim					X		
107-02-8	Acrolein		X	X		X		
107-05-1	3-Chloropropene		X	X		X		
107-06-2	1,2-Dichloroethane	X		X	X	X		
107-07-3	Ethylene chlorohydrin		X					
107-12-0	Propionitrile			X		X		
107-13-1	Acrylonitrile	X		X		X		
107-15-3	Ethylene diamine		X					
107-18-6	2-Propen-1-ol		X					
107-19-7	Propargyl alcohol		X					
107-20-0	Chloroacetaldehyde		X					
107-21-1	Ethylene glycol		X					
107-30-2	Chloromethyl methyl ether	X						
107-31-3	Formic acid, methyl ester		X					
107-41-5	Hexylene glycol		X					
107-49-3	Tetraethyl pyrophosphate		X					
107-66-4	Dibutylphosphate		X					
107-87-9	2-Pentanone		X					
107-98-2	Propylene glycol monomethyl ether		X					
108-03-2	1-Nitropropane		X					
108-05-4	Acetic acid vinyl ester		X					
108-10-1	4-Methyl-2-pentanone		X	X	X	X		
108-11-2	Methyl isobutyl carbinol		X					
108-18-9	Diisopropylamine		X					
108-20-3	Bis(isopropyl) ether		X					
108-21-4	Isopropyl acetate		X					
108-24-7	Acetic anhydride		X					
108-31-6	Maleic anhydride (2,5- Furandione)		X					
108-38-3	m-Xylene			X	X	X		
108-39-4	m-Cresol		X	X		X		
108-43-0	Chlorophenols	X						
108-44-1	m-Toluidine		X					
108-46-3	Resorcinol (1,3-Benzenediol)		X					
108-60-1	Bis(2-Chloroisopropyl) ether			X		X		
108-83-8	Diisobutyl ketone		X					
108-84-9	sec-Hexyl acetate		X					
108-87-2	Methylcyclohexane		X					
108-88-3	Toluene		X	X	X	X		
108-90-7	Chlorobenzene		X	X	X	X		
108-91-8	Cyclohexylamine		X					
108-93-0	Cyclohexanol		X					
108-94-1	Cyclohexanone		X	X	X	X		
108-95-2	Phenol		X	X		X		
108-98-5	Thiophenol		X					
109-59-1	Isopropoxyethanol		X					
109-60-4	n-Propyl acetate		X					

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 3 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
109-66-0	n-Pentane		X					
109-73-9	n-Butylamine		X					
109-79-5	n-Butyl mercaptan		X					
109-86-4	2-Methoxyethanol		X					
109-87-5	Methylal		X					
109-89-7	Diethylamine		X					
109-94-4	Ethyl formate		X					
109-99-9	Tetrahydrofuran		X					
110-12-3	5-Methyl-2-hexanone		X					
110-19-0	Isobutyl acetate		X					
110-43-0	2-Heptanone		X					
110-49-6	2-Methoxyethyl acetate		X					
110-54-3	n-Hexane		X					
110-62-3	n-Valeraldehyde		X					
110-75-8	2-Chloroethyl vinyl ether			X		X		
110-80-5	2-Ethoxyethanol		X		X			
110-82-7	Cyclohexane		X					
110-83-8	Cyclohexene		X					
110-86-1	Pyridine		X	X	X	X		
110-91-8	Morpholine		X					
111-15-9	2-Ethoxyethyl acetate		X					
111-30-8	Glutaraldehyde		X					
111-40-0	Diethylene triamine		X					
111-42-2	Diethanolamine		X					
111-44-4	Bis(2-chloroethyl) ether	X		X		X		
111-65-9	n-Octane		X					
111-76-2	2-Butoxyethanol		X					
111-84-2	n-Nonane		X					
111-91-1	Bis(2-Chloroethoxy)methane			X		X		
1114-71-2	Pebulate			X		X		
1120-71-4	1,3-Propane sultone	X						
1129-41-5	Metolcarb (3-methylcholanthrene)					X		
1134-23-2	Cycloate			X				
114-26-1	Propoxur		X	X		X		
115-29-7	Endosulfan		X					
115-86-6	Triphenyl phosphate		X					
115-90-2	Fensulfothion		X					
117-79-3	2-Aminoanthraquinone	X						
117-81-7	Bis(2-ethylhexyl) phthalate	X		X		X		
117-84-0	Di-n-octylphthalate			X		X		
118-52-5	1,3-Dichloro-5,5-Dimethyl hydantoin		X					
118-74-1	Hexachlorobenzene	X		X		X		
118-96-7	2,4,6-Trinitrotoluene		X					
119-38-0	Isolan					X		
119-90-4	3,3'-Dimethoxybenzidine	X						
119-93-7	3,3'-Dimethylbenzidine	X						

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 4 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
120-12-7	Anthracene			X		X		
120-58-1	Isosafrole			X		X		
120-80-9	Catechol		X					
120-82-1	1,2,4-Trichlorobenzene		X	X		X		
120-83-2	2,4-Dichlorophenol			X		X		
121-14-2	2,4-Dinitrotoluene		X	X	X	X		
121-44-8	Triethylamine		X	X		X		
121-45-9	Trimethyl phosphite		X					
121-69-7	Dimethylaniline		X					
121-75-5	Malathion		X					
121-82-4	Cyclonite		X					
122-39-4	N,N-Diphenylamine		X	X		X		
122-42-9	Propham					X		
122-60-1	Phenyl glycidyl ether		X					
122-66-7	1,2-Diphenylhydrazine	X		X		X		
123-19-3	4-Heptanone		X					
123-31-9	Hydroquinone		X	X				
123-38-6	n-Propionaldehyde		X					
123-42-2	Diacetone alcohol		X					
123-51-3	3-Methyl-1-butanol		X					
123-86-4	Acetic acid n-butyl ester		X					
123-91-1	1,4-Dioxan	X		X		X		
123-92-2	Isoamyl acetate		X					
124-40-3	Dimethylamine		X					
124-48-1	Dibromochloromethane			X		X		
126-72-7	Tris(2,3-dibromopropyl) phosphate			X		X		
126-73-8	Tributyl phosphate		X					
126-85-2	Nitrogen mustard N-oxide	X						
126-98-7	2-Methyl-2-propenenitrile		X	X		X		
126-99-8	Chloroprene	X		X		X		
127-18-4	1,1,2,2-Tetrachloroethene	X		X	X	X		
127-19-5	N,N-Dimethylacetamide		X					
128-37-0	2,6-Bis(tert-butyl)-4- methylphenol		X					
129-00-0	Pyrene			X		X		
129-15-7	2-Methyl-1- nitroanthraquinone	X						
1300-73-8	Xylidine		X					
131-11-3	Dimethyl phthalate		X	X		X		
13121-70-5	Cyhexatin		X					
132-64-9	Dibenzofuran	X						
1321-64-8	Pentachloronaphthalene		X					
1321-65-9	Trichloronaphthalene		X					
1321-74-0	Divinyl benzene		X					
133-06-2	Captan		X					
133-90-4	Chloramben		X					
1335-87-1	Hexachloronaphthalene		X					

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 5 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
1335-88-2	Tetrachloronaphthalene		X					
1336-36-3	Polychlorinated biphenyls (PCBs)	X		X		X	X	
1338-23-4	Methyl ethyl ketone peroxide		X					
134-32-7	alpha-Naphthylamine	X		X				
135-20-6	Cupferron	X						
135-88-6	N-Phenyl-2-naphthylamine			X				
13552-44-8	4,4-Methylenedianiline dihydrochloride	X						
136-78-7	Sesone		X					
137-05-3	Methyl-2-cyanoacrylate		X					
137-26-8	Thiram		X					
137-30-4	Ziram			X		X		
138-22-7	n-Butyl lactate		X					
13838-16-9	Enflurane		X					
139-65-1	4,4'-Thiodianiline	X		X				
139-91-3	5-(Morpholinomethyl)-3- amino-2-oxazolidinone (furaltudone)	X						
1395-21-7	Subtilisins		X					
140-57-8	Aramite			X		X		
140-88-5	Ethylacrylate		X					
141-32-2	Butylacrylate		X					
141-43-5	Ethanolamine		X					
141-66-2	Dicrotophos		X					
141-78-6	Acetic acid ethyl ester		X	X	X	X		
141-79-7	4-Methyl-3-penten-2-one		X					
142-64-3	Piperazine dihydrochloride		X					
142-82-5	n-Heptane		X					
143-50-0	Kepone			X		X		
144-62-7	Oxalic acid		X					
14484-64-1	Ferbam		X					
1477-55-0	m-Xylene-a,a'-diamine		X					
148-01-6	Dinitolamide		X					
150-76-5	4-Methoxyphenol		X					
151-56-4	Ethyleneimine		X					
151-67-7	Halothane		X					
156-60-5	1,2-trans-Dichloroethene			X	X	X		
1563-38-8	Carbofuran phenol					X		
1563-66-2	Carbofuran		X	X		X		
1582-09-8	Trifluralin		X					
1615-80-1	N,N'-Diethylhydrazine	X						
16219-75-3	Ethylidene norbornene		X					
1634-04-4	Methyl tert-butyl ether		X					
1646-88-4	Aldicarb sulfone			X		X		
16752-77-5	Methomyl		X	X		X		
1694-09-3	Benzyl violet 4b	X						

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 6 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
1746-01-6	TCDD (Dioxin/Furan Indicator)	X		X				
17702-57-7	Formparanate					X		
17804-35-2	Benomyl		X	X		X		
1836-75-5	Nitrofen	X						
1888-71-7	Hexachloropropylene			X		X		
189-55-9	Dibenzo[a,i]pyrene	X						
189-64-0	Dibenzo[a,h]pyrene	X						
191-24-2	Benzo(ghi)perylene			X		X		
191-30-0	Dibenzo(a,l)pyrene	X						
1912-24-9	Atrazine		X					
1918-02-1	Picloram		X					
192-65-4	Dibenzo[a,e]pyrene	X		X		X		
1929-77-7	Vernolate			X		X		
1929-82-4	Nitrapyrin		X					
193-39-5	Indeno(1,2,3-cd)pyrene	X		X		X		
2008-41-5	Butylate			X		X		
2032-65-7	Methiocarb			X		X		
2039-87-4	o-Chlorostyrene		X					
205-82-3	Benzo[j]fluoranthene	X						
205-99-2	Benzo(b)fluoranthene	X		X		X		
206-44-0	Fluoranthene			X		X		
207-08-9	Benzo(k)fluoranthene	X		X		X		
208-96-8	Acenaphthylene			X		X		
2104-64-5	EPN		X					
21087-64-9	Metribuzin		X					
2179-59-1	Allyl propyl disulfide		X					
218-01-9	Chrysene			X		X		
2212-67-1	Molinate			X		X		
22224-92-6	Fenamiphos		X					
2234-13-1	Octachloronaphthalene		X					
2238-07-5	Diglycidyl ether		X					
224-42-0	Dibenz[a,j]acridine	X						
226-36-8	Dibenz[a,h]acridine	X						
22781-23-3	Bendiocarb			X		X		
22961-82-6	Bendiocarb phenol					X		
2303-17-5	Triallate					X		
23135-22-0	Oxamy			X		X		
23422-53-9	Formetanate hydrochloride					X		
23564-05-8	Thiophanate-methyl					X		
2385-85-5	Mirex	X						
23950-58-5	Pronamide			X		X		
2425-06-1	Captafol		X					
2426-08-6	n-Butyl glycidyl ether		X					
2465-27-2	Auramine (technical grade)	X						
25013-15-4	Vinyl toluene		X					
2551-13-7	Trimethyl benzene		X					
25639-42-3	Methylcyclohexanol		X					

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 7 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
26140-60-3	Terphenyls		X					
2631-37-0	Promecarb					X		
26419-73-8	Tirpate					X		
2646-17-5	Oil orange SS	X						
26952-21-6	Iso-octyl alcohol		X					
2698-41-1	o-Chlorobenzylidene malonitrile		X					
27154-33-2	Trichlorofluoroethane				X			
28434-86-8	3,3'-Dichloro-4,4'- diaminodiphenyl ether	X						
287-92-3	Cyclopentane		X					
29191-52-4	Anisidine (o-,p- isomers)		X					
2921-88-2	Chlorpyrifos		X					
2971-90-6	Clopidol		X					
298-00-0	Methyl parathion		X	X		X		
298-02-2	Phorate		X	X		X		
298-04-4	Disulfoton		X	X		X		
299-84-3	Ronnel		X					
299-86-5	Crufomate		X					
300-76-5	Naled		X					
302-01-2	Hydrazine	X						
302-70-5	Nitrogen mustard N-oxide hydrochloride	X						
30558-43-1	A2213					X		
3068-88-0	B-Butyrolactone	X						
309-00-2	Aldrin	X		X		X		
314-40-9	Bromacil		X					
315-18-4	Mexacarbate			X		X		
319-84-6	alpha-BHC	X		X		X		
319-85-7	beta-BHC	X		X		X		
319-86-8	delta-BHC			X		X		
330-54-1	Diuron		X					
33213-65-9	Endosulfan II			X		X		
333-41-5	Diazinon		X					
3333-52-6	Tetramethyl succinonitrile		X					
334-88-3	Diazomethane		X					
3383-96-8	Temephos		X					
3424-82-6	o,p'-DDE (2,4'-DDE)			X		X		
34590-94-8	Dipropylene glycol methyl ether		X					
35400-43-2	Sulprofos		X					
3547-04-4	DDE (p,p'- Dichlorodiphenyldichloroeth ylene)	X						
3689-24-5	Tetraethyldithiopyrophos- phate (TEDP)		X					
3697-24-3	5-Methylchrysene	X						
3761-53-3	Ponceau MX	X						

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 8 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
3825-26-1	Ammonium perfluorooctanoate		X					
4016-14-2	Isopropyl glycidyl ether (IGE)		X					
4098-71-9	Isophorone diisocyanate		X					
4170-30-3	2-Butenaldehyde		X					
420-04-2	Cyanamide		X					
463-51-4	Ketene		X					
465-73-6	Isodrin			X		X		
4685-14-7	Paraquat		X					
479-45-8	Tetryl		X					
50-00-0	Formaldehyde	X						
50-29-3	4,4-DDT	X		X		X		
50-32-8	Benzo(a)pyrene	X		X		X		
504-29-0	2-Aminopyridine		X	X				
509-14-8	Tetranitromethane		X					
51-28-5	2,4-Dinitrophenol		X	X		X		
51-79-6	Ethyl carbamate (urethane)		X					
510-15-6	Chlorobenzilate	X		X		X		
5124-30-1	Methylene-bis-(4-cyclo- hexylisocyanate)		X					
52-85-7	Famphur			X		X		
528-29-0	Dinitrobenzene, all isomers		X	X				
52888-80-9	Prosulfocarb					X		
53-19-0	o,p'-DDD (2,4'-DDD)			X		X		
53-70-3	Dibenz[a,h]anthracene	X		X		X		
53-96-3	2-Acetylaminofluorene	X		X		X		
531-82-8	N-(4-(5-Nitro-2-furyl)-2- thiazolyl)acetamide	X						
532-27-4	a-Chloroacetophenone		X					
534-52-1	4,6-Dinitro-o-cresol		X	X		X		
54-11-5	Nicotine		X	X				
540-59-0	1,2-Dichloroethylene		X					
540-73-8	1,2-Dimethylhydrazine	X						
540-84-1	2,2,4-Trimethylpentane		X					
540-88-5	tert-Butyl acetate		X					
541-73-1	1,3-Dichlorobenzene			X		X		
541-85-5	Ethyl amyl ketone		X					
542-75-6	1,3-Dichloropropene		X					
542-88-1	Dichloromethyl ether	X						
542-92-7	Cyclopentadiene		X					
55-18-5	N-Nitrosodiethylamine	X		X		X		
55-38-9	Fenthion		X					
55-63-0	Nitroglycerin		X					
552-30-7	Trimellitic anhydride		X					
55285-14-8	Carbosulfan					X		
55406-53-6	3-Iodo-2-propynyl n- butylcarbamate			X				

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 9 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
555-84-9	1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone	X						
556-52-5	Glycidol		X					
55720-99-5	Chlorinated diphenyl oxide		X					
55738-54-0	trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl)-1,3,4-oxadiazole	X						
56-23-5	Carbon tetrachloride	X		X	X	X		
56-38-2	Parathion		X	X		X		
56-49-5	3-Methylcholanthrene			X		X		
56-55-3	Benzo(a)anthracene	X		X		X		
563-12-2	Ethion		X					
563-80-4	3-Methyl-2-butanone		X					
57-14-7	1,1-Dimethylhydrazine		X					
57-24-9	Strychnine		X					
57-47-6	Physostigmine					X		
57-57-8	B-Propiolactone		X					
57-64-7	Physostigmine salicylate					X		
57-74-9	Chlordane	X		X		X		
58-89-9	gamma-BHC (Lindane)	X		X		X		
58-90-2	2,3,4,6-Tetrachlorophenol			X		X		
583-60-8	o-Methylcyclohexanone		X					
584-84-9	2,4-Toluene diisocyanate	X						
59-50-7	4-Chloro-3-methylphenol			X		X		
59-87-0	Nitrofurazone	X						
59-89-2	N-Nitrosomorpholine	X		X		X		
591-78-6	2-Hexanone		X					
592-62-1	Methyl azoxymethyl acetate	X						
593-60-2	Vinyl bromide		X					
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)		X					
594-42-3	Perchloromethyl mercaptan		X					
594-72-9	1,1-Dichloro-1-nitroethane		X					
5952-26-1	Diethylene glycol, dicarbamate					X		
59669-26-0	Thiodicarb					X		
60-11-7	p-Dimethylaminoazo-benzene		X	X		X		
60-29-7	Ethyl ether		X	X	X	X		
60-34-4	Methylhydrazine		X					
60-35-5	Acetamide		X					
60-57-1	Dieldrin	X		X		X		
600-25-9	1-Chloro-1-nitropropane		X					
602-87-9	5-Nitroacenaphthene	X						
603-34-9	Triphenyl amine		X					
606-20-2	2,6-Dinitrotoluene			X		X		

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 10 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
608-93-5	Pentachlorobenzene			X		X		
61-82-5	Amitrole	X						
613-35-4	N,N-Diacetylbenzidine	X						
615-53-2	N-Nitroso-N-methylurethane	X						
62-44-2	Phenacetin			X		X		
62-53-3	Aniline	X	X	X		X		
62-73-7	Dichlorvas		X					
62-74-8	Fluoroacetic acid, sodium salt (Fratol)		X					
62-75-9	N-Nitroso-N,N- dimethylamine	X		X		X		
621-64-7	N-Nitroso-di-n-propylamine	X		X		X		
624-83-9	Methyl isocyanate		X					
626-17-5	m-Phthalodinitrile		X					
626-38-0	sec-Amyl acetate		X					
627-13-4	Nitric acid, propyl ester		X					
628-63-7	n-Amyl acetate		X					
628-96-6	Ethylene glycol dinitrate		X					
63-25-2	Carbaryl		X	X		X		
63-92-3	Phenoxybenzamine hydrochloride	X						
630-20-6	1,1,1,2-Tetrachloroethane			X	X	X		
636-21-5	o-Toluidine hydrochloride	X						
638-21-1	Phenylphosphine		X					
64-00-6	m-Cumenyl methylcarbamate					X		
64-17-5	Ethyl alcohol		X					
64-18-6	Formic acid		X					
64-19-7	Acetic acid		X					
64-67-5	Diethyl sulfate		X					
64091-91-4	4-(Methylnitrosamino)-1-(3- pyridyl)-1-butanone	X						
6423-43-4	Propylene glycol dinitrate		X					
644-64-4	Dimetilan					X		
66-27-3	Methyl methanesulfonate			X		X		
67-45-8	Furazolidone	X						
67-56-1	Methyl alcohol		X	X	X	X		
67-63-0	2-Propyl alcohol		X					
67-64-1	2-Propanone (Acetone)		X	X	X	X		
67-66-3	Chloroform	X		X	X	X		
67-72-1	Hexachloroethane		X	X	X	X		
68-11-1	Thioglycolic acid		X					
68-12-2	Dimethylformamide		X					
680-31-9	Hexamethylphosphora-mide	X						
681-84-5	Methyl silicate		X					
684-16-2	Hexafluoroacetone		X					
684-93-5	N-Nitroso-N-methylurea		X					
68476-85-7	Liquified petroleum gas		X					
6923-22-4	Monocrotophos		X					

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 11 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
696-28-6	Dichlorophenylarsine	X						
71-23-8	n-Propyl alcohol		X					
71-36-3	n-Butyl alcohol		X	X	X	X		
71-43-2	Benzene	X		X	X	X		
71-55-6	1,1,1-Trichloroethane		X	X	X	X		
72-20-8	Endrin		X	X		X		
72-43-5	Methoxychlor		X	X		X		
72-54-8	4,4-DDD			X		X		
72-55-9	4,4-DDE			X		X		
74-83-9	Bromomethane		X	X		X		
74-87-3	Chloromethane		X	X		X		
74-88-4	Iodomethane		X	X		X		
74-89-5	Methylamine		X					
74-93-1	Thiomethanol		X					
74-95-3	Dibromomethane			X		X		
74-96-4	Ethyl bromide		X					
74-97-5	Bromochloromethane		X					
74-99-7	Methylacetylene		X					
7421-93-4	Endrin aldehyde			X		X		
75-00-3	Chloroethane		X	X		X		
75-01-4	1-Chloroethene	X		X		X		
75-04-7	Ethylamine		X					
75-05-8	Acetonitrile		X	X		X		
75-07-0	Acetaldehyde	X						
75-08-1	Ethyl mercaptan		X					
75-09-2	Dichloromethane (Methylene Chloride)	X		X	X	X		
75-12-7	Formamide		X					
75-15-0	Carbon disulfide		X	X	X	X		
75-21-8	Oxirane	X		X		X		
75-25-2	Tribromomethane	X		X		X		
75-27-4	Bromodichloromethane			X		X		
75-31-0	Isopropylamine		X					
75-34-3	1,1-Dichloroethane		X	X		X		
75-35-4	1,1-Dichloroethene		X	X		X		
75-43-4	Dichlorofluoromethane		X					
75-45-6	Chlorodifluoromethane		X					
75-47-8	Iodoform		X					
75-50-3	Trimethylamine		X					
75-52-5	Nitromethane		X	X				
75-55-8	2-Methylaziridine		X					
75-56-9	Propylene oxide	X						
75-61-6	Difluorodibromomethane		X					
75-63-8	Trifluorobromomethane		X					
75-65-0	2-Methyl-2-propanol		X					
75-69-4	Trichlorofluoromethane		X	X		X		
75-71-8	Dichlorodifluoromethane		X	X		X		
75-99-0	2,2-Dichloropropionic acid		X					

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
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CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
7572-29-4	Dichloroacetylene		X					
759-73-9	N-Nitroso-N-ethylurea	X						
759-94-4	EPTC			X		X		
76-01-7	Pentachloroethane			X		X		
76-03-9	Trichloroacetic acid		X					
76-06-2	Chloropicrin		X					
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane		X					
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane		X					
76-13-1	1,2,2-Trichlorotrifluoroethane		X	X	X	X		
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane		X					
76-15-3	Chloropentafluoroethane		X					
76-22-2	Camphor, synthetic		X					
76-44-8	Heptachlor	X		X		X		
764-41-0	1,4-Dichloro-2-butene	X						
765-34-4	Glycidylaldehyde	X						
768-52-5	N-Isopropylaniline		X					
77-47-4	Hexachlorocyclopentadiene		X	X		X		
77-73-6	Dicyclopentadiene		X					
77-78-1	Dimethyl sulfate	X						
7782-41-4	Fluorine		X					
7786-34-7	Mevinphos		X					
78-10-4	Ethyl silicate		X					
78-30-8	Triorthocresyl phosphate		X					
78-34-2	Dioxathion		X					
78-59-1	Isophorone		X					
78-83-1	2-Methylpropyl alcohol		X	X	X	X		
78-87-5	1,2-Dichloropropane	X		X		X		
78-92-2	1-Methylpropyl alcohol		X					
78-93-3	2-Butanone		X	X	X	X		
7803-51-2	Phosphine		X					
789-02-6	o,p'-DDT (2,4'-DDT)			X		X		
79-00-5	1,1,2-Trichloroethane		X	X	X	X		
79-01-6	1,1,2-Trichloroethylene	X		X	X	X		
79-04-9	Chloroacetyl chloride		X					
79-06-1	Acrylamide	X		X		X		
79-09-4	Propanoic acid		X					
79-10-7	2-Propenoic acid		X					
79-11-8	Chloroacetic acid		X					
79-20-9	Methyl acetate		X					
79-24-3	Nitroethane		X					
79-27-6	Acetylene tetrabromide		X					
79-34-5	1,1,2,2-Tetrachloroethane		X	X		X		
79-41-4	Methacrylic acid		X					
79-44-7	Dimethylcarbamoyl chloride		X					

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 13 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
79-46-9	2-Nitropropane	X						
794-93-4	Panfuran S (dihydroxy-methylfuratrizine)	X						
80-62-6	Methyl methacrylate		X	X		X		
8001-35-2	Toxaphene	X		X		X		
8001-58-9	Creosote	X						
8003-34-7	Pyrethrum		X					
8006-64-2	Turpentine		X					
8022-00-2	Methyl demeton		X					
8052-42-4	Asphalt (petroleum) fumes		X					
8065-48-3	Demeton		X					
81-81-2	Warfarin (>0.3%)		X					
81-81-2a	Warfarin (<0.3%)		X					
82-68-8	Pentachloronitrobenzene (PCNB)		X	X		X		
822-06-0	Hexamethylene diisocyanate		X					
83-26-1	Pindone		X					
83-32-9	Acenaphthene			X		X		
83-79-4	Rotenone		X					
838-88-0	4,4'-Methylenebis(2-methylaniline)	X						
84-66-2	Diethyl phthalate		X	X		X		
84-74-2	Di-n-butylphthalate		X	X		X		
85-00-7	Diquat		X					
85-01-8	Phenanthrene			X		X		
85-44-9	Phthalic anhydride		X	X		X		
85-68-7	Butylbenzylphthalate			X		X		
86-30-6	N-Nitrosodiphenylamine	X		X		X		
86-50-0	Azinphos-methyl		X					
86-73-7	Fluorene			X		X		
86-88-4	alpha-Naphthylthiourea		X					
87-65-0	2,6-Dichlorophenol			X		X		
87-68-3	Hexachlorobutadiene		X	X	X	X		
87-86-5	Pentachlorophenol	X		X		X		
88-06-2	2,4,6-Trichlorophenol	X		X		X		
88-72-2	Nitrotoluene		X					
88-74-4	2-Nitroaniline			X		X		
88-75-5	2-Nitrophenol			X		X		
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb			X		X		
88-89-1	Picric acid		X					
89-72-5	o-sec-Butylphenol		X					
90-04-0	o-Anisidine	X						
91-20-3	Naphthalene		X	X		X		
91-22-5	Quinoline		X					
91-58-7	2-Chloronaphthalene			X		X		
91-59-8	2-Naphthylamine			X		X		
91-80-5	Methapyrilene			X		X		

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 14 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
91-94-1	3,3 -Dichlorobenzidine	X						
92-52-4	1,1'-Biphenyl		X					
92-67-1	4-Aminobiphenyl	X		X		X		
92-84-2	Phenothiazine		X					
92-87-5	Benzidine	X						
92-93-3	4-Nitrobiphenyl		X					
924-16-3	N-Nitrosodi-n-butylamine	X		X		X		
93-72-1	Silvex (2,4,5-TP)			X		X		
93-76-5	2,4,5-T		X	X		X		
930-55-2	N-Nitrosopyrrolidine			X		X		
94-36-0	Benzoyl Peroxide		X					
94-59-7	Safrole			X		X		
94-75-7	2,4-D	X		X		X		
944-22-9	Fonofos		X					
95-13-6	Indene		X					
95-47-6	o-Xylene			X	X	X		
95-48-7	o-Cresol		X	X	X	X		
95-49-8	o-Chlorotoluene		X					
95-50-1	1,2-Dichlorobenzene		X	X	X	X		
95-53-4	o-Toluidine (2-methylaniline)	X						
95-54-5	1,2-Phenylenediamine					X		
95-57-8	2-Chlorophenol			X		X		
95-80-7	Toluene-2,4-diamine	X						
95-94-3	1,2,4,5-Tetrachlorobenzene			X		X		
95-95-4	2,4,5-Trichlorophenol		X	X	X	X		
959-98-8	Endosulfan I			X		X		
96-09-3	Styrene oxide		X					
96-12-8	1,2-Dibromo-3-chloropropane		X	X		X		
96-18-4	1,2,3-Trichloropropane		X	X		X		
96-22-0	3-Pentanone		X					
96-33-3	Methyl acrylate		X					
96-45-7	Ethylenethiourea	X						
96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide		X					
97-56-3	o-Aminoazotoluene	X						
97-63-2	Ethyl methacrylate			X		X		
97-77-8	Disulfiram		X					
98-00-1	Furfuryl alcohol		X					
98-01-1	Furfural		X					
98-07-7	Benzotrichloride		X					
98-51-1	p-tert-Butyltoluene		X					
98-82-2	Cumene		X					
98-83-9	Methylstyrene		X					
98-86-2	Acetophenone		X	X		X		
98-87-3	Benzal chloride			X		X		
98-95-3	Nitrobenzene		X	X	X	X		

Table B.4. Organic Analyte Regulatory Data Quality Objective Input List
(623 Compounds). (Page 15 of 15)

CAS#	Constituent	Class A TAPs	Class B TAPs	UHC	Part A DST/SST	UTS	DST WSPS	Flammable Gases
99-55-8	5-Nitro-o-toluidine			X		X		
999-61-1	2-Hydroxypropyl acrylate		X					

CAS# = chemical abstract service number.

DST = double-shell tank.

SST = single-shell tank.

TAP = toxic air pollutant.

UHC = underlying hazardous constituents.

UTS = universal treatment standards.

WSPS = Waste Stream Profile Sheet.

Table B.5. Regulated Organic Compounds with a Positive Analytical Detect in the Single-Shell Tank/Double-Shell Tank Waste (146 Compounds). (Page 1 of 4)

CAS#	Constituent	TWINS Solid/Liquid Hits	TWINS Vapor Hits
100-00-5	p-Nitrochlorobenzene		3
100-41-4	Ethyl benzene		423
100-42-5	Styrene	3	195
10061-01-5	cis-1,3-Dichloropropene		27
10061-02-6	trans-1,3-Dichloropropene	1	28
101-84-8	Diphenyl ether		6
106-35-4	3-Heptanone	7	158
106-42-3	p-Xylene		35
106-46-7	1,4-Dichlorobenzene		120
106-88-7	1,2-Epoxybutane		1
106-93-4	Ethylene dibromide		45
106-97-8	Butane		535
106-99-0	1,3-Butadiene		46
107-02-8	Acrolein		22
107-05-1	3-Chloropropene		4
107-06-2	1,2-Dichloroethane	1	15
107-12-0	Propionitrile		593
107-13-1	Acrylonitrile		1
107-18-6	2-Propen-1-ol		5
107-31-3	Formic acid, methyl ester		1
107-87-9	2-Pentanone		211
108-03-2	1-Nitropropane		3
108-05-4	Acetic acid vinyl ester		1
108-10-1	4-Methyl-2-pentanone	1	374
108-20-3	Bis(isopropyl) ether		1
108-38-3	m-Xylene		24
108-39-4	m-Cresol		7
108-87-2	Methylcyclohexane		132
108-88-3	Toluene	52	738
108-90-7	Chlorobenzene		66
108-93-0	Cyclohexanol		1
108-94-1	Cyclohexanone		192
108-95-2	Phenol		19
109-66-0	n-Pentane		446
109-99-9	Tetrahydrofuran	1	562
110-12-3	5-Methyl-2-hexanone		12
110-43-0	2-Heptanone		209
110-54-3	n-Hexane		623
110-62-3	n-Valeraldehyde		54
110-82-7	Cyclohexane		256
110-83-8	Cyclohexene	19	2
110-86-1	Pyridine		279
111-65-9	n-Octane		492
111-76-2	2-Butoxyethanol	6	7
111-84-2	n-Nonane	22	528
117-81-7	Bis(2-ethylhexyl) phthalate	33	1
117-84-0	Di-n-octylphthalate	2	

Table B.5. Regulated Organic Compounds with a Positive Analytical Detect in the Single-Shell Tank/Double-Shell Tank Waste (146 Compounds). (Page 2 of 4)

CAS#	Constituent	TWINS Solid/Liquid Hits	TWINS Vapor Hits
120-82-1	1,2,4-Trichlorobenzene	1	51
122-39-4	N,N-Diphenylamine		22
123-19-3	4-Heptanone		44
123-38-6	n-Propionaldehyde		56
123-51-3	3-Methyl-1-butanol		4
123-86-4	Acetic acid n-butyl ester		25
123-91-1	1,4-Dioxan		19
126-73-8	Tributyl phosphate	40	73
126-98-7	2-Methyl-2-propenenitrile		1
127-18-4	1,1,2,2-Tetrachloroethene	2	415
127-19-5	N,N-Dimethylacetamide		2
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol	2	13
129-00-0	Pyrene	6	
141-78-6	Acetic acid ethyl ester		10
141-79-7	4-Methyl-3-penten-2-one		9
142-82-5	n-Heptane		626
144-62-7	Oxalic acid	1969	0
206-44-0	Fluoranthene	1	
287-92-3	Cyclopentane		16
4170-30-3	2-Butenaldehyde		37
50-00-0	Formaldehyde		3
541-73-1	1,3-Dichlorobenzene		57
56-23-5	Carbon tetrachloride		181
563-80-4	3-Methyl-2-butanone		34
57-14-7	1,1-Dimethylhydrazine		6
59-50-7	4-Chloro-3-methylphenol	1	
59-89-2	N-Nitrosomorpholine	3	1
591-78-6	2-Hexanone	11	248
60-34-4	Methylhydrazine		3
60-35-5	Acetamide		3
62-75-9	N-Nitroso-N,N-dimethylamine		62
621-64-7	N-Nitroso-di-n-propylamine	1	
624-83-9	Methyl isocyanate		1
627-13-4	Nitric acid, propyl ester		72
64-17-5	Ethyl alcohol		552
64-18-6	Formic acid	360	0
64-19-7	Acetic acid		56
67-56-1	Methyl alcohol		594
67-63-0	2-Propyl alcohol		191
67-64-1	2-Propanone (Acetone)	62	831
67-66-3	Chloroform	1	118
67-72-1	Hexachloroethane		
71-23-8	n-Propyl alcohol		606
71-36-3	n-Butyl alcohol	23	775
71-43-2	Benzene	12	638
71-55-6	1,1,1-Trichloroethane	22	221
74-83-9	Bromomethane		22

Table B.5. Regulated Organic Compounds with a Positive Analytical Detect in the Single-Shell Tank/Double-Shell Tank Waste (146 Compounds). (Page 3 of 4)

CAS#	Constituent	TWINS Solid/Liquid Hits	TWINS Vapor Hits
74-87-3	Chloromethane	4	194
74-99-7	Methylacetylene		9
75-00-3	Chloroethane		82
75-01-4	1-Chloroethene		26
75-05-8	Acetonitrile		713
75-07-0	Acetaldehyde		103
75-09-2	Dichloromethane (Methylene Chloride)	15	567
75-12-7	Formamide		1
75-15-0	Carbon disulfide		16
75-21-8	Oxirane		1
75-34-3	1,1-Dichloroethane		29
75-35-4	1,1-Dichloroethene		113
75-43-4	Dichlorofluoromethane		20
75-45-6	Chlorodifluoromethane		12
75-50-3	Trimethylamine		1
75-52-5	Nitromethane		8
75-55-8	2-Methylaziridine		5
75-65-0	2-Methyl-2-propanol		144
75-69-4	Trichlorofluoromethane		790
75-71-8	Dichlorodifluoromethane		252
76-13-1	1,2,2-Trichlorotrifluoroethane		255
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane		31
78-83-1	2-Methylpropyl alcohol		7
78-87-5	1,2-Dichloropropane		13
78-92-2	1-Methylpropyl alcohol		66
78-93-3	2-Butanone	27	642
79-00-5	1,1,2-Trichloroethane		111
79-01-6	1,1,2-Trichloroethylene	1	113
79-09-4	Propanoic acid		5
79-10-7	2-Propenoic acid		1
79-20-9	Methyl acetate		4
79-34-5	1,1,2,2-Tetrachloroethane		51
83-32-9	Acenaphthene	1	
84-66-2	Diethyl phthalate		24
84-74-2	Di-n-butylphthalate	2	2
85-68-7	Butylbenzylphthalate	3	
86-73-7	Fluorene		1
87-68-3	Hexachlorobutadiene		42
88-06-2	2,4,6-Trichlorophenol	1	
88-75-5	2-Nitrophenol	1	
91-20-3	Naphthalene	2	4
92-52-4	1,1'-Biphenyl		7
95-47-6	o-Xylene		411
95-48-7	o-Cresol		2
95-50-1	1,2-Dichlorobenzene		27
95-57-8	2-Chlorophenol	1	
95-95-4	2,4,5-Trichlorophenol	1	

Table B.5. Regulated Organic Compounds with a Positive Analytical Detect in the Single-Shell Tank/Double-Shell Tank Waste (146 Compounds). (Page 4 of 4)

CAS#	Constituent	TWINS Solid/Liquid Hits	TWINS Vapor Hits
96-22-0	3-Pentanone		10
96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide	1	
98-83-9	Methylstyrene		3
98-86-2	Acetophenone		43
98-95-3	Nitrobenzene		5

CAS# = chemical abstract service number.

TWINS = Tank Waste Information Network System. Solid/liquid hits were recorded from the Tank Characterization Database. Vapor hits were recorded from the vapor database.

Table B.6. Regulated Detected Organic Compounds with Higher Toxicity (19 Compounds).

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
100-00-5	p-Nitrochlorobenzene		II	
106-99-0	1,3-Butadiene			v
107-02-8	Acrolein	B	I	
107-05-1	3-Chloropropene	A	II	
107-12-0	Propionitrile	B		
107-13-1	Acrylonitrile	B		BC
126-73-8	Tributyl phosphate		II	
126-98-7	2-Methyl-2-propenenitrile	B	II	
144-62-7	Oxalic acid		II	
57-14-7	1,1-Dimethylhydrazine		II	v
60-34-4	Methylhydrazine		II	
62-75-9	N-Nitroso-N,N-dimethylamine	B		iv
624-83-9	Methyl isocyanate		I	
74-83-9	Bromomethane	C	II	
75-21-8	Oxirane	B		BC
79-10-7	2-Propenoic acid		I	
87-68-3	Hexachlorobutadiene	B	I	BC
92-52-4	1,1'-Biphenyl		II	
98-95-3	Nitrobenzene	D	II	

CAS# = chemical abstract service number.

TAP = toxic air pollutant.

UHC = underlying hazardous constituents.

Table B.7. Regulated Detected Organic Compounds with Lower Toxicity (127 Compounds). (Page 1 of 3)

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
100-41-4	Ethyl benzene	D	IV	
100-42-5	Styrene		IV	
10061-01-5	cis-1,3-Dichloropropene			
10061-02-6	trans-1,3-Dichloropropene			
101-84-8	Diphenyl ether		III	
106-35-4	3-Heptanone		IV	
106-42-3	p-Xylene	D	V	
106-46-7	1,4-Dichlorobenzene	D		
106-88-7	1,2-Epoxybutane		III	
106-93-4	Ethylene dibromide	C		BC
106-97-8	Butane		V	
107-06-2	1,2-Dichloroethane	D		BC
107-18-6	2-Propen-1-ol		III	
107-31-3	Formic acid, methyl ester		IV	
107-87-9	2-Pentanone		V	
108-03-2	1-Nitropropane		III	
108-05-4	Acetic acid vinyl ester		IV	
108-10-1	4-Methyl-2-pentanone	D	IV	
108-20-3	Bis(isopropyl) ether		V	
108-38-3	m-Xylene	D	V	
108-39-4	m-Cresol	C	III	
108-87-2	Methylcyclohexane		V	
108-88-3	Toluene	D	IV	
108-90-7	Chlorobenzene	D	IV	
108-93-0	Cyclohexanol		IV	
108-94-1	Cyclohexanone	C	IV	
108-95-2	Phenol	C	III	
109-66-0	n-Pentane		V	
109-99-9	Tetrahydrofuran		V	
110-12-3	5-Methyl-2-hexanone		IV	
110-43-0	2-Heptanone		IV	
110-54-3	n-Hexane		IV	
110-62-3	n-Valeraldehyde		IV	
110-82-7	Cyclohexane		V	
110-83-8	Cyclohexene		V	
110-86-1	Pyridine	C	III	
111-65-9	n-Octane		V	
111-76-2	2-Butoxyethanol		IV	
111-84-2	n-Nonane		V	
117-81-7	Bis(2-ethylhexyl) phthalate			BC
117-84-0	Di-n-octylphthalate			
120-82-1	1,2,4-Trichlorobenzene	D	IV	
122-39-4	N,N-Diphenylamine	D	III	
123-19-3	4-Heptanone		IV	
123-38-6	n-Propionaldehyde		V	
123-51-3	3-Methyl-1-butanol		V	
123-86-4	Acetic acid n-butyl ester		V	

Table B.7. Regulated Detected Organic Compounds with Lower Toxicity (127 Compounds). (Page 2 of 3)

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
123-91-1	1,4-Dioxan	D		
127-18-4	1,1,2,2-Tetrachloroethene	D		BC
127-19-5	N,N-Dimethylacetamide		IV	
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol		III	
129-00-0	Pyrene	D		
141-78-6	Acetic acid ethyl ester	D	V	
141-79-7	4-Methyl-3-penten-2-one		IV	
142-82-5	n-Heptane		V	
206-44-0	Fluoranthene	D		
287-92-3	Cyclopentane		V	
4170-30-3	2-Butenaldehyde		III	
50-00-0	Formaldehyde			BC
541-73-1	1,3-Dichlorobenzene			
56-23-5	Carbon tetrachloride	D		BC
563-80-4	3-Methyl-2-butanone		V	
59-50-7	4-Chloro-3-methylphenol	D		
59-89-2	N-Nitrosomorpholine			
591-78-6	2-Hexanone		III	
60-35-5	Acetamide		V	
621-64-7	N-Nitroso-di-n-propylamine	C		
627-13-4	Nitric acid, propyl ester		IV	
64-17-5	Ethyl alcohol		V	
64-18-6	Formic acid		III	
64-19-7	Acetic acid		III	
67-56-1	Methyl alcohol	D	IV	
67-63-0	2-Propyl alcohol		V	
67-64-1	2-Propanone (Acetone)		V	
67-66-3	Chloroform	D		BC
67-72-1	Hexachloroethane	D	III	BC
71-23-8	n-Propyl alcohol		V	
71-36-3	n-Butyl alcohol	D	IV	
71-43-2	Benzene	D		BC
71-55-6	1,1,1-Trichloroethane	D	V	
74-87-3	Chloromethane	C	IV	BC
74-99-7	Methylacetylene		V	
75-00-3	Chloroethane	D	V	
75-01-4	1-Chloroethene	D		BC
75-05-8	Acetonitrile	C	IV	
75-07-0	Acetaldehyde			BC
75-09-2	Dichloromethane (Methylene Chloride)	D		BC
75-12-7	Formamide		III	
75-15-0	Carbon disulfide	D	III	
75-34-3	1,1-Dichloroethane	D	V	
75-35-4	1,1-Dichloroethene	C	III	BC
75-43-4	Dichlorofluoromethane		IV	

Table B.7. Regulated Detected Organic Compounds with Lower Toxicity (127 Compounds). (Page 3 of 3)

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
75-45-6	Chlorodifluoromethane		V	
75-50-3	Trimethylamine		III	
75-52-5	Nitromethane	D	IV	
75-55-8	2-Methylaziridine		III	
75-65-0	2-Methyl-2-propanol		IV	
75-69-4	Trichlorofluoromethane		V	
75-71-8	Dichlorodifluoromethane		V	
76-13-1	1,2,2-Trichlorotrifluoroethane		V	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane		V	
78-83-1	2-Methylpropyl alcohol	D	IV	
78-87-5	1,2-Dichloropropane	D		
78-92-2	1-Methylpropyl alcohol		IV	
78-93-3	2-Butanone	D	IV	
79-00-5	1,1,2-Trichloroethane	D	IV	BC
79-01-6	1,1,2-Trichloroethylene			BC
79-09-4	Propanoic acid		III	
79-20-9	Methyl acetate		V	
79-34-5	1,1,2,2-Tetrachloroethane	D	III	BC
83-32-9	Acenaphthene			
84-66-2	Diethyl phthalate		III	
84-74-2	Di-n-butylphthalate	C	III	
85-68-7	Butylbenzylphthalate	D		
86-73-7	Fluorene			
88-06-2	2,4,6-Trichlorophenol	D		BC
88-75-5	2-Nitrophenol	C		
91-20-3	Naphthalene	C	IV	
95-47-6	o-Xylene	D	V	
95-48-7	o-Cresol	C	III	
95-50-1	1,2-Dichlorobenzene	D	IV	
95-57-8	2-Chlorophenol	D		
95-95-4	2,4,5-Trichlorophenol	D	V	
96-22-0	3-Pentanone		V	
96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide		III	
98-83-9	Methylstyrene		IV	
98-86-2	Acetophenone	D	V	

CAS# = chemical abstract service number.

TAP = toxic air pollutant.

UHC = underlying hazardous constituents.

Table B.8. Regulated Organic Compounds with Lower Toxicity and Less than 10 Detects in the Single-Shell Tank/Double-Shell Tank Waste, not Included for Further Analytical Considerations (42 Compounds). (Page 1 of 2)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
101-84-8	Diphenyl ether		6		III	
106-88-7	1,2-Epoxybutane		1		III	
107-18-6	2-Propen-1-ol		5		III	
107-31-3	Formic acid, methyl ester		1		IV	
108-03-2	1-Nitropropane		3		III	
108-05-4	Acetic acid vinyl ester		1		IV	
108-20-3	Bis(isopropyl) ether		1		V	
108-39-4	m-Cresol		7	C	III	
108-93-0	Cyclohexanol		1		IV	
111-76-2	2-Butoxyethanol	6	7		IV	
117-84-0	Di-n-octylphthalate	2				
123-51-3	3-Methyl-1-butanol		4		V	
127-19-5	N,N-Dimethylacetamide		2		IV	
129-00-0	Pyrene	6		D		
141-79-7	4-Methyl-3-penten-2-one		9		IV	
206-44-0	Fluoranthene	1		D		
50-00-0	Formaldehyde		3			BC
59-50-7	4-Chloro-3-methylphenol	1		D		
59-89-2	N-Nitrosomorpholine	3	1			
60-35-5	Acetamide		3		V	
621-64-7	N-Nitroso-di-n-propylamine	1		C		
67-72-1	Hexachloroethane			D	III	BC
74-99-7	Methylacetylene		9		V	
75-12-7	Formamide		1		III	
75-50-3	Trimethylamine		1		III	
75-52-5	Nitromethane		8	D	IV	
75-55-8	2-Methylaziridine		5		III	
78-83-1	2-Methylpropyl alcohol		7	D	IV	
79-09-4	Propanoic acid		5		III	
79-20-9	Methyl acetate		4		V	
83-32-9	Acenaphthene	1				
84-74-2	Di-n-butylphthalate	2	2	C	III	
85-68-7	Butylbenzylphthalate	3		D		
86-73-7	Fluorene		1			
88-06-2	2,4,6-Trichlorophenol	1		D		BC
88-75-5	2-Nitrophenol	1		C		
91-20-3	Naphthalene	2	4	C	IV	
95-48-7	o-Cresol		2	C	III	
95-57-8	2-Chlorophenol	1		D		
95-95-4	2,4,5-Trichlorophenol	1		D	V	

Table B.8. Regulated Organic Compounds with Lower Toxicity and Less than 10 Detects in the Single-Shell Tank/Double-Shell Tank Waste, not Included for Further Analytical Considerations (42 Compounds). (Page 2 of 2)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide	1			III	
98-83-9	Methylstyrene		3		IV	

CAS# = chemical abstract service number.

TAP = toxic air pollutant.

TWINS = Tank Waste Information Network System. Solid/liquid hits were recorded from the Tank Characterization Database. Vapor hits were recorded from the vapor database.

UHC = underlying hazardous constituents.

Table B.9. Regulated Organic Compounds with Lower Toxicity and ≥ 10 Detects (85 Compounds). (Page 1 of 2)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
100-41-4	Ethyl benzene		423	D	IV	
100-42-5	Styrene	3	195		IV	
10061-01-5	cis-1,3-Dichloropropene		27			
10061-02-6	trans-1,3-Dichloropropene	1	28			
106-35-4	3-Heptanone	7	158		IV	
106-42-3	p-Xylene		35	D	V	
106-46-7	1,4-Dichlorobenzene		120	D		
106-93-4	Ethylene dibromide		45	C		BC
106-97-8	Butane		535		V	
107-06-2	1,2-Dichloroethane	1	15	D		BC
107-87-9	2-Pentanone		211		V	
108-10-1	4-Methyl-2-pentanone	1	374	D	IV	
108-38-3	m-Xylene		24	D	V	
108-87-2	Methylcyclohexane		132		V	
108-88-3	Toluene	52	738	D	IV	
108-90-7	Chlorobenzene		66	D	IV	
108-94-1	Cyclohexanone		192	C	IV	
108-95-2	Phenol		19	C	III	
109-66-0	n-Pentane		446		V	
109-99-9	Tetrahydrofuran	1	562		V	
110-12-3	5-Methyl-2-hexanone		12		IV	
110-43-0	2-Heptanone		209		IV	
110-54-3	n-Hexane		623		IV	
110-62-3	n-Valeraldehyde		54		IV	
110-82-7	Cyclohexane		256		V	
110-83-8	Cyclohexene	19	2		V	
110-86-1	Pyridine		279	C	III	
111-65-9	n-Octane		492		V	
111-84-2	n-Nonane	22	528		V	
117-81-7	Bis(2-ethylhexyl) phthalate	33	1			BC
120-82-1	1,2,4-Trichlorobenzene	1	51	D	IV	
122-39-4	N,N-Diphenylamine		22	D	III	
123-19-3	4-Heptanone		44		IV	
123-38-6	n-Propionaldehyde		56		V	
123-86-4	Acetic acid n-butyl ester		25		V	
123-91-1	1,4-Dioxan		19	D		
127-18-4	1,1,2,2-Tetrachloroethene	2	415	D		BC
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol	2	13		III	
141-78-6	Acetic acid ethyl ester		10	D	V	
142-82-5	n-Heptane		626		V	
287-92-3	Cyclopentane		16		V	
4170-30-3	2-Butenaldehyde		37		III	
541-73-1	1,3-Dichlorobenzene		57			
56-23-5	Carbon tetrachloride		181	D		BC
563-80-4	3-Methyl-2-butanone		34		V	
591-78-6	2-Hexanone	11	248		III	

Table B.9. Regulated Organic Compounds with Lower Toxicity and ≥ 10 Detects (85 Compounds). (Page 2 of 2)

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
627-13-4	Nitric acid, propyl ester		72		IV	
64-17-5	Ethyl alcohol		552		V	
64-18-6	Formic acid	360	0		III	
64-19-7	Acetic acid		56		III	
67-56-1	Methyl alcohol		594	D	IV	
67-63-0	2-Propyl alcohol		191		V	
67-64-1	2-Propanone (Acetone)	62	831		V	
67-66-3	Chloroform	1	118	D		BC
71-23-8	n-Propyl alcohol		606		V	
71-36-3	n-Butyl alcohol	23	775	D	IV	
71-43-2	Benzene	12	638	D		BC
71-55-6	1,1,1-Trichloroethane	22	221	D	V	
74-87-3	Chloromethane	4	194	C	IV	BC
75-00-3	Chloroethane		82	D	V	
75-01-4	1-Chloroethene		26	D		BC
75-05-8	Acetonitrile		713	C	IV	
75-07-0	Acetaldehyde		103			BC
75-09-2	Dichloromethane (Methylene Chloride)	15	567	D		BC
75-15-0	Carbon disulfide		16	D	III	
75-34-3	1,1-Dichloroethane		29	D	V	
75-35-4	1,1-Dichloroethene		113	C	III	BC
75-43-4	Dichlorofluoromethane		20		IV	
75-45-6	Chlorodifluoromethane		12		V	
75-65-0	2-Methyl-2-propanol		144		IV	
75-69-4	Trichlorofluoromethane		790		V	
75-71-8	Dichlorodifluoromethane		252		V	
76-13-1	1,2,2-Trichlorotrifluoroethane		255		V	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane		31		V	
78-87-5	1,2-Dichloropropane		13	D		
78-92-2	1-Methylpropyl alcohol		66		IV	
78-93-3	2-Butanone	27	642	D	IV	
79-00-5	1,1,2-Trichloroethane		111	D	IV	BC
79-01-6	1,1,2-Trichloroethylene	1	113			BC
79-34-5	1,1,2,2-Tetrachloroethane		51	D	III	BC
84-66-2	Diethyl phthalate		24		III	
95-47-6	o-Xylene		411	D	V	
95-50-1	1,2-Dichlorobenzene		27	D	IV	
96-22-0	3-Pentanone		10		V	
98-86-2	Acetophenone		43	D	V	

CAS# = chemical abstract service number.

TAP = toxic air pollutant.

TWINS = Tank Waste Information Network System. Solid/liquid hits were recorded from the Tank Characterization Database. Vapor hits were recorded from the vapor database.

UHC = underlying hazardous constituents.

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 1 of 11)

CAS#	Constituent
100-01-6	4-Nitroaniline
100-02-7	4-Nitrophenol
100-21-0	Phthalic acid
100-25-4	1,4-Dinitrobenzene
100-37-8	Diethylaminoethanol
100-44-7	Benzyl chloride
100-61-8	N-Methylbenzenamine
100-63-0	Phenylhydrazine
100-74-3	N-Ethylmorpholine
100-75-4	N-Nitrosopiperidine
101-14-4	4,4'-Methylenebis(2-chloroaniline)
101-27-9	Barban
101-55-3	4-Bromophenylphenyl ether
101-68-8	Methylene bis(phenyl isocyanate)
101-77-9	4,4-Methylene dianiline
101-80-4	4,4'-Diaminodiphenyl ether
101-90-6	Diglycidyl resorcinol ether
102-81-8	2-N-Dibutylaminoethanol
1024-57-3	Heptachlor Epoxide
1031-07-8	Endosulfan Sulfate
105-46-4	sec-Butyl acetate
105-60-2	Caprolactam, vapor
105-60-2a	Caprolactam, dust
105-67-9	2,4-Dimethylphenol
10595-95-6	N-Nitrosomethylethylamine
106-44-5	4-Methylphenol
106-47-8	4-Chloroaniline
106-49-0	p-Toluidine
106-50-3	p-Phenylenediamine
106-51-4	p-Benzoquinone
106-87-6	Vinyl cyclohexene dioxide
106-89-8	Epichlorohydrin
106-92-3	Allyl glycidyl ether
10605-21-7	Carbendazim
107-07-3	Ethylene chlorohydrin
107-15-3	Ethylene diamine
107-19-7	Propargyl alcohol
107-20-0	Chloroacetaldehyde
107-21-1	Ethylene glycol
107-30-2	Chloromethyl methyl ether
107-41-5	Hexylene glycol
107-49-3	Tetraethyl pyrophosphate
107-66-4	Dibutylphosphate

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 2 of 11)

CAS#	Constituent
107-98-2	Propylene glycol monomethyl ether
108-11-2	Methyl isobutyl carbinol
108-18-9	Diisopropylamine
108-21-4	Isopropyl acetate
108-24-7	Acetic anhydride
108-31-6	Maleic anhydride (2,5-Furandione)
108-43-0	Chlorophenols
108-44-1	m-Toluidine
108-46-3	Resorcinol (1,3-Benzenediol)
108-60-1	Bis(2-Chloroisopropyl) ether
108-83-8	Diisobutyl ketone
108-84-9	sec-Hexyl acetate
108-91-8	Cyclohexylamine
108-98-5	Thiophenol
109-59-1	Isopropoxyethanol
109-60-4	n-Propyl acetate
109-73-9	n-Butylamine
109-79-5	n-Butyl mercaptan
109-86-4	2-Methoxyethanol
109-87-5	Methylal
109-89-7	Diethylamine
109-94-4	Ethyl formate
110-19-0	Isobutyl acetate
110-49-6	2-Methoxyethyl acetate
110-75-8	2-Chloroethyl vinyl ether
110-80-5	2-Ethoxyethanol
110-91-8	Morpholine
111-15-9	2-Ethoxyethyl acetate
111-30-8	Glutaraldehyde
111-40-0	Diethylene triamine
111-42-2	Diethanolamine
111-44-4	Bis(2-chloroethyl) ether
111-91-1	Bis(2-Chloroethoxy)methane
1114-71-2	Pebulate
1120-71-4	1,3-Propane sultone
1129-41-5	Metolcarb (3-methylcholanthrene)
1134-23-2	Cycloate
114-26-1	Propoxur
115-29-7	Endosulfan
115-86-6	Triphenyl phosphate
115-90-2	Fensulfothion
117-79-3	2-Aminoanthraquinone
118-52-5	1,3-Dichloro-5,5-Dimethyl hydantoin

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 3 of 11)

CAS#	Constituent
118-74-1	Hexachlorobenzene
118-96-7	2,4,6-Trinitrotoluene
119-38-0	Isolan
119-90-4	3,3'-Dimethoxybenzidine
119-93-7	3,3'-Dimethylbenzidine.
120-12-7	Anthracene
120-58-1	Isosafrole
120-80-9	Catechol
120-83-2	2,4-Dichlorophenol
121-14-2	2,4-Dinitrotoluene
121-44-8	Triethylamine
121-45-9	Trimethyl phosphite
121-69-7	Dimethylaniline
121-75-5	Malathion
121-82-4	Cyclonite
122-42-9	Propham
122-60-1	Phenyl glycidyl ether
122-66-7	1,2-Diphenylhydrazine
123-31-9	Hydroquinone
123-42-2	Diacetone alcohol
123-92-2	Isoamyl acetate
124-40-3	Dimethylamine
124-48-1	Dibromochloromethane
126-72-7	Tris(2,3-dibromopropyl) phosphate
126-85-2	Nitrogen mustard N-oxide
126-99-8	Chloroprene
129-15-7	2-Methyl-1-nitroanthraquinone
1300-73-8	Xylidine
131-11-3	Dimethyl phthalate
13121-70-5	Cyhexatin
132-64-9	Dibenzofuran
1321-64-8	Pentachloronaphthalene
1321-65-9	Trichloronaphthalene
1321-74-0	Divinyl benzene
133-06-2	Captan
133-90-4	Chloramben
1335-87-1	Hexachloronaphthalene
1335-88-2	Tetrachloronaphthalene
1336-36-3	Polychlorinated biphenyls (PCBs)
1338-23-4	Methyl ethyl ketone peroxide
134-32-7	alpha-Naphthylamine
135-20-6	Cupferron
135-88-6	N-Phenyl-2-naphthylamine

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 4 of 11)

CAS#	Constituent
13552-44-8	4,4-Methylenedianiline dihydrochloride
136-78-7	Sesone
137-05-3	Methyl-2-cyanoacrylate
137-26-8	Thiram
137-30-4	Ziram
138-22-7	n-Butyl lactate
13838-16-9	Enflurane
139-65-1	4,4'-Thiodianiline
139-91-3	5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone)
1395-21-7	Subtilisins
140-57-8	Aramite
140-88-5	Ethylacrylate
141-32-2	Butylacrylate
141-43-5	Ethanolamine
141-66-2	Dicrotophos
142-64-3	Piperazine dihydrochloride
143-50-0	Kepone
14484-64-1	Ferbam
1477-55-0	m-Xylene-a,a'-diamine
148-01-6	Dinitolamide
150-76-5	4-Methoxyphenol
151-56-4	Ethyleneimine
151-67-7	Halothane
156-60-5	1,2-trans-Dichloroethene
1563-38-8	Carbofuran phenol
1563-66-2	Carbofuran
1582-09-8	Trifluralin
1615-80-1	N,N'-Diethylhydrazine
16219-75-3	Ethylidene norbornene
1634-04-4	Methyl tert-butyl ether
1646-88-4	Aldicarb sulfone
16752-77-5	Methomyl
1694-09-3	Benzyl violet 4b
1746-01-6	TCDD (Dioxin/Furan Indicator)
17702-57-7	Formparanate
17804-35-2	Benomyl
1836-75-5	Nitrofen
1888-71-7	Hexachloropropylene
189-55-9	Dibenzo[a,i]pyrene
189-64-0	Dibenzo[a,h]pyrene
191-24-2	Benzo(ghi)perylene
191-30-0	Dibenzo(a,l)pyrene
1912-24-9	Atrazine

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 5 of 11)

CAS#	Constituent
1918-02-1	Picloram
192-65-4	Dibenzo[a,e]pyrene
1929-77-7	Vernolate
1929-82-4	Nitrapyrin
193-39-5	Indeno(1,2,3-cd)pyrene
2008-41-5	Butylate
2032-65-7	Methiocarb
2039-87-4	o-Chlorostyrene
205-82-3	Benzo[j]fluoranthene
205-99-2	Benzo(b)fluoranthene
207-08-9	Benzo(k)fluoranthene
208-96-8	Acenaphthylene
2104-64-5	EPN
21087-64-9	Metribuzin
2179-59-1	Allyl propyl disulfide
218-01-9	Chrysene
2212-67-1	Molinate
22224-92-6	Fenamiphos
2234-13-1	Octachloronaphthalene
2238-07-5	Diglycidyl ether
224-42-0	Dibenz[a,j]acridine
226-36-8	Dibenz[a,h]acridine
22781-23-3	Bendiocarb
22961-82-6	Bendiocarb phenol
2303-17-5	Triallate
23135-22-0	Oxamy
23422-53-9	Formetanate hydrochloride
23564-05-8	Thiophanate-methyl
2385-85-5	Mirex
23950-58-5	Pronamide
2425-06-1	Captafol
2426-08-6	n-Butyl glycidyl ether
2465-27-2	Auramine (technical grade)
25013-15-4	Vinyl toluene
2551-13-7	Trimethyl benzene
25639-42-3	Methylcyclohexanol
26140-60-3	Terphenyls
2631-37-0	Promecarb
26419-73-8	Tirpate
2646-17-5	Oil orange SS
26952-21-6	Iso-octyl alcohol
2698-41-1	o-Chlorobenzylidene malonitrile
27154-33-2	Trichlorofluoroethane

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 6 of 11)

CAS#	Constituent
28434-86-8	3,3'-Dichloro-4,4'-diaminodiphenyl ether
29191-52-4	Anisidine (o-,p- isomers)
2921-88-2	Chlorpyrifos
2971-90-6	Clopidol
298-00-0	Methyl parathion
298-02-2	Phorate
298-04-4	Disulfoton
299-84-3	Ronnel
299-86-5	Crufomate
300-76-5	Naled
302-01-2	Hydrazine
302-70-5	Nitrogen mustard N-oxide hydrochloride
30558-43-1	A2213
3068-88-0	B-Butyrolactone
309-00-2	Aldrin
314-40-9	Bromacil
315-18-4	Mexacarbate
319-84-6	alpha-BHC
319-85-7	beta-BHC
319-86-8	delta-BHC
330-54-1	Diuron
33213-65-9	Endosulfan II
333-41-5	Diazinon
3333-52-6	Tetramethyl succinonitrile
334-88-3	Diazomethane
3383-96-8	Temephos
3424-82-6	o,p'-DDE (2,4'-DDE)
34590-94-8	Dipropylene glycol methyl ether
35400-43-2	Sulprofos
3547-04-4	DDE (p,p'-Dichlorodiphenyldichloroethylene)
3689-24-5	Tetraethyldithiopyrophosphate (TEDP)
3697-24-3	5-Methylchrysene
3761-53-3	Ponceau MX
3825-26-1	Ammonium perfluorooctanoate
4016-14-2	Isopropyl glycidyl ether (IGE)
4098-71-9	Isophorone diisocyanate
420-04-2	Cyanamide
463-51-4	Ketene
465-73-6	Isodrin
4685-14-7	Paraquat
479-45-8	Tetryl
50-29-3	4,4-DDT
50-32-8	Benzo(a)pyrene

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 7 of 11)

CAS#	Constituent
504-29-0	2-Aminopyridine
509-14-8	Tetranitromethane
51-28-5	2,4-Dinitrophenol
51-79-6	Ethyl carbamate (urethane)
510-15-6	Chlorobenzilate
5124-30-1	Methylene-bis-(4-cyclo-hexylisocyanate)
52-85-7	Famphur
528-29-0	Dinitrobenzene, all isomers
52888-80-9	Prosulfocarb
53-19-0	o,p'-DDD (2,4'-DDD)
53-70-3	Dibenz[a,h]anthracene
53-96-3	2-Acetylaminofluorene
531-82-8	N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide
532-27-4	a-Chloroacetophenone
534-52-1	4,6-Dinitro-o-cresol
54-11-5	Nicotine
540-59-0	1,2-Dichloroethylene
540-73-8	1,2-Dimethylhydrazine
540-84-1	2,2,4-Trimethylpentane
540-88-5	tert-Butyl acetate
541-85-5	Ethyl amyl ketone
542-75-6	1,3-Dichloropropene
542-88-1	Dichloromethyl ether
542-92-7	Cyclopentadiene
55-18-5	N-Nitrosodiethylamine
55-38-9	Fenthion
55-63-0	Nitroglycerin
552-30-7	Trimellitic anhydride
55285-14-8	Carbosulfan
55406-53-6	3-Iodo-2-propynyl n-butylcarbamate
555-84-9	1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone
556-52-5	Glycidol
55720-99-5	Chlorinated diphenyl oxide
55738-54-0	trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl)vinyl-1,3,4-oxadiazole
56-38-2	Parathion
56-49-5	3-Methylcholanthrene
56-55-3	Benzo(a)anthracene
563-12-2	Ethion
57-24-9	Strychnine
57-47-6	Physostigmine
57-57-8	B-Propiolactone
57-64-7	Physostigmine salicylate

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 8 of 11)

CAS#	Constituent
57-74-9	Chlordane
58-89-9	gamma-BHC (Lindane)
58-90-2	2,3,4,6-Tetrachlorophenol
583-60-8	o-Methylcyclohexanone
584-84-9	2,4-Toluene diisocyanate
59-87-0	Nitrofurazone
592-62-1	Methyl azoxymethyl acetate
593-60-2	Vinyl bromide
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)
594-42-3	Perchloromethyl mercaptan
594-72-9	1,1-Dichloro-1-nitroethane
5952-26-1	Diethylene glycol, dicarbamate
59669-26-0	Thiodicarb
60-11-7	p-Dimethylaminoazobenzene
60-29-7	Ethyl ether
60-57-1	Dieldrin
600-25-9	1-Chloro-1-nitropropane
602-87-9	5-Nitroacenaphthene
603-34-9	Triphenyl amine
606-20-2	2,6-Dinitrotoluene
608-93-5	Pentachlorobenzene
61-82-5	Amitrole
613-35-4	N,N-Diacetylbenzidine
615-53-2	N-Nitroso-N-methylurethane
62-44-2	Phenacetin
62-53-3	Aniline
62-73-7	Dichlorvas
62-74-8	Fluoroacetic acid, sodium salt (Fratol)
626-17-5	m-Phthalodinitrile
626-38-0	sec-Amyl acetate
628-63-7	n-Amyl acetate
628-96-6	Ethylene glycol dinitrate
63-25-2	Carbaryl
63-92-3	Phenoxybenzamine hydrochloride
630-20-6	1,1,1,2-Tetrachloroethane
636-21-5	o-Toluidine hydrochloride
638-21-1	Phenylphosphine
64-00-6	m-Cumenyl methylcarbamate
64-67-5	Diethyl sulfate
64091-91-4	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone
6423-43-4	Propylene glycol dinitrate
644-64-4	Dimetilan
66-27-3	Methyl methanesulfonate

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 9 of 11)

CAS#	Constituent
67-45-8	Furazolidone
68-11-1	Thioglycolic acid
68-12-2	Dimethylformamide
680-31-9	Hexamethylphosphoramide
681-84-5	Methyl silicate
684-16-2	Hexafluoroacetone
684-93-5	N-Nitroso-N-methylurea
68476-85-7	Liquified petroleum gas
6923-22-4	Monocrotophos
696-28-6	Dichlorophenylarsine
72-20-8	Endrin
72-43-5	Methoxychlor
72-54-8	4,4-DDD
72-55-9	4,4-DDE
74-88-4	Iodomethane
74-89-5	Methylamine
74-93-1	Thiomethanol
74-95-3	Dibromomethane
74-96-4	Ethyl bromide
74-97-5	Bromochloromethane
7421-93-4	Endrin aldehyde
75-04-7	Ethylamine
75-08-1	Ethyl mercaptan
75-25-2	Tribromomethane
75-27-4	Bromodichloromethane
75-31-0	Isopropylamine
75-47-8	Iodoform
75-56-9	Propylene oxide
75-61-6	Difluorodibromomethane
75-63-8	Trifluorobromomethane
75-99-0	2,2-Dichloropropionic acid
7572-29-4	Dichloroacetylene
759-73-9	N-Nitroso-N-ethylurea
759-94-4	EPTC
76-01-7	Pentachloroethane
76-03-9	Trichloroacetic acid
76-06-2	Chloropicrin
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane
76-15-3	Chloropentafluoroethane
76-22-2	Camphor, synthetic
76-44-8	Heptachlor
764-41-0	1,4-Dichloro-2-butene

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 10 of 11)

CAS#	Constituent
765-34-4	Glycidylaldehyde
768-52-5	N-Isopropylaniline
77-47-4	Hexachlorocyclopentadiene
77-73-6	Dicyclopentadiene
77-78-1	Dimethyl sulfate
7782-41-4	Fluorine
7786-34-7	Mevinphos
78-10-4	Ethyl silicate
78-30-8	Triorthocresyl phosphate
78-34-2	Dioxathion
78-59-1	Isophorone
7803-51-2	Phosphine
789-02-6	o,p'-DDT (2,4'-DDT)
79-04-9	Chloroacetyl chloride
79-06-1	Acrylamide
79-11-8	Chloroacetic acid
79-24-3	Nitroethane
79-27-6	Acetylene tetrabromide
79-41-4	Methacrylic acid
79-44-7	Dimethylcarbamoyl chloride
79-46-9	2-Nitropropane
794-93-4	Panfuran S (dihydroxymethylfuratrizine)
80-62-6	Methyl methacrylate
8001-35-2	Toxaphene
8001-58-9	Creosote
8003-34-7	Pyrethrum
8006-64-2	Turpentine
8022-00-2	Methyl demeton
8052-42-4	Asphalt (petroleum) fumes
8065-48-3	Demeton
81-81-2	Warfarin (>0.3%)
81-81-2a	Warfarin (<0.3%)
82-68-8	Pentachloronitrobenzene (PCNB)
822-06-0	Hexamethylene diisocyanate
83-26-1	Pindone
83-79-4	Rotenone
838-88-0	4,4'-Methylenebis(2-methylaniline)
85-00-7	Diquat
85-01-8	Phenanthrene
85-44-9	Phthalic anhydride
86-30-6	N-Nitrosodiphenylamine
86-50-0	Azinphos-methyl
86-88-4	alpha-Naphthylthiourea

Table B.10. Regulated Organic Compounds without a Positive Analytical Detect in Single-Shell Tank/Double-Shell Tank Waste (477 Compounds). (Page 11 of 11)

CAS#	Constituent
87-65-0	2,6-Dichlorophenol
87-86-5	Pentachlorophenol
88-72-2	Nitrotoluene
88-74-4	2-Nitroaniline
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb
88-89-1	Picric acid
89-72-5	o-sec-Butylphenol
90-04-0	o-Anisidine
91-22-5	Quinoline
91-58-7	2-Chloronaphthalene
91-59-8	2-Naphthylamine
91-80-5	Methapyrilene
91-94-1	3,3 -Dichlorobenzidine
92-67-1	4-Aminobiphenyl
92-84-2	Phenothiazine
92-87-5	Benzidine
92-93-3	4-Nitrobiphenyl
924-16-3	N-Nitrosodi-n-butylamine
93-72-1	Silvex (2,4,5-TP)
93-76-5	2,4,5-T
930-55-2	N-Nitrosopyrrolidine
94-36-0	Benzoyl Peroxide
94-59-7	Safrole
94-75-7	2,4-D
944-22-9	Fonofos
95-13-6	Indene
95-49-8	o-Chlorotoluene
95-53-4	o-Toluidine (2-methylaniline)
95-54-5	1,2-Phenylenediamine
95-80-7	Toluene-2,4-diamine
95-94-3	1,2,4,5-Tetrachlorobenzene
959-98-8	Endosulfan I
96-09-3	Styrene oxide
96-12-8	1,2-Dibromo-3-chloropropane
96-18-4	1,2,3-Trichloropropane
96-33-3	Methyl acrylate
96-45-7	Ethylenethiourea
97-56-3	o-Aminoazotoluene
97-63-2	Ethyl methacrylate
97-77-8	Disulfiram
98-00-1	Furfuryl alcohol
98-01-1	Furfural
98-07-7	Benzotrichloride

Table B.10. Regulated Organic Compounds without a Positive
Analytical Detect in Single-Shell Tank/Double-Shell
Tank Waste (477 Compounds). (Page 12 of 11)

CAS#	Constituent
98-51-1	p-tert-Butyltoluene
98-82-2	Cumene
98-87-3	Benzal chloride
99-55-8	5-Nitro-o-toluidine
999-61-1	2-Hydroxypropyl acrylate

CAS# = chemical abstract service number.

Table B.11. Regulated Non-detected Organic Compounds that are Classified as Polycyclic Aromatic Hydrocarbons (14 Compounds).

CAS#	Constituent
120-12-7	Anthracene
191-24-2	Benzo(ghi)perylene
191-30-0	Dibenzo(a,l)pyrene
193-39-5	Indeno(1,2,3-cd)pyrene
205-99-2	Benzo(b)fluoranthene
207-08-9	Benzo(k)fluoranthene
208-96-8	Acenaphthylene
218-01-9	Chrysene
224-42-0	Dibenz[a,j]acridine
3697-24-3	5-Methylchrysene
50-32-8	Benzo(a)pyrene
53-70-3	Dibenz[a,h]anthracene
56-55-3	Benzo(a)anthracene
85-01-8	Phenanthrene

CAS# = chemical abstract service number.

Table B.12. Regulated Non-detected Organic
Compounds Classified as Chlorinated Pesticides
and Herbicides That Were Likely to be Used
During Early Hanford Site Operations (39 Compounds).

CAS#	Constituent
1024-57-3	Heptachlor Epoxide
1031-07-8	Endosulfan Sulfate
118-74-1	Hexachlorobenzene
133-06-2	Captan
133-90-4	Chloramben
1582-09-8	Trifluralin
1836-75-5	Nitrofen
1918-02-1	Picloram
2234-13-1	Octachloronaphthalene
2385-85-5	Mirex
2425-06-1	Captafol
309-00-2	Aldrin
319-84-6	alpha-BHC
319-85-7	beta-BHC
319-86-8	delta-BHC
33213-65-9	Endosulfan II
465-73-6	Isodrin
50-29-3	4,4-DDT
510-15-6	Chlorobenzilate
57-74-9	Chlordane
58-89-9	gamma-BHC (Lindane)
58-90-2	2,3,4,6-Tetrachlorophenol
60-57-1	Dieldrin
72-20-8	Endrin
72-43-5	Methoxychlor
72-54-8	4,4-DDD
72-55-9	4,4-DDE
7421-93-4	Endrin aldehyde
75-99-0	2,2-Dichloropropionic acid
76-44-8	Heptachlor
77-47-4	Hexachlorocyclopentadiene
8001-35-2	Toxaphene
87-86-5	Pentachlorophenol
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb
93-72-1	Silvex (2,4,5-TP)
93-76-5	2,4,5-T
94-75-7	2,4-D
959-98-8	Endosulfan I
96-12-8	1,2-Dibromo-3-chloropropane

CAS# = chemical abstract service number.

Table B.13. Regulated Non-detected Organic
Compound, Plausibly a "Ghost"
Compound (1 Compound).

CAS#	Constituent
1336-36-3	Polychlorinated biphenyls (PCBs)

CAS# = chemical abstract service number.

Table B.14. Regulated Non-detected Organic Compounds Listed in Either Klem (1990) or Agnew (1997) (7 compounds).

CAS#	Constituent	Klem (1990)	Agnew (1997) ^(a)
107-21-1	Ethylene glycol	X	
107-66-4	Dibutylphosphate	X	X
110-91-8	Morpholine	X	
123-92-2	Isoamyl acetate	X	
134-32-7	alpha-Naphthylamine	X	
302-01-2	Hydrazine	X	
60-29-7	Ethyl ether	X	

^(a)Previously known as the Historical Tank Content Estimate (HTCE).

CAS# = chemical abstract service number.

Table B.15. Regulated Non-detected Organic Compounds for Evaluation of Industry Uses
Unrelated to Hanford Activities (416 Compounds). (Page 1 of 9)

CAS#	Constituent
100-01-6	4-Nitroaniline
100-02-7	4-Nitrophenol
100-21-0	Phthalic acid
100-25-4	1,4-Dinitrobenzene
100-37-8	Diethylaminoethanol
100-44-7	Benzyl chloride
100-61-8	N-Methylbenzenamine
100-63-0	Phenylhydrazine
100-74-3	N-Ethylmorpholine
100-75-4	N-Nitrosopiperidine
101-14-4	4,4'-Methylenebis(2-chloroaniline)
101-27-9	Barban
101-55-3	4-Bromophenylphenyl ether
101-68-8	Methylene bis(phenyl isocyanate)
101-77-9	4,4-Methylene dianiline
101-80-4	4,4'-Diaminodiphenyl ether
101-90-6	Diglycidyl resorcinol ether
102-81-8	2-N-Dibutylaminoethanol
105-46-4	sec-Butyl acetate
105-60-2	Caprolactam, vapor
105-60-2a	Caprolactam, dust
105-67-9	2,4-Dimethylphenol
10595-95-6	N-Nitrosomethylethylamine
106-44-5	4-Methylphenol
106-47-8	4-Chloroaniline
106-49-0	p-Toluidine
106-50-3	p-Phenylenediamine
106-51-4	p-Benzoquinone
106-87-6	Vinyl cyclohexene dioxide
106-89-8	Epichlorohydrin
106-92-3	Allyl glycidyl ether
10605-21-7	Carbendazim
107-07-3	Ethylene chlorohydrin
107-15-3	Ethylene diamine
107-19-7	Propargyl alcohol
107-20-0	Chloroacetaldehyde
107-30-2	Chloromethyl methyl ether
107-41-5	Hexylene glycol
107-49-3	Tetraethyl pyrophosphate
107-98-2	Propylene glycol monomethyl ether
108-11-2	Methyl isobutyl carbinol
108-18-9	Diisopropylamine
108-21-4	Isopropyl acetate
108-24-7	Acetic anhydride
108-31-6	Maleic anhydride (2,5-Furandione)
108-43-0	Chlorophenols
108-44-1	m-Toluidine
108-46-3	Resorcinol (1,3-Benzenediol)
108-60-1	Bis(2-Chloroisopropyl) ether

Table B.15. Regulated Non-detected Organic Compounds for Evaluation of Industry Uses
Unrelated to Hanford Activities (416 Compounds). (Page 2 of 9)

CAS#	Constituent
108-83-8	Diisobutyl ketone
108-84-9	sec-Hexyl acetate
108-91-8	Cyclohexylamine
108-98-5	Thiophenol
109-59-1	Isopropoxyethanol
109-60-4	n-Propyl acetate
109-73-9	n-Butylamine
109-79-5	n-Butyl mercaptan
109-86-4	2-Methoxyethanol
109-87-5	Methylal
109-89-7	Diethylamine
109-94-4	Ethyl formate
110-19-0	Isobutyl acetate
110-49-6	2-Methoxyethyl acetate
110-75-8	2-Chloroethyl vinyl ether
110-80-5	2-Ethoxyethanol
111-15-9	2-Ethoxyethyl acetate
111-30-8	Glutaraldehyde
111-40-0	Diethylene triamine
111-42-2	Diethanolamine
111-44-4	Bis(2-chloroethyl) ether
111-91-1	Bis(2-Chloroethoxy)methane
1114-71-2	Pebulate
1120-71-4	1,3-Propane sultone
1129-41-5	Metolcarb (3-methylcholanthrene)
1134-23-2	Cycloate
114-26-1	Propoxur
115-29-7	Endosulfan
115-86-6	Triphenyl phosphate
115-90-2	Fensulfothion
117-79-3	2-Aminoanthraquinone
118-52-5	1,3-Dichloro-5,5-Dimethyl hydantoin
118-96-7	2,4,6-Trinitrotoluene
119-38-0	Isolan
119-90-4	3,3'-Dimethoxybenzidine
119-93-7	3,3'-Dimethylbenzidine.
120-58-1	Isosafrole
120-80-9	Catechol
120-83-2	2,4-Dichlorophenol
121-14-2	2,4-Dinitrotoluene
121-44-8	Triethylamine
121-45-9	Trimethyl phosphite
121-69-7	Dimethylaniline
121-75-5	Malathion
121-82-4	Cyclonite
122-42-9	Propham
122-60-1	Phenyl glycidyl ether
122-66-7	1,2-Diphenylhydrazine
123-31-9	Hydroquinone

Table B.15. Regulated Non-detected Organic Compounds for Evaluation of Industry Uses
Unrelated to Hanford Activities (416 Compounds). (Page 3 of 9)

CAS#	Constituent
123-42-2	Diacetone alcohol
124-40-3	Dimethylamine
124-48-1	Dibromochloromethane
126-72-7	Tris(2,3-dibromopropyl) phosphate
126-85-2	Nitrogen mustard N-oxide
126-99-8	Chloroprene
129-15-7	2-Methyl-1-nitroanthraquinone
1300-73-8	Xylidine
131-11-3	Dimethyl phthalate
13121-70-5	Cyhexatin
132-64-9	Dibenzofuran
1321-64-8	Pentachloronaphthalene
1321-65-9	Trichloronaphthalene
1321-74-0	Divinyl benzene
1335-87-1	Hexachloronaphthalene
1335-88-2	Tetrachloronaphthalene
1338-23-4	Methyl ethyl ketone peroxide
135-20-6	Cupferron
135-88-6	N-Phenyl-2-naphthylamine
13552-44-8	4,4-Methylenedianiline dihydrochloride
136-78-7	Sesone
137-05-3	Methyl-2-cyanoacrylate
137-26-8	Thiram
137-30-4	Ziram
138-22-7	n-Butyl lactate
13838-16-9	Enflurane
139-65-1	4,4'-Thiodianiline
139-91-3	5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone)
1395-21-7	Subtilisins
140-57-8	Aramite
140-88-5	Ethylacrylate
141-32-2	Butylacrylate
141-43-5	Ethanolamine
141-66-2	Dicrotophos
142-64-3	Piperazine dihydrochloride
143-50-0	Kepone
14484-64-1	Ferbam
1477-55-0	m-Xylene-a,a'-diamine
148-01-6	Dinitolamide
150-76-5	4-Methoxyphenol
151-56-4	Ethyleneimine
151-67-7	Halothane
156-60-5	1,2-trans-Dichloroethene
1563-38-8	Carbofuran phenol
1563-66-2	Carbofuran
1615-80-1	N,N'-Diethylhydrazine
16219-75-3	Ethylidene norbornene
1634-04-4	Methyl tert-butyl ether
1646-88-4	Aldicarb sulfone

Table B.15. Regulated Non-detected Organic Compounds for Evaluation of Industry Uses Unrelated to Hanford Activities (416 Compounds). (Page 4 of 9)

CAS#	Constituent
16752-77-5	Methomyl
1694-09-3	Benzyl violet 4b
1746-01-6	TCDD (Dioxin/Furan Indicator)
17702-57-7	Formparanate
17804-35-2	Benomyl
1888-71-7	Hexachloropropylene
189-55-9	Dibenzo[a,i]pyrene
189-64-0	Dibenzo[a,h]pyrene
1912-24-9	Atrazine
192-65-4	Dibenzo[a,e]pyrene
1929-77-7	Vernolate
1929-82-4	Nitrapyrin
2008-41-5	Butylate
2032-65-7	Methiocarb
2039-87-4	o-Chlorostyrene
205-82-3	Benzo[j]fluoranthene
2104-64-5	EPN
21087-64-9	Metribuzin
2179-59-1	Allyl propyl disulfide
2212-67-1	Molinate
22224-92-6	Fenamiphos
2238-07-5	Diglycidyl ether
226-36-8	Dibenz[a,h]acridine
22781-23-3	Bendiocarb
22961-82-6	Bendiocarb phenol
2303-17-5	Triallate
23135-22-0	Oxamy
23422-53-9	Formetanate hydrochloride
23564-05-8	Thiophanate-methyl
23950-58-5	Pronamide
2426-08-6	n-Butyl glycidyl ether
2465-27-2	Auramine (technical grade)
25013-15-4	Vinyl toluene
2551-13-7	Trimethyl benzene
25639-42-3	Methylcyclohexanol
26140-60-3	Terphenyls
2631-37-0	Promecarb
26419-73-8	Tirpate
2646-17-5	Oil orange SS
26952-21-6	Iso-octyl alcohol
2698-41-1	o-Chlorobenzylidene malonitrile
27154-33-2	Trichlorofluoroethane
28434-86-8	3,3'-Dichloro-4,4'-diaminodiphenyl ether
29191-52-4	Anisidine (o-,p- isomers)
2921-88-2	Chlorpyrifos
2971-90-6	Clopidol
298-00-0	Methyl parathion
298-02-2	Phorate
298-04-4	Disulfoton

Table B.15. Regulated Non-detected Organic Compounds for Evaluation of Industry Uses Unrelated to Hanford Activities (416 Compounds). (Page 5 of 9)

CAS#	Constituent
299-84-3	Ronnel
299-86-5	Cruformate
300-76-5	Naled
302-70-5	Nitrogen mustard N-oxide hydrochloride
30558-43-1	A2213
3068-88-0	B-Butyrolactone
314-40-9	Bromacil
315-18-4	Mexacarbate
330-54-1	Diuron
333-41-5	Diazinon
3333-52-6	Tetramethyl succinonitrile
334-88-3	Diazomethane
3383-96-8	Temephos
3424-82-6	o,p'-DDE (2,4'-DDE)
34590-94-8	Dipropylene glycol methyl ether
35400-43-2	Sulprofos
3547-04-4	DDE (p,p'-Dichlorodiphenyldichloroethylene)
3689-24-5	Tetraethyldithiopyrophosphate (TEDP)
3761-53-3	Ponceau MX
3825-26-1	Ammonium perfluorooctanoate
4016-14-2	Isopropyl glycidyl ether (IGE)
4098-71-9	Isophorone diisocyanate
420-04-2	Cyanamide
463-51-4	Ketene
4685-14-7	Paraquat
479-45-8	Tetryl
504-29-0	2-Aminopyridine
509-14-8	Tetranitromethane
51-28-5	2,4-Dinitrophenol
51-79-6	Ethyl carbamate (urethane)
5124-30-1	Methylene-bis-(4-cyclo-hexylisocyanate)
52-85-7	Famphur
528-29-0	Dinitrobenzene, all isomers
52888-80-9	Prosulfocarb
53-19-0	o,p'-DDD (2,4'-DDD)
53-96-3	2-Acetylaminofluorene
531-82-8	N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide
532-27-4	a-Chloroacetophenone
534-52-1	4,6-Dinitro-o-cresol
54-11-5	Nicotine
540-59-0	1,2-Dichloroethylene
540-73-8	1,2-Dimethylhydrazine
540-84-1	2,2,4-Trimethylpentane
540-88-5	tert-Butyl acetate
541-85-5	Ethyl amyl ketone
542-75-6	1,3-Dichloropropene
542-88-1	Dichloromethyl ether
542-92-7	Cyclopentadiene
55-18-5	N-Nitrosodiethylamine

Table B.15. Regulated Non-detected Organic Compounds for Evaluation of Industry Uses Unrelated to Hanford Activities (416 Compounds). (Page 6 of 9)

CAS#	Constituent
55-38-9	Fenthion
55-63-0	Nitroglycerin
552-30-7	Trimellitic anhydride
55285-14-8	Carbosulfan
55406-53-6	3-Iodo-2-propynyl n-butylcarbamate
555-84-9	1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone
556-52-5	Glycidol
55720-99-5	Chlorinated diphenyl oxide
55738-54-0	trans-2((dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl)vinyl-1,3,4-oxadiazole
56-38-2	Parathion
56-49-5	3-Methylcholanthrene
563-12-2	Ethion
57-24-9	Strychnine
57-47-6	Physostigmine
57-57-8	B-Propiolactone
57-64-7	Physostigmine salicylate
583-60-8	o-Methylcyclohexanone
584-84-9	2,4-Toluene diisocyanate
59-87-0	Nitrofurazone
592-62-1	Methyl azoxymethyl acetate
593-60-2	Vinyl bromide
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)
594-42-3	Perchloromethyl mercaptan
594-72-9	1,1-Dichloro-1-nitroethane
5952-26-1	Diethylene glycol, dicarbamate
59669-26-0	Thiodicarb
60-11-7	p-Dimethylaminoazobenzene
600-25-9	1-Chloro-1-nitropropane
602-87-9	5-Nitroacenaphthene
603-34-9	Triphenyl amine
606-20-2	2,6-Dinitrotoluene
608-93-5	Pentachlorobenzene
61-82-5	Amitrole
613-35-4	N,N-Diacetylbenzidine
615-53-2	N-Nitroso-N-methylurethane
62-44-2	Phenacetin
62-53-3	Aniline
62-73-7	Dichlorvas
62-74-8	Fluoroacetic acid, sodium salt (Fratol)
626-17-5	m-Phthalodinitrile
626-38-0	sec-Amyl acetate
628-63-7	n-Amyl acetate
628-96-6	Ethylene glycol dinitrate
63-25-2	Carbaryl
63-92-3	Phenoxybenzamine hydrochloride
630-20-6	1,1,1,2-Tetrachloroethane
636-21-5	o-Toluidine hydrochloride
638-21-1	Phenylphosphine

Table B.15. Regulated Non-detected Organic Compounds for Evaluation of Industry Uses
Unrelated to Hanford Activities (416 Compounds). (Page 7 of 9)

CAS#	Constituent
64-00-6	m-Cumenyl methylcarbamate
64-67-5	Diethyl sulfate
64091-91-4	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone
6423-43-4	Propylene glycol dinitrate
644-64-4	Dimetilan
66-27-3	Methyl methanesulfonate
67-45-8	Furazolidone
68-11-1	Thioglycolic acid
68-12-2	Dimethylformamide
680-31-9	Hexamethylphosphoramide
681-84-5	Methyl silicate
684-16-2	Hexafluoroacetone
684-93-5	N-Nitroso-N-methylurea
68476-85-7	Liquified petroleum gas
6923-22-4	Monocrotophos
696-28-6	Dichlorophenylarsine
74-88-4	Iodomethane
74-89-5	Methylamine
74-93-1	Thiomethanol
74-95-3	Dibromomethane
74-96-4	Ethyl bromide
74-97-5	Bromochloromethane
75-04-7	Ethylamine
75-08-1	Ethyl mercaptan
75-25-2	Tribromomethane
75-27-4	Bromodichloromethane
75-31-0	Isopropylamine
75-47-8	Iodoform
75-56-9	Propylene oxide
75-61-6	Difluorodibromomethane
75-63-8	Trifluorobromomethane
7572-29-4	Dichloroacetylene
759-73-9	N-Nitroso-N-ethylurea
759-94-4	EPTC
76-01-7	Pentachloroethane
76-03-9	Trichloroacetic acid
76-06-2	Chloropicrin
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane
76-15-3	Chloropentafluoroethane
76-22-2	Camphor, synthetic
764-41-0	1,4-Dichloro-2-butene
765-34-4	Glycidylaldehyde
768-52-5	N-Isopropylaniline
77-73-6	Dicyclopentadiene
77-78-1	Dimethyl sulfate
7782-41-4	Fluorine
7786-34-7	Mevinphos
78-10-4	Ethyl silicate

Table B.15. Regulated Non-detected Organic Compounds for Evaluation of Industry Uses Unrelated to Hanford Activities (416 Compounds). (Page 8 of 9)

CAS#	Constituent
78-30-8	Triorthocresyl phosphate
78-34-2	Dioxathion
78-59-1	Isophorone
7803-51-2	Phosphine
789-02-6	o,p'-DDT (2,4'-DDT)
79-04-9	Chloroacetyl chloride
79-06-1	Acrylamide
79-11-8	Chloroacetic acid
79-24-3	Nitroethane
79-27-6	Acetylene tetrabromide
79-41-4	Methacrylic acid
79-44-7	Dimethylcarbamoyl chloride
79-46-9	2-Nitropropane
794-93-4	Panfuran S (dihydroxymethylfuratrizine)
80-62-6	Methyl methacrylate
8001-58-9	Creosote
8003-34-7	Pyrethrum
8006-64-2	Turpentine
8022-00-2	Methyl demeton
8052-42-4	Asphalt (petroleum) fumes
8065-48-3	Demeton
81-81-2	Warfarin (>0.3%)
81-81-2a	Warfarin (<0.3%)
82-68-8	Pentachloronitrobenzene (PCNB)
822-06-0	Hexamethylene diisocyanate
83-26-1	Pindone
83-79-4	Rotenone
838-88-0	4,4'-Methylenebis(2-methylaniline)
85-00-7	Diquat
85-44-9	Phthalic anhydride
86-30-6	N-Nitrosodiphenylamine
86-50-0	Azinphos-methyl
86-88-4	alpha-Naphthylthiourea
87-65-0	2,6-Dichlorophenol
88-72-2	Nitrotoluene
88-74-4	2-Nitroaniline
88-89-1	Picric acid
90-04-0	o-Anisidine
91-22-5	Quinoline
91-58-7	2-Chloronaphthalene
91-59-8	2-Naphthylamine
91-80-5	Methapyrilene
91-94-1	3,3'-Dichlorobenzidine
92-67-1	4-Aminobiphenyl
92-84-2	Phenothiazine
92-87-5	Benzidine
92-93-3	4-Nitrobiphenyl
924-16-3	N-Nitrosodi-n-butylamine
930-55-2	N-Nitrosopyrrolidine

Table B.15. Regulated Non-detected Organic Compounds for Evaluation of Industry Uses
Unrelated to Hanford Activities (416 Compounds). (Page 9 of 9)

CAS#	Constituent
94-36-0	Benzoyl Peroxide
94-59-7	Safrole
944-22-9	Fonofos
95-13-6	Indene
95-49-8	o-Chlorotoluene
95-53-4	o-Toluidine (2-methylaniline)
95-54-5	1,2-Phenylenediamine
95-80-7	Toluene-2,4-diamine
95-94-3	1,2,4,5-Tetrachlorobenzene
96-09-3	Styrene oxide
96-18-4	1,2,3-Trichloropropane
96-33-3	Methyl acrylate
96-45-7	Ethylenethiourea
97-56-3	o-Aminoazotoluene
97-63-2	Ethyl methacrylate
97-77-8	Disulfiram
98-00-1	Furfuryl alcohol
98-01-1	Furfural
98-07-7	Benzotrichloride
98-51-1	p-tert-Butyltoluene
98-82-2	Cumene
98-87-3	Benzal chloride
99-55-8	5-Nitro-o-toluidine
999-61-1	2-Hydroxypropyl acrylate

CAS# = chemical abstract service number.

Table B.16. Regulated Non-detected Compounds Removed Based on Industry Uses
Unrelated to Hanford (207 Compounds). (Page 1 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dyestuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
100-01-6	4-Nitroaniline	X								
100-44-7	Benzyl chloride	X								
100-75-4	N-Nitrosopiperidine	X								
101-14-4	4,4'-Methylenebis(2-chloroaniline)	X								
101-27-9	Barban	X	X							
101-77-9	4,4-Methylene dianiline	X								X
101-80-4	4,4'-Diaminodiphenyl ether	X			X					
105-60-2	Caprolactam, vapor	X						X		
105-60-2a	Caprolactam, dust	X						X		
10595-95-6	N-Nitrosomethylethylamine	X								
10605-21-7	Carbendazim	X	X							
106-47-8	4-Chloroaniline	X								
106-49-0	p-Toluidine	X								
106-51-4	p-Benzoquinone	X								
106-89-8	Epichlorohydrin	X					X			
107-19-7	Propargyl alcohol	X								
107-20-0	Chloroacetaldehyde	X								
107-30-2	Chloromethyl methyl ether	X								
107-41-5	Hexylene glycol	X						X		
107-49-3	Tetraethyl pyrophosphate	X								
108-31-6	Maleic anhydride (2,5-Furandione)	X								
108-44-1	m-Toluidine	X								X
108-46-3	Resorcinol (1,3-Benzenediol)	X								
108-98-5	Thiophenol	X								
109-87-5	Methylal	X						X		
110-80-5	2-Ethoxyethanol	X								
111-30-8	Glutaraldehyde	X				X				
1114-71-2	Pebulate	X	X							
1120-71-4	1,3-Propane sultone	X								
114-26-1	Propoxur	X	X							
115-29-7	Endosulfan	X	X							

Table B.16. Regulated Non-detected Compounds Removed Based on Industry Uses Unrelated to Hanford (207 Compounds). (Page 2 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dyestuff	Pharmaceutical	Solvent	Consumer	Group/ Mixture	Polymer
115-90-2	Fensulfothion	X	X							
117-79-3	2-Aminoanthraquinone				X					
118-96-7	2,4,6-Trinitrotoluene	X		X						
119-90-4	3,3'-Dimethoxybenzidine	X			X					
119-93-7	3,3'-Dimethylbenzidine.	X			X					
120-58-1	Isosafrole	X						X		
120-80-9	Catechol	X				X				
121-14-2	2,4-Dinitrotoluene	X								
121-75-5	Malathion	X	X							
121-82-4	Cyclonite	X		X						
122-42-9	Propham	X	X							
126-72-7	Tris(2,3-dibromopropyl) phosphate	X						X		
126-85-2	Nitrogen mustard N-oxide	X		X						
126-99-8	Chloroprene	X								
1300-73-8	Xylidine	X		X	X					
13121-70-5	Cyhexatin	X	X							
13552-44-8	4,4-Methylenedianiline dihydrochloride	X								X
136-78-7	Sesone	X	X							
137-26-8	Thiram	X				X				
137-30-4	Ziram	X	X							
13838-16-9	Enflurane	X				X				
1395-21-7	Subtilisins								X	
139-91-3	5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone)	X				X				
140-57-8	Aramite	X	X							
141-66-2	Dicrotophos	X	X							
143-50-0	Kepon	X	X							
14484-64-1	Ferban	X	X							
1477-55-0	m-xylene-a,a'-diamine	X								X
151-56-4	Ethyleneimine	X								
151-67-7	Halothane	X						X		

Table B.16. Regulated Non-detected Compounds Removed Based on Industry Uses
Unrelated to Hanford (207 Compounds). (Page 3 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dyestuff	Pharmaceutical	Solvent	Consumer	Group/ Mixture	Polymer
1563-38-8	Carbofuran phenol	X	X							
1563-66-2	Carbofuran	X	X							
1615-80-1	N,N'-Diethylhydrazine	X								
1646-88-4	Aldicarb sulfone	X								
16752-77-5	Methomyl	X	X							
1694-09-3	Benzyl violet 4b	X			X					
17804-35-2	Benomyl	X	X							
1888-71-7	Hexachloropropylene	X								
1912-24-9	Atrazine	X	X							
1929-77-7	Vernolate	X	X							
1929-82-4	Nitrapyrin	X	X							
2008-41-5	Butylate	X	X							
2032-65-7	Methiocarb	X	X							
2104-64-5	EPN	X	X							
21087-64-9	Metribuzin	X	X							
2179-59-1	Allyl propyl disulfide	X						X		
2212-67-1	Molinate	X	X							
22224-92-6	Fenamiphos	X	X							
2303-17-5	Triallate	X	X							
23135-22-0	Oxamy	X	X							
23564-05-8	Thiophanate-methyl	X	X							
23950-58-5	Pronamide	X	X							
2465-27-2	Auramine (technical grade)	X			X					
2631-37-0	Promecarb	X	X							
2646-17-5	Oil orange SS	X			X					
28434-86-8	3,3'-Dichloro-4,4'-diaminodiphenyl ether	X			X					
29191-52-4	Anisidine (o-,p- isomers)	X			X					
2971-90-6	Clopidol	X	X							
298-00-0	Methyl parathion	X	X							
298-02-2	Phorate	X	X							
298-04-4	Disulfoton	X	X							

Table B.16. Regulated Non-detected Compounds Removed Based on Industry Uses Unrelated to Hanford (207 Compounds). (Page 4 of 7)

CASH	Constituent	Independent Review	Pesticide	Military	Dyestuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
299-84-3	Ronnel	X	X							
299-86-5	Cruformate	X	X							
300-76-5	Naled	X	X							
302-70-5	Nitrogen mustard N-oxide hydrochloride	X		X						
30558-43-1	A2213	X	X							
315-18-4	Mexacarbate	X	X							
333-41-5	Diazinon	X	X							
3383-96-8	Temephos	X	X							
3424-82-6	o,p'-DDE (2,4'-DDE)	X	X							
35400-43-2	Sulprofos	X	X							
3547-04-4	DDE (p,p'-Dichlorodiphenyldichloroethylene)	X	X							
3689-24-5	Tetraethyldithiopyrophosphate (TEDP)	X	X							
3761-53-3	Ponceau MX	X			X					
4685-14-7	Paraquat	X	X							
479-45-8	Tetryl	X		X						
509-14-8	Tetranitromethane	X		X						
51-79-6	Ethyl carbamate (urethane)	X								
528-29-0	Dinitrobenzene, all isomers								X	
52-85-7	Famphur	X				X				
53-19-0	o,p'-DDD (2,4'-DDD)	X	X							
532-27-4	a-Chloroacetophenone	X		X						
534-52-1	4,6-Dinitro-o-cresol	X								
53-96-3	2-Acetylaminofluorene	X								
540-73-8	1,2-Dimethylhydrazine	X								
54-11-5	Nicotine	X				X				
542-88-1	Dichloromethyl ether	X								
55-18-5	N-Nitrosodiethylamine	X								
55-38-9	Fenthion	X	X							

Table B.16. Regulated Non-detected Compounds Removed Based on Industry Uses Unrelated to Hanford (207 Compounds). (Page 5 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dyestuff	Pharmaceutical	Solvent	Consumer	Group/ Mixture	Polymer
555-84-9	1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone	X	X							
55-63-0	Nitroglycerin	X		X					X	
55720-99-5	Chlorinated diphenyl oxide									
563-12-2	Ethion	X	X							
56-38-2	Parathion	X	X							
57-24-9	Strychnine	X	X							
57-47-6	Physostigmine	X				X				
57-64-7	Physostigmine salicylate	X				X				
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)								X	
59669-26-0	Thiodicarb	X	X							
59-87-0	Nitrofurazone	X				X				
60-11-7	p-Dimethylaminoazobenzene	X								
606-20-2	2,6-Dinitrotoluene	X			X					
608-93-5	Pentachlorobenzene	X								
615-53-2	N-Nitroso-N-methylurethane	X								
61-82-5	Amitrole	X	X							
62-44-2	Phenacetin	X	X							
62-73-7	Dichlorvas	X	X							
62-74-8	Fluoroacetic acid, sodium salt (Fratol)	X	X							
63-25-2	Carbaryl	X	X							
636-21-5	o-Toluidine hydrochloride	X			X					
6423-43-4	Propylene glycol dinitrate	X		X						
66-27-3	Methyl methanesulfonate	X								
67-45-8	Furazolidone	X				X				
680-31-9	Hexamethylphosphoramide	X	X							
68476-85-7	Liquified petroleum gas								X	
684-93-5	N-Nitroso-N-methylurea	X								
6923-22-4	Monocrotophos	X	X							
696-28-6	Dichlorophenylarsine	X								

Table B.16. Regulated Non-detected Compounds Removed Based on Industry Uses Unrelated to Hanford (207 Compounds). (Page 6 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dyestuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
74-88-4	Iodomethane	X								
74-93-1	Thiomethanol	X								
74-95-3	Dibromomethane	X								
75-47-8	Iodoform	X				X				
759-73-9	N-Nitroso-N-ethylurea	X								
759-94-4	EPTC	X	X							
76-06-2	Chloropicrin	X		X						
76-22-2	Camphor, synthetic	X						X		
764-41-0	1,4-Dichloro-2-butene	X								
765-34-4	Glycidylaldehyde	X								
77-78-1	Dimethyl sulfate	X								
7782-41-4	Fluorine	X								
7786-34-7	Mevinphos	X	X							
7803-51-2	Phosphine	X				X				
78-30-8	Triorthocresyl phosphate	X	X							
78-34-2	Dioxathion	X	X							
789-02-6	o,p'-DDT (2,4'-DDT)	X	X							
79-06-1	Acrylamide	X								
79-44-7	Dimethylcarbamoyl chloride	X								
79-46-9	2-Nitropropane	X								
8001-58-9	Creosote	X							X	
8006-64-2	Turpentine									
8022-00-2	Methyl demeton	X	X							
8052-42-4	Asphalt (petroleum) fumes								X	
80-62-6	Methyl methacrylate	X								
8065-48-3	Demeton	X	X							
81-81-2	Warfarin (>0.3%)	X	X							
81-81-2a	Warfarin (<0.3%)	X	X							
83-26-1	Pindone	X	X							
83-79-4	Rotenone	X	X							
838-88-0	4,4'-Methylenecis(2-methylaniline)	X								X
85-00-7	Diquat	X	X							

Table B.16. Regulated Non-detected Compounds Removed Based on Industry Uses
Unrelated to Hanford (207 Compounds). (Page 7 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dyestuff	Pharmaceutical	Solvent	Consumer	Group/ Mixture	Polymer
85-44-9	Phthalic anhydride	X								
86-50-0	Azinphos-methyl	X	X							
86-88-4	alpha-Naphthylthiourea	X								
87-65-0	2,6-Dichlorophenol	X								
90-04-0	o-Anisidine	X			X					
91-80-5	Methapyrilene	X				X				
91-94-1	3,3 -Dichlorobenzidine	X			X					
924-16-3	N-Nitrosodi-n-butylamine	X								
92-67-1	4-Aminobiphenyl	X								
92-84-2	Phenothiazine	X	X							
92-87-5	Benzidine	X			X					
930-55-2	N-Nitrosopyrrolidine	X								
944-22-9	Fonofos	X	X							
94-59-7	Safrole	X				X				
95-53-4	o-Toluidine (2-methylaniline)	X								
95-54-5	1,2-Phenylenediamine	X						X		
95-80-7	Toluene-2,4-diamine	X								
95-94-3	1,2,4,5-Tetrachlorobenzene	X								
96-18-4	1,2,3-Trichloropropane	X								
96-45-7	Ethylenethiourea	X								
97-63-2	Ethyl methacrylate	X								
97-77-8	Disulfiram					X				
98-00-1	Furfuryl alcohol	X						X		
98-07-7	Benzotrichloride	X								
98-87-3	Benzal chloride	X								
99-55-8	5-Nitro-o-toluidine	X								

CAS# = chemical abstract service number.

Table B.17. Regulated Non-detected Organic Compound Selected as Indicator
Compound for Analytes, Classified as a Dioxin or Furan (1 Compound).

CAS#	Constituent
1746-01-6	TCDD (Dioxin/Furan Indicator)

CAS# = chemical abstract service number.

Table B.18. Regulated Non-detected Organic Compounds, Used by Industries that are Potentially Unrelated to Hanford, and Dioxin/Furan Indicator Compound (208 Compounds). (Page 1 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dye-stuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
100-01-6	4-Nitroaniline	X								
100-44-7	Benzyl chloride	X								
100-75-4	N-Nitrosopiperidine	X								
101-14-4	4,4'-Methylenebis(2-chloroaniline)	X								
101-27-9	Barban	X	X							
101-77-9	4,4-Methylene dianiline	X								X
101-80-4	4,4'-Diaminodiphenyl ether	X			X					
105-60-2	Caprolactam, vapor	X						X		
105-60-2a	Caprolactam, dust	X						X		
10595-95-6	N-Nitrosomethylethylamine	X								
106-47-8	4-Chloroaniline	X								
106-49-0	p-Toluidine	X								
106-51-4	p-Benzoquinone	X								
106-89-8	Epichlorohydrin	X					X			
10605-21-7	Carbendazim	X	X							
107-19-7	Propargyl alcohol	X								
107-20-0	Chloroacetaldehyde	X								
107-30-2	Chloromethyl methyl ether	X								
107-41-5	Hexylene glycol	X						X		
107-49-3	Tetraethyl pyrophosphate	X								
108-31-6	Maleic anhydride (2,5-Furandione)	X								
108-44-1	m-Toluidine	X								X
108-46-3	Resorcinol (1,3-Benzenediol)	X								
108-98-5	Thiophenol	X								
109-87-5	Methylal	X						X		
110-80-5	2-Ethoxyethanol	X								
111-30-8	Glutaraldehyde	X				X				
1114-71-2	Pebulate	X	X							
1120-71-4	1,3-Propane sultone	X								
114-26-1	Propoxur	X	X							
115-29-7	Endosulfan	X	X							
115-90-2	Fensulfothion	X	X							

Table B.18. Regulated Non-detected Organic Compounds, Used by Industries that are Potentially Unrelated to Hanford, and Dioxin/Furan Indicator Compound (208 Compounds). (Page 2 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dye-stuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
117-79-3	2-Aminoanthraquinone				X					
118-96-7	2,4,6-Trinitrotoluene	X		X						
119-90-4	3,3'-Dimethoxybenzidine	X			X					
119-93-7	3,3'-Dimethylbenzidine	X			X					
120-58-1	Isosafrole	X						X		
120-80-9	Catechol	X				X				
121-14-2	2,4-Dinitrotoluene	X								
121-75-5	Malathion	X	X							
121-82-4	Cyclonite	X		X						
122-42-9	Propham	X	X							
126-72-7	Tris(2,3-dibromopropyl) phosphate	X						X		
126-85-2	Nitrogen mustard N-oxide	X		X						
126-99-8	Chloroprene	X								
1300-73-8	Xylidine	X		X	X					
13121-70-5	Cyhexatin	X	X							
13552-44-8	4,4-Methylenedianiline dihydrochloride	X								X
136-78-7	Sesone	X	X							
137-26-8	Thiram	X				X				
137-30-4	Ziram	X	X							
13838-16-9	Enflurane	X				X				
139-91-3	5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone)	X				X				
1395-21-7	Subtilisins								X	
140-57-8	Aramite	X	X							
141-66-2	Dicrotophos	X	X							
143-50-0	Kepone	X	X							
14484-64-1	Ferbam	X	X							
1477-55-0	m-Xylene-a,a'-diamine	X								X
151-56-4	Ethyleneimine	X								
151-67-7	Halothane	X						X		
1563-38-8	Carbofuran phenol	X	X							

Table B.18. Regulated Non-detected Organic Compounds, Used by Industries that are Potentially Unrelated to Hanford, and Dioxin/Furan Indicator Compound (208 Compounds). (Page 3 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dye-stuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
1563-66-2	Carbofuran	X	X							
1615-80-1	N,N'-Diethylhydrazine	X								
1646-88-4	Aldicarb sulfone	X								
16752-77-5	Methomyl	X	X							
1694-09-3	Benzyl violet 4b	X			X					
1746-01-6	TCDD (Dioxin/Furan Indicator)									
17804-35-2	Benomyl	X	X							
1888-71-7	Hexachloropropylene	X								
1912-24-9	Atrazine	X	X							
1929-77-7	Vernolate	X	X							
1929-82-4	Nitrapyrin	X	X							
2008-41-5	Butylate	X	X							
2032-65-7	Methiocarb	X	X							
2104-64-5	EPN	X	X							
21087-64-9	Metribuzin	X	X							
2179-59-1	Allyl propyl disulfide	X						X		
2212-67-1	Molinate	X	X							
22224-92-6	Fenamiphos	X	X							
2303-17-5	Triallate	X	X							
23135-22-0	Oxamy	X	X							
23564-05-8	Thiophanate-methyl	X	X							
23950-58-5	Pronamide	X	X							
2465-27-2	Auramine (technical grade)	X			X					
2631-37-0	Promecarb	X	X							
2646-17-5	Oil orange SS	X			X					
28434-86-8	3,3'-Dichloro-4,4'-diaminodiphenyl ether	X			X					
29191-52-4	Anisidine (o-,p- isomers)	X			X					
2971-90-6	Clopidol	X	X							
298-00-0	Methyl parathion	X	X							
298-02-2	Phorate	X	X							
298-04-4	Disulfoton	X	X							

Table B.18. Regulated Non-detected Organic Compounds, Used by Industries that are Potentially Unrelated to Hanford, and Dioxin/Furan Indicator Compound (208 Compounds). (Page 4 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dye-stuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
299-84-3	Ronnel	X	X							
299-86-5	Crufomate	X	X							
300-76-5	Naled	X	X							
302-70-5	Nitrogen mustard N-oxide hydrochloride	X		X						
30558-43-1	A2213	X	X							
315-18-4	Mexacarbate	X	X							
333-41-5	Diazinon	X	X							
3383-96-8	Temephos	X	X							
3424-82-6	o,p'-DDE (2,4'-DDE)	X	X							
35400-43-2	Sulprofos	X	X							
3547-04-4	DDE (p,p'-Dichlorodiphenylidichloroethylene)	X	X							
3689-24-5	Tetraethyldithiopyrophosphate (TEDP)	X	X							
3761-53-3	Ponceau MX	X			X					
4685-14-7	Paraquat	X	X							
479-45-8	Tetryl	X		X						
509-14-8	Tetranitromethane	X		X						
51-79-6	Ethyl carbamate (urethane)	X								
52-85-7	Famphur	X				X				
528-29-0	Dinitrobenzene, all isomers								X	
53-19-0	o,p'-DDD (2,4'-DDD)	X	X							
53-96-3	2-Acetylamino fluorene	X								
532-27-4	a-Chloroacetophenone	X		X						
534-52-1	4,6-Dinitro-o-cresol	X								
54-11-5	Nicotine	X				X				
540-73-8	1,2-Dimethylhydrazine	X								
542-88-1	Dichloromethyl ether	X								
55-18-5	N-Nitrosodiethylamine	X								
55-38-9	Fenthion	X	X							
55-63-0	Nitroglycerin	X		X						

Table B.18. Regulated Non-detected Organic Compounds, Used by Industries that are Potentially Unrelated to Hanford, and Dioxin/Furan Indicator Compound (208 Compounds). (Page 5 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dye-stuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
555-84-9	1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone	X	X							
55720-99-5	Chlorinated diphenyl oxide								X	
56-38-2	Parathion	X	X							
563-12-2	Ethion	X	X							
57-24-9	Strychnine	X	X							
57-47-6	Physostigmine	X				X				
57-64-7	Physostigmine salicylate	X				X				
59-87-0	Nitrofurazone	X				X				
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)								X	
59669-26-0	Thiodicarb	X	X							
60-11-7	p-Dimethylaminoazobenzene	X								
606-20-2	2,6-Dinitrotoluene	X			X					
608-93-5	Pentachlorobenzene	X								
61-82-5	Amitrole	X	X							
615-53-2	N-Nitroso-N-methylurethane	X								
62-44-2	Phenacetin	X	X							
62-73-7	Dichlorvas	X	X							
62-74-8	Fluoroacetic acid, sodium salt (Fratol)	X	X							
63-25-2	Carbaryl	X	X							
636-21-5	o-Toluidine hydrochloride	X			X					
6423-43-4	Propylene glycol dinitrate	X		X						
66-27-3	Methyl methanesulfonate	X								
67-45-8	Furazolidone	X				X				
680-31-9	Hexamethylphosphoramide	X	X							
684-93-5	N-Nitroso-N-methylurea	X								
68476-85-7	Liquified petroleum gas								X	
6923-22-4	Monocrotophos	X	X							
696-28-6	Dichlorophenylarsine	X								
74-88-4	Iodomethane	X								
74-93-1	Thiomethanol	X								

Table B.18. Regulated Non-detected Organic Compounds, Used by Industries that are Potentially Unrelated to Hanford, and Dioxin/Furan Indicator Compound (208 Compounds). (Page 6 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dye-stuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
74-95-3	Dibromomethane	X								
75-47-8	Iodoform	X				X				
759-73-9	N-Nitroso-N-ethylurea	X								
759-94-4	EPTC	X	X							
76-06-2	Chloropicrin	X		X						
76-22-2	Camphor, synthetic	X						X		
764-41-0	1,4-Dichloro-2-butene	X								
765-34-4	Glycidylaldehyde	X								
77-78-1	Dimethyl sulfate	X								
7782-41-4	Fluorine	X								
7786-34-7	Mevinphos	X	X							
78-30-8	Triorthocresyl phosphate	X	X							
78-34-2	Dioxathion	X	X							
7803-51-2	Phosphine	X				X				
789-02-6	o,p'-DDT (2,4'-DDT)	X	X							
79-06-1	Acrylamide	X								
79-44-7	Dimethylcarbamoyl chloride	X								
79-46-9	2-Nitropropane	X								
80-62-6	Methyl methacrylate	X								
8001-58-9	Creosote	X								
8006-64-2	Turpentine								X	
8022-00-2	Methyl demeton	X	X							
8052-42-4	Asphalt (petroleum) fumes								X	
8065-48-3	Demeton	X	X							
81-81-2	Warfarin (>0.3%)	X	X							
81-81-2a	Warfarin (<0.3%)	X	X							
83-26-1	Pindone	X	X							
83-79-4	Rotenone	X	X							
838-88-0	4,4'-Methylenebis(2-methylaniline)	X								X
85-00-7	Diquat	X	X							
85-44-9	Phthalic anhydride	X								
86-50-0	Azinphos-methyl	X	X							

Table B.18. Regulated Non-detected Organic Compounds, Used by Industries that are Potentially Unrelated to Hanford, and Dioxin/Furan Indicator Compound (208 Compounds). (Page 7 of 7)

CAS#	Constituent	Independent Review	Pesticide	Military	Dye-stuff	Pharmaceutical	Solvent	Consumer	Group/Mixture	Polymer
86-88-4	alpha-Naphthylthiourea	X								
87-65-0	2,6-Dichlorophenol	X								
90-04-0	o-Anisidine	X			X					
91-80-5	Methapyrilene	X				X				
91-94-1	3,3 -Dichlorobenzidine	X			X					
92-67-1	4-Aminobiphenyl	X								
92-84-2	Phenothiazine	X	X							
92-87-5	Benzidine	X			X					
924-16-3	N-Nitrosodi-n-butylamine	X								
930-55-2	N-Nitrosopyrrolidine	X								
94-59-7	Safrole	X				X				
944-22-9	Fonofos	X	X							
95-53-4	o-Toluidine (2-methylaniline)	X								
95-54-5	1,2-Phenylenediamine	X						X		
95-80-7	Toluene-2,4-diamine	X								
95-94-3	1,2,4,5-Tetrachlorobenzene	X								
96-18-4	1,2,3-Trichloropropane	X								
96-45-7	Ethylenethiourea	X								
97-63-2	Ethyl methacrylate	X								
97-77-8	Disulfiram					X				
98-00-1	Furfuryl alcohol	X						X		
98-07-7	Benzotrichloride	X								
98-87-3	Benzal chloride	X								
99-55-8	5-Nitro-o-toluidine	X								

CAS# = chemical abstract service number.

Table B.19. Regulated Non-detected Organic Compounds Likely
Used at Hanford (208 Compounds). (Page 1 of 5)

CAS#	Constituent
100-02-7	4-Nitrophenol
100-21-0	Phthalic acid
100-25-4	1,4-Dinitrobenzene
100-37-8	Diethylaminoethanol
100-61-8	N-Methylbenzenamine
100-63-0	Phenylhydrazine
100-74-3	N-Ethylmorpholine
101-55-3	4-Bromophenylphenyl ether
101-68-8	Methylene bis(phenyl isocyanate)
101-90-6	Diglycidyl resorcinol ether
102-81-8	2-N-Dibutylaminoethanol
105-46-4	sec-Butyl acetate
105-67-9	2,4-Dimethylphenol
106-44-5	4-Methylphenol
106-50-3	p-Phenylenediamine
106-87-6	Vinyl cyclohexene dioxide
106-92-3	Allyl glycidyl ether
107-07-3	Ethylene chlorohydrin
107-15-3	Ethylene diamine
107-98-2	Propylene glycol monomethyl ether
108-11-2	Methyl isobutyl carbinol
108-18-9	Diisopropylamine
108-21-4	Isopropyl acetate
108-24-7	Acetic anhydride
108-43-0	Chlorophenols
108-60-1	Bis(2-Chloroisopropyl) ether
108-83-8	Diisobutyl ketone
108-84-9	sec-Hexyl acetate
108-91-8	Cyclohexylamine
109-59-1	Isopropoxyethanol
109-60-4	n-Propyl acetate
109-73-9	n-Butylamine
109-79-5	n-Butyl mercaptan
109-86-4	2-Methoxyethanol
109-89-7	Diethylamine
109-94-4	Ethyl formate
110-19-0	Isobutyl acetate
110-49-6	2-Methoxyethyl acetate
110-75-8	2-Chloroethyl vinyl ether
111-15-9	2-Ethoxyethyl acetate
111-40-0	Diethylene triamine
111-42-2	Diethanolamine
111-44-4	Bis(2-chloroethyl) ether
111-91-1	Bis(2-Chloroethoxy)methane
1129-41-5	Metolcarb (3-methylcholanthrene)
1134-23-2	Cycloate
115-86-6	Triphenyl phosphate
118-52-5	1,3-Dichloro-5,5-Dimethyl hydantoin
119-38-0	Isolan

Table B.19. Regulated Non-detected Organic Compounds Likely
Used at Hanford (208 Compounds). (Page 2 of 5)

CAS#	Constituent
120-83-2	2,4-Dichlorophenol
121-44-8	Triethylamine
121-45-9	Trimethyl phosphite
121-69-7	Dimethylaniline
122-60-1	Phenyl glycidyl ether
122-66-7	1,2-Diphenylhydrazine
123-31-9	Hydroquinone
123-42-2	Diacetone alcohol
124-40-3	Dimethylamine
124-48-1	Dibromochloromethane
129-15-7	2-Methyl-1-nitroanthraquinone
131-11-3	Dimethyl phthalate
132-64-9	Dibenzofuran
1321-64-8	Pentachloronaphthalene
1321-65-9	Trichloronaphthalene
1321-74-0	Divinyl benzene
1335-87-1	Hexachloronaphthalene
1335-88-2	Tetrachloronaphthalene
1338-23-4	Methyl ethyl ketone peroxide
135-20-6	Cupferron
135-88-6	N-Phenyl-2-naphthylamine
137-05-3	Methyl-2-cyanoacrylate
138-22-7	n-Butyl lactate
139-65-1	4,4'-Thiodianiline
140-88-5	Ethylacrylate
141-32-2	Butylacrylate
141-43-5	Ethanolamine
142-64-3	Piperazine dihydrochloride
148-01-6	Dinitolamide
150-76-5	4-Methoxyphenol
156-60-5	1,2-trans-Dichloroethene
16219-75-3	Ethylidene norbornene
1634-04-4	Methyl tert-butyl ether
17702-57-7	Formparanate
189-55-9	Dibenzo[a,i]pyrene
189-64-0	Dibenzo[a,h]pyrene
192-65-4	Dibenzo[a,e]pyrene
2039-87-4	o-Chlorostyrene
205-82-3	Benzo[j]fluoranthene
2238-07-5	Diglycidyl ether
226-36-8	Dibenz[a,h]acridine
22781-23-3	Bendiocarb
22961-82-6	Bendiocarb phenol
23422-53-9	Formetanate hydrochloride
2426-08-6	n-Butyl glycidyl ether
25013-15-4	Vinyl toluene
2551-13-7	Trimethyl benzene
25639-42-3	Methylcyclohexanol
26140-60-3	Terphenyls

Table B.19. Regulated Non-detected Organic Compounds Likely
Used at Hanford (208 Compounds). (Page 3 of 5)

CAS#	Constituent
26419-73-8	Tirpate
26952-21-6	Iso-octyl alcohol
2698-41-1	o-Chlorobenzylidene malonitrile
27154-33-2	Trichlorofluoroethane
2921-88-2	Chlorpyrifos
3068-88-0	B-Butyrolactone
314-40-9	Bromacil
330-54-1	Diuron
3333-52-6	Tetramethyl succinonitrile
334-88-3	Diazomethane
34590-94-8	Dipropylene glycol methyl ether
3825-26-1	Ammonium perfluorooctanoate
4016-14-2	Isopropyl glycidyl ether (IGE)
4098-71-9	Isophorone diisocyanate
420-04-2	Cyanamide
463-51-4	Ketene
504-29-0	2-Aminopyridine
51-28-5	2,4-Dinitrophenol
5124-30-1	Methylene-bis-(4-cyclo-hexylisocyanate)
52888-80-9	Prosulfocarb
531-82-8	N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide
540-59-0	1,2-Dichloroethylene
540-84-1	2,2,4-Trimethylpentane
540-88-5	tert-Butyl acetate
541-85-5	Ethyl amyl ketone
542-75-6	1,3-Dichloropropene
542-92-7	Cyclopentadiene
552-30-7	Trimellitic anhydride
55285-14-8	Carbosulfan
55406-53-6	3-Iodo-2-propynyl n-butylcarbamate
556-52-5	Glycidol
55738-54-0	trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl-1,3,4-oxadiazole
56-49-5	3-Methylcholanthrene
57-57-8	B-Propiolactone
583-60-8	o-Methylcyclohexanone
584-84-9	2,4-Toluene diisocyanate
592-62-1	Methyl azoxymethyl acetate
593-60-2	Vinyl bromide
594-42-3	Perchloromethyl mercaptan
594-72-9	1,1-Dichloro-1-nitroethane
5952-26-1	Diethylene glycol, dicarbamate
600-25-9	1-Chloro-1-nitropropane
602-87-9	5-Nitroacenaphthene
603-34-9	Triphenyl amine
613-35-4	N,N-Diacetylbenzidine
62-53-3	Aniline
626-17-5	m-Phthalodinitrile
626-38-0	sec-Amyl acetate
628-63-7	n-Amyl acetate

Table B.19. Regulated Non-detected Organic Compounds Likely
Used at Hanford (208 Compounds). (Page 4 of 5)

CAS#	Constituent
628-96-6	Ethylene glycol dinitrate
63-92-3	Phenoxybenzamine hydrochloride
630-20-6	1,1,1,2-Tetrachloroethane
638-21-1	Phenylphosphine
64-00-6	m-Cumenyl methylcarbamate
64-67-5	Diethyl sulfate
64091-91-4	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone
644-64-4	Dimetilan
68-11-1	Thioglycolic acid
68-12-2	Dimethylformamide
681-84-5	Methyl silicate
684-16-2	Hexafluoroacetone
74-89-5	Methylamine
74-96-4	Ethyl bromide
74-97-5	Bromochloromethane
75-04-7	Ethylamine
75-08-1	Ethyl mercaptan
75-25-2	Tribromomethane
75-27-4	Bromodichloromethane
75-31-0	Isopropylamine
75-56-9	Propylene oxide
75-61-6	Difluorodibromomethane
75-63-8	Trifluorobromomethane
7572-29-4	Dichloroacetylene
76-01-7	Pentachloroethane
76-03-9	Trichloroacetic acid
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane
76-15-3	Chloropentafluoroethane
768-52-5	N-Isopropylaniline
77-73-6	Dicyclopentadiene
78-10-4	Ethyl silicate
78-59-1	Isophorone
79-04-9	Chloroacetyl chloride
79-11-8	Chloroacetic acid
79-24-3	Nitroethane
79-27-6	Acetylene tetrabromide
79-41-4	Methacrylic acid
794-93-4	Panfuran S (dihydroxymethylfuratrizine)
8003-34-7	Pyrethrum
82-68-8	Pentachloronitrobenzene (PCNB)
822-06-0	Hexamethylene diisocyanate
86-30-6	N-Nitrosodiphenylamine
88-72-2	Nitrotoluene
88-74-4	2-Nitroaniline
88-89-1	Picric acid
89-72-5	o-sec-Butylphenol
91-22-5	Quinoline
91-58-7	2-Chloronaphthalene

Table B.19. Regulated Non-detected Organic Compounds Likely
Used at Hanford (208 Compounds). (Page 5 of 5)

CAS#	Constituent
91-59-8	2-Naphthylamine
92-93-3	4-Nitrobiphenyl
94-36-0	Benzoyl Peroxide
95-13-6	Indene
95-49-8	o-Chlorotoluene
96-09-3	Styrene oxide
96-33-3	Methyl acrylate
97-56-3	o-Aminoazotoluene
98-01-1	Furfural
98-51-1	p-tert-Butyltoluene
98-82-2	Cumene
999-61-1	2-Hydroxypropyl acrylate

CAS# = chemical abstract service number.

Table B.20. Regulated Non-detected Organic Compounds to be Considered
for Stability Evaluation (269 Compounds). (Pages 1 of 6)

CAS#	Constituent
100-02-7	4-Nitrophenol
100-21-0	Phthalic acid
100-25-4	1,4-Dinitrobenzene
100-37-8	Diethylaminoethanol
100-61-8	N-Methylbenzenamine
100-63-0	Phenylhydrazine
100-74-3	N-Ethylmorpholine
101-55-3	4-Bromophenylphenyl ether
101-68-8	Methylene bis(phenyl isocyanate)
101-90-6	Diglycidyl resorcinol ether
102-81-8	2-N-Dibutylaminoethanol
1024-57-3	Heptachlor Epoxide
1031-07-8	Endosulfan Sulfate
105-46-4	sec-Butyl acetate
105-67-9	2,4-Dimethylphenol
106-44-5	4-Methylphenol
106-50-3	p-Phenylenediamine
106-87-6	Vinyl cyclohexene dioxide
106-92-3	Allyl glycidyl ether
107-07-3	Ethylene chlorohydrin
107-15-3	Ethylene diamine
107-21-1	Ethylene glycol
107-66-4	Dibutylphosphate
107-98-2	Propylene glycol monomethyl ether
108-11-2	Methyl isobutyl carbinol
108-18-9	Diisopropylamine
108-21-4	Isopropyl acetate
108-24-7	Acetic anhydride
108-43-0	Chlorophenols
108-60-1	Bis(2-Chloroisopropyl) ether
108-83-8	Diisobutyl ketone
108-84-9	sec-Hexyl acetate
108-91-8	Cyclohexylamine
109-59-1	Isopropoxyethanol
109-60-4	n-Propyl acetate
109-73-9	n-Butylamine
109-79-5	n-Butyl mercaptan
109-86-4	2-Methoxyethanol
109-89-7	Diethylamine
109-94-4	Ethyl formate
110-19-0	Isobutyl acetate
110-49-6	2-Methoxyethyl acetate
110-75-8	2-Chloroethyl vinyl ether
110-91-8	Morpholine
111-15-9	2-Ethoxyethyl acetate
111-40-0	Diethylene triamine
111-42-2	Diethanolamine
111-44-4	Bis(2-chloroethyl) ether
111-91-1	Bis(2-Chloroethoxy)methane

Table B.20. Regulated Non-detected Organic Compounds to be Considered
for Stability Evaluation (269 Compounds). (Pages 2 of 6)

CAS#	Constituent
1129-41-5	Metolcarb (3-methylcholanthrene)
1134-23-2	Cycloate
115-86-6	Triphenyl phosphate
118-52-5	1,3-Dichloro-5,5-Dimethyl hydantoin
118-74-1	Hexachlorobenzene
119-38-0	Isolan
120-12-7	Anthracene
120-83-2	2,4-Dichlorophenol
121-44-8	Triethylamine
121-45-9	Trimethyl phosphite
121-69-7	Dimethylaniline
122-60-1	Phenyl glycidyl ether
122-66-7	1,2-Diphenylhydrazine
123-31-9	Hydroquinone
123-42-2	Diacetone alcohol
123-92-2	Isoamyl acetate
124-40-3	Dimethylamine
124-48-1	Dibromochloromethane
129-15-7	2-Methyl-1-nitroanthraquinone
131-11-3	Dimethyl phthalate
132-64-9	Dibenzofuran
1321-64-8	Pentachloronaphthalene
1321-65-9	Trichloronaphthalene
1321-74-0	Divinyl benzene
133-06-2	Captan
133-90-4	Chloramben
1335-87-1	Hexachloronaphthalene
1335-88-2	Tetrachloronaphthalene
1336-36-3	Polychlorinated biphenyls (PCBs)
1338-23-4	Methyl ethyl ketone peroxide
134-32-7	alpha-Naphthylamine
135-20-6	Cupferron
135-88-6	N-Phenyl-2-naphthylamine
137-05-3	Methyl-2-cyanoacrylate
138-22-7	n-Butyl lactate
139-65-1	4,4'-Thiodianiline
140-88-5	Ethylacrylate
141-32-2	Butylacrylate
141-43-5	Ethanolamine
142-64-3	Piperazine dihydrochloride
148-01-6	Dinitolamide
150-76-5	4-Methoxyphenol
156-60-5	1,2-trans-Dichloroethene
1582-09-8	Trifluralin
16219-75-3	Ethylidene norbornene
1634-04-4	Methyl tert-butyl ether
17702-57-7	Formparanate
1836-75-5	Nitrofen
189-55-9	Dibenzo[a,i]pyrene

Table B.20. Regulated Non-detected Organic Compounds to be Considered for Stability Evaluation (269 Compounds). (Pages 3 of 6)

CAS#	Constituent
189-64-0	Dibenzo[a,h]pyrene
191-24-2	Benzo(ghi)perylene
191-30-0	Dibenzo(a,l)pyrene
1918-02-1	Picloram
192-65-4	Dibenzo[a,e]pyrene
193-39-5	Indeno(1,2,3-cd)pyrene
2039-87-4	o-Chlorostyrene
205-82-3	Benzo[j]fluoranthene
205-99-2	Benzo(b)fluoranthene
207-08-9	Benzo(k)fluoranthene
208-96-8	Acenaphthylene
218-01-9	Chrysene
2234-13-1	Octachloronaphthalene
2238-07-5	Diglycidyl ether
224-42-0	Dibenz[a,j]acridine
226-36-8	Dibenz[a,h]acridine
22781-23-3	Bendiocarb
22961-82-6	Bendiocarb phenol
23422-53-9	Formetanate hydrochloride
2385-85-5	Mirex
2425-06-1	Captafol
2426-08-6	n-Butyl glycidyl ether
25013-15-4	Vinyl toluene
2551-13-7	Trimethyl benzene
25639-42-3	Methylcyclohexanol
26140-60-3	Terphenyls
26419-73-8	Tirpate
26952-21-6	Iso-octyl alcohol
2698-41-1	o-Chlorobenzylidene malonitrile
27154-33-2	Trichlorofluoroethane
2921-88-2	Chlorpyrifos
302-01-2	Hydrazine
3068-88-0	B-Butyrolactone
309-00-2	Aldrin
314-40-9	Bromacil
319-84-6	alpha-BHC
319-85-7	beta-BHC
319-86-8	delta-BHC
330-54-1	Diuron
33213-65-9	Endosulfan II
3333-52-6	Tetramethyl succinonitrile
334-88-3	Diazomethane
34590-94-8	Dipropylene glycol methyl ether
3697-24-3	5-Methylchrysene
3825-26-1	Ammonium perfluorooctanoate
4016-14-2	Isopropyl glycidyl ether (IGE)
4098-71-9	Isophorone diisocyanate
420-04-2	Cyanamide
463-51-4	Ketene

Table B.20. Regulated Non-detected Organic Compounds to be Considered
for Stability Evaluation (269 Compounds). (Pages 4 of 6)

CAS#	Constituent
465-73-6	Isodrin
50-29-3	4,4-DDT
50-32-8	Benzo(a)pyrene
504-29-0	2-Aminopyridine
51-28-5	2,4-Dinitrophenol
510-15-6	Chlorobenzilate
5124-30-1	Methylene-bis-(4-cyclo-hexylisocyanate)
52888-80-9	Prosulfocarb
53-70-3	Dibenz[a,h]anthracene
531-82-8	N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide
540-59-0	1,2-Dichloroethylene
540-84-1	2,2,4-Trimethylpentane
540-88-5	tert-Butyl acetate
541-85-5	Ethyl amyl ketone
542-75-6	1,3-Dichloropropene
542-92-7	Cyclopentadiene
552-30-7	Trimellitic anhydride
55285-14-8	Carbosulfan
55406-53-6	3-Iodo-2-propynyl n-butylcarbamate
556-52-5	Glycidol
55738-54-0	trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl-1,3,4-oxadiazole
56-49-5	3-Methylcholanthrene
56-55-3	Benzo(a)anthracene
57-57-8	B-Propiolactone
57-74-9	Chlordane
58-89-9	gamma-BHC (Lindane)
58-90-2	2,3,4,6-Tetrachlorophenol
583-60-8	o-Methylcyclohexanone
584-84-9	2,4-Toluene diisocyanate
592-62-1	Methyl azoxymethyl acetate
593-60-2	Vinyl bromide
594-42-3	Perchloromethyl mercaptan
594-72-9	1,1-Dichloro-1-nitroethane
5952-26-1	Diethylene glycol, dicarbamate
60-29-7	Ethyl ether
60-57-1	Dieldrin
600-25-9	1-Chloro-1-nitropropane
602-87-9	5-Nitroacenaphthene
603-34-9	Triphenyl amine
613-35-4	N,N-Diacetylbenzidine
62-53-3	Aniline
626-17-5	m-Phthalodinitrile
626-38-0	sec-Amyl acetate
628-63-7	n-Amyl acetate
628-96-6	Ethylene glycol dinitrate
63-92-3	Phenoxybenzamine hydrochloride
630-20-6	1,1,1,2-Tetrachloroethane
638-21-1	Phenylphosphine
64-00-6	m-Cumenyl methylcarbamate

Table B.20. Regulated Non-detected Organic Compounds to be Considered for Stability Evaluation (269 Compounds). (Pages 5 of 6)

CAS#	Constituent
64-67-5	Diethyl sulfate
64091-91-4	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone
644-64-4	Dimetilan
68-11-1	Thioglycolic acid
68-12-2	Dimethylformamide
681-84-5	Methyl silicate
684-16-2	Hexafluoroacetone
72-20-8	Endrin
72-43-5	Methoxychlor
72-54-8	4,4-DDD
72-55-9	4,4-DDE
74-89-5	Methylamine
74-96-4	Ethyl bromide
74-97-5	Bromochloromethane
7421-93-4	Endrin aldehyde
75-04-7	Ethylamine
75-08-1	Ethyl mercaptan
75-25-2	Tribromomethane
75-27-4	Bromodichloromethane
75-31-0	Isopropylamine
75-56-9	Propylene oxide
75-61-6	Difluorodibromomethane
75-63-8	Trifluorobromomethane
75-99-0	2,2-Dichloropropionic acid
7572-29-4	Dichloroacetylene
76-01-7	Pentachloroethane
76-03-9	Trichloroacetic acid
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane
76-15-3	Chloropentafluoroethane
76-44-8	Heptachlor
768-52-5	N-Isopropylaniline
77-47-4	Hexachlorocyclopentadiene
77-73-6	Dicyclopentadiene
78-10-4	Ethyl silicate
78-59-1	Isophorone
79-04-9	Chloroacetyl chloride
79-11-8	Chloroacetic acid
79-24-3	Nitroethane
79-27-6	Acetylene tetrabromide
79-41-4	Methacrylic acid
794-93-4	Panfuran S (dihydroxymethylfuratrizine)
8001-35-2	Toxaphene
8003-34-7	Pyrethrum
82-68-8	Pentachloronitrobenzene (PCNB)
822-06-0	Hexamethylene diisocyanate
85-01-8	Phenanthrene
86-30-6	N-Nitrosodiphenylamine
87-86-5	Pentachlorophenol

Table B.20. Regulated Non-detected Organic Compounds to be Considered
for Stability Evaluation (269 Compounds). (Pages 6 of 6)

CAS#	Constituent
88-72-2	Nitrotoluene
88-74-4	2-Nitroaniline
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb
88-89-1	Picric acid
89-72-5	o-sec-Butylphenol
91-22-5	Quinoline
91-58-7	2-Chloronaphthalene
91-59-8	2-Naphthylamine
92-93-3	4-Nitrobiphenyl
93-72-1	Silvex (2,4,5-TP)
93-76-5	2,4,5-T
94-36-0	Benzoyl Peroxide
94-75-7	2,4-D
95-13-6	Indene
95-49-8	o-Chlorotoluene
959-98-8	Endosulfan I
96-09-3	Styrene oxide
96-12-8	1,2-Dibromo-3-chloropropane
96-33-3	Methyl acrylate
97-56-3	o-Aminoazotoluene
98-01-1	Furfural
98-51-1	p-tert-Butyltoluene
98-82-2	Cumene
999-61-1	2-Hydroxypropyl acrylate

CAS# = chemical abstract service number.

Table B.21. Regulated Non-detected Organic Compounds Considered
Unstable in Single-Shell Tank/Double-Shell Tank Waste Matrix
(179 Compounds). (Page 1 of 4)

CAS#	Constituent
100-02-7	4-Nitrophenol
100-37-8	Diethylaminoethanol
100-61-8	N-Methylbenzenamine
100-63-0	Phenylhydrazine
100-74-3	N-Ethylmorpholine
101-68-8	Methylene bis(phenyl isocyanate)
101-90-6	Diglycidyl resorcinol ether
102-81-8	2-N-Dibutylaminoethanol
1024-57-3	Heptachlor Epoxide
1031-07-8	Endosulfan Sulfate
105-46-4	sec-Butyl acetate
105-67-9	2,4-Dimethylphenol
106-44-5	4-Methylphenol
106-50-3	p-Phenylenediamine
106-87-6	Vinyl cyclohexene dioxide
106-92-3	Allyl glycidyl ether
107-07-3	Ethylene chlorohydrin
107-15-3	Ethylene diamine
107-21-1	Ethylene glycol
107-98-2	Propylene glycol monomethyl ether
108-11-2	Methyl isobutyl carbinol
108-18-9	Diisopropylamine
108-21-4	Isopropyl acetate
108-24-7	Acetic anhydride
108-43-0	Chlorophenols
108-60-1	Bis(2-Chloroisopropyl) ether
108-83-8	Diisobutyl ketone
108-84-9	sec-Hexyl acetate
108-91-8	Cyclohexylamine
109-59-1	Isopropoxyethanol
109-60-4	n-Propyl acetate
109-73-9	n-Butylamine
109-79-5	n-Butyl mercaptan
109-86-4	2-Methoxyethanol
109-89-7	Diethylamine
109-94-4	Ethyl formate
110-19-0	Isobutyl acetate
110-49-6	2-Methoxyethyl acetate
110-75-8	2-Chloroethyl vinyl ether
110-91-8	Morpholine
111-15-9	2-Ethoxyethyl acetate
111-40-0	Diethylene triamine
111-42-2	Diethanolamine
111-44-4	Bis(2-chloroethyl) ether
111-91-1	Bis(2-Chloroethoxy)methane
1129-41-5	Metolcarb (3-methylcholanthrene)
1134-23-2	Cycloate

Table B.21. Regulated Non-detected Organic Compounds Considered
Unstable in Single-Shell Tank/Double-Shell Tank Waste Matrix
(179 Compounds). (Page 2 of 4)

CAS#	Constituent
115-86-6	Triphenyl phosphate
118-52-5	1,3-Dichloro-5,5-Dimethyl hydantoin
119-38-0	Isolan
121-45-9	Trimethyl phosphite
122-60-1	Phenyl glycidyl ether
122-66-7	1,2-Diphenylhydrazine
123-31-9	Hydroquinone
123-42-2	Diacetone alcohol
123-92-2	Isoamyl acetate
124-40-3	Dimethylamine
124-48-1	Dibromochloromethane
129-15-7	2-Methyl-1-nitroanthraquinone
131-11-3	Dimethyl phthalate
1321-74-0	Divinyl benzene
133-06-2	Captan
133-90-4	Chloramben
1338-23-4	Methyl ethyl ketone peroxide
134-32-7	alpha-Naphthylamine
135-20-6	Cupferron
135-88-6	N-Phenyl-2-naphthylamine
137-05-3	Methyl-2-cyanoacrylate
138-22-7	n-Butyl lactate
139-65-1	4,4'-Thiodianiline
140-88-5	Ethylacrylate
141-32-2	Butylacrylate
141-43-5	Ethanolamine
142-64-3	Piperazine dihydrochloride
148-01-6	Dinitolamide
150-76-5	4-Methoxyphenol
16219-75-3	Ethylidene norbornene
17702-57-7	Formparanate
1918-02-1	Picloram
2039-87-4	o-Chlorostyrene
2238-07-5	Diglycidyl ether
22781-23-3	Bendiocarb
22961-82-6	Bendiocarb phenol
23422-53-9	Formetanate hydrochloride
2425-06-1	Captafol
2426-08-6	n-Butyl glycidyl ether
25013-15-4	Vinyl toluene
25639-42-3	Methylcyclohexanol
26419-73-8	Tirpate
26952-21-6	Iso-ocytal alcohol
2698-41-1	o-Chlorobenzylidene malonitrile
2921-88-2	Chlorpyrifos
302-01-2	Hydrazine
3068-88-0	B-Butyrolactone

Table B.21. Regulated Non-detected Organic Compounds Considered
Unstable in Single-Shell Tank/Double-Shell Tank Waste Matrix
(179 Compounds). (Page 3 of 4)

CAS#	Constituent
314-40-9	Bromacil
330-54-1	Diuron
33213-65-9	Endosulfan II
3333-52-6	Tetramethyl succinonitrile
334-88-3	Diazomethane
34590-94-8	Dipropylene glycol methyl ether
4016-14-2	Isopropyl glycidyl ether (IGE)
4098-71-9	Isophorone diisocyanate
420-04-2	Cyanamide
463-51-4	Ketene
504-29-0	2-Aminopyridine
51-28-5	2,4-Dinitrophenol
510-15-6	Chlorobenzilate
5124-30-1	Methylene-bis-(4-cyclo-hexylisocyanate)
52888-80-9	Prosulfocarb
531-82-8	N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide
540-88-5	tert-Butyl acetate
541-85-5	Ethyl amyl ketone
542-75-6	1,3-Dichloropropene
542-92-7	Cyclopentadiene
552-30-7	Trimellitic anhydride
55285-14-8	Carbosulfan
55406-53-6	3-Iodo-2-propynyl n-butylcarbamate
556-52-5	Glycidol
55738-54-0	trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl)-1,3,4-oxadiazole
57-57-8	B-Propiolactone
57-74-9	Chlordane
583-60-8	o-Methylcyclohexanone
584-84-9	2,4-Toluene diisocyanate
592-62-1	Methyl azoxymethyl acetate
593-60-2	Vinyl bromide
594-42-3	Perchloromethyl mercaptan
594-72-9	1,1-Dichloro-1-nitroethane
5952-26-1	Diethylene glycol, dicarbamate
600-25-9	1-Chloro-1-nitropropane
613-35-4	N,N-Diacetylbenzidine
62-53-3	Aniline
626-17-5	m-Phthalodinitrile
626-38-0	sec-Amyl acetate
628-63-7	n-Amyl acetate
628-96-6	Ethylene glycol dinitrate
63-92-3	Phenoxybenzamine hydrochloride
638-21-1	Phenylphosphine
64-00-6	m-Cumenyl methylcarbamate
64-67-5	Diethyl sulfate
64091-91-4	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone
644-64-4	Dimetilan

Table B.21. Regulated Non-detected Organic Compounds Considered
Unstable in Single-Shell Tank/Double-Shell Tank Waste Matrix
(179 Compounds). (Page 4 of 4)

CAS#	Constituent
68-11-1	Thioglycolic acid
68-12-2	Dimethylformamide
681-84-5	Methyl silicate
74-89-5	Methylamine
74-96-4	Ethyl bromide
7421-93-4	Endrin aldehyde
75-04-7	Ethylamine
75-08-1	Ethyl mercaptan
75-25-2	Tribromomethane
75-31-0	Isopropylamine
75-56-9	Propylene oxide
7572-29-4	Dichloroacetylene
76-01-7	Pentachloroethane
768-52-5	N-Isopropylaniline
77-47-4	Hexachlorocyclopentadiene
77-73-6	Dicyclopentadiene
78-10-4	Ethyl silicate
78-59-1	Isophorone
79-04-9	Chloroacetyl chloride
79-11-8	Chloroacetic acid
79-24-3	Nitroethane
79-27-6	Acetylene tetrabromide
79-41-4	Methacrylic acid
794-93-4	Panfuran S (dihydroxymethylfuratrizine)
8003-34-7	Pyrethrum
822-06-0	Hexamethylene diisocyanate
86-30-6	N-Nitrosodiphenylamine
88-74-4	2-Nitroaniline
89-72-5	o-sec-Butylphenol
91-59-8	2-Naphthylamine
94-36-0	Benzoyl Peroxide
959-98-8	Endosulfan I
96-09-3	Styrene oxide
96-12-8	1,2-Dibromo-3-chloropropane
96-33-3	Methyl acrylate
97-56-3	o-Aminoazotoluene
98-01-1	Furfural
999-61-1	2-Hydroxypropyl acrylate

CAS# = chemical abstract service number.

Table B.22. Regulated Non-detected Organic
Compounds Considered Stable in Single-Shell
Tank/Double-Shell Tank Waste Matrix
(90 Compounds). (Page 1 of 2)

CAS#	Constituent
100-21-0	Phthalic acid
100-25-4	1,4-Dinitrobenzene
101-55-3	4-Bromophenylphenyl ether
107-66-4	Dibutylphosphate
118-74-1	Hexachlorobenzene
120-12-7	Anthracene
120-83-2	2,4-Dichlorophenol
121-44-8	Triethylamine
121-69-7	Dimethylaniline
132-64-9	Dibenzofuran
1321-64-8	Pentachloronaphthalene
1321-65-9	Trichloronaphthalene
1335-87-1	Hexachloronaphthalene
1335-88-2	Tetrachloronaphthalene
1336-36-3	Polychlorinated biphenyls (PCBs)
156-60-5	1,2-trans-Dichloroethene
1582-09-8	Trifluralin
1634-04-4	Methyl tert-butyl ether
1836-75-5	Nitrofen
189-55-9	Dibenzo[a,i]pyrene
189-64-0	Dibenzo[a,h]pyrene
191-24-2	Benzo(ghi)perylene
191-30-0	Dibenzo(a,l)pyrene
192-65-4	Dibenzo[a,e]pyrene
193-39-5	Indeno(1,2,3-cd)pyrene
205-82-3	Benzo[j]fluoranthene
205-99-2	Benzo(b)fluoranthene
207-08-9	Benzo(k)fluoranthene
208-96-8	Acenaphthylene
218-01-9	Chrysene
2234-13-1	Octachloronaphthalene
224-42-0	Dibenz[a,j]acridine
226-36-8	Dibenz[a,h]acridine
2385-85-5	Mirex
2551-13-7	Trimethyl benzene
26140-60-3	Terphenyls
27154-33-2	Trichlorofluoroethane
309-00-2	Aldrin
319-84-6	alpha-BHC
319-85-7	beta-BHC
319-86-8	delta-BHC
3697-24-3	5-Methylchrysene
3825-26-1	Ammonium perfluorooctanoate
465-73-6	Isodrin
50-29-3	4,4-DDT
50-32-8	Benzo(a)pyrene

Table B.22. Regulated Non-detected Organic
Compounds Considered Stable in Single-Shell
Tank/Double-Shell Tank Waste Matrix
(90 Compounds). (Page 2 of 2)

CAS#	Constituent
53-70-3	Dibenz[a,h]anthracene
540-59-0	1,2-Dichloroethylene
540-84-1	2,2,4-Trimethylpentane
56-49-5	3-Methylcholanthrene
56-55-3	Benzo(a)anthracene
58-89-9	gamma-BHC (Lindane)
58-90-2	2,3,4,6-Tetrachlorophenol
60-29-7	Ethyl ether
60-57-1	Dieldrin
602-87-9	5-Nitroacenaphthene
603-34-9	Triphenyl amine
630-20-6	1,1,1,2-Tetrachloroethane
684-16-2	Hexafluoroacetone
72-20-8	Endrin
72-43-5	Methoxychlor
72-54-8	4,4-DDD
72-55-9	4,4-DDE
74-97-5	Bromochloromethane
75-27-4	Bromodichloromethane
75-61-6	Difluorodibromomethane
75-63-8	Trifluorobromomethane
75-99-0	2,2-Dichloropropionic acid
76-03-9	Trichloroacetic acid
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane
76-15-3	Chloropentafluoroethane
76-44-8	Heptachlor
8001-35-2	Toxaphene
82-68-8	Pentachloronitrobenzene (PCNB)
85-01-8	Phenanthrene
87-86-5	Pentachlorophenol
88-72-2	Nitrotoluene
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb
88-89-1	Picric acid
91-22-5	Quinoline
91-58-7	2-Chloronaphthalene
92-93-3	4-Nitrobiphenyl
93-72-1	Silvex (2,4,5-TP)
93-76-5	2,4,5-T
94-75-7	2,4-D
95-13-6	Indene
95-49-8	o-Chlorotoluene
98-51-1	p-tert-Butyltoluene
98-82-2	Cumene

CAS# = chemical abstract service number.

Table B.23. Regulated Non-detected Stable Organic Compounds with Lower or Unknown Toxicity and Carcinogenicity (65 Compounds). (Page 1 of 2)

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Carcinogenicity (Slope Factor) Ranking
100-21-0	Phthalic acid			
101-55-3	4-Bromophenylphenyl ether			
107-66-4	Dibutylphosphate		III	
120-12-7	Anthracene			
120-83-2	2,4-Dichlorophenol	D		
121-69-7	Dimethylaniline		III	
132-64-9	Dibenzofuran			
1321-65-9	Trichloronaphthalene		III	
156-60-5	1,2-trans-Dichloroethene	D		
1582-09-8	Trifluralin		V	
1634-04-4	Methyl tert-butyl ether		IV	
1836-75-5	Nitrofen			
189-55-9	Dibenzo[a,i]pyrene			
189-64-0	Dibenzo[a,h]pyrene			
191-24-2	Benzo(ghi)perylene			
191-30-0	Dibenzo(a,l)pyrene			
192-65-4	Dibenzo[a,e]pyrene			
193-39-5	Indeno(1,2,3-cd)pyrene			BC
205-82-3	Benzo[j]fluoranthene			
205-99-2	Benzo(b)fluoranthene			BC
207-08-9	Benzo(k)fluoranthene			BC
208-96-8	Acenaphthylene			
218-01-9	Chrysene			BC
224-42-0	Dibenz[a,j]acridine			
226-36-8	Dibenz[a,h]acridine			
2385-85-5	Mirex			
2551-13-7	Trimethyl benzene		IV	
26140-60-3	Terphenyls		III	
27154-33-2	Trichlorofluoroethane			
319-86-8	delta-BHC	D		
3697-24-3	5-Methylchrysene			
50-29-3	4,4-DDT	C		BC
540-59-0	1,2-Dichloroethylene		V	
540-84-1	2,2,4-Trimethylpentane		V	
56-49-5	3-Methylcholanthrene			
56-55-3	Benzo(a)anthracene			BC
58-90-2	2,3,4,6-Tetrachlorophenol	C		
60-29-7	Ethyl ether	D	V	
602-87-9	5-Nitroacenaphthene			
603-34-9	Triphenyl amine		III	
630-20-6	1,1,1,2-Tetrachloroethane	C		BC
72-43-5	Methoxychlor	D	III	
72-54-8	4,4-DDD	C		
72-55-9	4,4-DDE	D		
74-97-5	Bromochloromethane		V	
75-27-4	Bromodichloromethane	C		

Table B.23. Regulated Non-detected Stable Organic Compounds with Lower or Unknown Toxicity and Carcinogenicity (65 Compounds). (Page 2 of 2)

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Carcinogenicity (Slope Factor) Ranking
75-61-6	Difluorodibromomethane		V	
75-63-8	Trifluorobromomethane		V	
75-99-0	2,2-Dichloropropionic acid		III	
76-03-9	Trichloroacetic acid		III	
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane		V	
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane		V	
76-15-3	Chloropentafluoroethane		V	
85-01-8	Phenanthrene			
88-72-2	Nitrotoluene		III	
91-22-5	Quinoline		V	
91-58-7	2-Chloronaphthalene	D		
92-93-3	4-Nitrobiphenyl		V	
93-72-1	Silvex (2,4,5-TP)	D		
93-76-5	2,4,5-T		III	
94-75-7	2,4-D	C		
95-13-6	Indene		IV	
95-49-8	o-Chlorotoluene		IV	
98-51-1	p-tert-Butyltoluene		IV	
98-82-2	Cumene		IV	

CAS# = chemical abstract service number.

TAP = toxic air pollutant.

UHC = underlying hazardous constituents.

Table B.24. Regulated Non-detected Stable Organic Compounds with Higher Toxicity and/or Carcinogenicity (25 Compounds).

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Carcinogenicity (Slope Factor) Ranking
100-25-4	1,4-Dinitrobenzene	B	II	
118-74-1	Hexachlorobenzene	C		v
121-44-8	Triethylamine	C	II	
1321-64-8	Pentachloronaphthalene		II	
1335-87-1	Hexachloronaphthalene		I	
1335-88-2	Tetrachloronaphthalene		II	
1336-36-3	Polychlorinated biphenyls (PCBs)	B		BC
2234-13-1	Octachloronaphthalene		I	
309-00-2	Aldrin	A		iv
319-84-6	alpha-BHC	C		v
319-85-7	beta-BHC			v
3825-26-1	Ammonium perfluorooctanoate		I	
465-73-6	Isodrin	B		
50-32-8	Benzo(a)pyrene			v
53-70-3	Dibenz[a,h]anthracene			v
58-89-9	gamma-BHC (Lindane)	B		
60-57-1	Dieldrin	X		iv
684-16-2	Hexafluoroacetone		II	
72-20-8	Endrin	A	I	
76-44-8	Heptachlor	B		v
8001-35-2	Toxaphene	C		v
82-68-8	Pentachloronitrobenzene (PCNB)	B	II	
87-86-5	Pentachlorophenol	B		
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb	B		
88-89-1	Picric acid		I	

CAS# = chemical abstract service number.

TAP = toxic air pollutant.

UHC = underlying hazardous constituents.

Table B.25. Regulated Detected Organic Compounds with Higher Toxicity and Non-detected Stable Organic Compounds with Higher Toxicity (44 Compounds).

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
100-00-5	p-Nitrochlorobenzene		II	
100-25-4	1,4-Dinitrobenzene	B	II	
106-99-0	1,3-Butadiene			v
107-02-8	Acrolein	B	I	
107-05-1	3-Chloropropene	A	II	
107-12-0	Propionitrile	B		
107-13-1	Acrylonitrile	B		BC
118-74-1	Hexachlorobenzene	C		v
121-44-8	Triethylamine	C	II	
126-73-8	Tributyl phosphate		II	
126-98-7	2-Methyl-2-propenenitrile	B	II	
1321-64-8	Pentachloronaphthalene		II	
1335-87-1	Hexachloronaphthalene		I	
1335-88-2	Tetrachloronaphthalene		II	
1336-36-3	Polychlorinated biphenyls (PCBs)	B		BC
144-62-7	Oxalic acid		II	
2234-13-1	Octachloronaphthalene		I	
309-00-2	Aldrin	A		iv
319-84-6	alpha-BHC	C		v
319-85-7	beta-BHC			v
3825-26-1	Ammonium perfluorooctanoate		I	
465-73-6	Isodrin	B		
50-32-8	Benzo(a)pyrene			v
53-70-3	Dibenz[a,h]anthracene			v
57-14-7	1,1-Dimethylhydrazine		II	v
58-89-9	gamma-BHC (Lindane)	B		
60-34-4	Methylhydrazine		II	
60-57-1	Dieldrin	X		iv
62-75-9	N-Nitroso-N,N-dimethylamine	B		iv
624-83-9	Methyl isocyanate		I	
684-16-2	Hexafluoroacetone		II	
72-20-8	Endrin	A	I	
74-83-9	Bromomethane	C	II	
75-21-8	Oxirane	B		BC
76-44-8	Heptachlor	B		v
79-10-7	2-Propenoic acid		I	
8001-35-2	Toxaphene	C		v
82-68-8	Pentachloronitrobenzene (PCNB)	B	II	
87-68-3	Hexachlorobutadiene	B	I	BC
87-86-5	Pentachlorophenol	B		
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb	B		
88-89-1	Picric acid		I	
92-52-4	1,1'-Biphenyl		II	
98-95-3	Nitrobenzene	D	II	

CAS# = chemical abstract service number.

UHC = underlying hazardous constituents.

TAP = toxic air pollutant.

Table B.26. Regulated Organic Compounds with Higher Toxicity Potentially Analyzed by Existing SW-846 Methods (EPA 1997) (28 Compounds).

CAS#	Constituent	SW-846 Method
100-25-4	1,4-Dinitrobenzene	8270C
107-02-8	Acrolein	8260B
107-05-1	3-Chloropropene	8260B
107-12-0	Propionitrile	8260B
107-13-1	Acrylonitrile	8260B
118-74-1	Hexachlorobenzene	8081A
126-98-7	2-Methyl-2-propenenitrile	8260B
1336-36-3	Polychlorinated biphenyls (PCBs)	8082
2234-13-1	Octachloronaphthalene	8081A
309-00-2	Aldrin	8081A
319-84-6	alpha-BHC	8081A
319-85-7	beta-BHC	8081A
465-73-6	Isodrin	8081A
50-32-8	Benzo(a)pyrene	8270C
53-70-3	Dibenz[a,h]anthracene	8270C
58-89-9	gamma-BHC (Lindane)	8081A
60-57-1	Dieldrin	8081A
62-75-9	N-Nitroso-N,N-dimethylamine	8270C
72-20-8	Endrin	8081A
74-83-9	Bromomethane	8260B
75-21-8	Oxirane	8260B
76-44-8	Heptachlor	8081A
8001-35-2	Toxaphene	8081A
82-68-8	Pentachloronitrobenzene (PCNB)	8270C
87-68-3	Hexachlorobutadiene	8270C
87-86-5	Pentachlorophenol	8151A
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb	8151A
98-95-3	Nitrobenzene	8270C

CAS# = chemical abstract service number.

EPA = US Environmental Protection Agency.

Table B.27. Regulated Organic Compounds
with Higher Toxicity with No Existing SW-846
Methods (16 Compounds).

CAS#	Constituent
100-00-5	p-Nitrochlorobenzene
106-99-0	1,3-Butadiene
121-44-8	Triethylamine
126-73-8	Tributyl phosphate
1321-64-8	Pentachloronaphthalene
1335-87-1	Hexachloronaphthalene
1335-88-2	Tetrachloronaphthalene
144-62-7	Oxalic acid
3825-26-1	Ammonium perfluorooctanoate
57-14-7	1,1-Dimethylhydrazine
60-34-4	Methylhydrazine
624-83-9	Methyl isocyanate
684-16-2	Hexafluoroacetone
79-10-7	2-Propenoic acid
88-89-1	Picric acid
92-52-4	1,1'-Biphenyl

CAS# = chemical abstract service number.

Table B.28. Regulated Organic Compounds with Higher Toxicity
Potentially Analyzed by Modified SW-846 Methods
(EPA 1997) (16 Compounds).

CAS#	Constituent	Suggested Method
100-00-5	p-Nitrochlorobenzene	8270C
106-99-0	1,3-Butadiene	8260B
121-44-8	Triethylamine	8260B
126-73-8	Tributyl phosphate	8270C
1321-64-8	Pentachloronaphthalene	8270C
1335-87-1	Hexachloronaphthalene	8270C
1335-88-2	Tetrachloronaphthalene	8270C
144-62-7	Oxalic acid	9056
3825-26-1	Ammonium perfluorooctanoate	8330
57-14-7	1,1-Dimethylhydrazine	8270C
60-34-4	Methylhydrazine	8270C
624-83-9	Methyl isocyanate	8330
684-16-2	Hexafluoroacetone	8260B
79-10-7	2-Propenoic acid	8270C
88-89-1	Picric acid	8330
92-52-4	1,1'-Biphenyl	8270C

CAS# = chemical abstract service number.

EPA = US Environmental Protection Agency.

Note: Pentachlorophenol (86-87-5) is identified as a compound in 8151A,
however, may be measured by 8270C.

Table B.29. Regulated Detected and Non-detected Organic Compounds
with Higher Toxicity that are Amenable to SW-846 or Modified
SW-846 Methods (EPA 1997) (44 Compounds). (Page 1 of 2)

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking	SW-846 Method	Suggested Method
100-00-5	p-Nitrochlorobenzene		II			8270C
100-25-4	1,4-Dinitrobenzene	B	II		8270C	
106-99-0	1,3-Butadiene			v		8260B
107-02-8	Acrolein	B	I		8260B	
107-05-1	3-Chloropropene	A	II		8260B	
107-12-0	Propionitrile	B			8260B	
107-13-1	Acrylonitrile	B		BC	8260B	
118-74-1	Hexachlorobenzene	C		v	8081A	
121-44-8	Triethylamine	C	II			8260B
126-73-8	Tributyl phosphate		II			8270C
126-98-7	2-Methyl-2-propenenitrile	B	II		8260B	
1321-64-8	Pentachloronaphthalene		II			8270C
1335-87-1	Hexachloronaphthalene		I			8270C
1335-88-2	Tetrachloronaphthalene		II			8270C
1336-36-3	Polychlorinated biphenyls (PCBs)	B		BC	8082	
144-62-7	Oxalic acid		II			8270C
2234-13-1	Octachloronaphthalene		I		8081A	
309-00-2	Aldrin	A		iv	8081A	
319-84-6	alpha-BHC	C		v	8081A	
319-85-7	beta-BHC			v	8081A	
3825-26-1	Ammonium perfluorooctanoate		I			8330
465-73-6	Isodrin	B			8081A	
50-32-8	Benzo(a)pyrene			v	8270C	
53-70-3	Dibenz[a,h]anthracene			v	8270C	
57-14-7	1,1-Dimethylhydrazine		II	v		8270C
58-89-9	gamma-BHC (Lindane)	B			8081A	
60-34-4	Methylhydrazine		II			8270C
60-57-1	Dieldrin	X		iv	8081A	
62-75-9	N-Nitroso-N,N-dimethylamine	B		iv	8270C	
624-83-9	Methyl isocyanate		I			8330
684-16-2	Hexafluoroacetone		II			8260B
72-20-8	Endrin	A	I		8081A	
74-83-9	Bromomethane	C	II		8260B	
75-21-8	Oxirane	B		BC	8260B	
76-44-8	Heptachlor	B		v	8081A	
79-10-7	2-Propenoic acid		I			8270C
8001-35-2	Toxaphene	C		v	8081A	
82-68-8	Pentachloronitrobenzene (PCNB)	B	II		8270C	
87-68-3	Hexachlorobutadiene	B	I	BC	8270C	
87-86-5	Pentachlorophenol	B			8151A	8270C
88-85-7	2-sec-Butyl-4,6-dinitrophenol; Dinoseb	syn B			8151A	

Table B.29. Regulated Detected and Non-detected Organic Compounds
with Higher Toxicity that are Amenable to SW-846 or Modified
SW-846 Methods (EPA 1997) (44 Compounds). (Page 2 of 2)

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking	SW-846 Method	Suggested Method
88-89-1	Picric acid		I			8330
92-52-4	1,1'-Biphenyl		II			8270C
98-95-3	Nitrobenzene	D	II		8270C	

CAS# = chemical abstract service number.

TAP = toxic air pollutant.

EPA = US Environmental Protection Agency.

UHC = underlying hazardous constituents.

Table B.30. Regulated Detected Organic Compounds with Lower Toxicity
that are Common Laboratory Contaminants (2 Compounds).

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking
117-81-7	Bis(2-ethylhexyl) phthalate	33	1			BC
84-66-2	Diethyl phthalate		24		III	

CAS# = chemical abstract service number.

TAP = toxic air pollutant.

TWINS = Tank Waste Information Network System. Solid/liquid hits were recorded from the Tank Characterization Database. Vapor hits were recorded from the vapor database.

UHC = underlying hazardous constituents.

Table B.31. Regulated Detected Organic Compounds with ≥ 10 Detects and Lower Toxicity and Associated Methods to be Compared to the Analytical Methods Chosen for the Regulated Organic Compounds with Higher Toxicity (83 Compounds). (Page 1 of 2)

CAS#	Constituent	SW-846 Method (EPA 1997)	Suggested Method
100-41-4	Ethyl benzene	8260B	
100-42-5	Styrene	8260B	
10061-01-5	cis-1,3-Dichloropropene	8260B	
10061-02-6	trans-1,3-Dichloropropene	8260B	
106-35-4	3-Heptanone		8260B
106-42-3	p-Xylene	8260B	
106-46-7	1,4-Dichlorobenzene	8270C	
106-93-4	Ethylene dibromide	8260B	
106-97-8	Butane		8260B
107-06-2	1,2-Dichloroethane	8260B	
107-87-9	2-Pentanone	8260B	8260B
108-10-1	4-Methyl-2-pentanone	8260B	
108-38-3	m-Xylene	8260B	
108-87-2	Methylcyclohexane		8260B
108-88-3	Toluene	8260B	
108-90-7	Chlorobenzene	8260B	
108-94-1	Cyclohexanone	8260B	
108-95-2	Phenol	8270C	
109-66-0	n-Pentane		8260B
109-99-9	Tetrahydrofuran		8270C
110-12-3	5-Methyl-2-hexanone		8260B
110-43-0	2-Heptanone		8260B
110-54-3	n-Hexane	8260B	
110-62-3	n-Valeraldehyde	8315A	
110-82-7	Cyclohexane		8260B
110-83-8	Cyclohexene		8260B
110-86-1	Pyridine	8270C	
111-65-9	n-Octane		8260B
111-84-2	n-Nonane		8260B
120-82-1	1,2,4-Trichlorobenzene	8270C	
122-39-4	N,N-Diphenylamine	8270C	
123-19-3	4-Heptanone		8260B
123-38-6	n-Propionaldehyde	8260B	
123-86-4	Acetic acid n-butyl ester		8260B
123-91-1	1,4-Dioxan	8260B	
127-18-4	1,1,2,2-Tetrachloroethene	8260B	
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol		8270C
141-78-6	Acetic acid ethyl ester	8260B	
142-82-5	n-Heptane		8260B
287-92-3	Cyclopentane		8270C
4170-30-3	2-Butenaldehyde	8260B	
541-73-1	1,3-Dichlorobenzene	8270C	
56-23-5	Carbon tetrachloride	8260B	
563-80-4	3-Methyl-2-butanone		8260B
591-78-6	2-Hexanone	8260B	
627-13-4	Nitric acid, propyl ester		8270C

Table B.31. Regulated Detected Organic Compounds with ≥ 10 Detects and Lower Toxicity and Associated Methods to be Compared to the Analytical Methods Chosen for the Regulated Organic Compounds with Higher Toxicity (83 Compounds). (Page 2 of 2)

CAS#	Constituent	SW-846 Method (EPA 1997)	Suggested Method
64-17-5	Ethyl alcohol	8260B	
64-18-6	Formic acid		9056
64-19-7	Acetic acid		9056
67-56-1	Methyl alcohol	8260B	
67-63-0	2-Propyl alcohol	8260B	
67-64-1	2-Propanone (Acetone)	8260B	
67-66-3	Chloroform	8260B	
71-23-8	n-Propyl alcohol	8260B	
71-36-3	n-Butyl alcohol	8260B	
71-43-2	Benzene	8260B	
71-55-6	1,1,1-Trichloroethane	8260B	
74-87-3	Chloromethane	8260B	
75-00-3	Chloroethane	8260B	
75-01-4	1-Chloroethene	8260B	
75-05-8	Acetonitrile	8260B	
75-07-0	Acetaldehyde	8315A	
75-09-2	Dichloromethane (Methylene Chloride)	8260B	
75-15-0	Carbon disulfide	8260B	
75-34-3	1,1-Dichloroethane	8260B	
75-35-4	1,1-Dichloroethene	8260B	
75-43-4	Dichlorofluoromethane		8260B
75-45-6	Chlorodifluoromethane		8260B
75-65-0	2-Methyl-2-propanol	8260B	8260B
75-69-4	Trichlorofluoromethane	8260B	
75-71-8	Dichlorodifluoromethane	8260B	
76-13-1	1,2,2-Trichlorotrifluoroethane	8260B	8260B
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	8260B	
78-87-5	1,2-Dichloropropane	8260B	
78-92-2	1-Methylpropyl alcohol		8260B
78-93-3	2-Butanone	8260B	
79-00-5	1,1,2-Trichloroethane	8260B	
79-01-6	1,1,2-Trichloroethylene	8260B	
79-34-5	1,1,2,2-Tetrachloroethane	8260B	
95-47-6	o-Xylene	8260B	
95-50-1	1,2-Dichlorobenzene	8270C	
96-22-0	3-Pentanone		8260B
98-86-2	Acetophenone	8270C	

CAS# = chemical abstract service number.

EPA = US Environmental Protection Agency.

Table B.32. Regulated Detected Organic Compounds ≥ 10 Detects and Lower Toxicity Not Analyzed by Methods Applicable to Higher Toxicity Organic Compounds (2 Compounds).

CAS#	Constituent	TWINS Solid/ Liquid Hits	TWINS Vapor Hits	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking	SW-846 Method (EPA 1997)
110-62-3	n-Valeraldehyde		54		IV		8315A
75-07-0	Acetaldehyde		103			BC	8315A

CAS# = chemical abstract service number.

EPA = US Environmental Protection Agency.

TAP = toxic air pollutant.

TWINS = Tank Waste Information Network System. Solid/liquid hits were recorded from the Tank Characterization Database. Vapor hits were recorded from the vapor database.

UHC = underlying hazardous constituents.

Table B.33. Analytical Methods Used for
Analysis of Higher Toxicity Organic Compounds.

SW-846 Method (EPA 1997)
8081A
8082
8151A
8260B
8270C
Suggested SW-846 Method
350
8260B
8270C
8330
9010A
9056

EPA = U.S. Environmental Protection Agency.

Table B.34. Regulated Detected Organic Compounds with ≥ 10 Detects and Lower Toxicity that are Amenable to the Same Analytical Methods as the Non-detected, Stable Organic Compounds of Higher Toxicity (82 Compounds). (Page 1 of 2)

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking	SW-846 Method (EPA 1997)	Suggested Method
100-41-4	Ethyl benzene	D	IV		8260B	
100-42-5	Styrene		IV		8260B	
10061-01-5	cis-1,3-Dichloropropene				8260B	
10061-02-6	trans-1,3-Dichloropropene				8260B	
106-35-4	3-Heptanone		IV			8260B
106-42-3	p-Xylene	D	V		8260B	
106-46-7	1,4-Dichlorobenzene	D			8270C	
106-93-4	Ethylene dibromide	C		BC	8260B	
106-97-8	Butane		V			8260B
107-06-2	1,2-Dichloroethane	D		BC	8260B	
107-87-9	2-Pentanone		V		8260B	8260B
108-10-1	4-Methyl-2-pentanone	D	IV		8260B	
108-38-3	m-Xylene	D	V		8260B	
108-87-2	Methylcyclohexane		V			8260B
108-88-3	Toluene	D	IV		8260B	
108-90-7	Chlorobenzene	D	IV		8260B	
108-94-1	Cyclohexanone	C	IV		8260B	
108-95-2	Phenol	C	III		8270C	
109-66-0	n-Pentane		V			8260B
109-99-9	Tetrahydrofuran		V			8270C
110-12-3	5-Methyl-2-hexanone		IV			8260B
110-43-0	2-Heptanone		IV			8260B
110-54-3	n-Hexane		IV		8260B	
110-82-7	Cyclohexane		V			8260B
110-83-8	Cyclohexene		V			8260B
110-86-1	Pyridine	C	III		8270C	
111-65-9	n-Octane		V			8260B
111-84-2	n-Nonane		V			8260B
120-82-1	1,2,4-Trichlorobenzene	D	IV		8270C	
122-39-4	N,N-Diphenylamine	D	III		8270C	
123-19-3	4-Heptanone		IV			8260B
123-38-6	n-Propionaldehyde		V		8260B	
123-86-4	Acetic acid n-butyl ester		V			8260B
123-91-1	1,4-Dioxan	D			8260B	
127-18-4	1,1,2,2-Tetrachloroethene	D		BC	8260B	
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol		III			8270C
141-78-6	Acetic acid ethyl ester	D	V		8260B	
142-82-5	n-Heptane		V			8260B
287-92-3	Cyclopentane		V			8270C
4170-30-3	2-Butenaldehyde		III		8260B	
541-73-1	1,3-Dichlorobenzene				8270C	
56-23-5	Carbon tetrachloride	D		BC	8260B	
563-80-4	3-Methyl-2-butanone		V			8260B
591-78-6	2-Hexanone		III		8260B	

Table B.34. Regulated Detected Organic Compounds with ≥ 10 Detects and Lower Toxicity that are Amenable to the Same Analytical Methods as the Non-detected, Stable Organic Compounds of Higher Toxicity (82 Compounds). (Page 2 of 2)

CAS#	Constituent	UHC Toxicity Category	TAP Toxicity Category	Slope Factor Ranking	SW-846 Method (EPA 1997)	Suggested Method
627-13-4	Nitric acid, propyl ester		IV			8270C
64-17-5	Ethyl alcohol		V		8260B	
64-18-6	Formic acid		III			9056
64-19-7	Acetic acid		III			9056
67-56-1	Methyl alcohol	D	IV		8260B	
67-63-0	2-Propyl alcohol		V		8260B	
67-64-1	2-Propanone (Acetone)		V		8260B	
67-66-3	Chloroform	D		BC	8260B	
71-23-8	n-Propyl alcohol		V		8260B	
71-36-3	n-Butyl alcohol	D	IV		8260B	
71-43-2	Benzene	D		BC	8260B	
71-55-6	1,1,1-Trichloroethane	D	V		8260B	
74-87-3	Chloromethane	C	IV	BC	8260B	
75-00-3	Chloroethane	D	V		8260B	
75-01-4	1-Chloroethene	D		BC	8260B	
75-05-8	Acetonitrile	C	IV		8260B	
75-09-2	Dichloromethane (Methylene Chloride)	D		BC	8260B	
75-15-0	Carbon disulfide	D	III		8260B	
75-34-3	1,1-Dichloroethane	D	V		8260B	
75-35-4	1,1-Dichloroethene	C	III	BC	8260B	
75-43-4	Dichlorofluoromethane		IV			8260B
75-45-6	Chlorodifluoromethane		V			8260B
75-65-0	2-Methyl-2-propanol		IV		8260B	8260B
75-69-4	Trichlorofluoromethane		V		8260B	
75-71-8	Dichlorodifluoromethane		V		8260B	
76-13-1	1,2,2-Trichlorotrifluoroethane		V		8260B	8260B
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane		V		8260B	
78-87-5	1,2-Dichloropropane	D			8260B	
78-92-2	1-Methylpropyl alcohol		IV			8260B
78-93-3	2-Butanone	D	IV		8260B	
79-00-5	1,1,2-Trichloroethane	D	IV	BC	8260B	
79-01-6	1,1,2-Trichloroethylene			BC	8260B	
79-34-5	1,1,2,2-Tetrachloroethane	D	III	BC	8260B	
95-47-6	o-Xylene	D	V		8260B	
95-50-1	1,2-Dichlorobenzene	D	IV		8270C	
96-22-0	3-Pentanone		V			8260B
98-86-2	Acetophenone	D	V		8270C	

CAS# = chemical abstract service number.

EPA = US Environmental Protection Agency.

TAP = toxic air pollutant.

UHC = underlying hazardous constituents.

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Appendix C

Rationale for Selection of Organic Toxic and Carcinogenic Compounds from the Hanford Single-Shell Tank/Double-Shell Tank Waste Considered for Analysis in Support of the Regulatory Data Quality Objective

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Acronyms

ASIL	associated acceptable source impact levels
BC	below cut-point
CFR	<i>Code of Federal Regulations</i>
DQO	Data Quality Objectives
DST	double-shell tank
EPA	U.S. Environmental Protection Agency
HEAST	Health Effects Assessment Summary Tables
IRIS	Integrated Risk Information System
RCRA	<i>Resource Conservation and Recovery Act of 1976</i>
SST	single-shell tank
TAP	Toxic Air Pollutant
TIC	tentative identification of compounds
TWINS	Tank Waste Information Network System
UHC	Underlying Hazardous Constituents
UTS	Universal Treatment Standards
WAC	<i>Washington Administrative Code</i>
WSPS	Waste Stream Profile Sheet

C1.0 Introduction

The objective of this technical rationale is to provide descriptions of the completed activities that answer the question: "What toxic and carcinogenicity organic compounds should be considered for analysis of compounds from the Hanford single-shell and double-shell tank (SST/DST) waste in support of the Regulatory Data Quality Objectives (DQO) for privatization?"

The toxicity information was collected from the following sources:

- Universal Treatment Standards, *Resource Conservation and Recovery Act of 1976 (RCRA)*, 40 *Code of Federal Regulations (CFR)* 268.48,
- *Washington Administrative Code (WAC)* 173-460,
- Health Effects Assessment Summary Tables (HEAST), and
- Integrated Risk Information System (IRIS) database.

The contents of these documents and resources are discussed in detail in Section C2.0, and the relationship of the toxic compounds to the Regulatory DQO analyte selection logic is discussed in Section C3.0. Compounds were divided into those detected in the SST/DST waste and those that were undetected. Undetected compounds were reviewed for stability in the tanks, as described Section C4.0 of the Regulatory DQO, level of toxicity, and carcinogenicity. Compounds rated with higher toxicity and carcinogenicity are included for potential analyses. Compounds detected 10 or more times with lower toxicity are included for potential analyses. The summary of the number of compounds resulting at each point in the evaluation is presented in Table C5, and the final list of compounds remaining for potential analysis is presented in Tables C6 and C7. The referenced figure numbers are based on the figures presented in the Regulatory DQO.¹

The treatment contractor will assess the risk drivers based on information from the source tanks and the process design. Since the designs are not finalized and the treatment facility design information is not available for use in the Regulatory DQO, the toxicity/carcinogenicity evaluation does not pre-suppose risk pathways and receptors. The risk assessment work plan to be completed by the treatment contractor should evaluate the risk pathways and receptors.

¹Some of the tables provided in Appendix C are redundant with Appendix B tables referenced in the main body of the DQO. Redundancy was maintained to provide complete compound traceability to the reader solely interested in toxicity rankings.

C2.0 Regulatory Data Quality Objective Input List

The starting list in the Regulatory DQO contains 850 compounds; 623 are organic compounds. These 623 organic compounds originate from the Underlying Hazardous Constituents (UHC), Universal Treatment Standards (UTS) (40 CFR 268), Toxic Air Pollutant (TAP) Classes A and B lists (WAC 173-460), as well as from the DST Part A permit application and the DST Waste Stream Profile Sheet (WSPS). Table C1 provides the contribution of compounds between the list from the Regulatory DQO input list. From the 623 organic compounds, 518 compounds have a ranking for toxicity or carcinogenicity; 105 compounds do not have an associated ranking. The 105 compounds are listed in Attachment 1. The remainder of Section C2.0 discusses the criteria applied to the compounds to determine toxicity or carcinogenicity ranking.

Table C1. Regulatory Data Quality Objective Input List Distribution for Organic Compounds.

Regulatory Input List	Number of Compounds*
Underlying Hazardous Constituents (UHC)	223
Universal Treatment Standards (UTS)	232
Toxic Air Pollutant A (TAP A)	128
Toxic Air Pollutant B (TAP B)	381
DST Part A permit application	39
DST Waste Stream Profile Sheet (DST WSPS)	1
Total Unique Organic Compounds	623*

*Many compounds are common to multiple regulatory lists; therefore, the total of the individual lists is not the same total as the number of unique organic analytes in the Regulatory DQO starting list.

C2.1 Underlying Hazardous Constituents Toxicity Ranking Criteria

The UHC list was included in the Regulatory DQO starting list. For the UHCs, each compound's toxicity ranking was determined by Rust Federal Services of Hanford, Inc., in accordance with the method provided under the "Dangerous Waste Regulations" [WAC 173-303-100(5)(b)], book designation procedure. This method ranks compounds into toxic categories of X, A, B, C, and D as shown in Table C2. The Regulatory DQO input list contains 223 organic compounds from the UHCs, which are listed in Attachment 2. In the Regulatory DQO logic, regulated compounds with a higher toxicity ranking (X, A, or B) were retained for further consideration.

Table C2. Toxic Categories Used for Ranking Compounds.

Toxic Ranking*	Fish LC ₅₀ (mg/L)	Oral (Rat) LD ₅₀ (mg/kg)	Inhalation (Rat) LC ₅₀ (mg/L)	Dermal (Rabbit) LD ₅₀ (mg/kg)
X	< 0.01	< 0.5	< 0.02	< 2
A	0.01 ≤ 0.1	0.5 ≤ 5	0.02 ≤ 0.2	2 ≤ 20
B	0.1 ≤ 1	5 ≤ 50	0.2 ≤ 2	20 ≤ 200
C	1 ≤ 10	50 ≤ 500	2 ≤ 20	200 ≤ 2,000
D	10 -100	500 -5,000	20 -200	2,000 -20,000

*Toxicity decreases from X to D.

C2.2 WAC 173-460, Class B Toxic Air Pollutant Toxicity Ranking Criteria

The Washington State Department of Ecology (Ecology) published the TAPs in WAC 173-460. WAC 173-460-160 lists 527 compounds from the Class B TAPs and classifies them based on toxicity. The measure of toxicity used for Class B TAPs is based on the TAP's associated acceptable source impact levels (ASIL), which are given in micrograms per cubic meter for a continuous 24-hr period. The smaller the ASIL value the more toxic the compound.

The process used for this assessment sorted all TAPs Class B compounds by their ASIL; from highly toxic to less toxic. The organic compounds were then broken into groups as shown in Table C3. Each compound's ASIL was compared to the comparable toxicity range for the UHC levels X, A, B, C and D. The comparison between the higher toxicity UHCs and the ASILs of the TAP B list resulted in categories I and II being selected to represent higher toxicity. The Regulatory DQO input list contains 381 organic compounds from the Class B TAPs, which are listed in Attachment 3. For the Regulatory DQO logic, the regulated compounds with a higher toxicity ranking (I and II) were retained for further consideration.

Table C3. Prioritization Grouping of Associated Acceptable Source Impact Levels Values.

ASIL Toxicity Range	Ranking*
< 1 $\mu\text{g}/\text{m}^3$ - 24 hour	I
1 $\mu\text{g}/\text{m}^3$ to 10 $\mu\text{g}/\text{m}^3$ - 24 hour	II
> 10 $\mu\text{g}/\text{m}^3$ to 100 $\mu\text{g}/\text{m}^3$ - 24 hour	III
> 100 $\mu\text{g}/\text{m}^3$ to 1,000 $\mu\text{g}/\text{m}^3$ - 24 hour	IV
> 1,000 $\mu\text{g}/\text{m}^3$ - 24 hour	V

*Toxicity decreases from I to V.

C2.3 WAC 173-460, Class A Toxic Air Pollutant Carcinogenicities

Ecology published the TAPs in WAC 173-460. WAC 173-460-150 lists the Class A TAPs that are known or probable carcinogenicities. There are 128 organic compounds that are common to both the Class A TAPs and the Regulatory DQO input list. These compounds are listed in Attachment 4. These compounds are part of the Regulatory DQO initial starting list and ranking for carcinogenicity was done via the approach discussed in Section C2.5.

C2.4 Universal Treatment Standard

The UTS is part of the Regulatory DQO starting list. Comparison of the UTS and the UHC indicates that 22 organic compounds are included on the UTS list that are not part of the UHC list. All the organic UTS compounds were included in the toxicity and carcinogenicity evaluation. No specific ranking was done for the UTS because most of the compounds are covered by the UHC toxicity evaluation. All compounds were evaluated per the approach discussed in Section C2.5 for carcinogenicity. The UTS compounds from the Regulatory DQO input list are shown in Attachment 5.

C2.5 Integrated Risk Information System and Health Effects Assessment

Summary Tables Carcinogenicity Ranking Criteria

The IRIS database and the HEAST are U.S. Environmental Protection Agency (EPA) sources that contain reference doses and carcinogenic potency slope factors for nearly 600 chemicals. The carcinogen rankings were assigned by using the greatest of the two slope factors from IRIS and HEAST, taking the logarithm and sorting the results into the groups listed in Table C4. The cut-off point was set at slope factor = 1. Compounds below slope factor = 1 are designated below cut-point (BC).

Table C4. Prioritization Grouping of $\log_{(10)}$ Slope Factors.

Ranking*	$\log_{(10)}$ Slope Factor	Range of Slope Factors
i	> 3.5	> 3,162
ii	3.5 to > 3.0	3,162 to > 1,000
iii	3.0 to > 2.0	1,000 to > 100
iv	2.0 to > 1.0	100 to > 10
v	1.0 to 0	10 to 1
BC	< 0	< 1

*Carcinogenicity decreases from I to v.

The weight of evidence of the compounds was reviewed. Because the cut-point for inclusion of compounds was set conservatively low, the weight of evidence was not necessary for the evaluation of including or excluding compounds of interest.

There are 48 compounds from the Regulatory DQO starting list that have carcinogenicity rankings above the cut-off point. These compounds are listed in Attachment 6. For the Regulatory DQO logic, regulated compounds with a carcinogenicity ranking of i to v were retained for further consideration.

C3.0 Analyte Selection Logic of the Regulatory Data Quality Objective

The present Regulatory DQO analyte selection logic was applied to the regulated toxins and carcinogens. The following text explains the results of the comparison. References made to items such as "Q2, Q3, Q5-4," etc., refer to the individual queries in the database, and are marked as such on the logic flowchart (Figures 4.1 through 4.6 of the DQO main body). The attachments represent the compounds not considered for analysis in the SST/DST waste. Table C5 summarizes the result of the comparison to the database.

Table C5. Summary Accounting of Regulated Toxins in the Regulatory Data Quality Objective.

Table/Attachment	Contents	Count
Attachment 1	Total number of organics in the DQO starting list	623
Attachment 7	Detected compounds, lower toxicity and less than 10 detects	42
Attachment 8	Undetected compounds removed during "Used in Industries Potentially Unrelated to Hanford" Evaluation	208
Attachment 9	Undetected compounds, considered unstable	179
Attachment 10	Undetected, stable compounds with lower toxicity	65
Attachment 11	Lower toxicity compounds, detected due to common lab contamination	2
Attachment 12	Detected compounds, lower toxicity, not analyzed by methods applicable to higher toxicity compounds	2
Table C6	Detected and undetected, stable compounds with higher toxicity for characterization	44
Table C7	Detected compounds with lower toxicity considered for characterization	81

C3.1 Detected Compounds Not Considered for Analysis

From the list of regulated compounds in Attachments 1 through 5, 42 compounds are not considered for further analysis since they have been detected in the SST/DST waste less than 10 times and have lower toxicity and carcinogenicity (Figure 4.2, Q5-4). These 42 compounds are shown in Attachment 7. Those compounds detected 9 or fewer times were primarily detected in the headspace of the tanks. The primary method of detection is by tentative identification of compounds (TICs) in the tank headspace using gas chromatography/mass spectrometry. Compounds reported as TICs are identified by comparison of mass spectra from the sample to libraries of spectra. The identification and quantitation are not confirmed by the running of standards on the instrument used to analyze the sample. Therefore, significant uncertainty is associated in the identity and quantification of TICs. TICs are identified by either a compound name from best match from the library, as a compound class (e.g., aromatic), or are reported as an unknown. Since these compounds were not detected frequently, are mostly TICs, and are of lower toxicity, additional analyses are not recommended. The detected compounds of higher toxicity (e.g., rankings X, A, B, I, II, or i-v) are considered for analyses.

C3.2 Undetected Compounds Removed During "Used in Industries Potentially Unrelated to Hanford" Evaluation

The Regulatory DQO input list contains 208 regulated compounds that were assigned to "Used in Industries Potentially Unrelated to Hanford" (Wiemers et al. 1998a) (Figure 4.3, Q16-2). These analytes are listed in Attachment 8. Excluded from this list are all chlorinated pesticides and herbicides that remain for tank stability assessment, possible "ghost" compounds, and analytes reported by either Agnew (1997) or Klem (1990).

One example of the logic used to assess a specific toxin as a consumer chemical is presented:

Caprolactam (CAS # 105-60-2) was found at the website NTP CHEMICAL REPOSITORY (RADIAN CORPORATION, AUGUST 29, 1991), http://ntp-db.niehs.nih.gov/NTP_Reports/NTP_Chem_H&S/NTP_Chem1/Radian105-60-2.txt. The information provided in the MSDS states: "*USES: This compound is used in the manufacture of synthetic fibers, plastics, bristles, film, coatings, synthetic leather, plasticizers and paint vehicles. It is a cross-linking agent for polyurethanes and it is used in the synthesis of lysine."

The Tank Waste Information Network System (TWINS) Tank Characterization Database and vapor database does not report any detections in the SST/DST waste for this compound; conversely, documentation is not available to verify if analyses were performed for this compound. The compound Caprolactam was listed as "consumer product" and being "Used in Industries Potentially Unrelated to Hanford."

C3.3 Undetected Compounds, Considered Unstable

The next step in the Regulatory DQO logic is to evaluate the regulated compounds for stability in the tank waste environment (Figure 4.4, Q21R). A total of 179 regulated compounds are considered unstable in the tank waste environment, and did not continue through in the analyte selection logic (Figure 4.4, Q18R). These 179 compounds are listed in Attachment 9. The technical rationale for the stability evaluation can be found in Wiemers et al. (1998b).

C3.4 Undetected, Stable Compounds with Lower Toxicity

The remaining undetected, stable, and potentially used at Hanford analytes were then evaluated for their specific toxicity and carcinogenicity rankings (Figure 4.4, Q24). The selection criteria for toxicity was set so that regulated compounds with a toxicity ranking of X, A, B, I, II, i, ii, iii, iv, or v (see Tables C2, C3, and C4) were retained for further consideration. Of these analytes, 65 compounds are of lower toxicity and carcinogenicity and are listed in Attachment 10 (Figure 4.4, Q24). The compounds in Attachment 10 are not considered for analysis in the SST/DST waste.

C3.5 Lower Toxicity Compounds, Detected Due to Common Lab Contamination

The regulated detected compounds were reviewed to ensure the reported detections are not due to common lab contaminations during the analysis process (Figure 4.6, Q37). From these detections, 2 compounds were reported that are common laboratory contaminants, and were removed from the logic selection process. These 2 compounds are listed in Attachment 11 and are not considered for analysis in the SST/DST waste.

C3.6 Detected Compounds, Lower Toxicity, Not Analyzed by Methods Applicable to Higher Toxicity Compounds

The regulated detected and non-detected compounds with higher toxicity were associated with the respective SW-846 methods for analysis (Figure 4.5, Q36). The selection of methods for the detected compounds of lower toxicity was limited to the methods selected for the compounds of higher toxicity. A comparison (Figure 4.6, Q40b) between the higher and lower toxic compounds showed only 2 compounds that were detected more than 10 times and are not amenable to the same analytical methods that are applicable to the higher toxicity compounds. These compounds are listed in Attachment 12.

C3.7 Priority Regulated Compounds for Characterization in Support of the Regulatory Data Quality Objective

Applying the logic shown in Figure 4.6, Q42 of the logic flowchart, results in a list of compounds that will be used for characterization support of the Regulatory DQO. The priority-regulated compounds are a combination of the compounds that are stable and of higher toxicity, and the detected compounds of lower toxicity. Table C6 lists the 44 detected and undetected, stable compounds with higher toxicity for characterization. Table C7 lists the 81 detected compounds with lower toxicity considered for characterization.

C4.0 Conclusion

The toxic and carcinogenic compounds have been evaluated for their potential past use at Hanford and their current use. The starting list of these compounds is based on regulatory lists discussed in Section 4.0 of the Regulatory DQO. The toxic and carcinogenic compounds considered for analysis of Hanford SST/DST waste in support of the Regulatory DQO for privatization are summarized in Tables C6 and C7.

The compounds considered for additional analysis are:

- Undetected, considered stable in the tank matrix, and of higher toxicity/carcinogenicity,
- Detected and of higher toxicity/carcinogenicity, and
- Detected ≥ 10 times and of lower in toxicity.

C5.0 References

40 CFR 268.48. "Land Disposal Restrictions." *Code of Federal Regulations*, as amended.

Agnew, SM. 1997. *Hanford Tank Chemical and Radionuclide Inventories: HDW Model*. LA-UR-96-3860, Rev. 4. Los Alamos National Laboratory, Los Alamos, New Mexico.

Klem, MJ. 1990. *Inventory of Chemicals Used at Hanford Site Production Plants and Support Operations (1944-1980)*. WHC-EP-0172, Rev. 1. Westinghouse Hanford Company, Richland, Washington.

Resource Conservation and Recovery Act of 1976. 42 USC 6901 et seq.

WAC 173-303-100(5)(b). "Dangerous Waste Regulations." *Washington Administrative Code*, as amended.

WAC 173-460. "Controls for New Sources of Toxic Air Pollutants." *Washington Administrative Code*, as amended.

Weimers, KD, RT Hallen, H Babad, LK Jagoda, and K Meier. 1998a. *A Compilation of Regulated Organic Constituents Not Associated with the Hanford Site, Richland, Washington*. PNNL-11927. Pacific Northwest National Laboratory, Richland, Washington.

Weimers, KD, H Babad, RT Hallen, ME Lerchen, and LP Jackson. 1998b. *An Assessment of the Stability and the Potential for In-Situ Synthesis of Regulated Organic Compounds in High Level Radioactive Waste Stored at Hanford, Richland, Washington*. PNNL-11943. Pacific Northwest National Laboratory, Richland, Washington.

Table C6. Detected and Undetected, Stable Compounds with Higher Toxicity for Characterization. (44 Compounds) (Page 1 of 2)

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking	SW-846 Method	Suggested Method
100-00-5	p-Nitrochlorobenzene		II			8270C
100-25-4	1,4-Dinitrobenzene	B	II		8270C	
106-99-0	1,3-Butadiene			v		8260B
107-02-8	Acrolein	B	I		8260B	
107-05-1	3-Chloropropene	A	II		8260B	
107-12-0	Propionitrile	B			8260B	
107-13-1	Acrylonitrile	B		BC	8260B	
118-74-1	Hexachlorobenzene	C		v	8081A	
121-44-8	Triethylamine	C	II			8260B
126-73-8	Tributyl phosphate		II			8270C
126-98-7	2-Methyl-2-propenenitrile	B	II		8260B	
1321-64-8	Pentachloronaphthalene		II			8270C
1335-87-1	Hexachloronaphthalene		I			8270C
1335-88-2	Tetrachloronaphthalene		II			8270C
1336-36-3	Polychlorinated biphenyls (PCBs)	B		BC	8082	
144-62-7	Oxalic acid		II			9056
2234-13-1	Octachloronaphthalene		I		8081A	
309-00-2	Aldrin	A		iv	8081A	
319-84-6	alpha-BHC	C		v	8081A	
319-85-7	beta-BHC			v	8081A	
3825-26-1	Ammonium perfluorooctanoate		I			8330
465-73-6	Isodrin	B			8081A	
50-32-8	Benzo(a)pyrene			v	8270C	
53-70-3	Dibenz[a,h]anthracene			v	8270C	
57-14-7	1,1-Dimethylhydrazine		II	v		8270C
58-89-9	gamma-BHC (Lindane)	B			8081A	
60-34-4	Methylhydrazine		II			8270C
60-57-1	Dieldrin	X		iv	8081A	
62-75-9	N-Nitroso-N,N-dimethylamine	B		iv	8270C	
624-83-9	Methyl isocyanate		I			8330
684-16-2	Hexafluoroacetone		II			8260B
72-20-8	Endrin	A	I		8081A	
74-83-9	Bromomethane	C	II		8260B	
75-21-8	Oxirane	B		BC	8260B	
76-44-8	Heptachlor	B		v	8081A	
79-10-7	2-Propenoic acid		I			8270C
8001-35-2	Toxaphene	C		v	8081A	
82-68-8	Pentachloronitrobenzene (PCNB)	B	II		8270C	
87-68-3	Hexachlorobutadiene	B	I	BC	8270C	
87-86-5	Pentachlorophenol	B				8270C
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb	B			8151A	

Table C6. Detected and Undetected, Stable Compounds with Higher Toxicity for Characterization. (44 Compounds) (Page 2 of 2)

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking	SW-846 Method	Suggested Method
88-89-1	Picric acid		I			8330
92-52-4	1,1'-Biphenyl		II			8270C
98-95-3	Nitrobenzene	D	II		8270C	

Table C7. Detected Compounds with Lower Toxicity Considered for Characterization. (81 Compounds) (Page 1 of 2)

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking	SW-846 Method	Suggested Method
100-41-4	Ethyl benzene	D	IV		8260B	
100-42-5	Styrene		IV		8260B	
10061-01-5	cis-1,3-Dichloropropene				8260B	
10061-02-6	trans-1,3-Dichloropropene				8260B	
106-35-4	3-Heptanone		IV			8260B
106-42-3	p-Xylene	D	V		8260B	
106-46-7	1,4-Dichlorobenzene	D			8270C	
106-93-4	Ethylene dibromide	C		BC	8260B	
106-97-8	Butane		V			8260B
107-06-2	1,2-Dichloroethane	D		BC	8260B	
107-87-9	2-Pentanone		V		8260B	
108-10-1	4-Methyl-2-pentanone	D	IV		8260B	
108-38-3	m-Xylene	D	V		8260B	
108-87-2	Methylcyclohexane		V			8260B
108-88-3	Toluene	D	IV		8260B	
108-90-7	Chlorobenzene	D	IV		8260B	
108-94-1	Cyclohexanone	C	IV		8260B	
108-95-2	Phenol	C	III		8270C	
109-66-0	n-Pentane		V			8260B
109-99-9	Tetrahydrofuran		V			8270C
110-12-3	5-Methyl-2-hexanone		IV			8260B
110-43-0	2-Heptanone		IV			8260B
110-54-3	n-Hexane		IV		8260B	
110-82-7	Cyclohexane		V			8260B
110-83-8	Cyclohexene		V			8260B
110-86-1	Pyridine	C	III		8270C	
111-65-9	n-Octane		V			8260B
111-84-2	n-Nonane		V			8260B
120-82-1	1,2,4-Trichlorobenzene	D	IV		8270C	
122-39-4	N,N-Diphenylamine	D	III		8270C	
123-19-3	4-Heptanone		IV			8260B
123-38-6	n-Propionaldehyde		V		8260B	
123-86-4	Acetic acid n-butyl ester		V			8260B
123-91-1	1,4-Dioxan	D			8260B	
127-18-4	1,1,2,2-Tetrachloroethene	D		BC	8260B	
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol		III			8270C
141-78-6	Acetic acid ethyl ester	D	V		8260B	
142-82-5	n-Heptane		V			8260B
287-92-3	Cyclopentane		V			8270C
4170-30-3	2-Butenaldehyde		III		8260B	
541-73-1	1,3-Dichlorobenzene				8270C	
56-23-5	Carbon tetrachloride	D		BC	8260B	

Table C7. Detected Compounds with Lower Toxicity Considered for Characterization. (81 Compounds) (Page 2 of 2)

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking	SW-846 Method	Suggested Method
563-80-4	3-Methyl-2-butanone		V			8260B
591-78-6	2-Hexanone		III		8260B	
627-13-4	Nitric acid, propyl ester		IV			8270C
64-17-5	Ethyl alcohol		V		8260B	
64-18-6	Formic acid		III			9056
64-19-7	Acetic acid		III			9056
67-56-1	Methyl alcohol	D	IV		8260B	
67-63-0	2-Propyl alcohol		V		8260B	
67-64-1	2-Propanone (Acetone)		V		8260B	
67-66-3	Chloroform	D		BC	8260B	
71-23-8	n-Propyl alcohol		V		8260B	
71-36-3	n-Butyl alcohol	D	IV		8260B	
71-43-2	Benzene	D		BC	8260B	
71-55-6	1,1,1-Trichloroethane	D	V		8260B	
74-87-3	Chloromethane	C	IV	BC	8260B	
75-00-3	Chloroethane	D	V		8260B	
75-01-4	1-Chloroethene	D		BC	8260B	
75-05-8	Acetonitrile	C	IV		8260B	
75-09-2	Dichloromethane (Methylene Chloride)	D		BC	8260B	
75-15-0	Carbon disulfide	D	III		8260B	
75-34-3	1,1-Dichloroethane	D	V		8260B	
75-35-4	1,1-Dichloroethene	C	III	BC	8260B	
75-43-4	Dichlorofluoromethane		IV			8260B
75-45-6	Chlorodifluoromethane		V			8260B
75-65-0	2-Methyl-2-propanol		IV		8260B	
75-69-4	Trichlorofluoromethane		V		8260B	
75-71-8	Dichlorodifluoromethane		V		8260B	
76-13-1	1,2,2-Trichlorotrifluoroethane		V		8260B	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane		V		8260B	
78-87-5	1,2-Dichloropropane	D			8260B	
78-92-2	1-Methylpropyl alcohol		IV			8260B
78-93-3	2-Butanone	D	IV		8260B	
79-00-5	1,1,2-Trichloroethane	D	IV	BC	8260B	
79-01-6	1,1,2-Trichloroethylene			BC	8260B	
79-34-5	1,1,2,2-Tetrachloroethane	D	III	BC	8260B	
95-47-6	o-Xylene	D	V		8260B	
95-50-1	1,2-Dichlorobenzene	D	IV		8270C	
96-22-0	3-Pentanone		V			8260B
98-86-2	Acetophenone	D	V		8270C	

**Attachment 1. Regulated Organic Compounds Without
Toxicity or Carcinogenicity Ranking.
(105 Compounds) (Page 1 of 3)**

CAS#	Constituent
100-21-0	Phthalic acid
10061-01-5	cis-1,3-Dichloropropene
10061-02-6	trans-1,3-Dichloropropene
101-27-9	Barban
101-55-3	4-Bromophenylphenyl ether
101-77-9	4,4-Methylene dianiline
101-80-4	4,4'-Diaminodiphenyl ether
10605-21-7	Carbendazim
107-30-2	Chloromethyl methyl ether
108-43-0	Chlorophenols
1120-71-4	1,3-Propane sultone
1129-41-5	Metolcarb (3-methylcholanthrene)
117-79-3	2-Aminoanthraquinone
117-84-0	Di-n-octylphthalate
119-38-0	Isolan
119-90-4	3,3'-Dimethoxybenzidine
119-93-7	3,3'-Dimethylbenzidine.
120-12-7	Anthracene
120-58-1	Isosafrole
122-42-9	Propham
126-85-2	Nitrogen mustard N-oxide
129-15-7	2-Methyl-1-nitroanthraquinone
132-64-9	Dibenzofuran
135-20-6	Cupferron
13552-44-8	4,4-Methylenedianiline dihydrochloride
139-91-3	5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone)
1563-38-8	Carbofuran phenol
1615-80-1	N,N'-Diethylhydrazine
1694-09-3	Benzyl violet 4b
17702-57-7	Formparanate
1836-75-5	Nitrofen
189-55-9	Dibenzo[a,i]pyrene
189-64-0	Dibenzo[a,h]pyrene
191-24-2	Benzo(ghi)perylene
191-30-0	Dibenzo(a,l)pyrene
192-65-4	Dibenzo[a,e]pyrene
205-82-3	Benzo[j]fluoranthene
208-96-8	Acenaphthylene
224-42-0	Dibenz[a,j]acridine
226-36-8	Dibenz[a,h]acridine
22961-82-6	Bendiocarb phenol
2303-17-5	Triallate

**Attachment 1. Regulated Organic Compounds Without
Toxicity or Carcinogenicity Ranking.
(105 Compounds) (Page 2 of 3)**

CAS #	Constituent
23422-53-9	Formetanate hydrochloride
23564-05-8	Thiophanate-methyl
2385-85-5	Mirex
2465-27-2	Auramine (technical grade)
2631-37-0	Promecarb
26419-73-8	Tirpate
2646-17-5	Oil orange SS
27154-33-2	Trichlorofluoroethane
28434-86-8	3,3'-Dichloro-4,4'-diaminodiphenyl ether
302-70-5	Nitrogen mustard N-oxide hydrochloride
30558-43-1	A2213
3068-88-0	B-Butyrolactone
3547-04-4	DDE (p,p'-Dichlorodiphenyldichloroethylene)
3697-24-3	5-Methylchrysene
3761-53-3	Ponceau MX
52888-80-9	Prosulfocarb
531-82-8	N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide
53-19-0	o,p'-DDD (2,4'-DDD)
53-96-3	2-Acetylaminofluorene
541-73-1	1,3-Dichlorobenzene
55285-14-8	Carbosulfan
55406-53-6	3-Iodo-2-propynyl n-butylcarbamate
555-84-9	1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone
55738-54-0	trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl)-1,3,4-oxadiazole
56-49-5	3-Methylcholanthrene
57-47-6	Physostigmine
57-64-7	Physostigmine salicylate
584-84-9	2,4-Toluene diisocyanate
592-62-1	Methyl azoxymethyl acetate
5952-26-1	Diethylene glycol, dicarbamate
59669-26-0	Thiodicarb
59-89-2	N-Nitrosomorpholine
602-87-9	5-Nitroacenaphthene
613-35-4	N,N-Diacetylbenzidine
615-53-2	N-Nitroso-N-methylurethane
61-82-5	Amitrole
636-21-5	o-Toluidine hydrochloride
63-92-3	Phenoxybenzamine hydrochloride
64-00-6	m-Cumenyl methylcarbamate
64091-91-4	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone
644-64-4	Dimetilan
67-45-8	Furazolidone

**Attachment 1. Regulated Organic Compounds Without
Toxicity or Carcinogenicity Ranking.
(105 Compounds) (Page 3 of 3)**

CAS #	Constituent
680-31-9	Hexamethylphosphoramide
696-28-6	Dichlorophenylarsine
7421-93-4	Endrin aldehyde
759-73-9	N-Nitroso-N-ethylurea
765-34-4	Glycidylaldehyde
77-78-1	Dimethyl sulfate
789-02-6	o,p'-DDT (2,4'-DDT)
794-93-4	Panfuran S (dihydroxymethylfuratrizine)
83-32-9	Acenaphthene
838-88-0	4,4'-Methylenebis(2-methylaniline)
85-01-8	Phenanthrene
86-73-7	Fluorene
87-65-0	2,6-Dichlorophenol
91-80-5	Methapyrilene
91-94-1	3,3 -Dichlorobenzidine
95-53-4	o-Toluidine (2-methylaniline)
95-54-5	1,2-Phenylenediamine
95-80-7	Toluene-2,4-diamine
96-45-7	Ethylenethiourea
97-56-3	o-Aminoazotoluene
99-55-8	5-Nitro-o-toluidine

**Attachment 2. Regulated Organic Compounds from the
UHC List. (233 Compounds) (Page 1 of 6)**

CAS #	Constituent
100-01-6	4-Nitroaniline
100-02-7	4-Nitrophenol
100-21-0	Phthalic acid
100-25-4	1,4-Dinitrobenzene
100-41-4	Ethyl benzene
10061-01-5	cis-1,3-Dichloropropene
10061-02-6	trans-1,3-Dichloropropene
100-75-4	N-Nitrosopiperidine
101-14-4	4,4'-Methylenebis(2-chloroaniline)
101-55-3	4-Bromophenylphenyl ether
101-90-6	Diglycidyl resorcinol ether
1024-57-3	Heptachlor Epoxide
1031-07-8	Endosulfan Sulfate
105-67-9	2,4-Dimethylphenol
10595-95-6	N-Nitrosomethylethylamine
106-42-3	p-Xylene
106-44-5	4-Methylphenol
106-46-7	1,4-Dichlorobenzene
106-47-8	4-Chloroaniline
106-50-3	p-Phenylenediamine
106-93-4	Ethylene dibromide
107-02-8	Acrolein
107-05-1	3-Chloropropene
107-06-2	1,2-Dichloroethane
107-12-0	Propionitrile
107-13-1	Acrylonitrile
108-10-1	4-Methyl-2-pentanone
108-38-3	m-Xylene
108-39-4	m-Cresol
108-60-1	Bis(2-Chloroisopropyl) ether
108-88-3	Toluene
108-90-7	Chlorobenzene
108-94-1	Cyclohexanone
108-95-2	Phenol
110-75-8	2-Chloroethyl vinyl ether
110-86-1	Pyridine
111-44-4	Bis(2-chloroethyl) ether
1114-71-2	Pebulate
111-91-1	Bis(2-Chloroethoxy)methane
1134-23-2	Cycloate
114-26-1	Propoxur
117-81-7	Bis(2-ethylhexyl) phthalate
117-84-0	Di-n-octylphthalate
118-74-1	Hexachlorobenzene

**Attachment 2. Regulated Organic Compounds from the
UHC List. (233 Compounds) (Page 2 of 6)**

CAS#	Constituent
120-12-7	Anthracene
120-58-1	Isosafrole
120-82-1	1,2,4-Trichlorobenzene
120-83-2	2,4-Dichlorophenol
121-14-2	2,4-Dinitrotoluene
121-44-8	Triethylamine
122-39-4	N,N-Diphenylamine
122-66-7	1,2-Diphenylhydrazine
123-31-9	Hydroquinone
123-91-1	1,4-Dioxan
124-48-1	Dibromochloromethane
126-72-7	Tris(2,3-dibromopropyl) phosphate
126-98-7	2-Methyl-2-propenenitrile
126-99-8	Chloroprene
127-18-4	1,1,2,2-Tetrachloroethene
129-00-0	Pyrene
131-11-3	Dimethyl phthalate
1336-36-3	Polychlorinated biphenyls (PCBs)
134-32-7	alpha-Naphthylamine
135-88-6	N-Phenyl-2-naphthylamine
137-30-4	Ziram
139-65-1	4,4'-Thiodianiline
140-57-8	Aramite
141-78-6	Acetic acid ethyl ester
143-50-0	Kepone
1563-66-2	Carbofuran
156-60-5	1,2-trans-Dichloroethene
1646-88-4	Aldicarb sulfone
16752-77-5	Methomyl
1746-01-6	TCDD (Dioxin/Furan Indicator)
17804-35-2	Benomyl
1888-71-7	Hexachloropropylene
191-24-2	Benzo(ghi)perylene
192-65-4	Dibenzo[a,e]pyrene
1929-77-7	Vernolate
193-39-5	Indeno(1,2,3-cd)pyrene
2008-41-5	Butylate
2032-65-7	Methiocarb
205-99-2	Benzo(b)fluoranthene
206-44-0	Fluoranthene
207-08-9	Benzo(k)fluoranthene
208-96-8	Acenaphthylene
218-01-9	Chrysene
2212-67-1	Molinate

**Attachment 2. Regulated Organic Compounds from the
UHC List. (233 Compounds) (Page 3 of 6)**

CAS #	Constituent
22781-23-3	Bendiocarb
23135-22-0	Oxamy
23950-58-5	Pronamide
298-00-0	Methyl parathion
298-02-2	Phorate
298-04-4	Disulfoton
309-00-2	Aldrin
315-18-4	Mexacarbate
319-84-6	alpha-BHC
319-85-7	beta-BHC
319-86-8	delta-BHC
33213-65-9	Endosulfan II
3424-82-6	o,p'-DDE (2,4'-DDE)
465-73-6	Isodrin
50-29-3	4,4-DDT
50-32-8	Benzo(a)pyrene
504-29-0	2-Aminopyridine
510-15-6	Chlorobenzilate
51-28-5	2,4-Dinitrophenol
528-29-0	Dinitrobenzene, all isomers
52-85-7	Famphur
53-19-0	o,p'-DDD (2,4'-DDD)
534-52-1	4,6-Dinitro-o-cresol
53-70-3	Dibenz[a,h]anthracene
53-96-3	2-Acetylaminofluorene
54-11-5	Nicotine
541-73-1	1,3-Dichlorobenzene
55-18-5	N-Nitrosodiethylamine
55406-53-6	3-Iodo-2-propynyl n-butylcarbamate
56-23-5	Carbon tetrachloride
56-38-2	Parathion
56-49-5	3-Methylcholanthrene
56-55-3	Benzo(a)anthracene
57-74-9	Chlordane
58-89-9	gamma-BHC (Lindane)
58-90-2	2,3,4,6-Tetrachlorophenol
59-50-7	4-Chloro-3-methylphenol
59-89-2	N-Nitrosomorpholine
60-11-7	p-Dimethylaminoazobenzene
60-29-7	Ethyl ether
60-57-1	Dieldrin
606-20-2	2,6-Dinitrotoluene
608-93-5	Pentachlorobenzene
621-64-7	N-Nitroso-di-n-propylamine

**Attachment 2. Regulated Organic Compounds from the
UHC List. (233 Compounds) (Page 4 of 6)**

CAS #	Constituent
62-44-2	Phenacetin
62-53-3	Aniline
62-75-9	N-Nitroso-N,N-dimethylamine
630-20-6	1,1,1,2-Tetrachloroethane
63-25-2	Carbaryl
66-27-3	Methyl methanesulfonate
67-56-1	Methyl alcohol
67-64-1	2-Propanone (Acetone)
67-66-3	Chloroform
67-72-1	Hexachloroethane
71-36-3	n-Butyl alcohol
71-43-2	Benzene
71-55-6	1,1,1-Trichloroethane
72-20-8	Endrin
72-43-5	Methoxychlor
72-54-8	4,4-DDD
72-55-9	4,4-DDE
7421-93-4	Endrin aldehyde
74-83-9	Bromomethane
74-87-3	Chloromethane
74-88-4	Iodomethane
74-95-3	Dibromomethane
75-00-3	Chloroethane
75-01-4	1-Chloroethene
75-05-8	Acetonitrile
75-09-2	Dichloromethane (Methylene Chloride)
75-15-0	Carbon disulfide
75-21-8	Oxirane
75-25-2	Tribromomethane
75-27-4	Bromodichloromethane
75-34-3	1,1-Dichloroethane
75-35-4	1,1-Dichloroethene
75-52-5	Nitromethane
75-69-4	Trichlorofluoromethane
75-71-8	Dichlorodifluoromethane
759-94-4	EPTC
76-01-7	Pentachloroethane
76-13-1	1,2,2-Trichlorotrifluoroethane
76-44-8	Heptachlor
77-47-4	Hexachlorocyclopentadiene
78-83-1	2-Methylpropyl alcohol
78-87-5	1,2-Dichloropropane
789-02-6	o,p'-DDT (2,4'-DDT)
78-93-3	2-Butanone

**Attachment 2. Regulated Organic Compounds from the
UHC List. (233 Compounds) (Page 5 of 6)**

CAS #	Constituent
79-00-5	1,1,2-Trichloroethane
79-01-6	1,1,2-Trichloroethylene
79-06-1	Acrylamide
79-34-5	1,1,2,2-Tetrachloroethane
8001-35-2	Toxaphene
80-62-6	Methyl methacrylate
82-68-8	Pentachloronitrobenzene (PCNB)
83-32-9	Acenaphthene
84-66-2	Diethyl phthalate
84-74-2	Di-n-butylphthalate
85-01-8	Phenanthrene
85-44-9	Phthalic anhydride
85-68-7	Butylbenzylphthalate
86-30-6	N-Nitrosodiphenylamine
86-73-7	Fluorene
87-65-0	2,6-Dichlorophenol
87-68-3	Hexachlorobutadiene
87-86-5	Pentachlorophenol
88-06-2	2,4,6-Trichlorophenol
88-74-4	2-Nitroaniline
88-75-5	2-Nitrophenol
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb
91-20-3	Naphthalene
91-58-7	2-Chloronaphthalene
91-59-8	2-Naphthylamine
91-80-5	Methapyrilene
924-16-3	N-Nitrosodi-n-butylamine
92-67-1	4-Aminobiphenyl
930-55-2	N-Nitrosopyrrolidine
93-72-1	Silvex (2,4,5-TP)
93-76-5	2,4,5-T
94-59-7	Safrole
94-75-7	2,4-D
95-47-6	o-Xylene
95-48-7	o-Cresol
95-50-1	1,2-Dichlorobenzene
95-57-8	2-Chlorophenol
95-94-3	1,2,4,5-Tetrachlorobenzene
95-95-4	2,4,5-Trichlorophenol
959-98-8	Endosulfan I
96-12-8	1,2-Dibromo-3-chloropropane
96-18-4	1,2,3-Trichloropropane
97-63-2	Ethyl methacrylate
98-86-2	Acetophenone

**Attachment 2. Regulated Organic Compounds from the
UHC List. (233 Compounds) (Page 6 of 6)**

CAS #	Constituent
98-87-3	Benzal chloride
98-95-3	Nitrobenzene
99-55-8	5-Nitro-o-toluidine

**Attachment 3. Regulated Organic Compounds from the
TAP B List. (381 Compounds) (Page 1 of 9)**

CAS #	Constituent
100-00-5	p-Nitrochlorobenzene
100-01-6	4-Nitroaniline
100-02-7	4-Nitrophenol
100-37-8	Diethylaminoethanol
100-42-5	Styrene
100-44-7	Benzyl chloride
100-61-8	N-Methylbenzenamine
100-63-0	Phenylhydrazine
100-74-3	N-Ethylmorpholine
101-68-8	Methylene bis(phenyl isocyanate)
101-84-8	Diphenyl ether
102-81-8	2-N-Dibutylaminoethanol
105-46-4	sec-Butyl acetate
105-60-2	Caprolactam, vapor
105-60-2a	Caprolactam, dust
106-35-4	3-Heptanone
106-49-0	p-Toluidine
106-50-3	p-Phenylenediamine
106-51-4	p-Benzoquinone
106-87-6	Vinyl cyclohexene dioxide
106-88-7	1,2-Epoxybutane
106-92-3	Allyl glycidyl ether
106-97-8	Butane
107-02-8	Acrolein
107-05-1	3-Chloropropene
107-07-3	Ethylene chlorohydrin
107-15-3	Ethylene diamine
107-18-6	2-Propen-1-ol
107-19-7	Propargyl alcohol
107-20-0	Chloroacetaldehyde
107-21-1	Ethylene glycol
107-31-3	Formic acid, methyl ester
107-41-5	Hexylene glycol
107-49-3	Tetraethyl pyrophosphate
107-66-4	Dibutylphosphate
107-87-9	2-Pentanone
107-98-2	Propylene glycol monomethyl ether
108-03-2	1-Nitropropane
108-05-4	Acetic acid vinyl ester
108-10-1	4-Methyl-2-pentanone
108-11-2	Methyl isobutyl carbinol
108-18-9	Diisopropylamine
108-20-3	Bis(isopropyl) ether
108-21-4	Isopropyl acetate
108-24-7	Acetic anhydride

**Attachment 3. Regulated Organic Compounds from the
TAP B List. (381 Compounds) (Page 2 of 9)**

CAS #	Constituent
108-31-6	Maleic anhydride (2,5-Furandione)
108-39-4	m-Cresol
108-44-1	m-Toluidine
108-46-3	Resorcinol (1,3-Benzenediol)
108-83-8	Diisobutyl ketone
108-84-9	sec-Hexyl acetate
108-87-2	Methylcyclohexane
108-88-3	Toluene
108-90-7	Chlorobenzene
108-91-8	Cyclohexylamine
108-93-0	Cyclohexanol
108-94-1	Cyclohexanone
108-95-2	Phenol
108-98-5	Thiophenol
109-59-1	Isopropoxyethanol
109-60-4	n-Propyl acetate
109-66-0	n-Pentane
109-73-9	n-Butylamine
109-79-5	n-Butyl mercaptan
109-86-4	2-Methoxyethanol
109-87-5	Methylal
109-89-7	Diethylamine
109-94-4	Ethyl formate
109-99-9	Tetrahydrofuran
110-12-3	5-Methyl-2-hexanone
110-19-0	Isobutyl acetate
110-43-0	2-Heptanone
110-49-6	2-Methoxyethyl acetate
110-54-3	n-Hexane
110-62-3	n-Valeraldehyde
110-80-5	2-Ethoxyethanol
110-82-7	Cyclohexane
110-83-8	Cyclohexene
110-86-1	Pyridine
110-91-8	Morpholine
111-15-9	2-Ethoxyethyl acetate
111-30-8	Glutaraldehyde
111-40-0	Diethylene triamine
111-42-2	Diethanolamine
111-65-9	n-Octane
111-76-2	2-Butoxyethanol
111-84-2	n-Nonane
114-26-1	Propoxur
115-29-7	Endosulfan
115-86-6	Triphenyl phosphate

**Attachment 3. Regulated Organic Compounds from the
TAP B List. (381 Compounds) (Page 3 of 9)**

CAS #	Constituent
115-90-2	Fensulfothion
118-52-5	1,3-Dichloro-5,5-Dimethyl hydantoin
118-96-7	2,4,6-Trinitrotoluene
120-80-9	Catechol
120-82-1	1,2,4-Trichlorobenzene
121-14-2	2,4-Dinitrotoluene
121-44-8	Triethylamine
121-45-9	Trimethyl phosphite
121-69-7	Dimethylaniline
121-75-5	Malathion
121-82-4	Cyclonite
122-39-4	N,N-Diphenylamine
122-60-1	Phenyl glycidyl ether
123-19-3	4-Heptanone
123-31-9	Hydroquinone
123-38-6	n-Propionaldehyde
123-42-2	Diacetone alcohol
123-51-3	3-Methyl-1-butanol
123-86-4	Acetic acid n-butyl ester
123-92-2	Isoamyl acetate
124-40-3	Dimethylamine
126-73-8	Tributyl phosphate
126-98-7	2-Methyl-2-propenenitrile
127-19-5	N,N-Dimethylacetamide
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol
1300-73-8	Xylidine
131-11-3	Dimethyl phthalate
13121-70-5	Cyhexatin
1321-64-8	Pentachloronaphthalene
1321-65-9	Trichloronaphthalene
1321-74-0	Divinyl benzene
133-06-2	Captan
1335-87-1	Hexachloronaphthalene
1335-88-2	Tetrachloronaphthalene
1338-23-4	Methyl ethyl ketone peroxide
133-90-4	Chloramben
136-78-7	Sesone
137-05-3	Methyl-2-cyanoacrylate
137-26-8	Thiram
138-22-7	n-Butyl lactate
13838-16-9	Enflurane
1395-21-7	Subtilisins
140-88-5	Ethylacrylate
141-32-2	Butylacrylate
141-43-5	Ethanolamine

**Attachment 3. Regulated Organic Compounds from the
TAP B List. (381 Compounds) (Page 4 of 9)**

CAS #	Constituent
141-66-2	Dicrotophos
141-78-6	Acetic acid ethyl ester
141-79-7	4-Methyl-3-penten-2-one
142-64-3	Piperazine dihydrochloride
142-82-5	n-Heptane
144-62-7	Oxalic acid
14484-64-1	Ferbam
1477-55-0	m-Xylene-a,a'-diamine
148-01-6	Dinitolamide
150-76-5	4-Methoxyphenol
151-56-4	Ethyleneimine
151-67-7	Halothane
1563-66-2	Carbofuran
1582-09-8	Trifluralin
16219-75-3	Ethylidene norbornene
1634-04-4	Methyl tert-butyl ether
16752-77-5	Methomyl
17804-35-2	Benomyl
1912-24-9	Atrazine
1918-02-1	Picloram
1929-82-4	Nitrapyrin
2039-87-4	o-Chlorostyrene
2104-64-5	EPN
21087-64-9	Metribuzin
2179-59-1	Allyl propyl disulfide
22224-92-6	Fenamiphos
2234-13-1	Octachloronaphthalene
2238-07-5	Diglycidyl ether
2425-06-1	Captafol
2426-08-6	n-Butyl glycidyl ether
25013-15-4	Vinyl toluene
2551-13-7	Trimethyl benzene
25639-42-3	Methylcyclohexanol
26140-60-3	Terphenyls
26952-21-6	Iso-octyl alcohol
2698-41-1	o-Chlorobenzylidene malonitrile
287-92-3	Cyclopentane
29191-52-4	Anisidine (o-,p- isomers)
2921-88-2	Chlorpyrifos
2971-90-6	Clopidol
298-00-0	Methyl parathion
298-02-2	Phorate
298-04-4	Disulfoton
299-84-3	Ronnel
299-86-5	Crufomate

**Attachment 3. Regulated Organic Compounds from the
TAP B List. (381 Compounds) (Page 5 of 9)**

CAS #	Constituent
300-76-5	Naled
314-40-9	Bromacil
330-54-1	Diuron
3333-52-6	Tetramethyl succinonitrile
333-41-5	Diazinon
334-88-3	Diazomethane
3383-96-8	Temephos
34590-94-8	Dipropylene glycol methyl ether
35400-43-2	Sulprofos
3689-24-5	Tetraethyldithiopyrophosphate (TEDP)
3825-26-1	Ammonium perfluorooctanoate
4016-14-2	Isopropyl glycidyl ether (IGE)
4098-71-9	Isophorone diisocyanate
4170-30-3	2-Butenaldehyde
420-04-2	Cyanamide
463-51-4	Ketene
4685-14-7	Paraquat
479-45-8	Tetryl
504-29-0	2-Aminopyridine
509-14-8	Tetranitromethane
5124-30-1	Methylene-bis-(4-cyclo-hexylisocyanate)
51-28-5	2,4-Dinitrophenol
51-79-6	Ethyl carbamate (urethane)
528-29-0	Dinitrobenzene, all isomers
532-27-4	a-Chloroacetophenone
534-52-1	4,6-Dinitro-o-cresol
540-59-0	1,2-Dichloroethylene
540-84-1	2,2,4-Trimethylpentane
540-88-5	tert-Butyl acetate
54-11-5	Nicotine
541-85-5	Ethyl amyl ketone
542-75-6	1,3-Dichloropropene
542-92-7	Cyclopentadiene
552-30-7	Trimellitic anhydride
55-38-9	Fenthion
55-63-0	Nitroglycerin
556-52-5	Glycidol
55720-99-5	Chlorinated diphenyl oxide
563-12-2	Ethion
563-80-4	3-Methyl-2-butanone
56-38-2	Parathion
57-14-7	1,1-Dimethylhydrazine
57-24-9	Strychnine
57-57-8	B-Propiolactone
583-60-8	o-Methylcyclohexanone

**Attachment 3. Regulated Organic Compounds from the
TAP B List. (381 Compounds) (Page 6 of 9)**

CAS #	Constituent
591-78-6	2-Hexanone
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)
593-60-2	Vinyl bromide
594-42-3	Perchloromethyl mercaptan
594-72-9	1,1-Dichloro-1-nitroethane
600-25-9	1-Chloro-1-nitropropane
60-11-7	p-Dimethylaminoazobenzene
60-29-7	Ethyl ether
603-34-9	Triphenyl amine
60-34-4	Methylhydrazine
60-35-5	Acetamide
624-83-9	Methyl isocyanate
62-53-3	Aniline
626-17-5	m-Phthalodinitrile
626-38-0	sec-Amyl acetate
627-13-4	Nitric acid, propyl ester
62-73-7	Dichlorvas
62-74-8	Fluoroacetic acid, sodium salt (Fratol)
628-63-7	n-Amyl acetate
628-96-6	Ethylene glycol dinitrate
63-25-2	Carbaryl
638-21-1	Phenylphosphine
64-17-5	Ethyl alcohol
64-18-6	Formic acid
64-19-7	Acetic acid
6423-43-4	Propylene glycol dinitrate
64-67-5	Diethyl sulfate
67-56-1	Methyl alcohol
67-63-0	2-Propyl alcohol
67-64-1	2-Propanone (Acetone)
67-72-1	Hexachloroethane
68-11-1	Thioglycolic acid
68-12-2	Dimethylformamide
681-84-5	Methyl silicate
684-16-2	Hexafluoroacetone
68476-85-7	Liquified petroleum gas
684-93-5	N-Nitroso-N-methylurea
6923-22-4	Monocrotophos
71-23-8	n-Propyl alcohol
71-36-3	n-Butyl alcohol
71-55-6	1,1,1-Trichloroethane
72-20-8	Endrin
72-43-5	Methoxychlor
74-83-9	Bromomethane
74-87-3	Chloromethane

**Attachment 3. Regulated Organic Compounds from the
TAP B List. (381 Compounds) (Page 7 of 9)**

CAS #	Constituent
74-88-4	Iodomethane
74-89-5	Methylamine
74-93-1	Thiomethanol
74-96-4	Ethyl bromide
74-97-5	Bromochloromethane
74-99-7	Methylacetylene
75-00-3	Chloroethane
75-04-7	Ethylamine
75-05-8	Acetonitrile
75-08-1	Ethyl mercaptan
75-12-7	Formamide
75-15-0	Carbon disulfide
75-31-0	Isopropylamine
75-34-3	1,1-Dichloroethane
75-35-4	1,1-Dichloroethene
75-43-4	Dichlorofluoromethane
75-45-6	Chlorodifluoromethane
75-47-8	Iodoform
75-50-3	Trimethylamine
75-52-5	Nitromethane
75-55-8	2-Methylaziridine
75-61-6	Difluorodibromomethane
75-63-8	Trifluorobromomethane
75-65-0	2-Methyl-2-propanol
75-69-4	Trichlorofluoromethane
75-71-8	Dichlorodifluoromethane
7572-29-4	Dichloroacetylene
75-99-0	2,2-Dichloropropionic acid
76-03-9	Trichloroacetic acid
76-06-2	Chloropicrin
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane
76-13-1	1,2,2-Trichlorotrifluoroethane
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane
76-15-3	Chloropentafluoroethane
76-22-2	Camphor, synthetic
768-52-5	N-Isopropylaniline
77-47-4	Hexachlorocyclopentadiene
77-73-6	Dicyclopentadiene
7782-41-4	Fluorine
7786-34-7	Mevinphos
7803-51-2	Phosphine
78-10-4	Ethyl silicate
78-30-8	Triorthocresyl phosphate
78-34-2	Dioxathion

**Attachment 3. Regulated Organic Compounds from the
TAP B List. (381 Compounds) (Page 8 of 9)**

CAS #	Constituent
78-59-1	Isophorone
78-83-1	2-Methylpropyl alcohol
78-92-2	1-Methylpropyl alcohol
78-93-3	2-Butanone
79-00-5	1,1,2-Trichloroethane
79-04-9	Chloroacetyl chloride
79-09-4	Propanoic acid
79-10-7	2-Propenoic acid
79-11-8	Chloroacetic acid
79-20-9	Methyl acetate
79-24-3	Nitroethane
79-27-6	Acetylene tetrabromide
79-34-5	1,1,2,2-Tetrachloroethane
79-41-4	Methacrylic acid
79-44-7	Dimethylcarbamoyl chloride
8003-34-7	Pyrethrum
8006-64-2	Turpentine
8022-00-2	Methyl demeton
8052-42-4	Asphalt (petroleum) fumes
80-62-6	Methyl methacrylate
8065-48-3	Demeton
81-81-2	Warfarin (>0.3%)
81-81-2a	Warfarin (<0.3%)
822-06-0	Hexamethylene diisocyanate
82-68-8	Pentachloronitrobenzene (PCNB)
83-26-1	Pindone
83-79-4	Rotenone
84-66-2	Diethyl phthalate
84-74-2	Di-n-butylphthalate
85-00-7	Diquat
85-44-9	Phthalic anhydride
86-50-0	Azinphos-methyl
86-88-4	alpha-Naphthylthiourea
87-68-3	Hexachlorobutadiene
88-72-2	Nitrotoluene
88-89-1	Picric acid
89-72-5	o-sec-Butylphenol
91-20-3	Naphthalene
91-22-5	Quinoline
92-52-4	1,1'-Biphenyl
92-84-2	Phenothiazine
92-93-3	4-Nitrobiphenyl
93-76-5	2,4,5-T
94-36-0	Benzoyl Peroxide
944-22-9	Fonofos

**Attachment 3. Regulated Organic Compounds from the
TAP B List. (381 Compounds) (Page 9 of 9)**

CAS #	Constituent
95-13-6	Indene
95-48-7	o-Cresol
95-49-8	o-Chlorotoluene
95-50-1	1,2-Dichlorobenzene
95-95-4	2,4,5-Trichlorophenol
96-09-3	Styrene oxide
96-12-8	1,2-Dibromo-3-chloropropane
96-18-4	1,2,3-Trichloropropane
96-22-0	3-Pentanone
96-33-3	Methyl acrylate
96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide
97-77-8	Disulfiram
98-00-1	Furfuryl alcohol
98-01-1	Furfural
98-07-7	Benzotrichloride
98-51-1	p-tert-Butyltoluene
98-82-2	Cumene
98-83-9	Methylstyrene
98-86-2	Acetophenone
98-95-3	Nitrobenzene
999-61-1	2-Hydroxypropyl acrylate

**Attachment 4. Regulated Organic Compounds from the
TAP A List. (128 Compounds) (Page 1 of 3)**

CAS #	Constituent
101-14-4	4,4'-Methylenebis(2-chloroaniline)
101-77-9	4,4-Methylene dianiline
101-80-4	4,4'-Diaminodiphenyl ether
101-90-6	Diglycidyl resorcinol ether
10595-95-6	N-Nitrosomethylethylamine
106-46-7	1,4-Dichlorobenzene
106-89-8	Epichlorohydrin
106-93-4	Ethylene dibromide
106-99-0	1,3-Butadiene
107-06-2	1,2-Dichloroethane
107-13-1	Acrylonitrile
107-30-2	Chloromethyl methyl ether
108-43-0	Chlorophenols
111-44-4	Bis(2-chloroethyl) ether
1120-71-4	1,3-Propane sultone
117-79-3	2-Aminoanthraquinone
117-81-7	Bis(2-ethylhexyl) phthalate
118-74-1	Hexachlorobenzene
119-90-4	3,3'-Dimethoxybenzidine
119-93-7	3,3'-Dimethylbenzidine.
122-66-7	1,2-Diphenylhydrazine
123-91-1	1,4-Dioxan
126-85-2	Nitrogen mustard N-oxide
126-99-8	Chloroprene
127-18-4	1,1,2,2-Tetrachloroethene
129-15-7	2-Methyl-1-nitroanthraquinone
132-64-9	Dibenzofuran
1336-36-3	Polychlorinated biphenyls (PCBs)
134-32-7	alpha-Naphthylamine
135-20-6	Cupferron
13552-44-8	4,4-Methylenedianiline dihydrochloride
139-65-1	4,4'-Thiodianiline
139-91-3	5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone)
1615-80-1	N,N'-Diethylhydrazine
1694-09-3	Benzyl violet 4b
1746-01-6	TCDD (Dioxin/Furan Indicator)
1836-75-5	Nitrofen
189-55-9	Dibenzo[a,i]pyrene
189-64-0	Dibenzo[a,h]pyrene
191-30-0	Dibenzo(a,l)pyrene
192-65-4	Dibenzo[a,e]pyrene
193-39-5	Indeno(1,2,3-cd)pyrene
205-82-3	Benzo[j]fluoranthene
205-99-2	Benzo(b)fluoranthene

**Attachment 4. Regulated Organic Compounds from the
TAP A List. (128 Compounds) (Page 2 of 3)**

CAS #	Constituent
207-08-9	Benzo(k)fluoranthene
224-42-0	Dibenz[a,j]acridine
226-36-8	Dibenz[a,h]acridine
2385-85-5	Mirex
2465-27-2	Auramine (technical grade)
2646-17-5	Oil orange SS
28434-86-8	3,3'-Dichloro-4,4'-diaminodiphenyl ether
302-01-2	Hydrazine
302-70-5	Nitrogen mustard N-oxide hydrochloride
3068-88-0	B-Butyrolactone
309-00-2	Aldrin
319-84-6	alpha-BHC
319-85-7	beta-BHC
3547-04-4	DDE (p,p'-Dichlorodiphenyldichloroethylene)
3697-24-3	5-Methylchrysene
3761-53-3	Ponceau MX
50-00-0	Formaldehyde
50-29-3	4,4-DDT
50-32-8	Benzo(a)pyrene
510-15-6	Chlorobenzilate
531-82-8	N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide
53-70-3	Dibenz[a,h]anthracene
53-96-3	2-Acetylaminofluorene
540-73-8	1,2-Dimethylhydrazine
542-88-1	Dichloromethyl ether
55-18-5	N-Nitrosodiethylamine
555-84-9	1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone
55738-54-0	trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl-1,3,4-oxadiazole
56-23-5	Carbon tetrachloride
56-55-3	Benzo(a)anthracene
57-74-9	Chlordane
584-84-9	2,4-Toluene diisocyanate
58-89-9	gamma-BHC (Lindane)
592-62-1	Methyl azoxymethyl acetate
59-87-0	Nitrofurazone
59-89-2	N-Nitrosomorpholine
602-87-9	5-Nitroacenaphthene
60-57-1	Dieldrin
613-35-4	N,N-Diacetylbenzidine
615-53-2	N-Nitroso-N-methylurethane
61-82-5	Amitrole
621-64-7	N-Nitroso-di-n-propylamine
62-53-3	Aniline
62-75-9	N-Nitroso-N,N-dimethylamine

**Attachment 4. Regulated Organic Compounds from the
TAP A List. (128 Compounds) (Page 3 of 3)**

CAS #	Constituent
636-21-5	o-Toluidine hydrochloride
63-92-3	Phenoxybenzamine hydrochloride
64091-91-4	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone
67-45-8	Furazolidone
67-66-3	Chloroform
680-31-9	Hexamethylphosphoramide
696-28-6	Dichlorophenylarsine
71-43-2	Benzene
75-01-4	1-Chloroethene
75-07-0	Acetaldehyde
75-09-2	Dichloromethane (Methylene Chloride)
75-21-8	Oxirane
75-25-2	Tribromomethane
75-56-9	Propylene oxide
759-73-9	N-Nitroso-N-ethylurea
764-41-0	1,4-Dichloro-2-butene
76-44-8	Heptachlor
765-34-4	Glycidylaldehyde
77-78-1	Dimethyl sulfate
78-87-5	1,2-Dichloropropane
79-01-6	1,1,2-Trichloroethylene
79-06-1	Acrylamide
79-46-9	2-Nitropropane
794-93-4	Panfuran S (dihydroxymethylfuratrizine)
8001-35-2	Toxaphene
8001-58-9	Creosote
838-88-0	4,4'-Methylenebis(2-methylaniline)
86-30-6	N-Nitrosodiphenylamine
87-86-5	Pentachlorophenol
88-06-2	2,4,6-Trichlorophenol
90-04-0	o-Anisidine
91-94-1	3,3'-Dichlorobenzidine
924-16-3	N-Nitrosodi-n-butylamine
92-67-1	4-Aminobiphenyl
92-87-5	Benzidine
94-75-7	2,4-D
95-53-4	o-Toluidine (2-methylaniline)
95-80-7	Toluene-2,4-diamine
96-45-7	Ethylenethiourea
97-56-3	o-Aminoazotoluene

**Attachment 5. Regulated Organic Compounds from the
UTS List. (232 Compounds) (Page 1 of 6)**

CAS #	Constituent
100-01-6	4-Nitroaniline
100-02-7	4-Nitrophenol
100-25-4	1,4-Dinitrobenzene
100-41-4	Ethyl benzene
10061-01-5	cis-1,3-Dichloropropene
10061-02-6	trans-1,3-Dichloropropene
100-75-4	N-Nitrosopiperidine
101-14-4	4,4'-Methylenebis(2-chloroaniline)
101-27-9	Barban
101-55-3	4-Bromophenylphenyl ether
1024-57-3	Heptachlor Epoxide
1031-07-8	Endosulfan Sulfate
105-67-9	2,4-Dimethylphenol
10595-95-6	N-Nitrosomethylethylamine
10605-21-7	Carbendazim
106-42-3	p-Xylene
106-44-5	4-Methylphenol
106-46-7	1,4-Dichlorobenzene
106-47-8	4-Chloroaniline
106-93-4	Ethylene dibromide
107-02-8	Acrolein
107-05-1	3-Chloropropene
107-06-2	1,2-Dichloroethane
107-12-0	Propionitrile
107-13-1	Acrylonitrile
108-10-1	4-Methyl-2-pentanone
108-38-3	m-Xylene
108-39-4	m-Cresol
108-60-1	Bis(2-Chloroisopropyl) ether
108-88-3	Toluene
108-90-7	Chlorobenzene
108-94-1	Cyclohexanone
108-95-2	Phenol
110-75-8	2-Chloroethyl vinyl ether
110-86-1	Pyridine
111-44-4	Bis(2-chloroethyl) ether
1114-71-2	Pebulate
111-91-1	Bis(2-Chloroethoxy)methane
1129-41-5	Metolcarb (3-methylcholanthrene)
114-26-1	Propoxur
117-81-7	Bis(2-ethylhexyl) phthalate
117-84-0	Di-n-octylphthalate
118-74-1	Hexachlorobenzene
119-38-0	Isolan

**Attachment 5. Regulated Organic Compounds from the
UTS List. (232 Compounds) (Page 2 of 6)**

CAS #	Constituent
120-12-7	Anthracene
120-58-1	Isosafrole
120-82-1	1,2,4-Trichlorobenzene
120-83-2	2,4-Dichlorophenol
121-14-2	2,4-Dinitrotoluene
121-44-8	Triethylamine
122-39-4	N,N-Diphenylamine
122-42-9	Propham
122-66-7	1,2-Diphenylhydrazine
123-91-1	1,4-Dioxan
124-48-1	Dibromochloromethane
126-72-7	Tris(2,3-dibromopropyl) phosphate
126-98-7	2-Methyl-2-propenenitrile
126-99-8	Chloroprene
127-18-4	1,1,2,2-Tetrachloroethene
129-00-0	Pyrene
131-11-3	Dimethyl phthalate
1336-36-3	Polychlorinated biphenyls (PCBs)
137-30-4	Ziram
140-57-8	Aramite
141-78-6	Acetic acid ethyl ester
143-50-0	Kepone
1563-38-8	Carbofuran phenol
1563-66-2	Carbofuran
156-60-5	1,2-trans-Dichloroethene
1646-88-4	Aldicarb sulfone
16752-77-5	Methomyl
17702-57-7	Formparanate
17804-35-2	Benomyl
1888-71-7	Hexachloropropylene
191-24-2	Benzo(ghi)perylene
192-65-4	Dibenzo[a,e]pyrene
1929-77-7	Vernolate
193-39-5	Indeno(1,2,3-cd)pyrene
2008-41-5	Butylate
2032-65-7	Methiocarb
205-99-2	Benzo(b)fluoranthene
206-44-0	Fluoranthene
207-08-9	Benzo(k)fluoranthene
208-96-8	Acenaphthylene
218-01-9	Chrysene
2212-67-1	Molinate
22781-23-3	Bendiocarb
22961-82-6	Bendiocarb phenol

**Attachment 5. Regulated Organic Compounds from the
UTS List. (232 Compounds) (Page 3 of 6)**

CAS #	Constituent
2303-17-5	Triallate
23135-22-0	Oxamy
23422-53-9	Formetanate hydrochloride
23564-05-8	Thiophanate-methyl
23950-58-5	Pronamide
2631-37-0	Promecarb
26419-73-8	Tirpate
298-00-0	Methyl parathion
298-02-2	Phorate
298-04-4	Disulfoton
30558-43-1	A2213
309-00-2	Aldrin
315-18-4	Mexacarbate
319-84-6	alpha-BHC
319-85-7	beta-BHC
319-86-8	delta-BHC
33213-65-9	Endosulfan II
3424-82-6	o,p'-DDE (2,4'-DDE)
465-73-6	Isodrin
50-29-3	4,4-DDT
50-32-8	Benzo(a)pyrene
510-15-6	Chlorobenzilate
51-28-5	2,4-Dinitrophenol
52-85-7	Famphur
52888-80-9	Prosulfocarb
53-19-0	o,p'-DDD (2,4'-DDD)
534-52-1	4,6-Dinitro-o-cresol
53-70-3	Dibenz[a,h]anthracene
53-96-3	2-Acetylaminofluorene
541-73-1	1,3-Dichlorobenzene
55-18-5	N-Nitrosodiethylamine
55285-14-8	Carbosulfan
56-23-5	Carbon tetrachloride
56-38-2	Parathion
56-49-5	3-Methylcholanthrene
56-55-3	Benzo(a)anthracene
57-47-6	Physostigmine
57-64-7	Physostigmine salicylate
57-74-9	Chlordane
58-89-9	gamma-BHC (Lindane)
58-90-2	2,3,4,6-Tetrachlorophenol
59-50-7	4-Chloro-3-methylphenol
5952-26-1	Diethylene glycol, dicarbamate
59669-26-0	Thiodicarb

**Attachment 5. Regulated Organic Compounds from the
UTS List. (232 Compounds) (Page 4 of 6)**

CAS#	Constituent
59-89-2	N-Nitrosomorpholine
60-11-7	p-Dimethylaminoazobenzene
60-29-7	Ethyl ether
60-57-1	Dieldrin
606-20-2	2,6-Dinitrotoluene
608-93-5	Pentachlorobenzene
621-64-7	N-Nitroso-di-n-propylamine
62-44-2	Phenacetin
62-53-3	Aniline
62-75-9	N-Nitroso-N,N-dimethylamine
630-20-6	1,1,1,2-Tetrachloroethane
63-25-2	Carbaryl
64-00-6	m-Cumenyl methylcarbamate
644-64-4	Dimetilan
66-27-3	Methyl methanesulfonate
67-56-1	Methyl alcohol
67-64-1	2-Propanone (Acetone)
67-66-3	Chloroform
67-72-1	Hexachloroethane
71-36-3	n-Butyl alcohol
71-43-2	Benzene
71-55-6	1,1,1-Trichloroethane
72-20-8	Endrin
72-43-5	Methoxychlor
72-54-8	4,4-DDD
72-55-9	4,4-DDE
7421-93-4	Endrin aldehyde
74-83-9	Bromomethane
74-87-3	Chloromethane
74-88-4	Iodomethane
74-95-3	Dibromomethane
75-00-3	Chloroethane
75-01-4	1-Chloroethene
75-05-8	Acetonitrile
75-09-2	Dichloromethane (Methylene Chloride)
75-15-0	Carbon disulfide
75-21-8	Oxirane
75-25-2	Tribromomethane
75-27-4	Bromodichloromethane
75-34-3	1,1-Dichloroethane
75-35-4	1,1-Dichloroethene
75-69-4	Trichlorofluoromethane
75-71-8	Dichlorodifluoromethane
759-94-4	EPTC

**Attachment 5. Regulated Organic Compounds from the
UTS List (32 Compounds) (Page 5 of 6)**

CAS #	Constituent
76-01-7	Pentachloroethane
76-13-1	1,2,2-Trichlorotrifluoroethane
76-44-8	Heptachlor
77-47-4	Hexachlorocyclopentadiene
78-83-1	2-Methylpropyl alcohol
78-87-5	1,2-Dichloropropane
789-02-6	o,p'-DDT (2,4'-DDT)
78-93-3	2-Butanone
79-00-5	1,1,2-Trichloroethane
79-01-6	1,1,2-Trichloroethylene
79-06-1	Acrylamide
79-34-5	1,1,2,2-Tetrachloroethane
8001-35-2	Toxaphene
80-62-6	Methyl methacrylate
82-68-8	Pentachloronitrobenzene (PCNB)
83-32-9	Acenaphthene
84-66-2	Diethyl phthalate
84-74-2	Di-n-butylphthalate
85-01-8	Phenanthrene
85-44-9	Phthalic anhydride
85-68-7	Butylbenzylphthalate
86-30-6	N-Nitrosodiphenylamine
86-73-7	Fluorene
87-65-0	2,6-Dichlorophenol
87-68-3	Hexachlorobutadiene
87-86-5	Pentachlorophenol
88-06-2	2,4,6-Trichlorophenol
88-74-4	2-Nitroaniline
88-75-5	2-Nitrophenol
88-85-7	2-sec-Butyl-4,6-dinitrophenol; syn Dinoseb
91-20-3	Naphthalene
91-58-7	2-Chloronaphthalene
91-59-8	2-Naphthylamine
91-80-5	Methapyrilene
924-16-3	N-Nitrosodi-n-butylamine
92-67-1	4-Aminobiphenyl
930-55-2	N-Nitrosopyrrolidine
93-72-1	Silvex (2,4,5-TP)
93-76-5	2,4,5-T
94-59-7	Safrole
94-75-7	2,4-D
95-47-6	o-Xylene
95-48-7	o-Cresol
95-50-1	1,2-Dichlorobenzene

**Attachment 5. Regulated Organic Compounds from the
UTS List. (232 Compounds) (Page 6 of 6)**

CAS #	Constituent
95-54-5	1,2-Phenylenediamine
95-57-8	2-Chlorophenol
95-94-3	1,2,4,5-Tetrachlorobenzene
95-95-4	2,4,5-Trichlorophenol
959-98-8	Endosulfan I
96-12-8	1,2-Dibromo-3-chloropropane
96-18-4	1,2,3-Trichloropropane
97-63-2	Ethyl methacrylate
98-86-2	Acetophenone
98-87-3	Benzal chloride
98-95-3	Nitrobenzene
99-55-8	5-Nitro-o-toluidine

Attachment 6. Regulated Organic Compounds with a Carcinogenicity Ranking. (48 Compounds) (Page 1 of 2)

CAS #	Constituent	Greatest Slope Factor	Unit	Slope Factor Ranking
1024-57-3	Heptachlor Epoxide	9.1	(mg/kg/day) ⁻¹	v
106-99-0	1,3-Butadiene	2	(mg/kg/day) ⁻¹	v
111-44-4	Bis(2-chloroethyl) ether	1.16	(mg/kg/day) ⁻¹	v
118-74-1	Hexachlorobenzene	1.61	(mg/kg/day) ⁻¹	v
12035-72-2	Nickel refinery dust	1.7	(mg/kg/day) ⁻¹	v
123-73-9	trans-2-Buten-1-al	1.9	(mg/kg/day) ⁻¹	v
1746-01-6	TCDD (Dioxin/Furan Indicator)	160000	(mg/kg/day) ⁻¹	i
18540-29-9	Chromium(VI)	42	(mg/kg/day) ⁻¹	iv
19408-74-3	Hexachlorinated dibenzo-p-dioxin, 1,2,3,7,8,9-	16000	(mg/kg/day) ⁻¹	i
302-01-2	Hydrazine	17.1	(mg/kg/day) ⁻¹	iv
30402-15-4	Pentachlorinated dibenzofuran	8000	(mg/kg/day) ⁻¹	i
309-00-2	Aldrin	17.1	(mg/kg/day) ⁻¹	iv
319-84-6	alpha-BHC	6.3	(mg/kg/day) ⁻¹	v
319-85-7	beta-BHC	1.8	(mg/kg/day) ⁻¹	v
35822-46-9	Heptachlorinated dibenzo-p-dioxin, 1,2,3,4,6,7,8-	1600	(mg/kg/day) ⁻¹	ii
39227-28-6	Hexachlorinated dibenzo-p-dioxin, 1,2,3,4,7,8-	16000	(mg/kg/day) ⁻¹	i
40321-76-4	Pentachlorinated dibenzo-p-dioxin, 1,2,3,7,8-	80000	(mg/kg/day) ⁻¹	i
50-32-8	Benzo(a)pyrene	3.1	(mg/kg/day) ⁻¹	v
51207-31-9	Tetrachlorodibenzofuran, 2,3,7,8-	16000	(mg/kg/day) ⁻¹	i
53-70-3	Dibenz[a,h]anthracene	3.1	(mg/kg/day) ⁻¹	v
540-73-8	1,2-Dimethylhydrazine	37	(mg/kg/day) ⁻¹	iv
542-88-1	Dichloromethyl ether	217	(mg/kg/day) ⁻¹	iii
55-18-5	N-Nitrosodiethylamine	151	(mg/kg/day) ⁻¹	iii
57117-41-6	Pentachlorinated dibenzofuran, 1,2,3,7,8-	80000	(mg/kg/day) ⁻¹	i
57117-44-9	Hexachlorinated dibenzofuran, 1,2,3,6,7,8-	16000	(mg/kg/day) ⁻¹	i
57-14-7	1,1-Dimethylhydrazine	3.5	(mg/kg/day) ⁻¹	v
57653-85-7	Hexachlorinated dibenzo-p-dioxin, 1,2,3,6,7,8-	16000	(mg/kg/day) ⁻¹	i
57-74-9	Chlordane	1	(mg/kg/day) ⁻¹	v
59-87-0	Nitrofurazone	9.4	(mg/kg/day) ⁻¹	v
60-57-1	Dieldrin	16.1	(mg/kg/day) ⁻¹	iv
60851-34-5	Hexachlorinated dibenzofuran, 2,3,4,6,7,8-	16000	(mg/kg/day) ⁻¹	i
62-75-9	N-Nitroso-N,N-dimethylamine	51	(mg/kg/day) ⁻¹	iv
67562-39-4	Heptachlorinated dibenzofuran, 1,2,3,4,6,7,8-	1600	(mg/kg/day) ⁻¹	ii
70648-26-9	Hexachlorinated dibenzofuran, 1,2,3,4,7,8-	16000	(mg/kg/day) ⁻¹	i

**Attachment 6. Regulated Organic Compounds with a Carcinogenicity
Ranking. (48 Compounds) (Page 2 of 2)**

CAS #	Constituent	Greatest Slope Factor	Unit	Slope Factor Ranking
72918-21-9	Hexachlorinated dibenzofuran, 1,2,3,7,8,9-	16000	(mg/kg/day) ⁻¹	i
7440-38-2	Arsenic	50	(mg/kg/day) ⁻¹	iv
7440-41-7	Beryllium	8.4	(mg/kg/day) ⁻¹	v
7440-43-9	Cadmium	6.3	(mg/kg/day) ⁻¹	v
764-41-0	1,4-Dichloro-2-butene	9.3	(mg/kg/day) ⁻¹	v
76-44-8	Heptachlor	4.55	(mg/kg/day) ⁻¹	v
79-06-1	Acrylamide	4.55	(mg/kg/day) ⁻¹	v
79-46-9	2-Nitropropane	9.4	(mg/kg/day) ⁻¹	v
8001-35-2	Toxaphene	1.12	(mg/kg/day) ⁻¹	v
8001-58-9	Creosote	2.2	(mg/kg/day) ⁻¹	v
8007-45-2	Coal tar creosote	2.17	(mg/kg/day) ⁻¹	v
924-16-3	N-Nitrosodi-n-butylamine	5.6	(mg/kg/day) ⁻¹	v
92-87-5	Benzidine	235	(mg/kg/day) ⁻¹	iii
930-55-2	N-Nitrosopyrrolidine	2.13	(mg/kg/day) ⁻¹	v

**Attachment 7. Q5-4, Detected Compounds, Lower Toxicity and Less Than 10 Detects,
Not Considered for Analysis. (42 Compounds) (Page 1 of 2)**

CAS #	Constituent	TWINS Solid/ Liquid Detects #	TWINS Vapor Detects #	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
101-84-8	Diphenyl ether		6		III	
106-88-7	1,2-Epoxybutane		1		III	
107-18-6	2-Propen-1-ol		5		III	
107-31-3	Formic acid, methyl ester		1		IV	
108-03-2	1-Nitropropane		3		III	
108-05-4	Acetic acid vinyl ester		1		IV	
108-20-3	Bis(isopropyl) ether		1		V	
108-39-4	m-Cresol		7	C	III	
108-93-0	Cyclohexanol		1		IV	
111-76-2	2-Butoxyethanol	6	7		IV	
117-84-0	Di-n-octylphthalate	2				
123-51-3	3-Methyl-1-butanol		4		V	
127-19-5	N,N-Dimethylacetamide		2		IV	
129-00-0	Pyrene	6		D		
141-79-7	4-Methyl-3-penten-2-one		9		IV	
206-44-0	Fluoranthene	1		D		
50-00-0	Formaldehyde		3			BC
59-50-7	4-Chloro-3-methylphenol	1		D		
59-89-2	N-Nitrosomorpholine	3	1			
60-35-5	Acetamide		3		V	
621-64-7	N-Nitroso-di-n-propylamine	1		C		
67-72-1	Hexachloroethane			D	III	BC
74-99-7	Methylacetylene		9		V	
75-12-7	Formamide		1		III	
75-50-3	Trimethylamine		1		III	
75-52-5	Nitromethane		8	D	IV	
75-55-8	2-Methylaziridine		5		III	
78-83-1	2-Methylpropyl alcohol		7	D	IV	
79-09-4	Propanoic acid		5		III	
79-20-9	Methyl acetate		4		V	
83-32-9	Acenaphthene	1				
84-74-2	Di-n-butylphthalate	2	2	C	III	
85-68-7	Butylbenzylphthalate	3		D		
86-73-7	Fluorene		1			
88-06-2	2,4,6-Trichlorophenol	1		D		BC
88-75-5	2-Nitrophenol	1		C		
91-20-3	Naphthalene	2	4	C	IV	

**Attachment 7. Q5-4, Detected Compounds, Lower Toxicity and Less Than 10 Detects,
Not Considered for Analysis. (42 Compounds) (Page 2 of 2)**

CAS #	Constituent	TWINS Solid/ Liquid Detects #	TWINS Vapor Detects #	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
95-48-7	o-Cresol		2	C	III	
95-57-8	2-Chlorophenol	1		D		
95-95-4	2,4,5-Trichlorophenol	1		D	V	
96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide	1			III	
98-83-9	Methylstyrene		3		IV	

TAP = toxic air pollutants

TWINS = Tank Waste Information Network System. Solid/liquid hits were recorded from the Tank Characterization Database. Vapor hits were recorded from the vapor database

UHC = underlying hazardous constituents

**Attachment 8. Q16-2, Undetected Compounds Removed
During "Used In Industries Potentially Unrelated to
Hanford" Evaluation. (208 Compounds) (Page 1 of 5)**

CAS #	Constituent
100-01-6	4-Nitroaniline
100-44-7	Benzyl chloride
100-75-4	N-Nitrosopiperidine
101-14-4	4,4'-Methylenebis(2-chloroaniline)
101-27-9	Barban
101-77-9	4,4-Methylene dianiline
101-80-4	4,4'-Diaminodiphenyl ether
105-60-2	Caprolactam, vapor
105-60-2a	Caprolactam, dust
10595-95-6	N-Nitrosomethylethylamine
106-47-8	4-Chloroaniline
106-49-0	p-Toluidine
106-51-4	p-Benzoquinone
106-89-8	Epichlorohydrin
10605-21-7	Carbendazim
107-19-7	Propargyl alcohol
107-20-0	Chloroacetaldehyde
107-30-2	Chloromethyl methyl ether
107-41-5	Hexylene glycol
107-49-3	Tetraethyl pyrophosphate
108-31-6	Maleic anhydride (2,5-Furandione)
108-44-1	m-Toluidine
108-46-3	Resorcinol (1,3-Benzenediol)
108-98-5	Thiophenol
109-87-5	Methylal
110-80-5	2-Ethoxyethanol
111-30-8	Glutaraldehyde
1114-71-2	Pebulate
1120-71-4	1,3-Propane sultone
114-26-1	Propoxur
115-29-7	Endosulfan
115-90-2	Fensulfothion
117-79-3	2-Aminoanthraquinone
118-96-7	2,4,6-Trinitrotoluene
119-90-4	3,3'-Dimethoxybenzidine
119-93-7	3,3'-Dimethylbenzidine.
120-58-1	Isosafrole
120-80-9	Catechol
121-14-2	2,4-Dinitrotoluene
121-75-5	Malathion
121-82-4	Cyclonite
122-42-9	Propham
126-72-7	Tris(2,3-dibromopropyl) phosphate

**Attachment 8. Q16-2, Undetected Compounds Removed
During "Used In Industries Potentially Unrelated to
Hanford" Evaluation. (208 Compounds) (Page 2 of 5)**

CAS #	Constituent
126-85-2	Nitrogen mustard N-oxide
126-99-8	Chloroprene
1300-73-8	Xylidine
13121-70-5	Cyhexatin
13552-44-8	4,4-Methylenedianiline dihydrochloride
136-78-7	Sesone
137-26-8	Thiram
137-30-4	Ziram
13838-16-9	Enflurane
139-91-3	5-(Morpholinomethyl)-3-amino-2-oxazolidinone (furaltudone)
1395-21-7	Subtilisins
140-57-8	Aramite
141-66-2	Dicrotophos
143-50-0	Kepone
14484-64-1	Ferbam
1477-55-0	m-Xylene-a,a'-diamine
151-56-4	Ethyleneimine
151-67-7	Halothane
1563-38-8	Carbofuran phenol
1563-66-2	Carbofuran
1615-80-1	N,N'-Diethylhydrazine
1646-88-4	Aldicarb sulfone
16752-77-5	Methomyl
1694-09-3	Benzyl violet 4b
1746-01-6	TCDD (Dioxin/Furan Indicator)
17804-35-2	Benomyl
1888-71-7	Hexachloropropylene
1912-24-9	Atrazine
1929-77-7	Vernolate
1929-82-4	Nitrapyrin
2008-41-5	Butylate
2032-65-7	Methiocarb
2104-64-5	EPN
21087-64-9	Metribuzin
2179-59-1	Allyl propyl disulfide
2212-67-1	Molinate
22224-92-6	Fenamiphos
2303-17-5	Triallate
23135-22-0	Oxamy
23564-05-8	Thiophanate-methyl
23950-58-5	Pronamide
2465-27-2	Auramine (technical grade)

**Attachment 8. Q16-2, Undetected Compounds Removed
During "Used In Industries Potentially Unrelated to
Hanford" Evaluation. (208 Compounds) (Page 3 of 5)**

CAS #	Constituent
2631-37-0	Promecarb
2646-17-5	Oil orange SS
28434-86-8	3,3'-Dichloro-4,4'-diaminodiphenyl ether
29191-52-4	Anisidine (o-,p- isomers)
2971-90-6	Clopidol
298-00-0	Methyl parathion
298-02-2	Phorate
298-04-4	Disulfoton
299-84-3	Ronnel
299-86-5	Crufomate
300-76-5	Naled
302-70-5	Nitrogen mustard N-oxide hydrochloride
30558-43-1	A2213
315-18-4	Mexacarbate
333-41-5	Diazinon
3383-96-8	Temephos
3424-82-6	o,p'-DDE (2,4'-DDE)
35400-43-2	Sulprofos
3547-04-4	DDE (p,p'-Dichlorodiphenyldichloroethylene)
3689-24-5	Tetraethyldithiopyrophosphate (TEDP)
3761-53-3	Ponceau MX
4685-14-7	Paraquat
479-45-8	Tetryl
509-14-8	Tetranitromethane
51-79-6	Ethyl carbamate (urethane)
52-85-7	Famphur
528-29-0	Dinitrobenzene, all isomers
53-19-0	o,p'-DDD (2,4'-DDD)
53-96-3	2-Acetylaminofluorene
532-27-4	a-Chloroacetophenone
534-52-1	4,6-Dinitro-o-cresol
54-11-5	Nicotine
540-73-8	1,2-Dimethylhydrazine
542-88-1	Dichloromethyl ether
55-18-5	N-Nitrosodiethylamine
55-38-9	Fenthion
55-63-0	Nitroglycerin
555-84-9	1-(5-Nitrofurfurylidene)amino)-2-imidazolidinone
55720-99-5	Chlorinated diphenyl oxide
56-38-2	Parathion
563-12-2	Ethion
57-24-9	Strychnine
57-47-6	Physostigmine

**Attachment 8. Q16-2, Undetected Compounds Removed
During "Used In Industries Potentially Unrelated to
Hanford" Evaluation. (208 Compounds) (Page 4 of 5)**

CAS #	Constituent
57-64-7	Physostigmine salicylate
59-87-0	Nitrofurazone
59355-75-8	Methyl acetylene-propadiene mixture (MAPP)
59669-26-0	Thiodicarb
60-11-7	p-Dimethylaminoazobenzene
606-20-2	2,6-Dinitrotoluene
608-93-5	Pentachlorobenzene
61-82-5	Amitrole
615-53-2	N-Nitroso-N-methylurethane
62-44-2	Phenacetin
62-73-7	Dichlorvas
62-74-8	Fluoroacetic acid, sodium salt (Fratol)
63-25-2	Carbaryl
636-21-5	o-Toluidine hydrochloride
6423-43-4	Propylene glycol dinitrate
66-27-3	Methyl methanesulfonate
67-45-8	Furazolidone
680-31-9	Hexamethylphosphoramide
684-93-5	N-Nitroso-N-methylurea
68476-85-7	Liquified petroleum gas
6923-22-4	Monocrotophos
696-28-6	Dichlorophenylarsine
74-88-4	Iodomethane
74-93-1	Thiomethanol
74-95-3	Dibromomethane
75-47-8	Iodoform
759-73-9	N-Nitroso-N-ethylurea
759-94-4	EPTC
76-06-2	Chloropicrin
76-22-2	Camphor, synthetic
764-41-0	1,4-Dichloro-2-butene
765-34-4	Glycidylaldehyde
77-78-1	Dimethyl sulfate
7782-41-4	Fluorine
7786-34-7	Mevinphos
78-30-8	Triorthocresyl phosphate
78-34-2	Dioxathion
7803-51-2	Phosphine
789-02-6	o,p'-DDT (2,4'-DDT)
79-06-1	Acrylamide
79-44-7	Dimethylcarbamoyl chloride
79-46-9	2-Nitropropane
80-62-6	Methyl methacrylate

**Attachment 8. Q16-2, Undetected Compounds Removed
During "Used In Industries Potentially Unrelated to
Hanford" Evaluation. (208 Compounds) (Page 5 of 5)**

CAS #	Constituent
8001-58-9	Creosote
8006-64-2	Turpentine
8022-00-2	Methyl demeton
8052-42-4	Asphalt (petroleum) fumes
8065-48-3	Demeton
81-81-2	Warfarin (>0.3%)
81-81-2a	Warfarin (<0.3%)
83-26-1	Pindone
83-79-4	Rotenone
838-88-0	4,4'-Methylenebis(2-methylaniline)
85-00-7	Diquat
85-44-9	Phthalic anhydride
86-50-0	Azinphos-methyl
86-88-4	alpha-Naphthylthiourea
87-65-0	2,6-Dichlorophenol
90-04-0	o-Anisidine
91-80-5	Methapyrilene
91-94-1	3,3 -Dichlorobenzidine
92-67-1	4-Aminobiphenyl
92-84-2	Phenothiazine
92-87-5	Benzidine
924-16-3	N-Nitrosodi-n-butylamine
930-55-2	N-Nitrosopyrrolidine
94-59-7	Safrole
944-22-9	Fonofos
95-53-4	o-Toluidine (2-methylaniline)
95-54-5	1,2-Phenylenediamine
95-80-7	Toluene-2,4-diamine
95-94-3	1,2,4,5-Tetrachlorobenzene
96-18-4	1,2,3-Trichloropropane
96-45-7	Ethylenethiourea
97-63-2	Ethyl methacrylate
97-77-8	Disulfiram
98-00-1	Furfuryl alcohol
98-07-7	Benzotrichloride
98-87-3	Benzal chloride
99-55-8	5-Nitro-o-toluidine

**Attachment 9. Q18R, Undetected Compounds, Considered
Unstable. (179 Compounds) (Page 1 of 5)**

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
100-02-7	4-Nitrophenol	C	V	
100-37-8	Diethylaminoethanol		IV	
100-61-8	N-Methylbenzenamine		II	
100-63-0	Phenylhydrazine		II	
100-74-3	N-Ethylmorpholine		III	
101-68-8	Methylene bis(phenyl isocyanate)		I	
101-90-6	Diglycidyl resorcinol ether	D		
102-81-8	2-N-Dibutylaminoethanol		III	
1024-57-3	Heptachlor Epoxide			V
1031-07-8	Endosulfan Sulfate	B		
105-46-4	sec-Butyl acetate		V	
105-67-9	2,4-Dimethylphenol	D		
106-44-5	4-Methylphenol	C		
106-50-3	p-Phenylenediamine	C	I	
106-87-6	Vinyl cyclohexene dioxide		IV	
106-92-3	Allyl glycidyl ether		III	
107-07-3	Ethylene chlorohydrin		III	
107-15-3	Ethylene diamine		III	
107-21-1	Ethylene glycol		IV	
107-98-2	Propylene glycol monomethyl ether		V	
108-11-2	Methyl isobutyl carbinol		IV	
108-18-9	Diisopropylamine		III	
108-21-4	Isopropyl acetate		V	
108-24-7	Acetic anhydride		III	
108-43-0	Chlorophenols			
108-60-1	Bis(2-Chloroisopropyl) ether	C		BC
108-83-8	Diisobutyl ketone		IV	
108-84-9	sec-Hexyl acetate		IV	
108-91-8	Cyclohexylamine		IV	
109-59-1	Isopropoxyethanol		IV	
109-60-4	n-Propyl acetate		V	
109-73-9	n-Butylamine		III	
109-79-5	n-Butyl mercaptan		II	
109-86-4	2-Methoxyethanol		III	
109-89-7	Diethylamine		III	
109-94-4	Ethyl formate		IV	
110-19-0	Isobutyl acetate		V	
110-49-6	2-Methoxyethyl acetate		III	
110-75-8	2-Chloroethyl vinyl ether	C		
110-91-8	Morpholine		IV	
111-15-9	2-Ethoxyethyl acetate		III	
111-40-0	Diethylene triamine		III	
111-42-2	Diethanolamine		III	

**Attachment 9. Q18R, Undetected Compounds, Considered
Unstable. (179 Compounds) (Page 2 of 5)**

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
111-44-4	Bis(2-chloroethyl) ether	B		v
111-91-1	Bis(2-Chloroethoxy)methane	C		
1129-41-5	Metolcarb (3-methylcholanthrene)			
1134-23-2	Cycloate	D		
115-86-6	Triphenyl phosphate		II	
118-52-5	1,3-Dichloro-5,5-Dimethyl hydantoin		I	
119-38-0	Isolan			
121-45-9	Trimethyl phosphite		III	
122-60-1	Phenyl glycidyl ether		V	
122-66-7	1,2-Diphenylhydrazine			BC
123-31-9	Hydroquinone	C	II	
123-42-2	Diacetone alcohol		IV	
123-92-2	Isoamyl acetate		V	
124-40-3	Dimethylamine		III	
124-48-1	Dibromochloromethane	C		
129-15-7	2-Methyl-1-nitroanthraquinone			
131-11-3	Dimethyl phthalate		III	
1321-74-0	Divinyl benzene		IV	
133-06-2	Captan		III	
133-90-4	Chloramben		V	
1338-23-4	Methyl ethyl ketone peroxide		II	
134-32-7	alpha-Naphthylamine	D		
135-20-6	Cupferron			
135-88-6	N-Phenyl-2-naphthylamine	E		
137-05-3	Methyl-2-cyanoacrylate		III	
138-22-7	n-Butyl lactate		III	
139-65-1	4,4'-Thiodianiline	D		
140-88-5	Ethylacrylate		III	
141-32-2	Butylacrylate		IV	
141-43-5	Ethanolamine		III	
142-64-3	Piperazine dihydrochloride		III	
148-01-6	Dinitolamide		III	
150-76-5	4-Methoxyphenol		III	
16219-75-3	Ethylidene norbornene		III	
17702-57-7	Formparanate			
1918-02-1	Picloram		III	
2039-87-4	o-Chlorostyrene		IV	
2238-07-5	Diglycidyl ether		II	
22781-23-3	Bendiocarb	C		
22961-82-6	Bendiocarb phenol			
23422-53-9	Formetanate hydrochloride			
2425-06-1	Captafol		I	
2426-08-6	n-Butyl glycidyl ether		IV	

**Attachment 9. Q18R, Undetected Compounds, Considered
Unstable. (179 Compounds) (Page 3 of 5)**

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
25013-15-4	Vinyl toluene		IV	
25639-42-3	Methylcyclohexanol		IV	
26419-73-8	Tirpate			
26952-21-6	Iso-ocyl alcohol		IV	
2698-41-1	o-Chlorobenzylidene malonitrile		II	
2921-88-2	Chlorpyrifos		I	
302-01-2	Hydrazine			iv
3068-88-0	B-Butyrolactone			
314-40-9	Bromacil		III	
330-54-1	Diuron		III	
33213-65-9	Endosulfan II	C		
3333-52-6	Tetramethyl succinonitrile		II	
334-88-3	Diazomethane		II	
34590-94-8	Dipropylene glycol methyl ether		V	
4016-14-2	Isopropyl glycidyl ether (IGE)		IV	
4098-71-9	Isophorone diisocyanate		I	
420-04-2	Cyanamide		II	
463-51-4	Ketene		II	
504-29-0	2-Aminopyridine	C	II	
51-28-5	2,4-Dinitrophenol	B	V	
510-15-6	Chlorobenzilate	D		BC
5124-30-1	Methylene-bis-(4-cyclohexylisocyanate)		I	
52888-80-9	Prosulfocarb			
531-82-8	N-(4-(5-Nitro-2-furyl)-2-thiazolyl)acetamide			
540-88-5	tert-Butyl acetate		V	
541-85-5	Ethyl amyl ketone		IV	
542-75-6	1,3-Dichloropropene		III	BC
542-92-7	Cyclopentadiene		IV	
552-30-7	Trimellitic anhydride		I	
55285-14-8	Carbosulfan			
55406-53-6	3-Iodo-2-propynyl n-butylcarbamate			
556-52-5	Glycidol		IV	
55738-54-0	trans-2((Dimethylamino)methylimino)-5-(2-(5-nitro-2-furyl) vinyl-1,3,4-oxadiazole			
57-57-8	B-Propiolactone		II	
57-74-9	Chlordane	C		v
583-60-8	o-Methylcyclohexanone		IV	
584-84-9	2,4-Toluene diisocyanate			
592-62-1	Methyl azoxymethyl acetate			
593-60-2	Vinyl bromide		III	BC
594-42-3	Perchloromethyl mercaptan		II	

**Attachment 9. Q18R, Undetected Compounds, Considered
Unstable. (179 Compounds) (Page 4 of 5)**

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
594-72-9	1,1-Dichloro-1-nitroethane		III	
5952-26-1	Diethylene glycol, dicarbamate			
600-25-9	1-Chloro-1-nitropropane		III	
613-35-4	N,N-Diacetylbenzidine			
62-53-3	Aniline	C	II	
626-17-5	m-Phthalodinitrile		III	
626-38-0	sec-Amyl acetate		V	
628-63-7	n-Amyl acetate		V	
628-96-6	Ethylene glycol dinitrate		II	
63-92-3	Phenoxybenzamine hydrochloride			
638-21-1	Phenylphosphine		I	
64-00-6	m-Cumenyl methylcarbamate			
64-67-5	Diethyl sulfate		V	
64091-91-4	4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone			
644-64-4	Dimetilan			
68-11-1	Thioglycolic acid		III	
68-12-2	Dimethylformamide		III	
681-84-5	Methyl silicate		III	
74-89-5	Methylamine		III	
74-96-4	Ethyl bromide		V	
7421-93-4	Endrin aldehyde			
75-04-7	Ethylamine		III	
75-08-1	Ethyl mercaptan		II	
75-25-2	Tribromomethane	D		BC
75-31-0	Isopropylamine		III	
75-56-9	Propylene oxide			BC
7572-29-4	Dichloroacetylene		II	
76-01-7	Pentachloroethane	D		
768-52-5	N-Isopropylaniline		III	
77-47-4	Hexachlorocyclopentadiene	X	I	
77-73-6	Dicyclopentadiene		III	
78-10-4	Ethyl silicate		IV	
78-59-1	Isophorone		III	
79-04-9	Chloroacetyl chloride		I	
79-11-8	Chloroacetic acid		V	
79-24-3	Nitroethane		IV	
79-27-6	Acetylene tetrabromide		III	
79-41-4	Methacrylic acid		IV	
794-93-4	Panfuran S (dihydroxymethylfuratrizine)			
8003-34-7	Pyrethrum		II	
822-06-0	Hexamethylene diisocyanate		I	
86-30-6	N-Nitrosodiphenylamine	D		

**Attachment 9. Q18R, Undetected Compounds, Considered
Unstable. (179 Compounds) (Page 5 of 5)**

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
88-74-4	2-Nitroaniline	D		
89-72-5	o-sec-Butylphenol		III	
91-59-8	2-Naphthylamine	D		
94-36-0	Benzoyl Peroxide		III	
959-98-8	Endosulfan I	C		
96-09-3	Styrene oxide		V	
96-12-8	1,2-Dibromo-3-chloropropane	C	I	BC
96-33-3	Methyl acrylate		IV	
97-56-3	o-Aminoazotoluene			
98-01-1	Furfural		III	
999-61-1	2-Hydroxypropyl acrylate		II	

**Attachment 10. Q24, Undetected, Stable Compounds with Lower
Toxicity. (65 Compounds) (Page 1 of 2)**

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
100-21-0	Phthalic acid			
101-55-3	4-Bromophenylphenyl ether			
107-66-4	Dibutylphosphate		III	
120-12-7	Anthracene			
120-83-2	2,4-Dichlorophenol	D		
121-69-7	Dimethylaniline		III	
132-64-9	Dibenzofuran			
1321-65-9	Trichloronaphthalene		III	
156-60-5	1,2-trans-Dichloroethene	D		
1582-09-8	Trifluralin		V	
1634-04-4	Methyl tert-butyl ether		IV	
1836-75-5	Nitrofen			
189-55-9	Dibenzo[a,i]pyrene			
189-64-0	Dibenzo[a,h]pyrene			
191-24-2	Benzo(ghi)perylene			
191-30-0	Dibenzo(a,l)pyrene			
192-65-4	Dibenzo[a,e]pyrene			
193-39-5	Indeno(1,2,3-cd)pyrene			BC
205-82-3	Benzo[j]fluoranthene			
205-99-2	Benzo(b)fluoranthene			BC
207-08-9	Benzo(k)fluoranthene			BC
208-96-8	Acenaphthylene			
218-01-9	Chrysene			BC
224-42-0	Dibenz[a,j]acridine			
226-36-8	Dibenz[a,h]acridine			
2385-85-5	Mirex			
2551-13-7	Trimethyl benzene		IV	
26140-60-3	Terphenyls		III	
27154-33-2	Trichlorofluoroethane			
319-86-8	delta-BHC	D		
3697-24-3	5-Methylchrysene			
50-29-3	4,4-DDT	C		BC
540-59-0	1,2-Dichloroethylene		V	
540-84-1	2,2,4-Trimethylpentane		V	
56-49-5	3-Methylcholanthrene			
56-55-3	Benzo(a)anthracene			BC
58-90-2	2,3,4,6-Tetrachlorophenol	C		
60-29-7	Ethyl ether	D	V	
602-87-9	5-Nitroacenaphthene			
603-34-9	Triphenyl amine		III	
630-20-6	1,1,1,2-Tetrachloroethane	C		BC
72-43-5	Methoxychlor	D	III	
72-54-8	4,4-DDD	C		

Attachment 10. Q24, Undetected, Stable Compounds with Lower Toxicity. (65 Compounds) (Page 2 of 2)

CAS #	Constituent	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
72-55-9	4,4-DDE	D		
74-97-5	Bromochloromethane		V	
75-27-4	Bromodichloromethane	C		
75-61-6	Difluorodibromomethane		V	
75-63-8	Trifluorobromomethane		V	
75-99-0	2,2-Dichloropropionic acid		III	
76-03-9	Trichloroacetic acid		III	
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane		V	
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane		V	
76-15-3	Chloropentafluoroethane		V	
85-01-8	Phenanthrene			
88-72-2	Nitrotoluene		III	
91-22-5	Quinoline		V	
91-58-7	2-Chloronaphthalene	D		
92-93-3	4-Nitrobiphenyl		V	
93-72-1	Silvex (2,4,5-TP)	D		
93-76-5	2,4,5-T		III	
94-75-7	2,4-D	C		
95-13-6	Indene		IV	
95-49-8	o-Chlorotoluene		IV	
98-51-1	p-tert-Butyltoluene		IV	
98-82-2	Cumene		IV	

Attachment 11. Q37, Lower Toxicity Compounds, Detected Due to Common Lab Contamination. (2 Compounds)

CAS #	Constituent	TWINS Solid/Liquid Detects #	TWINS Vapor Detects #	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
117-81-7	Bis(2-ethylhexyl) phthalate	33	1			BC
84-66-2	Diethyl phthalate		24		III	

TWINS = Tank Waste Information Network System. Solid/liquid hits were recorded from the Tank Characterization Database. Vapor hits were recorded from the vapor database

**Attachment 12. Q40b, Detected Compounds, Lower Toxicity, Not Analyzed by Methods
Applicable to Higher Toxicity Compounds. (2 Compounds)**

CAS #	Constituent	TWINS Solid/ Liquid Detects #	TWINS Vapor Detects #	UHC Toxicity Ranking	TAP Toxicity Ranking	Slope Factor Ranking
110-62-3	n-Valeraldehyde		54		IV	
75-07-0	Acetaldehyde		103			BC

TWINS = Tank Waste Information Network System. Solid/liquid hits were recorded from the Tank Characterization Database. Vapor hits were recorded from the vapor database

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