



Water & Environmental
TECHNOLOGIES

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Groundwater and SVE Effluent Monitoring Work Plan

Chouteau County, Montana



Prepared for:
Montana Department of
Environmental Quality (DEQ)

February 27 2026

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1 Executive Summary

Water and Environmental Technologies (WET) presents this Groundwater and SVE Effluent Monitoring Work Plan (WP ID 35123) for the petroleum release at the Chouteau County Maintenance Yard (Facility ID 08-05931, TID 19223), as required in the work plan request letter from the Montana Department of Environmental Quality (DEQ), dated December 16, 2025. The Petroleum Release 3645 is under the responsible party of Chouteau County.

The Facility is located at 2610 Main Street, Fort Benton, Chouteau County, Montana and is depicted on **Figure 1**.

The previous workplan involved the installation, startup, and monitoring of three air sparge (AS), soil vapor extraction (SVE), or combined AS/SVE systems. This workplan involved monitoring the groundwater concentrations prior to remediation activities, followed by semi-annual monitoring of the groundwater and SVE effluent after remediation activities began. Results indicated that while contamination is still present under the Facility, the remediation systems are actively removing and remediating contamination, via volatilization, bioremediation, and chemical oxidation. This work plan presents the plan for the next step of work in which the Facility groundwater be monitored semi-annually and the SVE effluents be monitored quarterly. Groundwater monitoring will allow for evaluation of overall remediation progress. SVE monitoring will better inform what types of remediation (volatilization, bioremediation, oxidation) are occurring. SVE monitoring will also help inform decisions regarding when to begin pulsed operation for remediation. Finally, the SVE monitoring results will be used to develop an air model for maintaining safe air concentrations at the property boundary.

Monitoring well MW-08 was destroyed by a snowplow over the course of the previous workplan. This workplan proposes the replacement of this well.

The proposed scope of work includes:

- Monitoring of the Facility monitoring wells shown on **Figure 2** semi-annually for one year, which includes:
 - Gauging fluid levels at the Facility wells.
 - Collecting groundwater samples by low-flow sampling methodology according to DEQ's Groundwater Sampling Guidance.
 - Analyzing groundwater samples for volatile petroleum hydrocarbons (VPH), extractable petroleum hydrocarbons (EPH), and lead scavengers.
 - Disposing of purge water according to the DEQ Purge Water Disposal flow chart.
- Conducting effluent sampling from the SVE portions of Systems A and B quarterly for one year.
 - Samples will be analyzed under methods TO-15 SIM and Air Phase Petroleum Hydrocarbons (APH).
- Validating all laboratory analytical data using DEQ's Data Validation Summary Form (DVSF).
- Developing an air model to develop threshold levels for the SVE exhausts to inform decisions regarding effluent treatment.
- Installation, development and survey of a replacement well for MW-08.
- Discussing ongoing WP tasks and results with DEQ's project manager (PM) and submitting written agreed-upon WP modifications as required to complete the WP objectives.
- Preparing and submitting a Monitoring Report detailing the method and results of both groundwater monitoring events completed under this WP, which will include:

- Discussion of the monitoring method results, deviations from the approved WP, assessment of remediation rates, recommendations, and conclusions.
- Cumulative groundwater data tables.
- Cumulative air sample results.
- Updated site features and potentiometric surface maps.
- Appended groundwater monitoring field forms, laboratory analytical data, completed DVFSFs, and an updated Release Closure Plan.
- A brief discussion and recommendation of the modeling results.

2 Facility History and Release Background

2.1 Facility History

Water and Environmental Technologies (WET) was retained by Choteau County to provide environmental consulting services at the Choteau County Maintenance yard property located at 26 and Main Street in Fort Benton, Montana.

On September 11, 2000, free product was detected in monitoring well MW-01. In response, additional remedial investigation activities were initiated consisting of delineation of the free product plume, installation of free product recovery systems, and the implementation of free product and groundwater monitoring programs. The free product recovery system was used until it was decommissioned before the implementation of the pilot test in 2018. At this point, a pilot test was conducted to evaluate the potential future AS/SVE remediation. The results of this pilot test indicated that the subsurface beneath the facility was conducive to AS/SVE remediation. This in conjunction with decreased free product were the reasons that the second phase of remediation AS/SVE was selected. In 2021, AS/SVE systems were installed at the Facility.

The results of the previous workplan indicate the AS/SVE systems are effective in reducing concentrations of contaminants. Contaminant concentrations are still above closure criteria at the Facility, so further operation of the systems was recommended to progress the release towards closure.

3 Objectives of Groundwater and Effluent Monitoring

The objectives of groundwater monitoring are to evaluate the status of petroleum contaminated groundwater and identify additional work needed to resolve the release. These objectives will be achieved through semi-annual groundwater monitoring, which involves fluid level measurement and sampling. Samples collected will be analyzed for VPH, EPH and lead scavengers.

The objectives of the SVE effluent monitoring will be to assess the performance of the SVE systems, help evaluate exhaust levels as potential hazards to nearby residences, and evaluate if the systems need to be considered for pulsed operation.

4 Minimum Work Plan Tasks

WET's approach to completing the required work, except work plan preparation (Task 1), is detailed below.

4.1 Project Management (Task 2)

WET personnel will provide Clay Riehl (Choteau County Commissioner) and DEQ's project manager with any ongoing WP tasks and relevant results on an as-needed basis. Other duties associated with this task

include scheduling field work, project reporting administration, monitoring the project budget and deliverables, and any submitted written agreed-upon WP modifications to complete the objectives.

4.2 Mobilization (Task 3)

WET will mobilize to the Facility an estimated six times under this workplan. Each round-trip mobilization is approximately 400 miles and 6 hours. Mobilizations include: four trips for quarterly air sampling/semi-annual groundwater monitoring, one trip for well drilling and development, and one trip for the well survey. The table below provides a summary of the estimated mobilizations.

Mobilization Number	Task(s)
1	Q1 2026 Air Sampling
2	Well Drilling and Development
3	Well Surveying
4	Q2 2026 Air Sampling and Groundwater sampling
5	Q3 2026 Air Sampling
6	Q4 2026 Air Sampling and Groundwater sampling

4.3 Lodging / Per Diem (Task 4)

WET estimates that this workplan will require nine days of lodging and per diem. Eight days will be required for the Staff Engineer conducting the field activities and one day will be required for the surveyor. Some field events require more than one day of work and other events are expected to take last into the late evening. To avoid traveling in the dark and avoid driving in exhausted conditions, the staff engineers will need to stay overnight in Fort Benton.

Project delays caused by weather or unforeseen/uncontrollable circumstances will be discussed with DEQ and invoiced through Form 8 documentation.

4.4 Well Installation (Task 5)

Bids were solicited from Wiley Drilling, Boland Drilling, and O’Keefe Drilling for the well installation. Wiley Drilling had the lowest bid and will be awarded the work, O’Keefe did not reply to solicitation. Contractor Bids are included in **Appendix A**.

The new monitoring well will be constructed with 2-inch, schedule 40 polyvinyl chloride (PVC) casing and 0.010-inch factory slotted screen extending above the high-water table. The well will be completed to an approximate depth of 45-ft and will be screened along the depth interval of 35 to 45-ft. The exact screen interval and total depth will be determined in the field based on historical data and observed water levels or wet drill cuttings as well as a conversation with the WET project manager. For example, if wet soil is encountered at 40-ft, the well will be screened from 35 to 45-ft to compensate for any change in water level that happens while the well stabilizes and to account for any uncertainty introduced by drilling imprecisions. No analytical samples will be collected. The well will be completed as a flush mount, with a concrete lid sloping away from the wellhead.

4.5 Well Development (Task 6)

The newly installed well will be developed in accordance with WET SOP-13: Monitoring Well Development (**Appendix B**). Given expected well conditions and construction, this monitoring well will be developed using a submersible pump and surge block. The well will not be developed until at least 24 hours after drilling is complete, to allow for the bentonite and concrete to fully set up. If LNAPL is present in the well, it will not be developed. Developing a well with LNAPL will result in contamination being smeared across the well screen and potentially further mobilized into the aquifer and vadose zone. During development, the following water quality parameters and observations will be recorded:

- Depth to water;
- Development time and volume;
- Flow rate
- pH, temperature, specific conductance, and turbidity;
- Other observations as appropriate (color, presence of odors, sheen).

Development will continue until water quality parameters have stabilized and the turbidity of the discharge is below 50 nephelometric turbidity units (ntu). Following the DEQ disposal of untreated purge water from monitoring guidance dated July 15, 2015, the purge water originates from the shallowest aquifer, is not likely to result in an exceedance of soil screening levels, is not discharged to a surface water, and is not from a mine audit or long-term pumping test. Therefore, the purge water from the groundwater sampling event will be discharged to pervious Facility ground. All non-reusable sampling equipment and spent personal protective equipment will be disposed of in garbage bags.

4.6 Survey (Task 7)

One survey event is planned to complete the scope of work. The newly installed replacement monitoring wells will be surveyed for location and top of casing elevation by a licensed surveyor. The location coordinates will be presented in the 1983 North American Datum (NAD83), Montana State Plane with units of international feet. Elevations will be expressed in units of feet above mean sea level (AMSL) relative to the 1988 North American Vertical Datum (NAVD88).

4.7 Field Work (Task 8)

WET Personnel will oversee the monitoring well boring and installation. WET will also develop the monitoring well and assist in the survey of the new monitoring well. During the well installation, soils will be classified according to the unified soil classification system (USCS). All pertinent field investigations and sampling information will be recorded on field sheets or in a field notebook, as described in the WET SOP-1: Field Logbook and Field Sampling Forms (**Appendix B**).

4.8 Groundwater Monitoring (Task 9)

Two groundwater monitoring events are planned for the 15 wells on and surrounding the Facility, provided in **Figure 1**. The groundwater sampling events will occur during high and low water months of 2026. Fluid levels will be measured with an oil-water interface meter prior to purging the well in accordance with WET

standard operating procedure (SOP) SOP-5: Measurement of Fluid Levels. SOPs are included as **Appendix B**. Any monitoring well containing free product will not be sampled.

Groundwater field parameters will be monitored as specified in SOP-6: Measurement of Groundwater Field Parameters (**Appendix B**) and are subject to stabilization criteria listed in Table 1. Temperature and drawdown will also be monitored. Pumping rates will be adjusted to maintain minimum drawdown. If drawdown continues after the pumping rate is minimized, a sample will be collected at that time regardless of whether field parameters have stabilized. Turbidity will be measured with a turbidity meter, drawdown will be measured with the oil-water interface meter, and the rest of the field parameters will be measured with a YSI multi-parameter combination meter and flow-through cell. Field parameter readings should be recorded every 3-5 minutes until three consecutive readings are within stabilization range.

Table 1. Stabilization Parameters

Water Quality Parameter	Unit	Stabilization Range	Exception
pH	standard units (s.u.)	±0.1 s.u.	
Specific Conductance (SC)	microsiemens per centimeter (µS/cm)	±3%	
Dissolved Oxygen (DO)	milligrams per liter (mg/L)	±10%	<0.50 mg/L
Turbidity	nephelometric turbidity units (NTU)	±10%	<5 NTU
Oxidation/Reduction Potential (ORP)	millivolts (mV)	±10 mV	

Once parameters have stabilized, a groundwater sample will be collected and preserved for laboratory analysis of volatile petroleum compounds (VPH), extractable petroleum compounds (EPH) and lead scavengers. Sample collection will include the collection of one duplicate and one field blank for quality assurance/quality control (QA/QC) purposes as defined in the relevant sections of SOP-16: Quality Control Sampling (**Appendix B**). The field duplicate sample will be collected by splitting the natural sample in the field. The field blank will be collected in the field by pouring laboratory-grade deionized water into the containers and preserving accordingly. The field duplicate and blank samples will be submitted to the laboratory for the same analyses as the natural samples.

The oil-water interface probe and bladder pump will be decontaminated between each well using a laboratory-grade detergent and tap water mixture followed by distilled water in accordance with SOP-2: Equipment Decontamination (**Appendix B**). The oil-water interface probe will be sprayed, while the bladder pump will be flushed with approximately 700 mL of each decontamination media (to cover approximately three bladder volumes and tubing volume).

Following the DEQ disposal of untreated purge water from monitoring guidance dated July 15, 2015, the purge water originates from the shallowest aquifer, is not likely to result in an exceedance of soil screening levels, is not discharged to a surface water, and is not from a mine audit or long-term pumping test. Therefore, the purge water from the groundwater sampling event will be discharged to pervious Facility ground. All non-reusable sampling equipment and spent personal protective equipment will be disposed of in garbage bags.

During each sampling event, in addition to sampling, fluid levels will be measured with an oil-water interface meter in the 15 facility wells. The well locations are shown in **Figure 2**. The water levels will be measured in accordance with WET standard operating procedure (SOP) SOP-5: Measurement of Fluid Levels. SOPs are included as **Appendix B**.

4.9 Soil Vapor Extraction Effluent Sampling (Task 10)

WET personnel will conduct quarterly monitoring of the SVE effluent of Systems A and B, as well as collect system performance data (temperatures, air flows, and pressures) from all three systems. The concentrations of oxygen, carbon dioxide, and volatile organic compounds (VOCs) will be measured in the effluent of both SVE systems. Monitoring will be conducted in conjunction with the groundwater sampling events. The samples will be collected in 1- or 6-liter Summa Canisters over a 30 -minute period for laboratory analysis by USEPA Method TO-15 SIM and APH analysis in accordance with the Massachusetts Department of Environmental Protection's *Method for the Determination of Air-phase Petroleum Hydrocarbons*. All air samples will be collected in certified clean stainless-steel Summa canisters. Samples will be submitted to Pace Laboratories in Minneapolis, MN.

4.10 Laboratory Analysis (Task 11)

Groundwater samples will be submitted on ice to Energy Laboratories in Helena, Montana for analysis of VPH, EPH, and lead scavengers. If the results of the EPH screen are greater than 1000 µg/L, the sample will be further analyzed for EPH fractions.

A total of six air samples will be collected in six-liter, certified clean stainless-steel Summa Cannisters. Samples will be submitted to Pace Laboratories in Minneapolis, MN, following chain-of-custody protocols for laboratory analysis by USEPA Method TO-15 SIM, and APH.

4.11 Quality Assurance/Quality Control (Task 12)

Quality assurance/quality control (QA/QC) samples including duplicates and field blanks (water) will be collected at a minimum frequency of 1 per 20 natural samples (5%). One duplicate groundwater sample and one field blank sample will be collected in conjunction with natural groundwater samples. The duplicate will be collected simultaneously with its parent sample. The field blank will be collected during representative sampling conditions at the Facility by pouring laboratory provided organic-free deionized water into laboratory provided sample containers. QA/QC samples will be analyzed for the same constituents as the natural samples. WET personnel will validate all laboratory analytical data using DEQ's Data Validation Summary Form (DVSF). This summary form will be included in the final report.

4.12 Air Modeling (Task 13)

WET will construct an air quality dispersion model to estimate the maximum untreated effluent concentrations at the SVE exhaust stack that will result in receptor concentrations equal to or less than applicable screening levels. This analysis will generally follow the Montana Department of Environmental Quality (DEQ) Effluent Vapor Modeling Guidance DEQ-WMRD-Vapor-2 (Guidance) published in April 2020. Model input parameters will include constituent mass emission rates, system construction and operation details (e.g., stack height, stack diameter), and surrounding terrain and receptor information. This information will be used to establish safe emission concentration levels at the exhaust and inform decisions on if effluent treatment should be considered. The modeling results will be compared to the EPA 2024 Regional Screening Levels (RSL) for Resident Ambient Air (**Appendix C**).

4.13 Reporting (Task 14)

Upon completion of the WP tasks, WET will prepare a Cleanup Report in the DEQ guidance format detailing the results of groundwater monitoring and AS/SVE monitoring, including but not limited to, the following:

- Discussion of the monitoring method results, deviations from the approved WP, assessment of remediation rates, recommendations, and conclusions.
- Cumulative groundwater data tables.
- Cumulative air sample results.
- Updated site features and potentiometric surface maps.
- Appended groundwater monitoring field forms, laboratory analytical data, completed DVSFs, and an updated Release Closure Plan.
- A brief discussion and recommendation of the modeling results.

5 Scheduling

WET will begin implementing this work plan upon DEQ approval of this GWM WP. A detailed project cost estimate is included as Appendix D. This cost estimate was prepared using WET's approved 2025 rates as 2026 rates have yet to be approved. Work completed in 2026 will be invoiced using 2026 rates. Assuming approval before spring of 2026, the well installation, development, survey, first groundwater sampling event and first air sampling event will be conducted in spring of 2026. WET will complete the monitoring report within 90 days of receiving the final analytical data from the last sampling event. The estimated completion date for this workplan is spring of 2027, depending on approval.



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Figures

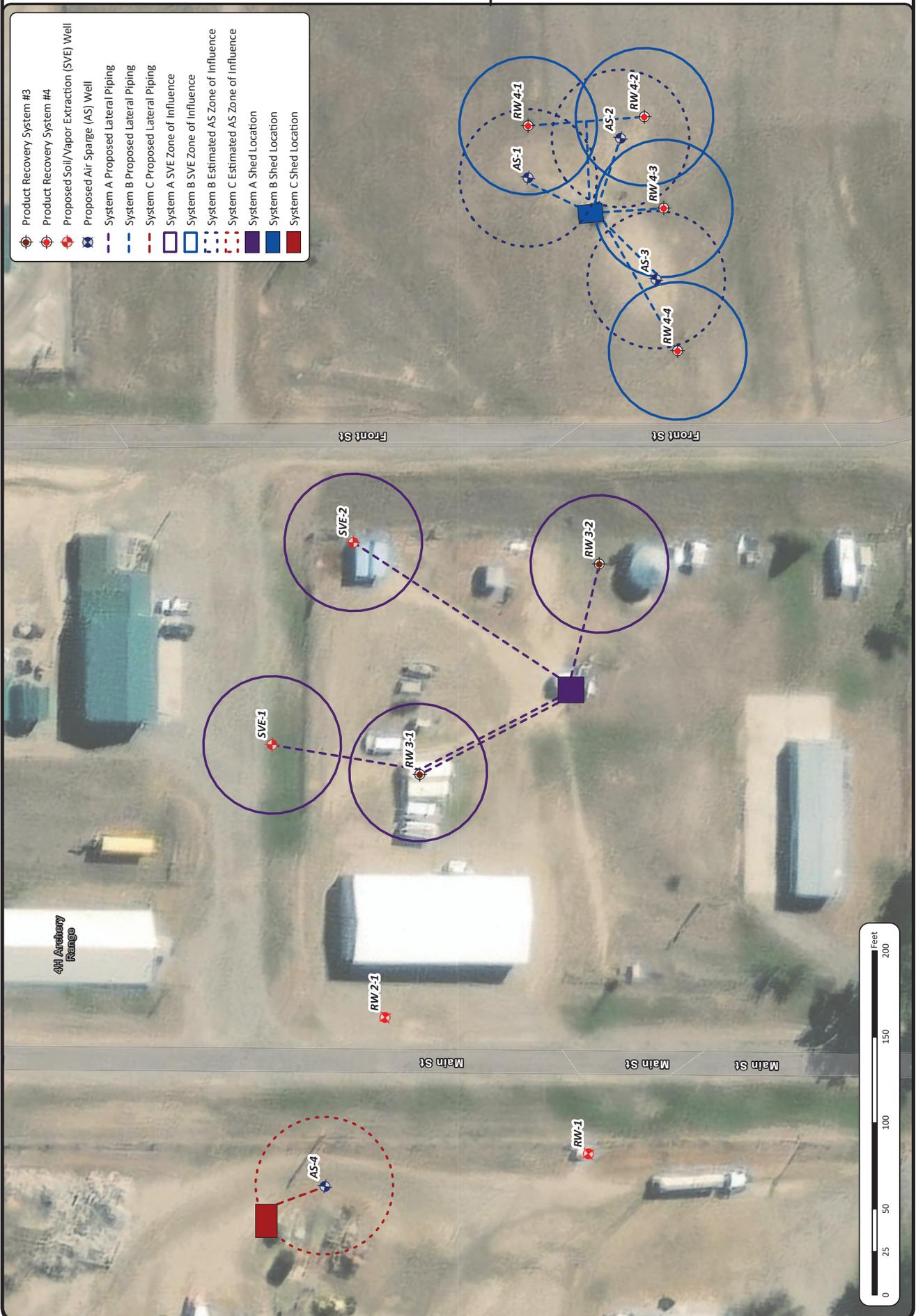
FIGURE 1

NOTES

NO.	DESCRIPTION	DATE	DRAWN	REVIEW
1	MAP CREATION	7/15/21	JH	
2				
3				
4				
5				



- Product Recovery System #3
- Product Recovery System #4
- Proposed Soil/Vapor Extraction (SVE) Well
- Proposed Air Sparge (AS) Well
- System A Proposed Lateral Piping
- System B Proposed Lateral Piping
- System C Proposed Lateral Piping
- System A SVE Zone of Influence
- System B SVE Zone of Influence
- System C Estimated AS Zone of Influence
- System C Estimated AS Zone of Influence
- System A Shed Location
- System B Shed Location
- System C Shed Location



4H Archery Range

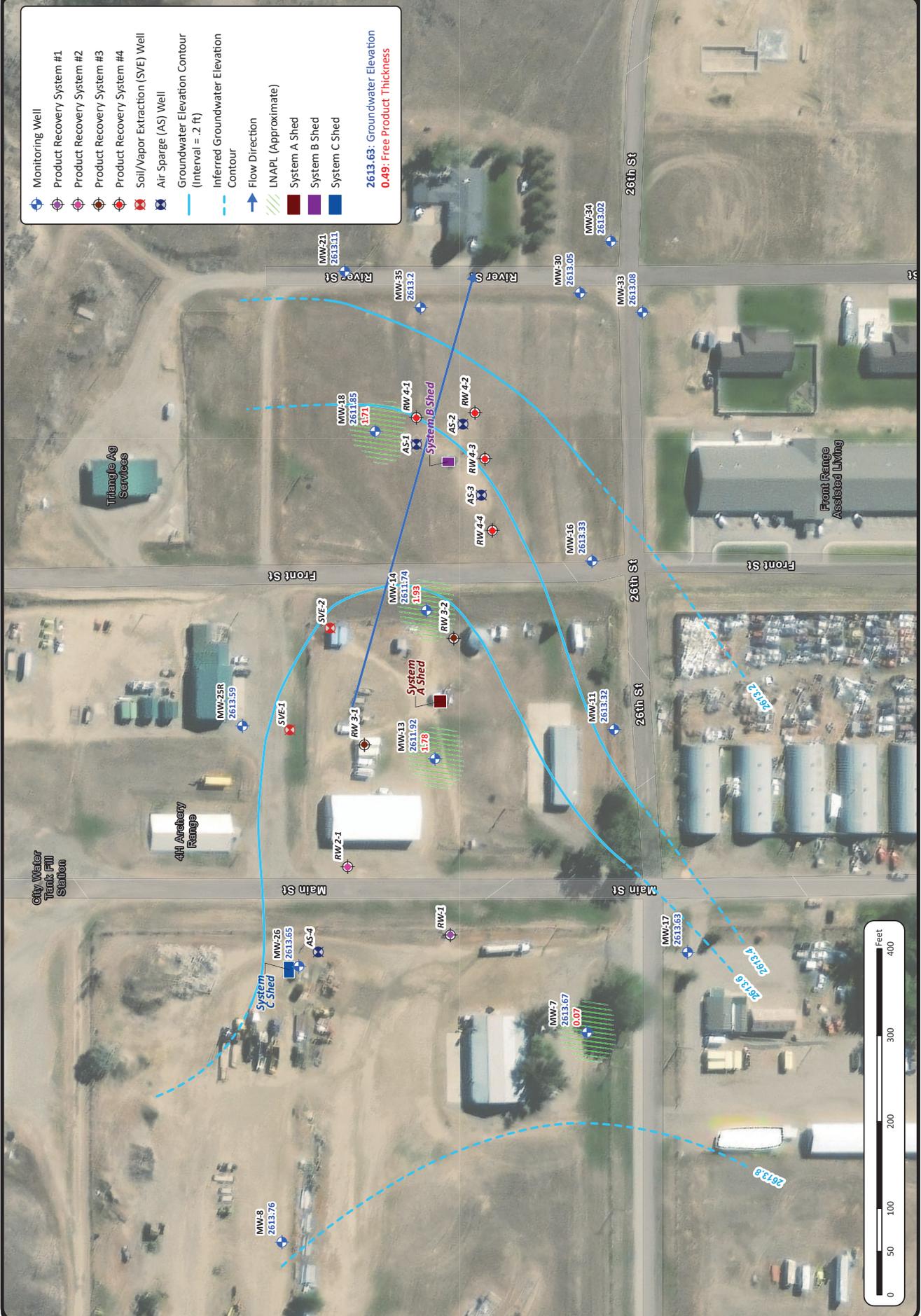




NO.	DESCRIPTION	DATE	BY	CHK	TD
1	LAUNCH UPDATE	12/18/23	KK		
2					
3					
4					
5					

NOTES

- Monitoring Well
- Product Recovery System #1
- Product Recovery System #2
- Product Recovery System #3
- Product Recovery System #4
- Soil/Vapor Extraction (SVE) Well
- Air Sparge (AS) Well
- Groundwater Elevation Contour (Interval = .2 ft)
- Inferred Groundwater Elevation Contour
- Flow Direction
- LNAPL (Approximate)
- System A Shed
- System B Shed
- System C Shed
- 2613.63: Groundwater Elevation
- 0.49: Free Product Thickness



Appendix A—Drilling Bid Estimates



January 6, 2026

Attn: Tim Driscoll
Water & Environmental Technologies
480 East Park Street
Butte, MT 59701

RE: Project: WD-260106b
Environmental Drilling
Fort Benton, MT

Dear Mr. Driscoll:

Wiley Drilling has developed this Proposal for Water & Environmental Technologies (WET) to provide Subsurface Exploration Services for the above-mentioned project. This Proposal was developed based on information provided by WET which included a site location map and general scope of work. The purpose of this project is to provide drilling services for an environmental investigation.

Scope of Services

Wiley has developed this proposal to include scope, costs and assumptions based on the information provided by WET. The Scope of Services is broken down into the tasks listed below.

Task 1: Project Preparation and Mobilization

Wiley will call in utility locations in accordance with Montana State law within 3 days prior to the start of drilling. WET will provide Wiley with a site map identifying the borehole locations to be used to call in locates. Wiley has assumed that WET will coordinate private utility locate services for this project, if necessary. Wiley will mobilize the drill rig, materials, and crew from their drill shop in Montana City, MT to the project site.

Task 2: Soil Boring & Groundwater Monitoring Well Installation

One (1) groundwater monitoring well will be installed using a track mounted Mobile B57 drill rig using 4.25-inch augers. For costing purposes, we have assumed that a total of 1 well will be installed to 45-feet below ground surface, without SPT sampling, totaling 45 linear feet of drilling. It is our understanding that the well will consist of 2-inch diameter, sch. 40, PVC, flush threaded well casing and 30-feet of 0.020" factory milled well screen. The bottom of the well will be completed with a well cap and a J-plug will be installed on the top of the well. The annulus of the boreholes will be backfilled with 10/20 filter sand from the bottom of the borehole to approximately 2-feet above the top of the screened interval. A minimum of 2 feet of medium chip bentonite will be installed about the filter sand and non-impacted soil cuttings will be backfilled above the bentonite chips to the surface. The well will be completed at surface with a 12-inch diameter flush mounted well vault set in a concrete pad. Well development and sampling will be the responsibility of others. Wiley will submit well logs to the state upon completion.

Cost Estimate and Assumptions

The total not to exceed cost estimate for this project is **\$5,607.92**. A breakdown of these costs is provided in Table 1 attached to this Proposal. These costs are based on our project understanding, schedule, and the following assumptions:

- Wiley will call in public utility locations in accordance with Montana State law. Additional locate services are not included in this proposal, WET will be responsible for private utility locates.
- WET will be responsible for traffic control.
- WET will be responsible for permitting.
- Wiley will have access to drill a minimum of 30-feet away from overhead power.
- No drilling will occur through concrete surfaces.
- Access to borehole locations for a truck mounted drill rig and support equipment is available.
- We will do our best to minimize impacts to curbs and lawns, however, any damage to landscaping associated with borehole access will be the responsibility of others.
- Non-impacted drill cuttings will be backfilled in the borehole or spread on the ground surface at the Site. Impacted soil cutting will be place into a containment drum.
- WET will be responsible for transportation, storage, labeling, sampling, and disposal of drums.
- No decon of the drill tooling will be required between the soil borings.
- Work can be performed in Level-D Personal Protective Equipment including hard hat, safety toe boots, safety glasses, hearing protection, and hand protection.
- No air space monitoring is required.
- Soil logging, soil sampling, groundwater sampling, and reporting will be provided by others.
- Any delays that are not the responsibility of Wiley will be charged to the project at a Standby Rate of \$300/hour.
- Any changes to the scope outlined in this proposal will require an updated cost estimate and proposal.

Schedule

Wiley will be available after February 1st, 2026, contingent upon receiving this signed proposal in time to call in utility locates. Wiley anticipates the work will be completed in one 8-hour business day. Wiley will reach out to you to schedule this project upon receiving this signed Proposal.

Closing

We appreciate the opportunity to provide WET with this Proposal. Your authorization for Wiley to proceed in accordance with this Proposal can be issued by signing and returning this Proposal (Project: WD-260106b). The costs associated with this Proposal are valid for 90-days.

AGREED TO:

CLIENT

TITLE

DATE

TABLE 1: COSTS ESTIMATE

Mobile B-57 Services	Quantity	Unit	Unit Price	Cost
Mobilization				
Project Management	1	Hour	\$ 140.00	\$ 140.00
Load/Unload	2	Hour	\$ 215.00	\$ 430.00
Mobilization	1	LS	\$ 1,097.50	\$ 1,097.50
De-Mobilization	1	LS	\$ 1,097.50	\$ 1,097.50
Total:				\$ 2,765.00
Drilling				
Auger	3	Hour	\$ 300.00	\$ 900.00
Setting Wells	1	Hour	\$ 300.00	\$ 300.00
Surface Completion	0.5	Hour	\$ 215.00	\$ 107.50
Total:				\$ 1,307.50
Materials				
Bentonite	4	Each	\$ 10.50	\$ 42.00
Cement	4	Each	\$ 10.00	\$ 40.00
Containment Drum	2	Each	\$ 125.00	\$ 250.00
12x12" Manholes	1	Each	\$ 159.60	\$ 159.60
2" PVC - 10' Length	1	Each	\$ 65.40	\$ 65.40
2" PVC - 5' Length	1	Each	\$ 41.94	\$ 41.94
2" PVC Screen - 10' Length	3	Each	\$ 87.00	\$ 261.00
Sand	20	Each	\$ 26.00	\$ 520.00
2" Top & Bottom Caps	1	Each	\$ 21.48	\$ 21.48
Total:				\$ 1,401.42
Per Diem				
Operator	1	Day	\$ 67.00	\$ 67.00
Assistant	1	Day	\$ 67.00	\$ 67.00
Total:				\$ 134.00
Total Cost:				\$ 5,607.92

SECTION 0300

QUOTE FORM

PROJECT IDENTIFICATION:

Chouteau County Maintenance Yard, 2610 Main Street, Fort Benton, Montana

UNIT PRICE SCHEDULE

Task	Estimated Quantity	Units	Unit Cost	Total Cost
Private and Public Utility Locates	1	LUMP	\$ 600 ⁰⁰	\$ 600 ⁰⁰
Permits	1	LUMP	\$ NA	\$ NA
Mobilization/Demobilization	1	LUMP	\$ 775 ⁰⁰	\$ 775 ⁰⁰
Per Diem & Lodging		DAY	\$ NA	\$ NA
Soil Boring	45	FOOT	\$ 48 ⁰⁰	\$ 2160 ⁰⁰
Well Installation	45	FOOT	\$ 38 ⁰⁰	\$ 1,710 ⁰⁰
Drilling – Standby (Upon Approval)	N/A	HOUR	\$ 150 ⁰⁰	\$N/A
55-gallon Drums	2	LUMP	\$ 125 ⁰⁰	\$ 250 ⁰⁰
	Total		\$	5,495 ⁰⁰

Chi Bohnd 1-8-20

Appendix B—WET Standard Operating Procedures



FIELD LOGBOOK AND FORMS

All pertinent field investigation and sampling information will be recorded in a field logbook, field form, or a Daily Activity Log (DAL) during each day of the field effort and at each sample site. The field crew leader will be responsible for ensuring that sufficient detail is recorded in the field logbook or DAL. No general rules can specify the extent of information that must be entered in the field logbook or form. However, field logbooks, field forms, or DALs must contain sufficient information such that someone could reconstruct all field activities without relying on the memory of the field crew. All entries shall be made in indelible ink, weather conditions permitting. Each day's or site's entries will be initialed and dated at the end by the author.

At a minimum, entries on the field sheet or in field notebook must include:

- Project information and location
- Project and task number
- Date and applicable times
- Name(s) of field personnel
- Environmental, site, or weather conditions
- Safety briefing attendance
- Details of actual work effort, particularly any deviations from the field work plan or standard operating procedures
- Comments or observations regarding any unusual circumstances
- Any field measurements made (e.g., PID readings, pH, temperature)

For sampling efforts, specific details for each sample should be recorded using a standardized field form designed specifically for the sampling activity being conducted (e.g., low-flow groundwater monitoring, soil gas sampling). Sampling field forms contain fill-in-the-blank type information to ensure that all pertinent information will be recorded. In addition to the items listed above, the following information is recorded on field forms during sampling efforts:

- Sample identification
- Date and time samples were collected
- Sampling methods, particularly any deviations from field work plan or standard operating procedures
- Field data and measurements
- Containers used to collect samples
- Sample preparation (filtration, preservation)
- Analyses and methods requested
- Note any QA/QC samples collected (duplicates, blanks)

Strict custody procedures will be maintained with the field forms. Field forms must always remain with the field team while being used in the field. Upon completion of the field effort, the original field forms will be scanned and copied to the project folder. Original field forms will be filed in an appropriately secure manner.



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SOP-2

EQUIPMENT DECONTAMINATION

INTRODUCTION

The purpose of this section is to describe general decontamination procedures for field equipment. Decontamination will be performed on all non-dedicated and non-disposable sampling equipment that may contact potentially contaminated media. Field personnel must wear disposable latex or nitrile gloves while decontaminating equipment at the project site and change gloves between every sample. Personnel must take every precaution to prevent contaminating themselves with the wash water and rinse water used in the decontamination process.

EQUIPMENT

- Liquinox (or equivalent laboratory-grade detergent)
- Sufficient volume of tap water
- Sufficient volume of deionized water
- Sufficient volume of methanol or pesticide-grade acetone for organics
- Sufficient volume of any other decontamination solutions specifically required by the project work plan.
- Necessary containers for each decontamination station (totes or tubs, graduated cylinders or similar tubes, spray bottles, etc.)
- Tarp or other platform to form barrier between decontamination stations and ground (if necessary)
- Applicable brushes (if necessary)
- Aluminum foil (for soil sampling devices)
- Latex or nitrile gloves
- Paper towels
- Garbage bags

PROCEDURES

The following should be done in order to complete thorough decontamination:

1. Set up the decontamination zone downwind from the sampling area to reduce the chances of windborne contamination.
2. Visually inspect sampling equipment for contamination; use brush to remove visible material.
3. The general decontamination sequence for field equipment includes washing with Liquinox (or equivalent laboratory-grade detergent), deionized water rinse, additional solution rinse specified by project work plan, and triple deionized water rinse.
4. Store equipment in clean containment or according to project work plan if not used immediately.
5. All disposable items (e.g., paper towels, latex gloves), as well as rinse and wash water generated during decontamination, should be disposed of in accordance with SOP-17 (Management of Investigation-Derived Waste).



FIELD MEASUREMENT OF GROUND-WATER LEVELS/LIGHT NON-AQUEOUS PHASE LIQUID LEVELS

INTRODUCTION

In general, groundwater levels (and LNAPL levels, if applicable) in wells will be measured prior to commencing development, purging, sampling, pumping tests, or other activities that disturb the fluid pressure relationships in the well. Measurements may be taken during such events for purposes other than determining static conditions and may also be taken to determine static conditions after such activities if an appropriate period has elapsed to allow steady-state conditions to return.

EQUIPMENT

- Electronic water level monitoring probe (for water levels only),
- Electronic multi-phase interface monitoring probe (for measuring water levels and LNAPL levels)
- Keys for well locks
- Tools to open well covers (e.g., socket wrench, spanner wrench, etc.)
- Watch or stopwatch
- Pens and field logbook or other appropriate field forms (e.g., groundwater purge and sample forms)
- Monitoring well construction data (for total depth and screen intervals of well)
- Personnel and equipment decontamination supplies (refer to SOP-2)

PROCEDURES

1. If more than one well will be measured, conduct measurements in the order of lowest to highest chemical concentrations previously detected in samples from the monitoring wells.
2. Allow the well to equilibrate by removing the protective cap and leaving the well open for a period before beginning taking measurements. Generally, removing all site well caps prior to collecting the first liquid level measurement provides sufficient time to reach equilibrium.
3. Examine the monitoring well for any structural damage, poorly fitting caps, and leaks into the inner casing. Record all well maintenance issues on the appropriate field sampling form or field log book.
4. If LNAPL is not present, use a pre-cleaned water level probe or equivalent to measure depth to water from the indicated survey mark on the well casing. If a mark is not present, measure from the top of the northern side of the well casing.
5. If LNAPL may be present, use a pre-cleaned, electric, multi-phase interface probe to measure depth of the LNAPL and depth to water. Record both measurements on the sampling form or field logbook. Unless otherwise instructed, always measure depths to LNAPL layer and groundwater from the indicated survey mark. If a mark is not present, measure from the top of the northern side of the well casing.
6. Repeat measurements at least once by lifting the probe tape at least one foot out of the well, allowing the measurer to confirm the accurate foot, tenth-of-a-foot, and hundredth-of-a-foot mark on the tape.
7. Follow personnel and equipment decontamination procedures outlined in SOP-2.

MEASUREMENT OF FIELD PARAMETERS: Temperature, Dissolved Oxygen (DO), Specific Conductance, pH, Oxidation Reduction Potential, and Turbidity

INTRODUCTION

This guideline describes the procedures typically used to measure the temperature, DO, Specific Conductance (SC), pH, Oxidation Reduction Potential (ORP), also referred to as redox potential, and turbidity of ground- or surface water.

EQUIPMENT

- Multi-parameter water quality meter
- Flow-through cell or plastic cup
- Transport/calibration cup
- Probe sensor guard
- Operations manual
- Spare batteries
- Standard conductivity calibration solutions [447, 1413, 2074, 8974 microSiemens per centimeter ($\mu\text{S}/\text{cm}$)]
- pH buffers (4.00, 7.00, 10.00)
- ORP calibration solution
- Pens, field logbook, and/or appropriate field forms (e.g., groundwater purge and sample form)
- Personnel and equipment decontamination supplies

PROCEDURES

Calibrate multi-parameter water quality meter at the office prior to commencement of field activities to check instrument is in proper working order. At a minimum, calibrate before use each day (or more frequently as necessary) as indicated below. The initial daily calibration may be performed at the office (if located in proximity to the site), motel, or in the field.

1. Press the On/Off key. Check the battery charge indicator located at the bottom of the liquid crystal display (LCD) screen. Replace batteries if the battery charge indicator is low.
2. Calibrate the meters according to the manufacturer's instructions. *Note: The meter must be calibrated for each field parameter in accordance with the instructions in the operations manual at the beginning of each sampling day. Additional calibrations may be performed during the day if deemed necessary.*
3. If instruments were used in humid or wet environmental conditions, store them in the case open overnight for evaporation so that moisture and mold do not infiltrate sensitive parts.
4. Multi-parameter water quality meter use:
 - a. Connect the probe sensor to the flow-through cell. If the flow cell is not used, make sure the probe sensor guard is installed.
 - b. Begin passing water into the flow-through cell. If the flow-through cell is not used, place the probe module into a sample of the water or directly into the body of water being evaluated. Be sure to completely immerse all sensors into the water.
 - c. Provide a constant flow of fresh water across the probe module to actuate readings.

- d. Observe the meter's LCD display and record the values on the groundwater purge and sample form or field logbook.
 - e. Once purging is complete, remove the probe from the sample water and rinse the probes and flow-through cell with distilled water.
5. Place the probe sensor in the transport/calibration cup with 0.5-1 inch of 4.00 pH buffer for short-term/overnight storage for optimal calibration conditions the next day. Place the probe sensor in the transport/calibration cup with 0.5-1 inch of potable water for long-term storage. The transport/calibration cup should be sealed to prevent evaporation. *Note: Storing the probes in dry conditions will damage the sensors.*
6. Turbidity meter use:
- a. Fill a turbidity meter sample vial with water to the fill indication line. Cap the vial securely.
 - b. Dry the outside of the sample vial. Line the arrow or alignment indication line on the vial with the arrow or alignment indication line on the turbidity meter. Push the vial all the way into the sample vial port. Ensure that the cap/cover is closed all the way.
 - c. Ensure that the turbidity meter is on a level surface and will not be disturbed during the analysis process. Press the Read key. Do not disturb the turbidity meter or open the cap/cover during reading.
 - d. Record the value provided. If the reading seems inaccurate, ensure that the sample vial is dry and does not have any streaking or staining and re-read the sample.



MONITORING WELL DEVELOPMENT

EQUIPMENT

- 2- or 4-inch-diameter vented surge block
- Centrifugal surface pump
- Submersible pump (4-inch-diameter wells or larger)
- 55-gallon Department of Transportation (DOT)-approved drums
- Teflon®, stainless steel, or PVC bailer
- Teflon®-coated bailer retrieval wire
- Airlift pump with foot valve and compressor
- Bladder pump (2-inch-diameter wells only)
- Electric water level monitoring probe
- Multi-phase interface monitoring probe
- Multi-parameter water quality meter
- Sample labels, pens, and field logbook or other appropriate field forms (e.g., groundwater well development form)
- Personnel and equipment decontamination supplies
- Personal protective equipment as specified in the Site-Specific Health and Safety Plan (HASP)

PROCEDURES

1. After allowing the well seal and monument to cure for a sufficient period, develop the well unless development will compromise the potential usability of the well or exacerbate turbidity problems. [Note: In general, wells containing light non-aqueous phase liquid (LNAPL) should not be developed.] The purpose of developing a monitoring well is to remove drilling fluids and fines from the borehole/filter pack.
2. Prior to development activities, measure and record the total casing and groundwater depth.
3. If applicable, evaluate the well for the presence of LNAPL.
4. If the depth to water in the monitoring well is less than 25 feet bgs, the well may be developed using a centrifugal surface pump with flexible, discharge tubing. If the depth to water in the well is greater than 25 feet bgs, a submersible impeller or airlift pump (with an oil trap and filter) may be used. In some cases, a well may be developed by hand bailing using either a pre-cleaned stainless steel or PVC bailer.
A surge block of appropriate size can be moved up and down inside the screened section of the well casing to create a surging action that hydraulically stresses the filter pack. When an impeller pump is used for development, the pump itself can be moved up and down in the casing to create a surging action.

5. During development of the well, record the following water quality parameters and observations on a groundwater well development form:
 - Depth to water
 - Development time and volume
 - Development (flow) rate
 - pH, temperature, specific conductance, and turbidity
 - Other observations, as appropriate (e.g., color, presence of odors, or sheen).
6. Continue developing the well until water quality parameters have stabilized and the turbidity of the discharge water is low.

Note: If fine-grained materials are present, low turbidity may not be achievable. Stop development if the development process is causing an increase in the turbidity of the produced groundwater.

7. Follow personnel and equipment decontamination procedures outlined in SOG-2.

Note: It is customary to wait 1 to 3 days after developing a well before sampling; however, the appropriateness of sampling a well after development should be determined on a case-by-case basis. In general, wells completed in highly transmissive formations can be sampled immediately following development without concern that development will introduce bias into sampling results.

AIR AND VAPOR SAMPLING

US Environmental Protection Agency (EPA) guidance for specific sampling procedures, including quality assurance/ quality control (QA/QC) practices, for both criteria and toxic air pollutants, are found at the following web site: <https://www3.epa.gov/ttnamti1/airtox.html>

SUMMA™ CANISTERS

An evacuated canister fitted with a calibrated intake flow controller is opened for a predetermined period to collect air potentially containing VOCs. Subsequent laboratory analysis of the air sample is by GC/MS. The sampling procedure presented below for Summa™ canisters fills the canister to atmospheric pressure. Under normal canister use, most VOCs can be recovered in their original concentrations, with little degradation, transformation, or deposition onto the canister walls.

EQUIPMENT

- Sample labels and pens
- Field logbook or other appropriate field forms
- Chain of custody forms
- Signed access agreements and third-party sample receipts
- Summa™ canisters prepared by the laboratory, filter, and flow controller
- Flexible or stainless-steel tubing of the appropriate diameter to allow sampling in the breathing zone
- Hand pump or personal pump to evacuate tubing, if used
- Support stands, if necessary, to place the inlet in the breathing zone
- Tools and spare parts

PROCEDURES

1. Obtain tubing, stands (if needed), and canisters with flow controllers. The flow controllers should be pre-set by the vendor to allow continuous sampling through the desired time.
2. Unpack the canister from the shipping container and inspect it for damage.
3. Identify sampling location, place a small table or stand at the sampling location, and place the canister on the table or attach the tubing to the stand.
4. Use a hand pump or personal pump to purge the sample port, filter, flow controller, and any tubing to be used.
5. Before sampling, verify initial vacuum of canister using the following steps. These steps will also be used to verify the final vacuum of the canister after sampling.
 - a. Confirm that the valve is closed (the knob should be tightened clockwise).
 - b. Remove the brass cap.
 - c. Attach gauge.
 - d. Attach the brass cap to the side of the gauge tee fitting.
 - e. Open and close the valve quickly.
 - f. Read the vacuum on the gauge.
 - g. Record the gauge reading in the “initial vacuum” column of the chain-of-custody

- form (or record the gauge reading when beginning sampling).
 - h. Verify that the canister valve is closed and remove the gauge.
 - i. Replace the brass cap.
6. Attach particulate matter filter and flow controller and any tubing to be used.
 7. Open the canister valve one-half turn.
 8. Record date and time. Note weather conditions during sampling period, especially any high wind conditions.
 9. Note the condition of the sampling location and the presence of chlorinated hydrocarbon sources (for example, burning garbage).
 10. At the completion of sampling, close the canister valve.
 11. Record date and time.
 12. Remove the filter and flow controller.
 13. Complete the canister sample tag.
 14. Prepare the canister label.
 15. Complete the chain-of-custody form. It is important to note both the canister and flow controller serial numbers on the chain-of-custody form.
 16. Follow sample packaging and shipping procedures outlined in SOP-15F.
 17. The laboratory concentrations may be reported in volumetric units of parts per million (ppm) or parts per billion (ppb). If required, convert these concentrations to mass concentrations of micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).



Water & Environmental
TECHNOLOGIES

SOP-16

QUALITY CONTROL SAMPLING

Quality Control (QC) samples are submitted along with natural samples to provide supporting laboratory data to validate laboratory results. QC samples are submitted blind except for matrix spikes and trip blanks, and do not have any unique identifying codes that would enable the lab or others to bias these samples in any way. Usually, the time or sampling location is modified in a way which will separate blank and standard samples from the rest of the sample train. QC samples are identified only on field forms and in field notebooks. The following codes are typically used:

N	Natural Sample	Soil, water, air, or other of interest material from a field site
SP	Split Sample	A portion of a natural sample collected for independent analysis; used in calculating laboratory precision
D	Duplicate Sample	Two samples taken from the same media under similar conditions; also used to calculate precision Two samples taken from the same media under similar conditions; also used to calculate precision
FB	Field Blank	Deionized water collected in sample bottle; used to detect contamination introduced during the sampling process.
RB	Rinsate Blank	Deionized water run through or over decontaminated equipment; used to verify the effectiveness of equipment decontamination procedures
MS/MSD	Matrix Spike/Matrix Spike Duplicate	Certified materials of known concentration; used to assess Spike Duplicate laboratory precision and accuracy
TB	Trip Blank	Inert material (deionized water or diatomaceous earth) included in sample cooler; sent by the lab, the sample is used to detect any contamination or cross-contamination during handling and transportation.

In general, selected QC samples will be inserted into the sample train within a group of twenty samples. QC samples will be prepared in the field, apart from trip blanks. Trip blanks will be supplied by the laboratory and will accompany each sample cooler containing samples for analysis of volatile organic compounds.

Typical QC sample collection frequencies are presented in the table below. However, at some sites, especially ones where streams or ponds are sampled, QC samples may need to be taken at a higher frequency. Refer to the project-specific sampling and analysis plan or quality assurance plan for the appropriate QC sample frequency. Each field crew leader will be responsible for all QC samples prepared by that crew.

QC Sample	Purpose	Collection Frequency
Field Duplicate	Measure analytical precision	1 per every 20 samples
Matrix Spike/ Matrix Spike Duplicate	Measure analytical accuracy	1 per every 20 samples
Equipment Rinse Blanks	Evaluate effectiveness of equipment decontamination and sample handling procedures.	1 per sampling event per media type
Field Blank	Assess possible cross-contamination of samples due to ambient conditions during sample collection	1 per sampling event
Trip Blank	Evaluate sample preservation, packing, shipping, and storage	1 per cooler containing samples with volatile constituents

Methods for computing data validation statements can be found in EPA documents or obtained from Geomatrix.

Appendix C—EPA 2024 Regional Screening Levels (RSL) for Resident Ambient Air

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user's guide; c = cancer; n = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded; V = volatile; M = mutagen.

Toxicity and Chemical-specific Information				Contaminant		Carcinogenic Target Risk (TR) = 1E-06		Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ¹	k e y	RfC _i (mg/m ³)	k e y	v o l	Analyte	CAS No.	Carcinogenic SL TR=1E-06 (ug/m ³)	Noncarcinogenic SL THI=1 (ug or fibers/m ³)	
2.20E-06	I	9.00E-03	I	V	Acephate	30560-19-1			
					Acetaldehyde	75-07-0	1.3E+00	9.4E+00	
					Acetochlor	34256-82-1			
				V	Acetone	67-64-1			
		2.00E-03	X		Acetone Cyanohydrin	75-86-5		2.1E+00	
		6.00E-02	I	V	Acetonitrile	75-05-8		6.3E+01	
1.30E-03	C			V	Acetophenone	98-86-2	2.2E-03		
		2.00E-05	I	V	Acetylaminofluorene, 2-	53-96-3			
1.00E-04	I	6.00E-03	I		Acrolein	107-02-8		2.1E-02	
		2.00E-04	P	V	Acrylamide	79-06-1	1.0E-02	6.3E+00	
6.80E-05	I	2.00E-03	I	V	Acrylic Acid	79-10-7		2.1E-01	
		6.00E-03	P		Acrylonitrile	107-13-1	4.1E-02	2.1E+00	
					Adiponitrile	111-69-3		6.3E+00	
					Alachlor	15972-60-8			
					Aldicarb	116-06-3			
4.90E-03	I			V	Aldicarb Sulfone	1646-88-4			
		1.00E-04	X	V	Aldicarb sulfoxide	1646-87-3	5.7E-04		
6.00E-06	C	1.00E-03	I	V	Aldrin	309-00-2			
		5.00E-03	P		Allyl Alcohol	107-18-6		1.0E-01	
					Allyl Chloride	107-05-1	4.7E-01	1.0E+00	
					Aluminum	7429-90-5		5.2E+00	
6.00E-03	C				Aluminum Phosphide	20859-73-8			
					Ametryn	834-12-8			
					Aminobiphenyl, 4-	92-67-1	4.7E-04		
					Aminophenol, m-	591-27-5			
					Aminophenol, o-	95-55-6			
					Aminophenol, p-	123-30-8			
		5.00E-01	I	V	Amtriaz	33089-61-1			5.2E+02
					Ammonia	7664-41-7			
					Ammonium Picrate	131-74-8			
1.60E-06	C	3.00E-03	X	V	Ammonium Sulfamate	7773-06-0			
		1.00E-03	I		Amyl Alcohol, tert-	75-85-4	1.8E+00	3.1E+00	
					Aniline	62-53-3		1.0E+00	
		3.00E-04	A		Anthraquinone, 9,10-	84-65-1			
					Antimony (metallic)	7440-36-0		3.1E-01	
					Antimony Pentoxide	1314-60-9			
4.30E-03	I	2.00E-04	I		Antimony Tetroxide	1332-81-6		2.1E-01	
		1.50E-05	C		Antimony Trioxide	1309-64-4	6.5E-04	1.6E-02	
		5.00E-05	I		Arsenic, Inorganic	7440-38-2		5.2E-02	
					Arsine	7784-42-1			
					Asbestos (units in fibers)	1332-21-4			
					Asulam	3337-71-1			
2.50E-04	C				Atrazine	1912-24-9	1.1E-02		
					Auramine	492-80-8			
					Avermectin B1	65195-55-3			
3.10E-05	I	1.00E-02	A		Azinphos-methyl	86-50-0		1.0E+01	
		7.00E-06	P	V	Azobenzene	103-33-3	9.1E-02		
		5.00E-04	H		Azodicarbonamide	123-77-3		7.3E-03	
				V	Barium	7440-39-3		5.2E-01	
					Benfluralin	1861-40-1			
					Benomyl	17804-35-2			
					Bensulfuron-methyl	83055-99-6			
					Bentazon	25057-89-0			
7.80E-06	I	3.00E-02	I	V	Benzaldehyde	100-52-7			
		4.00E-03	C	V	Benzene	71-43-2	3.6E-01	3.1E+01	
					Benzene, Trimethyl	25551-13-7		4.2E+00	
					Benzenediamine-2-methyl sulfate, 1,4-	6369-59-1			
6.70E-02	I				Benzenethiol	108-98-5			
					Benzidine	92-87-5	1.5E-05		
					Benzoic Acid	65-85-0			
					Benzoic Chloride	98-07-7			
4.90E-05	C	1.00E-03	P	V	Benzyl Alcohol	100-51-6	5.7E-02	1.0E+00	
2.40E-03	I	2.00E-05	I		Benzyl Chloride	100-44-7	1.2E-03	2.1E-02	
					Beryllium and compounds	7440-41-7			
					Bifenox	42576-02-3			
					Biphenrin	82657-04-3			
		4.00E-04	X	V	Biphenyl, 1,1'-	92-52-4		4.2E-01	
				V	Bis(2-chloro-1-methylethyl) ether	108-60-1			
3.30E-04	I				Bis(2-chloroethoxy)methane	111-91-1	8.5E-03		
6.20E-02	I				Bis(2-chloroethyl)ether	111-44-4	4.5E-05		
					Bis(chloromethyl)ether	542-88-1			
					Bisphenol A	80-05-7			
		2.00E-02	H		Boron And Borates Only	7440-42-8		2.1E+01	
		2.00E-02	P	V	Boron Trichloride	10294-34-5		2.1E+01	
		1.30E-02	C	V	Boron Trifluoride	7637-07-2		1.4E+01	
1.40E-04	C				Bromate	15541-45-4	2.0E-02		
		6.00E-05	X	V	Bromo-2-chloroethane, 1-	107-04-0		6.3E-02	
				V	Bromo-3-fluorobenzene, 1-	1073-06-9			
					Bromo-4-fluorobenzene, 1-	460-00-4			
		6.00E-02	I	V	Bromoacetic acid	79-08-3		6.3E+01	
		4.00E-02	X	V	Bromobenzene	108-86-1		4.2E+01	
3.70E-05	C				Bromochloromethane	74-97-5	7.6E-02		
1.10E-06	I				Bromodichloromethane	75-27-4	2.6E+00		
					Bromoform	75-25-2			
		5.00E-03	I	V	Bromomethane	74-83-9		5.2E+00	
					Bromophos	2104-96-3			
3.70E-06	C	1.00E-01	A	V	Bromopropane, 1-	106-94-5	7.6E-01	1.0E+02	
					Bromoxynil	1689-84-5			
					Bromoxynil Octanoate	1689-99-2			
3.00E-05	I	2.00E-03	I	V	Butadiene, 1,3-	106-99-0	9.4E-02	2.1E+00	
					Butanol, N-	71-36-3			
		5.00E+00	I	V	Butyl Alcohol, t-	75-65-0		5.2E+03	
		3.00E+01	P	V	Butyl alcohol, sec-	78-92-2		3.1E+04	
5.70E-08	C				Butylate	2008-41-5	4.9E+01		
					Butylated hydroxyanisole	25013-16-5			
					Butylated hydroxytoluene	128-37-0			
					Butylbenzene, n-	104-51-8			
					Butylbenzene, sec-	135-98-8			
					Butylbenzene, tert-	98-06-6			
					Cacodylic Acid	75-60-5			

Toxicity and Chemical-specific Information				Contaminant		Carcinogenic Target Risk (TR) = 1E-06		Noncarcinogenic Hazard Index (HI) = 1	
IUR (ug/m ³) ¹	key	RfC _i (mg/m ³)	key	Analyte	CAS No.	Carcinogenic SL TR=1E-06 (ug/m ³)	Noncarcinogenic SL THI=1 (ug or fibers/m ³)		
1.80E-03	I	1.00E-05	A	Cadmium (Diet)	7440-43-9	1.6E-03	1.0E-02		
1.80E-03	I	1.00E-05	A	Cadmium (Water)	7440-43-9	1.6E-03	1.0E-02		
4.30E-05	C	2.20E-03	C	Caprolactam	105-60-2		2.3E+00		
6.60E-07	C			Captadol	2425-06-1	6.5E-02			
				Captan	133-06-2	4.3E+00			
				Carbaryl	63-25-2				
				Carbofuran	1563-66-2				
		7.00E-01	I V	Carbon Disulfide	75-15-0			7.3E+02	
6.00E-06	I	1.00E-01	I V	Carbon Tetrachloride	56-23-5	4.7E-01	1.0E+02		
		1.00E-01	P V	Carbonyl Sulfide	463-58-1		1.0E+02		
				Carbosulfan	55285-14-8				
		9.00E-04	I	Carboxin	5234-68-4			9.4E-01	
			V	Ceric oxide	1306-38-3				
				Chloral Hydrate	302-17-0				
				Chloramben	133-90-4				
			V	Chloramines, Organic	E701235				
			V	Chloranil	118-75-2				
1.00E-04	I	7.00E-04	I V	Chlordane (alpha)	5103-71-9		7.3E-01		
			V	Chlordane (gamma)	5103-74-2				
4.60E-03	C		I V	Chlordane (technical mixture)	12789-03-6	2.8E-02			
				Chlordecone (Kepone)	143-50-0	6.1E-04			
				Chlorfenvinphos	470-90-6				
				Chlorimuron, Ethyl-	90982-32-4				
		1.45E-04	A V	Chlorine	7782-50-5			1.5E-01	
		2.00E-04	I V	Chlorine Dioxide	10049-04-4			2.1E-01	
				Chlorite (Sodium Salt)	7758-19-2				
3.00E-04	I	5.00E+01	I V	Chloro-1,1-difluoroethane, 1-	75-68-3	3.4E-03	5.2E+04		
		2.00E-02	I V	Chloro-1,3-butadiene, 2- (Chloroprene)	126-99-8		2.1E+01		
			M	Chloro-2-methylaniline HCl, 4-	3165-93-3				
7.70E-05	C		V	Chloro-2-methylaniline, 4-	95-69-2	3.6E-02			
				Chloroacetaldehyde, 2-	107-20-0				
				Chloroacetic Acid	79-11-8				
		3.00E-05	I	Chloroacetophenone, 2-	532-27-4		3.1E-02		
				Chloroaniline, p-	106-47-8				
		5.00E-02	P V	Chlorobenzene	108-90-7		5.2E+01		
				Chlorobenzene sulfonic acid, p-	98-66-8				
3.10E-05	C			Chlorobenzilate	510-15-6	9.1E-02			
				Chlorobenzoic Acid, p-	74-11-3				
8.60E-06	C	3.00E-01	P V	Chlorobenzotrifluoride, 4-	98-56-6	3.3E-01	3.1E+02		
			V	Chlorobutane, 1-	109-69-3				
		5.00E+01	I V	Chlorodifluoromethane	75-45-6		5.2E+04		
			V	Chloroethanol, 2-	107-07-3				
2.30E-05	I	1.95E-03	T V	Chloroform	67-66-3	1.2E-01	2.0E+00		
		9.00E-02	I V	Chloromethane	74-87-3		9.4E+01		
6.90E-04	C		V	Chloromethyl Methyl Ether	107-30-2	4.1E-03			
		1.00E-05	X	Chloronitrobenzene, o-	88-73-3		1.0E-02		
		2.00E-03	P	Chloronitrobenzene, p-	100-00-5		2.1E+00		
			V	Chlorophenol, 2-	95-57-8				
		4.00E-04	C V	Chloropicrin	76-06-2		4.2E-01		
				Chloroethanol, 2-	1897-45-6				
			V	Chlorotoluene, o-	95-49-8				
6.90E-02	C		V	Chlorotoluene, p-	106-43-4	4.1E-05			
				Chlorozotocin	54749-90-5				
				Chlorpropham	101-21-3				
				Chlorpyrifos	2921-88-2				
				Chlorpyrifos Methyl	5598-13-0				
				Chlorsulfuron	64902-72-3				
				Chlorthal-dimethyl	1861-32-1				
				Chlorthiophos	60238-56-4				
		6.00E-05	C	Chromium(III) (Soluble Compounds)	16065-83-1		6.3E-02		
				Chromium(III), Insoluble Salts	16065-83-1				
1.10E-02	I	3.00E-05	I	Chromium(VI)	18540-29-9	9.2E-05	3.1E-02		
				Chromium, Total	7440-47-3				
9.00E-03	P	6.00E-06	P	Clofentazine	74115-24-5	3.1E-04	6.3E-03		
6.20E-04	I		V	Cobalt	7440-48-4	1.6E-03			
			M	Coke Oven Emissions	E649830				
		6.00E-01	C	Copper	7440-50-8		6.3E+02		
				Cresol, m-	108-39-4				
		6.00E-01	C	Cresol, o-	95-48-7		6.3E+02		
		6.00E-01	C	Cresol, p-	106-44-5		6.3E+02		
				Cresol, p-chloro-m-	59-50-7				
		6.00E-01	C	Cresols	1319-77-3		6.3E+02		
			V	Crotonaldehyde, trans-	123-73-9				
6.30E-05	C	4.00E-01	I V	Cumene	98-82-8	4.5E-02	4.2E+02		
				Cupferron	135-20-6				
				Cyanazine	21725-46-2				
				Cyanides					
		9.00E-03	C	~Calcium Cyanide	592-01-8		9.4E+00		
				~Copper Cyanide	544-92-3				
		8.00E-04	G V	~Cyanide (CN-)	57-12-5		8.3E-01		
			V	~Cyanogen	460-19-5				
			V	~Cyanogen Bromide	506-68-3				
			V	~Cyanogen Chloride	506-77-4				
		8.00E-04	I V	~Hydrogen Cyanide	74-90-8		8.3E-01		
		9.00E-03	C	~Potassium Cyanide	151-50-8		9.4E+00		
				~Potassium Silver Cyanide	506-61-6				
				~Silver Cyanide	506-64-9				
		9.00E-03	C	~Sodium Cyanide	143-33-9		9.4E+00		
				~Zinc Cyanide	557-21-1				
		6.00E+00	I V	Cyclohexane	110-82-7		6.3E+03		
				Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3				
		7.00E-01	P V	Cyclohexanone	108-94-1		7.3E+02		
		1.00E+00	X V	Cyclohexene	110-83-8		1.0E+03		
			V	Cyclohexylamine	108-91-8				
				Cyfluthrin	68359-37-5				
				Cyromazine	66215-27-8				
5.10E-06	C			Dalapon	75-99-0	5.5E-01			
				Daminozide	1596-84-5				
				Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209)	1163-19-5				
				Demeton	8065-48-3				

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Toxicity and Chemical-specific Information						Contaminant		Carcinogenic Target Risk (TR) = 1E-06		Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ¹	k e y	RfC _i (mg/m ³)	k e y	v o l	mutagen	Analyte	CAS No.	Carcinogenic SL TR=1E-06 (ug/m ³)	Noncarcinogenic SL THI=1 (ug or fibers/m ³)		
						Di(2-ethylhexyl)adipate	103-23-1				
6.00E-03	P	2.00E-04	I	V	M	Diallylate	2303-16-4				
						Diazinon	333-41-5				
						Dibromo-3-chloropropane, 1,2-	96-12-8	1.7E-04		2.1E-01	
				V		Dibromoacetic acid	631-64-1				
				V		Dibromobenzene, 1,3-	108-36-1				
				V		Dibromobenzene, 1,4-	106-37-6				
6.00E-04	I	9.00E-03	I	V		Dibromochloromethane	124-48-1	4.7E-03		9.4E+00	
		4.00E-03	X	V		Dibromoethane, 1,2-	106-93-4			4.2E+00	
						Dibromomethane (Methylene Bromide)	74-95-3				
						Dibutyltin Compounds	E1790661				
						Dicamba	1918-00-9				
						Dichloramine	3400-09-7				
4.20E-03	P			V		Dichloro-2-butene, 1,4-	764-41-0	6.7E-04			
4.20E-03	P			V		Dichloro-2-butene, cis-1,4-	1476-11-5	6.7E-04			
4.20E-03	P			V		Dichloro-2-butene, trans-1,4-	110-57-6	6.7E-04			
		2.00E-01	H	V		Dichloroacetic Acid	79-43-6			2.1E+02	
1.10E-05	C	8.00E-01	I	V		Dichlorobenzene, 1,2-	95-50-1	2.6E-01		8.3E+02	
						Dichlorobenzene, 1,4-	106-46-7				
3.40E-04	C					Dichlorobenzidine, 3,3'	91-94-1	8.3E-03			
						Dichlorobenzophenone, 4,4'	90-98-2				
		1.00E-01	X	V		Dichlorodifluoromethane	75-71-8			1.0E+02	
6.90E-05	C					Dichlorodiphenyldichloroethane, p,p'- (DDD)	72-54-8	4.1E-02			
9.70E-05	C					Dichlorodiphenyldichloroethylene, p,p'- (DDE)	72-55-9	2.9E-02			
9.70E-05	I					Dichlorodiphenyltrichloroethane, p,p'- (DDT)	50-29-3	2.9E-02			
1.60E-06	C			V		Dichloroethane, 1,1-	75-34-3	1.8E+00		7.3E+00	
2.60E-05	I	7.00E-03	P	V		Dichloroethane, 1,2-	107-06-2	1.1E-01		4.1E+00	
		3.96E-03	A	V		Dichloroethylene, 1,1-	75-35-4			4.2E+01	
		4.00E-02	X	V		Dichloroethylene, cis-1,2-	156-59-2			4.2E+01	
		4.00E-02	X	V		Dichloroethylene, trans-1,2-	156-60-5			4.2E+01	
						Dichlorophenol, 2,4-	120-83-2				
3.70E-06	P	4.00E-03	I	V		Dichlorophenoxy Acetic Acid, 2,4-	94-75-7				
				V		Dichloropropane, 1,2-	78-87-5	7.6E-01		4.2E+00	
						Dichloropropane, 1,3-	142-28-9				
						Dichloropropanol, 2,3-	616-23-9				
4.00E-06	I	2.00E-02	I	V		Dichloropropene, 1,3-	542-75-6	7.0E-01		2.1E+01	
8.30E-05	C	5.00E-04	I			Dichlorvos	62-73-7	3.4E-02		5.2E-01	
		3.00E-04	X	V		Dicrotophos	141-66-2				
4.60E-03	I					Dicyclopentadiene	77-73-6			3.1E-01	
						Dieldrin	60-57-1	6.1E-04			
3.00E-04	C	5.00E-03	I			Diesel Engine Exhaust	E17136615	9.4E-03		5.2E+00	
		2.00E-04	P			Diethanolamine	111-42-2			2.1E-01	
		1.00E-04	P			Diethylene Glycol Monobutyl Ether	112-34-5			1.0E-01	
		3.00E-04	P			Diethylene Glycol Monoethyl Ether	111-90-0			3.1E-01	
1.00E-01	C			V		Diethylformamide	617-84-5				
						Diethylstilbestrol	56-53-1	2.8E-05			
		4.00E+01	I	V		Difenzoquat	43222-48-6				
		3.00E+01	X	V		Diffubenzuron	35367-38-5			4.2E+04	
1.30E-05	C					Diffuoroethane, 1,1-	75-37-6			3.1E+04	
		7.00E-01	P	V		Diffuoropropane, 2,2-	420-45-1	2.2E-01			
						Dihydrosafrole	94-58-6				
						Diisopropyl Ether	108-20-3			7.3E+02	
						Diisopropyl Methylphosphonate	1445-75-6				
						Dimethipin	55290-64-7				
						Dimethoate	60-51-5				
		2.00E-04	X	V	M	Dimethoxybenzidine, 3,3'	119-90-4				
						Dimethyl Sulfide	75-18-3			2.1E-01	
1.30E-03	C					Dimethyl methylphosphonate	756-79-6				
						Dimethylamino azobenzene [p-]	60-11-7	2.2E-03			
						Dimethylaniline HCl, 2,4-	21436-96-4				
						Dimethylaniline, 2,4-	95-68-1				
						Dimethylaniline, N,N-	121-69-7				
		3.00E-02	I	V	M	Dimethylbenzidine, 3,3'	119-93-7				
		2.00E-06	X	V		Dimethylformamide	68-12-2			3.1E+01	
1.60E-01	C					Dimethylhydrazine, 1,1-	57-14-7	1.8E-05		2.1E-03	
						Dimethylhydrazine, 1,2-	540-73-8				
						Dimethylphenol, 2,4-	105-67-9				
1.30E-05	C					Dimethylphenol, 2,6-	576-26-1				
						Dimethylphenol, 3,4-	95-65-8				
						Dimethylvinylchloride	513-37-1	2.2E-01			
		2.00E-03	X			Dinitro-o-cresol, 4,6-	534-52-1				
						Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5				
						Dinitroaniline, 3,5-	618-87-1			2.1E+00	
						Dinitrobenzene, 1,2-	528-29-0				
						Dinitrobenzene, 1,3-	99-65-0				
						Dinitrobenzene, 1,4-	100-25-4				
8.90E-05	C					Dinitrophenol, 2,4-	51-28-5				
						Dinitrotoluene Mixture, 2,4/2,6-	E1615210				
						Dinitrotoluene, 2,4-	121-14-2	3.2E-02			
						Dinitrotoluene, 2,6-	606-20-2				
						Dinitrotoluene, 2-Amino-4,6-	35572-78-2				
						Dinitrotoluene, 4-Amino-2,6-	19406-51-0				
5.00E-06	I	3.00E-02	I	V		Dinitrotoluene, Technical grade	25321-14-6				
						Dinoseb	88-85-7				
						Dioxane, 1,4-	123-91-1	5.6E-01		3.1E+01	
1.30E+00	I					Dioxins					
3.80E+01	C	4.00E-08	C	V		~Hexachlorodibenzo-p-dioxin, Mixture	34465-46-8	2.2E-06			
						~TCDD, 2,3,7,8-	1746-01-6	7.4E-08		4.2E-05	
		4.00E-04	X	V		Diphenamid	957-51-7				
						Diphenyl Ether	101-84-8			4.2E-01	
						Diphenyl Sulfone	127-63-9				
2.20E-04	I					Diphenylamine	122-39-4	1.3E-02			
						Diphenylhydrazine, 1,2-	122-66-7				
						Diquat	2764-72-9				
2.10E-03	C					Direct Black 38	1937-37-7	1.3E-03			
2.10E-03	C					Direct Blue 6	2602-46-2	1.3E-03			
1.90E-03	C					Direct Brown 95	16071-86-6	1.5E-03			
						Disulfoton	298-04-4				
						Dithiane, 1,4-	505-29-3				
						Diuron	330-54-1				

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Toxicity and Chemical-specific Information				Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncarcinogenic Hazard Index (HI) = 1
IUR (ug/m ³) ¹	ky	RfC _i (mg/m ³)	klv o mutagen	Analyte	CAS No.	Carcinogenic SL TR=1E-06 (ug/m ³)	Noncarcinogenic SL THI=1 (ug or fibers/m ³)
			V	Dodine	2439-10-3		
			V	EPTC	759-94-4		
				Endosulfan	115-29-7		
				Endosulfan Sulfate	1031-07-8		
				Endothall	145-73-3		
				Endrin	72-20-8		
1.20E-06	I	1.00E-03	I V	Epichlorohydrin	106-89-8	2.3E+00	1.0E+00
		2.00E-02	I V	Epoxybutane, 1,2-	106-88-7		2.1E+01
				Ethanol, 2-(2-methoxyethoxy)-	111-77-3		
				Ethephon	16672-87-0		
				Ethion	563-12-2		
		6.00E-02	P V	Ethoxyethanol Acetate, 2-	111-15-9		6.3E+01
		4.00E-02	P V	Ethoxyethanol, 2-	110-80-5		4.2E+01
		7.00E-02	P V	Ethyl Acetate	141-78-6		7.3E+01
		8.00E-03	P V	Ethyl Acrylate	140-88-5		8.3E+00
		4.00E+00	P V	Ethyl Chloride (Chloroethane)	75-00-3		4.2E+03
			V	Ethyl Ether	60-29-7		
		3.00E-01	P V	Ethyl Methacrylate	97-63-2		3.1E+02
8.00E-08	I	4.00E+01	I V	Ethyl Tertiary Butyl Ether (ETBE)	637-92-3	3.5E+01	4.2E+04
				Ethyl-p-nitrophenyl Phosphonate	2104-64-5		
2.50E-06	C	1.00E+00	I V	Ethylbenzene	100-41-4	1.1E+00	1.0E+03
				Ethylene Cyanohydrin	109-78-4		
			V	Ethylene Diamine	107-15-3		
		4.00E-01	C	Ethylene Glycol	107-21-1		4.2E+02
		1.60E+00	I	Ethylene Glycol Monobutyl Ether	111-76-2		
3.00E-03	I	3.00E-02	C V M	Ethylene Oxide	75-21-8	3.4E-04	1.7E+03
1.30E-05	C			Ethylene Thiourea	96-45-7	2.2E-01	3.1E+01
1.90E-02	C		V	Ethyleneimine	151-56-4	1.5E-04	
				Ethylphthalyl Ethyl Glycolate	84-72-0		
				Fenamiphos	22224-92-6		
				Fenpropathrin	39515-41-8		
				Fenvalerate	51630-58-1		
				Fluometuron	2164-17-2		
		1.30E-02	C	Fluoride	16984-48-8		1.4E+01
		1.30E-02	C	Fluorine (Soluble Fluoride)	7782-41-4		1.4E+01
				Fluridone	59756-60-4		
				Flurprimidol	56425-91-3		
				Flusilazole	85509-19-9		
				Flutolanil	66332-96-5		
				Fluvalinate	69409-94-5		
				Folpet	133-07-3		
				Fomesafen	72178-02-0		
7.40E-06	I	7.00E-03	I V M	Fonofos	944-22-9	1.4E-01	7.3E+00
		3.00E-04	X V	Formaldehyde	50-00-0		3.1E-01
				Formic Acid	64-18-6		
				Fosetyl-AL	39148-24-8		
			V	Furans			
			V	~Dibenzofuran	132-64-9		
		2.00E+00	I V	~Furan	110-00-9		
				~Tetrahydrofuran	109-99-9		2.1E+03
				Furazolidone	67-45-8		
		5.00E-02	H V	Furfural	98-01-1		5.2E+01
4.30E-04	C			Furium	531-82-8	6.5E-03	
8.60E-06	C			Furmecyclox	60568-05-0	3.3E-01	
		8.00E-05	C	Glufosinate, Ammonium	77182-82-2		
		1.00E-03	X V	Glutaraldehyde	111-30-8		8.3E-02
				Glycidaldehyde	765-34-4		1.0E+00
			V	Glyphosate	1071-83-6		
				Guanidine	113-00-8		
				Guanidine Chloride	50-01-1		
				Guanidine Nitrate	506-93-4		
1.30E-03	I		V	Haloxypol, Methyl	69806-40-2	2.2E-03	
2.60E-03	I		V	Heptachlor	76-44-8	1.1E-03	
		3.00E-03	X V	Heptachlor Epoxide	1024-57-3		
		4.00E-01	P V	Heptanal, n-	111-71-7		3.1E+00
				Heptane, N-	142-82-5		4.2E+02
			V	Hexabromobenzene	87-82-1		
4.60E-04	I		V	Hexabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-153)	68631-49-2	6.1E-03	
2.20E-05	I		V	Hexachlorobutadiene	87-68-3	1.3E-01	
1.80E-03	I			Hexachlorocyclohexane, Alpha-	319-84-6	1.6E-03	
5.30E-04	I			Hexachlorocyclohexane, Beta-	319-85-7	5.3E-03	
				Hexachlorocyclohexane, Delta-	319-86-8		
3.10E-04	C			Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	9.1E-03	
5.10E-04	I			Hexachlorocyclohexane, Technical	608-73-1	5.5E-03	
1.10E-05	C	2.00E-04	I V	Hexachlorocyclopentadiene	77-47-4	2.6E-01	2.1E-01
		3.00E-02	I V	Hexachloroethane	67-72-1		3.1E+01
				Hexachlorophene	70-30-4		
				Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4		
		1.00E-05	I V	Hexamethylene Diisocyanate, 1,6-	822-06-0		1.0E-02
		4.00E-04	C	Hexamethylene diisocyanate biuret	4035-89-6		4.2E-01
		4.00E-04	C	Hexamethylene diisocyanate isocyanurate	3779-63-3		4.2E-01
2.00E-07	X	6.00E-01	P V	Hexamethylphosphoramide	680-31-9	1.4E+01	6.3E+02
		7.00E-01	I V	Hexane, Commercial	E5241997		
				Hexane, N-	110-54-3		5.3E+02
				Hexanedioic Acid	124-04-9		
		4.00E-04	P V	Hexanol, 1,2-ethyl- (2-Ethyl-1-hexanol)	104-76-7		4.2E-01
		3.00E-02	I V	Hexanone, 2-	591-78-6		3.1E+01
				Hexazinone	51235-04-2		
				Hexythiazox	78587-05-0		
4.90E-03	I	3.00E-05	P V	Hydramethylnon	67485-29-4	5.7E-04	3.1E-02
4.90E-03	I			Hydrazine	302-01-2	5.7E-04	
				Hydrazine Sulfate	10034-93-2		
		2.00E-02	I V	Hydrogen Chloride	7647-01-0		2.1E+01
		1.40E-02	C V	Hydrogen Fluoride	7664-39-3		1.5E+01
		2.00E-03	I V	Hydrogen Sulfide	7783-06-4		2.1E+00
				Hydroquinone	123-31-9		
				Imazalil	35554-44-0		
				Imazaquin	81335-37-7		
				Imazethapyr	81335-77-5		

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user's guide; c = cancer; n = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded; V = volatile; M = mutagen.

Toxicity and Chemical-specific Information						Contaminant	Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ¹	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	mutagen	Analyte	CAS No.	Carcinogenic SL TR=1E-06 (ug/m ³)	Noncarcinogenic SL THI=1 (ug or fibers/m ³)
						Iodine	7553-56-2		
						Iprodione	36734-19-7		
						Iron	7439-89-6		
		4.00E-01	X	V		Isobutyl Alcohol	78-83-1		4.2E+02
		2.00E+00	C			Isophorone	78-59-1		2.1E+03
						Isopropalin	33820-53-0		
						Isopropanol	67-63-0		
		2.00E-01	P	V		Isopropyl Methyl Phosphonic Acid	1832-54-8		2.1E+02
						Isopropyltoluene, p- isoxaben	99-87-6 82558-50-7		4.2E+01
		4.00E-02	X	V		Jet propulsion fuel 7 (JP-7)	E1737665		
						Lactofen	77501-63-4		
						Lactonitrile	78-97-7		
						Lanthanum	7439-91-0		
						Lanthanum Acetate Hydrate	100587-90-4		
						Lanthanum Chloride Heptahydrate	10025-84-0		
						Lanthanum Chloride, Anhydrous	10099-58-8		
						Lanthanum Nitrate Hexahydrate	10277-43-7		
1.20E-05	C					Lead Compounds			
						~Lead Phosphate	7446-27-7	2.3E-01	
8.00E-05	C					~Lead acetate	301-04-2	3.5E-02	
						~Lead and Compounds	7439-92-1		1.5E-01
						~Lead and Compounds (with other sources of lead present, see Guidance)	7439-92-1		
1.10E-05	C					~Lead subacetate	1335-32-6	2.6E-01	
						~Tetraethyl Lead	78-00-2		
						Lewisite	541-25-3		
						Linuron	330-55-2		
						Lithium	7439-93-2		
						MCPA	94-74-6		
						MCPB	94-81-5		
						MCPP	93-65-2		
						Malathion	121-75-5		
7.00E-04	C					Maleic Anhydride	108-31-6		7.3E-01
						Maleic Hydrazide	123-33-1		
						Malononitrile	109-77-3		
						Mancozeb	8018-01-7		
5.00E-05	I					Maneb	12427-38-2		
						Manganese (Diet)	7439-96-5		5.2E-02
5.00E-05	I					Manganese (Non-diet)	7439-96-5		5.2E-02
						Meposofan	950-10-7		
						Mepiquat Chloride	24307-26-4		
						Mercaptobenzothiazole, 2-	149-30-4		
3.00E-04	G					Mercury Compounds			
						~Mercuric Chloride (and other Mercury salts)	7487-94-7		3.1E-01
3.00E-04	I					~Mercury (elemental)	7439-97-6		3.1E-01
						~Methyl Mercury	22967-92-6		
						~Phenylmercuric Acetate	62-38-4		
						Merphos	150-50-5		
						Metalaxyl	57837-19-1		
3.00E-02	P					Methacrylonitrile	126-98-7		3.1E+01
						Methamidophos	10265-92-6		
2.00E+01	I					Methanol	67-56-1		2.1E+04
						Methidathion	950-37-8		
						Methyl	16752-77-5		
						Methoxy-5-nitroaniline, 2-	99-59-2		
						Methoxychlor	72-43-5		
1.00E-03	P					Methoxyethanol Acetate, 2-	110-49-6		1.0E+00
7.00E-03	P					Methoxyethanol, 2-	109-86-4		7.3E+00
						Methyl Acetate	79-20-9		
2.00E-02	P					Methyl Acrylate	96-33-3		2.1E+01
5.00E+00	I					Methyl Ethyl Ketone (2-Butanone)	78-93-3		5.2E+03
1.00E-03	X					Methyl Hydrazine	60-34-4	2.8E-03	2.1E-02
						Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1		3.1E+03
						Methyl Isocyanate	624-83-9		1.0E+00
						Methyl Methacrylate	80-62-6		7.3E+02
						Methyl Parathion	298-00-0		
						Methyl Phosphonic Acid	993-13-5		
4.00E-02	H					Methyl Styrene (Mixed Isomers)	25013-15-4		4.2E+01
2.80E-05	C					Methyl methanesulfonate	66-27-3	1.0E-01	
2.60E-07	C					Methyl tert-Butyl Ether (MTBE)	1634-04-4	1.1E+01	3.1E+03
						Methyl-1,4-benzenediamine dihydrochloride, 2-	615-45-2		
3.00E+00	X					Methyl-2-Pentanol, 4-	108-11-2		3.1E+03
						Methyl-5-Nitroaniline, 2-	99-55-8		
2.40E-03	C					Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	1.2E-03	
3.70E-05	C					Methylaniline Hydrochloride, 2-	636-21-5	7.6E-02	
						Methylarsonic acid	124-58-3		
						Methylbenzene,1,4-diamine monohydrochloride, 2-	74612-12-7		
6.30E-03	C					Methylbenzene-1,4-diamine sulfate, 2-	615-50-9		
						Methylcholanthrene, 3-	56-49-5	1.6E-04	
						Methylcyclohexane	108-87-2		9.9E+01
1.00E-08	I					Methylene Chloride	75-09-2	1.0E+02	6.3E+02
4.30E-04	C					Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	2.4E-03	
1.30E-05	C					Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	2.2E-01	
4.60E-04	C					Methylenbisbenzamine, 4,4'-	101-77-9	6.1E-03	2.1E+01
						Methylenediphenyl Diisocyanate	101-68-8		6.3E-01
						Methylstyrene, Alpha-	98-83-9		
						Metolachlor	51218-45-2		
						Metribuzin	21087-64-9		
						Metsulfuron-methyl	74223-64-6		
4.50E-06	X					Midrange Aliphatic Hydrocarbon Streams	E1790669	6.2E-01	1.0E+02
						Mineral oils	8012-95-1		
5.10E-03	C					Mirex	2385-85-5	5.5E-04	
						Molinate	2212-67-1		
						Molybdenum	7439-98-7		2.1E+00
						Monochloramine	10599-90-3		
						Monomethylaniline	100-61-8		
						Myclobutanil	88671-89-0		
						N,N'-Diphenyl-1,4-benzenediamine	74-31-7		
						Naled	300-76-5		
1.00E-01	P					Naphtha, High Flash Aromatic (HFAN)	64742-95-6		1.0E+02

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Toxicity and Chemical-specific Information						Contaminant	Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ¹	k e y	RfC _i (mg/m ³)	k e y	v o l u t a g e n	mutagen	Analyte	CAS No.	Carcinogenic SL TR=1E-06 (ug/m ³)	Noncarcinogenic SL THI=1 (ug or fibers/m ³)
0.00E+00	C					Naphthylamine, 2-	91-59-8		
						Napropamide	15299-99-7		
2.60E-04	C	1.40E-05	C			Nickel Acetate	373-02-4	1.1E-02	1.5E-02
2.60E-04	C	1.40E-05	C			Nickel Carbonate	3333-67-3	1.1E-02	1.5E-02
2.60E-04	C	1.40E-05	C	V		Nickel Carbonyl	13463-39-3	1.1E-02	1.5E-02
2.60E-04	C	1.40E-05	C			Nickel Hydroxide	12054-48-7	1.1E-02	1.5E-02
2.60E-04	C	2.00E-05	C			Nickel Oxide	1313-99-1	1.1E-02	2.1E-02
2.40E-04	I	1.40E-05	C			Nickel Refinery Dust	E715532	1.2E-02	1.5E-02
2.60E-04	C	1.00E-05	T			Nickel Soluble Salts	7440-02-0	1.1E-02	1.0E-02
4.80E-04	I	1.40E-05	C			Nickel Subsulfide	12035-72-2	5.8E-03	1.5E-02
2.60E-04	C	1.40E-05	C			Nickelocene	1271-28-9	1.1E-02	1.5E-02
						Nitrate (measured as nitrogen)	14797-55-8		
						Nitrate + Nitrite (measured as nitrogen)	E701177		
		5.00E-05	X			Nitrite (measured as nitrogen)	14797-65-0		
		6.00E-03	P			Nitroaniline, 2-	88-74-4		5.2E-02
						Nitroaniline, 4-	100-01-6		6.3E+00
4.00E-05	I	9.00E-03	I	V		Nitrobenzene	98-95-3	7.0E-02	9.4E+00
						Nitrocellulose	9004-70-0		
						Nitrofurantoin	67-20-9		
3.70E-04	C					Nitrofurazone	59-87-0	7.6E-03	
						Nitroglycerin	55-63-0		
						Nitroguanidine	556-88-7		
8.80E-06	P	5.00E-03	P	V		Nitromethane	75-52-5	3.2E-01	5.2E+00
5.80E-04	X	2.00E-02	I	V		Nitropropane, 2-	79-46-9	4.8E-03	2.1E+01
7.70E-03	C				M	Nitroso-N-ethylurea, N-	759-73-9	1.3E-04	
3.40E-02	C				M	Nitroso-N-methylurea, N-	684-93-5	3.0E-05	
1.60E-03	I		V			Nitrosodibutylamine, N-	924-16-3	1.8E-03	
8.00E-04	C					Nitrosodiethanolamine, N-	1116-54-7	3.5E-03	
4.30E-02	I				M	Nitrosodiethylamine, N-	55-18-5	2.4E-05	
1.40E-02	I	4.00E-05	X	V	M	Nitrosodimethylamine, N-	62-75-9	7.2E-05	4.2E-02
2.60E-06	C					Nitrosodiphenylamine, N-	86-30-6	1.1E+00	
2.00E-03	C					Nitrosodipropylamine, N-	621-64-7	1.4E-03	
6.30E-03	C		V			Nitrosomethylethylamine, N-	10595-95-6	4.5E-04	
1.90E-03	C					Nitrosomorpholine [N-]	59-89-2	1.5E-03	
2.70E-03	C					Nitrosopiperidine [N-]	100-75-4	1.0E-03	
6.10E-04	I					Nitrosopyrrolidine, N-	930-55-2	4.6E-03	
						Nitrotoluene, m-	99-08-1		
			V			Nitrotoluene, o-	88-72-2		
						Nitrotoluene, p-	99-99-0		
2.00E-02	P		V			Nonane, n-	111-84-2		2.1E+01
						Norflurazon	27314-13-2		
						Octabromodiphenyl Ether	32536-52-0		
						Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	2691-41-0		
						Octamethylpyrophosphoramide	152-16-9		
						Oryzalin	19044-88-3		
						Oxadiazon	19666-30-9		
						Oxamyl	23135-22-0		
						Oxyfluorfen	42874-03-3		
						Paclitaxel	76738-62-0		
						Paraquat Dichloride	1910-42-5		
			V			Parathion	56-38-2		
						Pebulate	1114-71-2		
						Pendimethalin	40487-42-1		
			V			Pentabromodiphenyl Ether	32534-81-9		
						Pentabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-99)	60348-60-9		
			V			Pentachlorobenzene	608-93-5		
			V			Pentachloroethane	76-01-7		
			V			Pentachloronitrobenzene	82-68-8		
5.10E-06	C					Pentachlorophenol	87-86-5	5.5E-01	
						Pentaerythritol tetranitrate (PETN)	78-11-5		
						Pentamethylphosphoramide (PMPA)	10159-46-3		
1.00E+00	P		V			Pentane, n-	109-66-0		1.0E+03
						Per- and Polyfluoroalkyl Substances (PFAS)			
						~Ammonium perfluoro-2-methyl-3-oxahexanoate	62037-80-3		
			V			~Ammonium perfluorobutanoate	10495-86-0		
						~Ammonium perfluorodecanoate	3108-42-7		
						~Ammonium perfluorohexanoate	21615-47-4		
						~Ammonium perfluorooctanoate	3825-26-1		
			V			~Bis(trifluoromethylsulfonyl)amine (TFSI)	82113-65-3		
			V			~Hexafluoropropylene oxide dimer acid (HFPO-DA)	13252-13-6		
			V			~Lithium bis(trifluoromethylsulfonyl)azanide	90076-65-6		
			V			~Perfluoro(2-propoxypropanoate)	122499-17-6		
						~Perfluorobutanesulfonate	45187-15-3		
						~Perfluorobutanesulfonic acid (PFBS)	375-73-5		
			V			~Perfluorobutanoate	45048-62-2		
			V			~Perfluorobutanoic acid (PFBA)	375-22-4		
						~Perfluorodecanoate	73829-36-4		
						~Perfluorodecanoic acid (PFDA)	335-76-2		
						~Perfluorododecanoic acid (PFDoDA)	307-55-1		
						~Perfluorohexanesulfonate	108427-53-8		
						~Perfluorohexanesulfonic acid (PFHxS)	355-46-4		
						~Perfluorohexanoate	92612-52-7		
						~Perfluorohexanoic acid (PFHxA)	307-24-4		
						~Perfluorononanoate	72007-68-2		
						~Perfluorononanoic acid (PFNA)	375-95-1		
						~Perfluorooctadecanoic acid (PFODA)	16517-11-6		
						~Perfluorooctanesulfonate	45298-90-6		
						~Perfluorooctanesulfonic acid (PFOS)	1763-23-1		
						~Perfluorooctanoate	45285-51-6		
			V			~Perfluorooctanoic acid (PFOA)	335-67-1		
						~Perfluoropropanoic acid (PFPrA)	422-64-0		
						~Perfluorotetradecanoic acid (PFTetDA)	376-06-7		
						~Perfluoroundecanoic acid (PFUDA)	2058-94-8		
						~Potassium perfluorobutanesulfonate	29420-49-3		
			V			~Potassium perfluorobutanoate	2966-54-3		
						~Potassium perfluorodecanoate	51604-85-4		
						~Potassium perfluorooctanesulfonate	2795-39-3		
						~Sodium perfluorobutanoate	2218-54-4		
			V			~Sodium perfluorodecanoate	3830-45-3		
						~Sodium perfluorohexanoate	2923-26-4		

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Toxicity and Chemical-specific Information				Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³) ¹	key	RfC _i (mg/m ³)	key	Analyte	CAS No.	Carcinogenic SL TR=1E-06 (ug/m ³)	Noncarcinogenic SL THI=1 (ug or fibers/m ³)
				Perchlorates ~Ammonium Perchlorate ~Lithium Perchlorate	7790-98-9 7791-03-9		
				~Perchlorate and Perchlorate Salts ~Potassium Perchlorate ~Sodium Perchlorate	14797-73-0 7778-74-7 7601-89-0		
6.30E-07	C			Permethrin Phenacetin Phenmedipham	52645-53-1 62-44-2 13684-63-4	4.5E+00	
		2.00E-01	C	Phenol Phenol, 2-(1-methylethoxy)-, methylcarbamate Phenothiazine	108-95-2 114-26-1 92-84-2		2.1E+02
			V	Phenyl Isothiocyanate Phenylenediamine, m- Phenylenediamine, o-	103-72-0 108-45-2 95-54-5		
			M	Phenylenediamine, p- Phenylphenol, 2- Phorate	106-50-3 90-43-7 298-02-2		
		3.00E-04	I V	Phosgene Phosmet Phosphates, Inorganic	75-44-5 732-11-6		3.1E-01
				~Aluminum metaphosphate ~Aluminum salts of inorganic phosphates ~Dipotassium phosphate	13776-88-0 E524680405 7758-11-4		
				~Disodium phosphate ~Monoaluminum phosphate ~Monopotassium phosphate	7558-79-4 13530-50-2 7778-77-0		
		1.00E-02	I	~Monosodium phosphate ~Phosphoric Acid ~Phosphoric acid, aluminum salt (1:1) [aluminum phosphate]	7558-80-7 7664-38-2 7784-30-7		1.0E+01
				~Phosphoric acid, aluminum sodium salt (1:X:X) [sodium aluminum phosphate acidic (acidic SALP)] ~Polyphosphoric acid ~Potassium salts of inorganic phosphates	7785-88-8 8017-16-1 E524680403		
				~Potassium triphosphate ~Sodium aluminum phosphate (anhydrous) ~Sodium aluminum phosphate (tetrahydrate)	13845-36-8 10279-59-1 10305-76-7		
				~Sodium hexametaphosphate ~Sodium polyphosphate ~Sodium pyrophosphate	10124-56-8 68915-31-1 7758-16-9		
				~Sodium salts of inorganic phosphates ~Sodium trimetaphosphate ~Sodium triphosphate	E524680404 7785-84-4 7758-29-4		
				~Tetrapotassium phosphate ~Tetrasodium pyrophosphate ~Trialuminum sodium tetra decahydrogenoctaorthophosphate (dihydrate)	7320-34-5 7722-88-5 15136-87-5		
				~Triphosphoric acid, aluminum salt (1:1) [aluminum triphosphate] ~Tripotassium phosphate ~Trisodium phosphate	13939-25-8 7778-53-2 7601-54-9		
		3.00E-04	I V V V	Phosphine Phosphorus Phosphorus, white	7803-51-2 7723-14-0 12185-10-3		3.1E-01
				Phthalates ~Bis(2-ethylhexyl)phthalate ~Butyl Benzyl Phthalate	117-81-7 85-68-7	1.2E+00	
				~Butylphthalyl Butylglycolate ~Dibutyl Phthalate ~Diethyl Phthalate	85-70-1 84-74-2 84-66-2		
			V	~Dimethylterephthalate ~Octyl Phthalate, di-N- ~Phthalic Acid, p-	120-61-6 117-84-0 100-21-0		
		2.00E-02	C	~Phthalic Anhydride Picloram Picramic Acid (2-Amino-4,6-dinitrophenol)	85-44-9 1918-02-1 96-91-3		2.1E+01
				Picric Acid (2,4,6-Trinitrophenol) Pirimiphos, Methyl Polybrominated Biphenyls	88-89-1 29232-93-7 36355-01-8	3.3E-04	
		8.60E-03	C	Polychlorinated Biphenyls (PCBs)			
		2.00E-05	G	~Aroclor 1016	12674-11-2	1.4E-01	
		5.71E-04	G	~Aroclor 1221	11104-28-2	4.9E-03	
		5.71E-04	G	~Aroclor 1232	11141-16-5	4.9E-03	
		5.71E-04	G	~Aroclor 1242	53469-21-9	4.9E-03	
		5.71E-04	G	~Aroclor 1248	12672-29-6	4.9E-03	
		5.71E-04	G	~Aroclor 1254	11097-69-1	4.9E-03	
		5.71E-04	G	~Aroclor 1260	11096-82-5	4.9E-03	
			V	~Aroclor 5460	11126-42-4		
		1.14E-03	W	~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	2.5E-03	1.4E+00
		1.14E-03	W	~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	2.5E-03	1.4E+00
		1.14E-03	W	~Hexachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 157)	69782-90-7	2.5E-03	1.4E+00
		1.14E-03	W	~Hexachlorobiphenyl, 2,3,3',4,4',5- (PCB 156)	38380-08-4	2.5E-03	1.4E+00
		1.14E+00	W	~Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	2.5E-06	1.4E-03
		1.14E-03	W	~Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)	65510-44-3	2.5E-03	1.4E+00
		1.14E-03	W	~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	2.5E-03	1.4E+00
		1.14E-03	W	~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	2.5E-03	1.4E+00
		1.14E-03	W	~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	2.5E-03	1.4E+00
		3.80E+00	W	~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	7.4E-07	4.2E-04
		5.71E-04	I	~Polychlorinated Biphenyls (high risk)	1336-36-3	4.9E-03	
		1.00E-04	I	~Polychlorinated Biphenyls (low risk)	1336-36-3	2.8E-02	
		2.00E-05	I	~Polychlorinated Biphenyls (lowest risk)	1336-36-3	1.4E-01	
		3.80E-03	W	~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	7.4E-04	4.2E-01
		1.14E-02	W	~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)	70362-50-4	2.5E-04	1.4E-01
			I	Polymeric Methylene Diphenyl Diisocyanate (PMDI) Polynuclear Aromatic Hydrocarbons (PAHs)	9016-87-9		6.3E-01
			V	~Acenaphthene	83-32-9		
			V	~Anthracene	120-12-7		
		6.00E-05	E	~Benz[a]anthracene	56-55-3	1.7E-02	
		6.00E-04	I	~Benzo[a]pyrene	50-32-8	1.7E-03	2.1E-03
			M	~Benzo[b]fluoranthene	205-99-2	1.7E-02	
			M	~Benzo[e]pyrene	192-97-2		2.1E-03
			X	~Benzo[j]fluoranthene	205-82-3		
		1.10E-04	C	~Benzo[k]fluoranthene	207-08-9	2.6E-02	
		6.00E-06	E			1.7E-01	

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user's guide; c = cancer; n = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded; V = volatile; M = mutagen.

Toxicity and Chemical-specific Information				Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³) ⁻¹	key	RfC _i (mg/m ³)	key	Analyte	CAS No.	Carcinogenic SL TR=1E-06 (ug/m ³)	Noncarcinogenic SL THI=1 (ug or fibers/m ³)
			V	~Benzofluorene, 2,3- ~Chloronaphthalene, Beta-	243-17-4 91-58-7		
6.00E-07	E		M	~Chrysene	218-01-9	1.7E+00	
6.00E-04	E		M	~Dibenz[a,h]anthracene	53-70-3	1.7E-03	
1.10E-03	C			~Dibenzof[a,e]pyrene	192-65-4	2.6E-03	
7.10E-02	C		M	~Dimethylbenz[a]anthracene, 7,12- ~Fluoranthene ~Fluorene	57-97-6 206-44-0 86-73-7	1.4E-05	
6.00E-05	E	3.00E-06	P V V	~Indeno[1,2,3-cd]pyrene ~Methylnaphthalene, 1- ~Methylnaphthalene, 2-	193-39-5 90-12-0 91-57-6	1.7E-02	3.1E-03
3.40E-05	C	3.00E-03	I V	~Naphthalene	91-20-3	8.3E-02	3.1E+00
1.10E-04	C	2.00E-06	X	~Nitropyrene, 4- ~Perylene	57835-92-4 198-55-0	2.6E-02	2.1E-03
			V	~Pyrene Prochloraz Profuralin	129-00-0 67747-09-5 26399-36-0		
			V	Prometon Prometryn Pronamide	1610-18-0 7287-19-6 23950-58-5		
			V	Propachlor Propanil Propargite	1918-16-7 709-98-8 2312-35-8		
			V	Propargyl Alcohol Propazine Propham	107-19-7 139-40-2 122-42-9		
		8.00E-03	I V	Propiconazole	60207-90-1		8.3E+00
		1.00E+00	X V	Propionaldehyde	123-38-6		1.0E+03
		3.00E+00	C V	Propyl benzene	103-65-1		3.1E+03
		2.72E-04	A	Propylene Glycol	115-07-1		
		2.00E+00	I V	Propylene Glycol Dinitrate	57-55-6		2.8E-01
3.70E-06	I	3.00E-02	I V	Propylene Glycol Monomethyl Ether	6423-43-4	7.6E-01	2.1E+03
			V	Propylene Oxide Pyridine	107-98-2 75-56-9 110-86-1		3.1E+01
				Quinalphos Quinoline Quizalofop-ethyl	13593-03-8 91-22-5 76578-14-8		
		3.00E+04	A	Refractory Ceramic Fibers (units in fibers)	E715557		3.1E+04
			V	Resmethrin Ronnel	10453-86-8 299-84-3		
6.30E-05	C		M	Rotenone Safrole Selenious Acid	83-79-4 94-59-7 7783-00-8	1.6E-02	
		2.00E-02	C	Selenium	7782-49-2		2.1E+01
		2.00E-02	C	Selenium Sulfide	7446-34-6		2.1E+01
		3.00E-03	C	Sethoxydim	74051-80-2		
				Silica (crystalline, respirable) Silver Simazine	7631-86-9 7440-22-4 122-34-9		3.1E+00
				Sodium Acifluorfen Sodium Azide Sodium Diethyldithiocarbamate	62476-59-9 26628-22-8 148-18-5		
1.40E-02	C			Sodium Fluoride Sodium Fluoroacetate Sodium Metavanadate	7681-49-4 62-74-8 13718-26-8		1.5E+01
				Sodium Tungstate Sodium Tungstate Dihydrate Stirofos (Tetrachlorovinphos)	13472-45-2 10213-10-2 961-11-5		
				Strontium, Stable Strychnine Styrene	7440-24-6 57-24-9 100-42-5		1.0E+03
		2.00E-03	X	Styrene-Acrylonitrile (SAN) Trimer (THNA isomer) Styrene-Acrylonitrile (SAN) Trimer (THNP isomer) Sulfolane	57964-39-3 57964-40-6 126-33-0		2.1E+00
		1.00E-03	C V	Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9		
		1.00E-03	C	Sulfur Trioxide	7446-11-9		1.0E+00
		1.00E-03	C	Sulfuric Acid	7664-93-9		1.0E+00
7.10E-06	I			Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	140-57-8 34014-18-1 3383-96-8	4.0E-01	
			V	Terbacil Terbufos Terbutryn	5902-51-2 13071-79-9 886-50-0		
1.30E-06	C		V	Tert-Butyl Acetate Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47) Tetrachlorobenzene, 1,2,4,5-	540-88-5 5436-43-1 95-94-3	2.2E+00	
7.40E-06	I		V	Tetrachloroethane, 1,1,1,2-	630-20-6	3.8E-01	
5.80E-05	C		V	Tetrachloroethane, 1,1,2,2-	79-34-5	4.8E-02	
2.60E-07	I	4.00E-02	I V	Tetrachloroethylene	127-18-4	1.1E+01	4.2E+01
			V	Tetrachlorophenol, 2,3,4,6- Tetrachlorotoluene, p- alpha, alpha- Tetraethyl Dithiopyrophosphate	58-90-2 5216-25-1 3689-24-5		
		8.00E+01	I V	Tetrafluoroethane, 1,1,1,2- Tetramethylphosphoramide, -N,N,N',N' (TMPA) Tetryl (Trinitrophenylmethylnitramine)	811-97-2 16853-36-4 479-45-8		8.3E+04
			V	Thallic Oxide Thallium (I) Nitrate Thallium (Soluble Salts)	1314-32-5 10102-45-1 7440-28-0		
			V	Thallium Acetate Thallium Carbonate Thallium Chloride	563-68-8 6533-73-9 7791-12-0		
			V	Thallium Selenite Thallium Sulfate Thifensulfuron-methyl	12039-52-0 7446-18-6 79277-27-3		
			V	Thiobencarb Thiocyanates Thiocyanic Acid	28249-77-6 E1790665 463-56-9		
			V	Thiocyanic acid, (2-benzothiazolylthio)methyl ester (TCMTB) Thiodiglycol	21564-17-0 111-48-8		

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Toxicity and Chemical-specific Information				Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ⁻¹	ky	RfC _i (mg/m ³)	ky	vo	Analyte	CAS No.	Carcinogenic SL TR=1E-06 (ug/m ³)	Noncarcinogenic SL THI=1 (ug or fibers/m ³)
					Thiofanox	39196-18-4		
					Thiophanate, Methyl	23564-05-8		
					Thiram	137-26-8		
					Tin	7440-31-5		
		1.00E-04	A	V	Titanium Tetrachloride	7550-45-0		1.0E-01
		5.00E+00	I	V	Toluene	108-88-3		5.2E+03
1.10E-05	C	8.00E-06	C	V	Toluene-2,4-diisocyanate	584-84-9	2.6E-01	8.3E-03
1.10E-05	C	8.00E-06	C	V	Toluene-2,6-diisocyanate	91-08-7	2.6E-01	8.3E-03
					Toluenediamine, 2,3-	2687-25-4		
					Toluenediamine, 2,5-	95-70-5		
					Toluenediamine, 3,4-	496-72-0		
5.10E-05	C				Toluic Acid, p-	99-94-5		
					Toluidine, o- (Methylaniline, 2-)	95-53-4	5.5E-02	
					Toluidine, p-	106-49-0		
		4.00E-01	P	V	Total Petroleum Hydrocarbons (Aliphatic High)	E1790670		
					Total Petroleum Hydrocarbons (Aliphatic Low)	E1790666		4.2E+02
		1.00E-01	P	V	Total Petroleum Hydrocarbons (Aliphatic Medium)	E1790668		1.0E+02
		2.00E-06	P	M	Total Petroleum Hydrocarbons (Aromatic High)	E1790676		2.1E-03
		6.00E-02	P	V	Total Petroleum Hydrocarbons (Aromatic Medium)	E1790674		6.3E+01
3.20E-04	I				Toxaphene	8001-35-2	8.8E-03	
					Toxaphene, Weathered	E1841606		
					Tralothrin	66841-25-6		
					Tri-n-butyltin	688-73-3		
					Triacetin	102-76-1		
					Triadimefon	43121-43-3		
					Triallate	2303-17-5		
					Triasulfuron	82097-50-5		
					Tribenuron-methyl	101200-48-0		
					Tribromobenzene, 1,2,4-	615-54-3		
					Tribromophenol, 2,4,6-	118-79-6		
					Tribufos	78-48-8		
					Tributyl Phosphate	126-73-8		
					Tributyltin Compounds	E1790679		
					Tributyltin Oxide	56-35-9		
		5.00E+00	P	V	Trichloramine	10025-85-1		
					Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1		5.2E+03
					Trichloroacetic Acid	76-03-9		
					Trichloroaniline HCl, 2,4,6-	33663-50-2		
					Trichloroaniline, 2,4,6-	634-93-5		
					Trichlorobenzene, 1,2,3-	87-61-6		
		2.00E-03	P	V	Trichlorobenzene, 1,2,4-	120-82-1		2.1E+00
		5.00E+00	I	V	Trichloroethane, 1,1,1-	71-55-6		5.2E+03
1.60E-05	I	2.00E-04	X	V	Trichloroethane, 1,1,2-	79-00-5	1.8E-01	2.1E-01
4.10E-06	I	2.00E-03	I	V	Trichloroethylene	79-01-6	4.8E-01	2.1E+00
					Trichlorofluoromethane	75-69-4		
					Trichlorophenol, 2,4,5-	95-95-4		
3.10E-06	I				Trichlorophenol, 2,4,6-	88-06-2	9.1E-01	
					Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5		
					Trichlorophenoxypropionic acid, -2,4,5	93-72-1		
					Trichloropropane, 1,1,2-	598-77-6		
		3.00E-04	I	V	Trichloropropane, 1,2,3-	96-18-4		3.1E-01
		3.00E-04	P	V	Trichloropropene, 1,2,3-	96-19-5		3.1E-01
					Tricresyl Phosphate (TCP)	1330-78-5		
		7.00E-03	I	V	Triidiphan	58138-08-2		
					Triethylamine	121-44-8		7.3E+00
					Triethylene Glycol	112-27-6		
		2.00E+01	P	V	Trifluoroethane, 1,1,1-	420-46-2		2.1E+04
					Trifluralin	1582-09-8		
		6.00E-02	I	V	Trimethyl Phosphate	512-56-1		6.3E+01
		6.00E-02	I	V	Trimethylbenzene, 1,2,3-	526-73-8		6.3E+01
		6.00E-02	I	V	Trimethylbenzene, 1,2,4-	95-63-6		6.3E+01
					Trimethylbenzene, 1,3,5-	108-67-8		6.3E+01
					Trimethylpentene, 2,4,4-	25167-70-8		
					Trinitrobenzene, 1,3,5-	99-35-4		
					Trinitrotoluene, 2,4,6-	118-96-7		
					Triphenylphosphine Oxide	791-28-6		
					Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8		
6.60E-04	C			V	Tris(1-chloro-2-propyl)phosphate	13674-84-5	4.3E-03	
					Tris(2,3-dibromopropyl)phosphate	126-72-7		
					Tris(2-chloroethyl)phosphate	115-96-8		
					Tris(2-ethylhexyl)phosphate	78-42-2		
		4.00E-05	A		Tungsten	7440-33-7		4.2E-02
2.90E-04	C				Uranium	7440-61-1		
8.30E-03	P	7.00E-06	P	M	Urethane	51-79-6	3.5E-03	
		1.00E-04	A		Vanadium Pentoxide	1314-62-1	3.4E-04	7.3E-03
					Vanadium and Compounds	7440-62-2		1.0E-01
					Vernolate	1929-77-7		
		2.00E-01	I	V	Vinclozolin	50471-44-8		
					Vinyl Acetate	108-05-4		2.1E+02
1.50E-05	P	3.00E-03	I	V	Vinyl Bromide	593-60-2	1.9E-01	3.1E+00
4.40E-06	I	5.11E-02	A	V	Vinyl Chloride	75-01-4	1.7E-01	5.3E+01
					Warfarin	81-81-2		
		1.00E-01	G	V	Xylene, m-	108-38-3		1.0E+02
		1.00E-01	G	V	Xylene, o-	95-47-6		1.0E+02
		1.00E-01	G	V	Xylene, p-	106-42-3		1.0E+02
		1.00E-01	I	V	Xylenes	1330-20-7		1.0E+02
					Zinc Phosphide	1314-84-7		
					Zinc and Compounds	7440-66-6		
					Zineb	12122-67-7		
					Zirconium	7440-67-7		