ORIGINAL

THIRD FIVE-YEAR REVIEW REPORT FOR NOVAK SANITARY LANDFILL SUPERFUND SITE LEHIGH COUNTY, PENNSYLVANIA

Prepared by

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Date

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LIST OF ABBREVIATIONS & ACRONYMS

BTAG	Biological and Technical Assistance Group
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Differences
FYR	Five-Year Review
GMP	Gas Monitoring Point
GPRA	Government Performance and Results Act
ICs	Institutional Controls
LEL	Lower Explosive Limit
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
NPL	National Priorities List
OU	Operable Unit
O&M	Operation and Maintenance
PADEP	Pennsylvania Department of Environmental Protection
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objectives
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
SDWA	Safe Drinking Water Act
SI	Site Investigation
SWRAU	Site Wide Ready for Anticipated Use
TVOC	Total Volatile Organic Compounds
UU/UE	Unlimited Use and Unrestricted Exposure
VI	Vapor Intrusion
VOC	Volatile Organic Compound

I. INTRODUCTION

The purpose of a Five-Year Review (FYR) is to evaluate the implementation and performance of a remedy in order to determine if the remedy is and will continue to be protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in five-year review reports such as this one. In addition, FYR reports identify issues found during the review, if any, and document recommendations to address them.

The United States Environmental Protection Agency (EPA) is preparing this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act Section 121, consistent with the National Contingency Plan (40 Code of Federal Regulations Section 300.430(f)(4)(ii)), and considering EPA policy.

This is the third FYR for the Novak Sanitary Landfill Superfund Site (Site). The triggering action for this statutory review is the completion date of the previous FYR, which was May 26, 2011. The FYR has been prepared due to the fact that hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure (UU/UE).

The Site consists of a single operable unit (OU) that will be addressed in this FYR. OU01 addresses the Landfill, Groundwater, Surface Water, and Jordan Creek.

The Novak Sanitary Landfill Superfund Site Five-Year Review was led by the EPA Remedial Project Manager (RPM). Additional participants included other members of the EPA as the lead agency and the Pennsylvania Department of Environmental Protection (PADEP) as the support agency (see Table 1). The potentially responsible parties (PRPs) were notified of the initiation of the FYR, which began on April 6, 2015.

Table 1: Five-Year Review Team

Name	Title	Agency
Rombel Arquines	Remedial Project Manager	EPA
Ryan Bower	Hydrogeologist	EPA
Jeff Tuttle	Toxicologist	EPA
Carrie Deitzel	Community Involvement Coordinator	EPA
Meg Boyer	Project Officer	PADEP
Jim Kunkle	Hazardous Site Cleanup Act Supervisor	PADEP

Site Background

The Novak Sanitary Landfill Superfund Site is located in the northern portion of South Whitehall Township and northwest of Allentown in Lehigh County, Pennsylvania (Figure 1). The approximately 65 acre parcel is situated on a hillside north of Jordan Creek and south of Orefield Road. There is a fence that surrounds the property. The Site is separated from neighboring properties by a steep drop in elevation to the south and southwest; partially due to natural topography and to the buildup of the landfill disposal areas and storm-water management berms. Site hydrogeology includes the Beekmantown and Allentown Formations. Groundwater mounds in the bedrock beneath the landfill waste and water within the landfill flows radially. A more detailed description of the hydrogeology can be found in the 1993 Remedial Investigation/Feasibility Study (RI/FS) report. [Appendix A – Reference List]

Operations by Novak Sanitary Landfill, Inc. consisted of disposal of solid waste from municipal, commercial, and industrial operations. The operations reportedly began in the mid-1950s and continued until May 1990. In 1984, PADEP, then known as the Pennsylvania Department of Environmental Resources, alleged permit violations

leading to a Site Investigation (SI) by EPA in 1985. The SI identified Site-related hazardous substances in the groundwater in proximity to private residential wells and a public supply well. The Site was eventually added to the National Priorities List (NPL) on October 4, 1989. The historical waste disposal areas of the landfill include the following: (1) an old surface iron mine excavation (Old Mine Area) in the north-central area (approximately 9 acres) containing municipal, commercial and industrial waste; (2) a demolition debris fill area (Demolition Fill Area) in the northeast area (approximately 2 acres) containing municipal and commercial solid waste; (3) a Surface Fill Area (including the East, West and Southwest Trenches) containing municipal and commercial solid waste which extends across the northwestern and central part of the property (approximately 14 acres) ; and, (4) a Trench Fill Area occupying the southern portion of the property (approximately 9 acres) also containing municipal and commercial solid waste. The approximate boundaries of each fill area are depicted in Figure 2. A more detailed description of the disposal history can be found in the 1993 Record of Decision (ROD). [Appendix A – Reference List]

FIVE-YEAR REVIEW SUMMARY FORM

Site Name: Novak Sanitary Landfill		
EPA ID: PAD079160842		
Region: 3	**State:** PA	**City/County:** South Whitehall Township/ Lehigh County

NPL Status: Final	
Multiple OUs? No	**Has the site achieved construction completion?** Yes; September 17, 2002

Lead agency: United States Environmental Protection Agency
Author name (Federal Remedial Project Manager): Rombel Arquines
Author affiliation: United States Environmental Protection Agency, Region 3
Review period: April 2015 to May 2016
Date of site inspection: January 14, 2016
Type of review: Statutory Review
Review number: 3
Triggering action date: May 26, 2011
Due date: May 26, 2016

II. RESPONSE ACTION SUMMARY

Basis for Taking Action

The 1985 SI confirmed that hazardous waste materials were accepted at the landfill therefore, EPA performed an RI/FS to examine the effect of these materials on various media. Intermittent leachate seeps and associated stained soils were found in the southwest portion of the Surface Fill Area, the northern portion of the Old Mine Area and in the Trench Fill Areas. Analysis of three leachate seeps indicated the presence of volatile organic compounds (VOCs), semi-VOCs and most of the Target Analyte List inorganic compounds analyzed. Standing liquid from three gas vents were sampled and found to contain higher levels of contaminants than those detected in the leachate seeps. EPA action levels were exceeded for contaminants identified in the leachate and standing liquid. Stained surface soils were also analyzed. Metal and inorganic contaminant concentrations detected ranged from less than background to approximately five times background.

Groundwater was found to contain VOCs at levels above those allowed under standards set by the Safe Drinking Water Act (SDWA), 42 U.S.C. §300(f), *et seq.*. The principle VOCs contributing to the risk included vinyl chloride; chloromethane; 1,2-dichloroethylene; 1,1,1,-trichloroethane; carbon tetrachloride; trichloroethylene; benzene; and tetrachloroethene. Although other metals contributed to the risk, the principle metals that contributed to the risk included beryllium and cadmium, which exceeded the EPA chronic water quality criteria.
The on-site monitoring wells closest to the landfill exhibited the highest concentrations of landfill leachate indicators. All risk contributing constituents were taken into account for the Human Health Risk Assessment to establish the contaminants of concern (COCs) for the Site. The COCs include VOCs, semi-VOCs, and metals found in a variety of media. The full list of COCs can be found in Table 2.

Potential exposure pathways included dermal contact with contaminated soils and liquids, ingestion of contaminated soil and groundwater, and inhalation of volatized VOCs. A risk assessment was performed based on the information gathered during the RI/FS which determined that actual or threatened releases of hazardous substances from this Site, if not addressed by implementing a cleanup action, may present an imminent and substantial endangerment to public health, welfare, or the environment.

Response Actions

Initial Response

In June 1985, EPA conducted an SI which identified contaminated groundwater as the primary concern based on the substances found in on-site monitoring wells, the close proximity of private residential wells to the landfill, and the existence of public supply wells within a three-mile radius of the Site (see Figure 2). Based on the information gathered in the SI, the Novak Sanitary Landfill was listed on the National Priorities List on October 4, 1989.

On January 11, 1989, sixteen PRPs entered into an Administrative Order on Consent with EPA to perform the Remedial Investigation and to prepare the Feasibility Study for the Novak Sanitary Landfill. The RI/FS report was submitted to EPA on January 28, 1993.

1993 Record of Decision

On September 30, 1993, EPA issued the ROD, which documented the Remedial Action Objectives (RAOs) and selected remedy for the Novak Sanitary Landfill Superfund Site. The RAOs were developed as a result of data collected during the RI/FS and were used in evaluating the remedial alternatives.

The Remedial Action Objectives identified in the 1993 ROD for the selected remedy are as follows:

- Landfill Contents
  - Prevent direct contact to exposed landfill contents;
- Leachate
  - Prevent direct contact to the leachate seeps on the landfill surface;
  - Reduce the leaching of constituents from the landfill contents to the groundwater;
- Landfill Gas
  - Control subsurface off-site migration of landfill gas;
  - Control combustible gas concentrations;
- Groundwater
  - Prevent human ingestion and inhalation of groundwater containing Site-related constituents in excess of federal MCLs or Pennsylvania Water Quality Criteria;
  - Prevent human ingestion and inhalation of groundwater which would present excess lifetime cancer risks greater than $1x10^{-4}$ or hazard indices greater than one (1);
  - Remediate groundwater to background levels;
- On-site Surface Water
  - Remediate altered surface water quality exhibiting excess lifetime cancer risks greater than $1x10^{-4}$ or hazard indices greater than one (1);
  - Prevent contact of surface water with landfill contents;
  - Control surface water runoff and erosion;
- Ecological Receptors
  - Conduct chronic toxicity studies (through environmental risk assessments) to determine if low levels of contamination may cause ecological impairment; and,
- Jordan Creek
  - Based upon the analytical results of sediment samples taken from Jordan Creek, and an evaluation of groundwater and surface flow characteristics, it was determined that the conditions of Jordan Creek downstream of the landfill are consistent with conditions upstream of the landfill, or background conditions. Since inorganic sediment samples did not indicate that the creek was altered by surface water run-off from the Site, a determination was made that no further investigation of the creek was necessary.

The selected remedy identified in the 1993 ROD was comprised of the following components:

- Installation of a perimeter fence around the Site boundaries;
- Implementation of deed restrictions within the Site boundaries;
- Removal of contaminated landfill surface water and sediments based on the results of additional sampling and environmental risk assessments to be conducted;
- Installation of landfill surface water control systems to provide drainage and to minimize soil erosion throughout the Site;
- Containment of the landfill contents by construction of a cap over the entire waste area, including the Surface Fill, Trench Fill, Old Surface Iron Mine Excavation and Demolition Debris Fill Areas; the constructed cap is a multilayer, impermeable soil cap with a geo-synthetic layer.
- Site restoration to promote wildlife habitat diversity without jeopardizing the integrity of the cap;
- Installation and monitoring of a gas collection system that is compatible with an active gas collection and treatment system;
- Ongoing leachate collection and monitoring throughout the Site and transport of leachate to an approved wastewater treatment facility by tanker for disposal;
- Preparation of a contingency method for on-site leachate treatment and disposal to surface water if approval for disposal at an approved wastewater treatment facility was not obtained;
- Long-term groundwater monitoring in the vicinity of the Site. Achievement of background levels or MCLs (whichever is lower) in groundwater. Create a contingency plan for provision of drinking water (via

residential treatment units or waterline hookups) to affected residences. Delineation of the source of groundwater contamination in the vicinity of RW-13;
- Operation and Maintenance (O&M) of the vegetative soil cover, the cap and the treatment systems (gas venting system and leachate collection system) on-site.

2015 Explanation of Significant Differences

On March 13, 2015, EPA issued an Explanation of Significant Differences (ESD), which modified the remedy selected in the 1993 ROD. The ESD modified the continuous collection component of the leachate system, changed a leachate collection performance standard, and changed the groundwater performance standards.

The significant differences identified in the 2015 ESD were comprised of the following components:

- The ESD eliminated the requirement to continuously remove leachate from the landfill. Monitoring of the leachate system will continue and provisions for removing and treating additional leachate, if determined to be necessary by EPA, will remain.
- The ESD eliminated the performance standard that required continuous removal of leachate to ensure that leachate depth in the waste disposal areas does not exceed one (1) foot.
- The ESD changed the groundwater performance standard to the lower of either the SDWA non-zero maximum contaminant level goal (MCLG) or the federal MCL for that contaminant (see Table 2). The ESD also modified the groundwater performance standard by including the requirement that, in addition to MCLs and non-zero MCLGs being achieved, the cumulative risk presented by all remaining Site-related compounds in the groundwater at the conclusion of the remedy must be at or below the 1E-04 cancer risk level, and the non-cancer Hazard Index must be less than or equal to 1.0 for four consecutive quarters.

As part of the ESD process, a public notice was published in the December 11, 2014 edition of the Allentown, Pennsylvania newspaper *The Morning Call,* which stated the draft Proposed ESD was available for public review and comment. No significant comments were received by EPA from the public during this thirty day Public Comment Period.

Performance Standards

The original performance standard requiring continuous removal of leachate from the landfill to a depth of one foot was removed from the remedy by the 2015 ESD. The intent of the original design was for a one-time action to drain the landfill of the leachate to one foot, prior to construction of the cap. Descriptions of the two pilot studies that led EPA and PADEP to conclude that sufficient evidence existed to remove the continuous monitoring to one foot performance standard is found in the Data Review section of this FYR report

The groundwater performance standards for the COCs identified in the 1993 ROD as modified in the 2015 ESD are identified below in Table 2.

Table 2: Performance Standards in Groundwater for Site Contaminants of Concern

Contaminant of Concern	MCL (ug/L)*	non-zero MCLG (ug/L)*
Organics		
benzene	**5**	.....
bromodichloromethane	**80**	.....
chlorobenzene	**100**	100
chloroform	80	**70**
dibromochloromethane	80	**60**
1,4-dichlorobenzene	**75**	75
1,1-dichloroethane	**	**
1,2-dichloroethane	**5**	.....
1,1-dichloroethene	**7**	7
1,2-dichloroethene (cis)	**70**	70
1,2-dichloroethene (trans)	**100**	100
1,2-dichloropropane	**5**	.....
1,3-dichloropropene (trans)	**	**
ethyl benzene	**700**	700
toluene	**1,000**	1,000
tetrachloroethene	**5**	.....
1,1,1-trichloroethane	**200**	200
trichloroethylene	**5**	.....
vinyl chloride	**2**	.....
xylene (total)	**10,000**	10,000
Inorganics		
cadmium	**5**	5
beryllium	**4**	4

"....." Non-zero MCLGs are not available for these site-related compounds

* Values in **bold** are the selected performance standards.

** These site-related compounds do not have MCLs or non-zero MCLGs, but will be included in the overall risk assessment described in the new groundwater performance standard.

Status of Implementation

Pre-design Activities

Pre-design activities were conducted and reported in the Remedial Design for Novak Sanitary Landfill Design Analysis Report dated March 1999. The Remedial Design (RD) activities included a soil vapor investigation to determine if an additional, isolated source of contamination existed in the vicinity of RW-13. The type and concentrations of constituents found in that area were consistent with the historically impacted groundwater in other monitoring wells. EPA concluded that there was no evidence of a separate source area.

Remedy Construction

Construction of the selected remedy was initiated on June 5, 2000. Construction Completion was achieved on September 17, 2002. The following Remedial Action (RA) activities were implemented according to the approved RD specifications:

- Installation of a perimeter fence around the site boundaries;
- Installation of a multi-layered impermeable cap over the entire waste area;
- Removal of contaminated on-site surface water and sediments based on results of additional sampling and environmental risk assessments;
- Installation of surface water control systems to provide drainage and to minimize soil erosion throughout the Site includes four sediment ponds, spillways, drainage swales, diversion berms, and a discharge line for surface waters to Jordan Creek;
- Site restoration to promote wildlife habitat diversity including planting wetland plant species within and around the sediment ponds;
- Installation and monitoring of a passive gas collection system that is compatible with an active gas collection and treatment system (if future data indicates it is needed);
- Ongoing leachate collection and monitoring throughout the Site and transport of leachate through a series of sixteen extraction wells and three main leachate collection lines to a 100,000 gallon collection tank, and a pump house and tanker truck pad for transportation of the collected leachate to the Allentown wastewater treatment facility for disposal;
- Monitored natural attenuation (MNA) in the vicinity of the Site. MNA goal is to achieve background levels (or MCLs, whichever is lower) in groundwater. Contingency for provision of drinking water (via residential treatment units or waterline hookups) to affected residences should the leachate collection prove to be ineffective in containing the groundwater contamination.

Institutional Controls

Institutional Controls (ICs) in the form of deed restrictions were required by the 1993 ROD. The objectives of these deed restrictions are described below:

Deed restrictions shall be placed on the property within the Site boundaries to prohibit: (1) the use of the land for residential or agricultural purposes; and (2) the use of on-site ground water for domestic purposes, including drinking water. The purpose of these restrictions is to prevent excavation or construction on the capped and closed landfill, and to prevent the risks associated with human exposure to landfill contents, leachate and ground water.

The initial deed notification that was placed on the deed did not detail the required restrictions. It was strengthened by a protective Uniform Environmental Covenant Act (UECA) covenant that was recorded with the Recorder of Deeds on July 28, 2011. (see Table 3) The UECA specified the following specific restrictions, which fulfilled the requirements of the 1993 ROD:

- No use shall be made that disturbs the integrity or performance of the perimeter fence that encompasses the Site, any of the layers of the cap on the Site, any surface water diversion systems or swales, the landfill gas collection system, the leachate collection system, or any other structure or system for maintaining the effectiveness of the Remedial Action, whether in place now or in the future. No use shall be made that disturbs the function of any monitoring well or other system for monitoring any response action or any Remedial Action.
- Ground water within or from the Site shall not be used in any manner, including, but not limited to, use as a drinking water supply, and no water supply or other ground water well shall be installed, except for groundwater monitoring wells installed pursuant to plans approved in writing in advance by the USEP A and the Grantee/Holder.
- No excavation, digging, drilling or other intrusive activity into or disturbance of the soil may occur in, on or under the Site, unless approved in writing in advance by the USEPA and the Grantee/Holder.
- The Site, and any portion thereof, shall not be used for residential, commercial, industrial, recreational or agricultural purposes.
- No activities except access, inspection, repair, remediation and restoration shall occur on the Landfill Cap Area or the Site, except as authorized or required under the Remedial Action, the Administrative Order, the ROD or the O&M Plan for the Site, as approved by the EPA, as may be amended from time to time."

Table 3: Summary of Implemented ICs

Media, engineered controls, and areas that do not support UU/UE based on current conditions	ICs Needed	ICs Called for in the Decision Documents	Impacted Parcel(s)	IC Objective	Title of IC Instrument Implemented and Date (or planned)
Land/Groundwater Use; Landfill Cap; Fence; Surface Water/Landfill Gas/Leachate Systems; Landfill contents, leachate, and groundwater	YES; All required ICs have been Implemented	YES; Deed Restrictions required by Record of Decision	Parcel # 19-F7-36-8; Parcel # F7-38-1	See full text in the quote and bulleted list above	Environmental Covenant; Recorded on July 28, 2011

Systems Operations/Operation and Maintenance

O&M activities of the remediation system are being performed by the Novak PRP Group's contractor, de maximis, inc. In this FYR period, these activities include operation, maintenance, and monitoring of the landfill cap, the passive gas vent system, and the leachate collection system (until leachate collection was discontinued as described below). The PRP Group is also responsible for monitoring residential drinking water wells and stormwater management. The current approved O&M Plan was prepared in September 2014. A more detailed description of the modifications to the O&M can be found in the 2014 Leachate Extraction System Closure Work Plan [Appendix A – Reference List].

Landfill Cap

The final cover vegetation is maintained by a cutting program. The entire Site is mowed three times per year (in late April, late June, and late September). The frequency and/or timing of mowing activities may be adjusted in response to periods of low growth. Such an option can be considered as part of regular O&M assessment. Wetland-type areas, vegetated with the specified wetland seed, are not mowed. Other cover vegetation maintenance measures include removal of trees, saplings, shrubs, weeds, and other plants that may cause damage to the cap system. The Site is re-seeded where bare spots occur. Soil ruts, channels, washouts, animal burrows or

other erosion greater than six inches deep are repaired. Repairs to the cap geo-synthetics, and the on-site gravel road are completed, as necessary. Landfill cap maintenance is documented in the monthly progress reports to EPA. Significant erosion events occurred in 2009, 2011, and 2012. The details of these events are described in the Storm-water Management section.

Landfill Gas Monitoring System

Quarterly gas monitoring is performed at the 14 gas monitoring points located outside the perimeter of the landfill cap, and 12 residences to ensure that measured concentrations of methane remain below the lower explosive limit (LEL). The collected information includes flow, percent LEL, percent oxygen, and concentrations of VOCs, methane, carbon monoxide, and hydrogen sulfide in parts per million. Since the leachate extraction system was decommissioned, including the pump house electrical systems, the pump house is primarily used as storage so gas monitoring in the pump house is unnecessary.

The basements of 12 residences adjacent to the Site are monitored on a quarterly basis for the percent LEL of methane and percent oxygen as well as total VOCs (TVOCs). Because the sampling method cannot distinguish specific VOCs, it cannot be the sole line of evidence used to determine if the measured TVOCs are from the landfill or from household chemicals/solvents being used in the residences. In 2007-2008, a three phase investigation addressed the concern that TVOCs detections in the monitoring results could be caused by gas migration from the Site. EPA concluded that the occasional TVOC results in the residential sampling were not Site-related and that further vapor intrusion mitigation action was not warranted at the Site. A more detailed description of this three phase investigation can be found in the Second Five-Year Review [Appendix A – Reference List]

Leachate Extraction Wells

The leachate collection system was intended to remove accumulated leachate present beneath the landfill as a singular event, prior to the construction of the cap. It accommodated leachate extraction from 21 pumping leachate extraction/gas venting wells (eventually optimized down to eight producing wells) at a combined maximum design flow rate of 63 gallons per minute. Extracted leachate was temporarily stored in an aboveground 100,000 gallon tank within a lined containment berm prior to transfer to the local Publicly Owned Treatment Works for disposal via tanker trucks. No leachate was pumped during the second leachate pilot (2009-2011), which tested the effects of shutting down the entire leachate system, or after EPA determined that the pilot provided sufficient evidence to discontinue pumping. The total cumulative volume of leachate that was removed from the landfill since the leachate collection system's construction in 2002 was 304,481 gallons, including the final shipment in December 2011 of 72,000 gallons remaining in the tank before it was decommissioned. A more detailed description of the documentation of the shutdown of the leachate extraction system can be found in the 2014 Leachate Extraction System Closure Work Plan [Appendix A – Reference List], but a brief summary of the decommission is listed below:

- October 2009 - Leachate extraction pumps have been removed from the extraction wells and stored; Pipeline valves set to closed.
- December 2011 - The on-site leachate storage tank was decommissioned and removed.
- September 2014 - O&M Plan was updated to reflect the changes, including system restart procedures if necessary in the future.

Groundwater and Residential Well Monitoring

Designated landfill monitoring wells are monitored annually to evaluate concentrations of the landfill-related contaminants of concern relative to the performance standards specified in the ROD on an annual basis. Various residential wells in close proximity to the Site are sampled quarterly and one community supply well is sampled annually to confirm that the drinking water quality at the point of use remains below MCLs for drinking water.

Results from the sampling events are compiled, reviewed and then forwarded to the EPA. An annual report is required to be submitted that includes monitoring data, a statistical analysis of results, and a summary of landfill leachate monitoring information. An evaluation of this data is provided in the Data Review section.

Storm-water Management

The Site is graded to provide drainage off of the cap with surface water run-off control, and to minimize soil erosion in accordance with the ROD requirements. The final design for the Site included a conversion of three existing sedimentation ponds into storm-water management basins. In addition to their dewatering devices, the basins have an overflow outlet structure or spillway, which helps dissipate any flow that leaves the basin through these structures. Additional storm-water management components include diversion berms and rip-rap lined drainage swales. Quarterly inspections are performed to evaluate the performance and maintenance needs of the storm-water management system. The inspections are documented in the monthly progress reports provided to the EPA, including any actions that addressed issues documented during the inspection.

In January 2009, significant slope repair was necessary due to erosion along the northeastern edge of the cap. The PRP's contractor repaired the damage by stabilizing the berm with gabion cages and clean soil to backfill the eroded area. Erosion was observed at the end of the row of gabion cages so additional gabion cages were installed November 2011 (see Photo 1). In April 2012, significant slumping was observed with evidence of transverse cracks and mass movement of soil slipping downhill along the cap's lining. Engineers contracted by the PRP analyzed the issue and, after repairing the shallow cracks in the soil with clean fill, installed a trenching system to redirect surface water flow to the storm-water management basins. The trenching system is working as intended, as noted during inspections by EPA and PADEP, including the FYR inspection performed for this report.

III. PROGRESS SINCE THE LAST REVIEW

The protectiveness statement from the second Five-Year Review, signed May 26, 2011, is quoted below:

"This second Five-Year Review has determined that the Site is protective of human health and the environment in the short-term. The Site remedy, including the landfill cap, was constructed in accordance with the ROD and the design documents. The groundwater and residential monitoring programs are in place and operating as intended. The landfill gas venting and monitoring programs are effective at ensuring there is no buildup of harmful gases. The leachate collection system is being reassessed, but the full-scale Leachate Assessment Pilot does not affect protectiveness in the short-term. The institutional control required by the ROD has been partially implemented with a deed notification and is protective in the short-term. ICs will be strengthened by a fully protective UECA covenant that is expected to be recorded by June 2011.

The completion of the recommendations and follow-up actions identified in this Five-Year Review, along with the continued operation and maintenance of the Site, will provide protectiveness of human health and the environment in the long-term. EPA expects the Site will be fully protective of human health and the environment when the groundwater cleanup goals are met."

Table 4: Protectiveness Determinations/Statements from the 2011 FYR

OU #	Protectiveness Determination	Protectiveness Statement
Sitewide	Protective in the Short Term	See full text quoted above

Table 5: Status of Recommendations from the 2011 FYR

OU #	Issue	Recommendations	Current Status	Current Implementation Status Description	Completion Date
Sitewide	Institutional Controls	Finalize and implement the UECA Covenant	Completed	UECA Covenant which strengthened ICs was finalized and recorded	July 28, 2011
Sitewide	Not pumping extraction wells	Complete analysis of full-scale Leachate Assessment Pilot	Completed	Leachate Assessment Pilot completed, ESD issued, leachate collection system has been decommissioned	March 13, 2015

IV. FIVE-YEAR REVIEW PROCESS

Community Notification, Involvement & Site Interviews

A public notice was published in the January 14, 2016 edition of the Allentown, Pennsylvania newspaper *Parkland Press*. The notice stated that EPA was conducting a five-year review for the Novak Sanitary Landfill Superfund Site and invited the public to submit any comments to the EPA. No significant comments were received by EPA. The results of the review and the report will be made available at the Site information repository located at Parkland Community Library, 4422 Walbert Ave., Allentown, PA 18104, or (by appointment): US EPA Library, 1650 Arch St., Philadelphia, PA 19103; 215-814-3157.

During the FYR process, interviews were conducted to document any perceived problems or successes with the remedy that has been implemented to date. The results of these interviews are summarized below.

- In March 2016, the Remedial Project Manager contacted the South Whitehall Township Manager, Mr. Howard L. Kutzler to update him on the progress of the Five-Year Review for the Site. Mr. Kutzler indicated that he had received no public inquiries regarding the Site.
- In January 2016, during the FYR Inspection, the PRP's lead contractor was interviewed regarding the status of the Site. He responded that the ESD was in place and that the shutdown of the remaining elements of the leachate collection system went smoothly.

Data Review

A key component of the Five-Year Review for the Novak Landfill is an assessment of the leachate collection system, and the evaluation of groundwater and landfill gas monitoring data. Environmental data provides information necessary to assess and demonstrate that the remedy is achieving the performance standards set out in the ROD and that the remedy remains protective of human health and the environment. More details of the construction and operation of these systems can be found in the second FYR [Appendix A – Reference List]

Leachate Collection

The leachate collection system has been decommissioned as described in the O&M section of this FYR report. The decision to decommission was based on the results of two pilot studies performed by the PRPs. The first pilot study, approved by EPA in 2006, was a limited small-scale leachate pilot to determine the effects of turning off two leachate extraction wells.

The second pilot study, approved by EPA in coordination with PADEP in 2009, was a full-scale Leachate Assessment Pilot conducted from 2009 to 2011. The study involved the shut-down of all of the eight remaining leachate pumps, with continued monitoring to determine if any contamination moved off-site. More details of this full-scale pilot study are recorded in the 2014 Novak Leachate Closure Work Plan [Appendix A – Reference List]. In support of the first pilot's conclusions, the assessment established that the continuous influx of up-gradient perched groundwater was artificially increasing the depth of the leachate. This also meant that the Site could never meet the 1993 ROD's performance requirement that the leachate level be continuously pumped to below one foot for six consecutive months. Sampling the remaining leachate also determined that it did not contain COCs above MCLs. EPA and PADEP concluded that sufficient evidence existed to discontinue the pumping of leachate from the Site and the 2015 ESD removed the performance standards from the remedy that would otherwise have prevented the decommission.

Groundwater and Residential Well Monitoring

The groundwater monitoring program helps to evaluate the effectiveness of the remedy in meeting groundwater performance standards, which are the lower of either the SDWA non-zero MCLG or the federal MCL for that contaminant, and to ensure protection of the drinking water wells of the nearby residents. The landfill monitoring well system monitors conditions in the shallow and deeper bedrock aquifer in areas up-gradient and down-gradient of the landfill and in areas that may be impacted by the localized radial flow caused by the mounding of groundwater beneath the landfill. The residential monitoring well program includes residential wells located in close proximity to the landfill, which represent potential down-gradient receptors, and one community supply well (see Figure 2). The monitoring program has been modified over time to improve the program based on additional Site information.

The annual groundwater sampling results from the monitoring program continue to show a downward trend in the concentrations of contaminants of concern. In the past five years, no VOC COCs [Appendix D – Data Tables] or metal COCs were detected above their respective performance standards in the on-site or off-site groundwater monitoring wells or in the residential wells. The final Groundwater Monitoring Plan still requires that monitoring well data be statistically analyzed and will include analysis with a computer-based statistics program on an annual basis. The 2015 ESD requires that, before the conclusion of the remedy, a cumulative risk assessment be performed after all performance standards (see Table 2) have been achieved.

Two residences continue to be provided bottled water by the PRP Group due to high levels of nitrate. It has been determined that the nitrate is not Site-related, but the PRP Group has independently decided to continue supplying the water.

Landfill Gas Monitoring

A passive gas collection system was installed within the landfill limits to collect and vent accumulated gases in the Surface Fill, Trench Fill, Demolition Fill, and Old Mine areas and to control gas migration. Additionally, 14 gas monitoring points were installed along the perimeter of the landfill boundary. These passive gas points were installed to serve two purposes: 1) to intercept the potential migration of subsurface landfill gas off-site, and 2) to monitor the effectiveness of the landfill gas venting system. In addition, residential indoor air monitoring occurs quarterly.

The on-site gas collection system continues to be monitored quarterly. Since the installation of two pairs of passive gas vents in 2007, only one gas monitoring point (GMP) ,GMP-8 (see Figure 2), has had occasional detections above the LEL of methane. In the past five years, there have been no detections above the LEL of methane and no detections of TVOC COCs above MCLs in any of the quarterly residential air monitoring samples.

Landfill Cap and Vegetative Cover

The selected remedy required site restoration to promote wildlife habitat diversity without jeopardizing the integrity of the cap. During the FYR inspection, it was noted that the seed mixture of native grasses originally planted as vegetative cover of the landfill cap has been supplanted by a dominant species of common invaders in disturbed soils, which likely resulted from seeds present in the borrow materials or were naturally introduced from the surrounding area. Although the present vegetation is currently protective of human health and the environment, and would still be protective in the future because it stabilizes the soil and prevents erosion, it does not promote the wildlife habitat diversity mentioned in the 1993 ROD.

The EPA Biological and Technical Assistance Group (BTAG) recommends that an ecological assessment be performed by the PRP, including an initial inspection in consultation with BTAG, of the site during the growing season prior to any adjustments to the O&M Plan. To prevent the invasive grasses from outcompeting the more beneficial species in the seed mixture, BTAG recommends that the cap be mowed to a height of 8 to 10 inches in spring to stimulate early growth of perennial cool season grasses, as well as mid-summer and early fall to prevent annual and biennial invaders from forming seed. It further recommends that the species composition and condition of the vegetation be reexamined after two years of this mowing regime to evaluate its efficacy in controlling invaders. Following these efforts by the PRP, the BTAG would assess the efficacy of the mowing regime and the long term success of the vegetation in meeting the stated goal of promoting wildlife habitat diversity.

Site Inspection

The inspection of the Site was conducted on January 14, 2016. In attendance representing the Lead Agency were the EPA RPM and EPA Hydrogeologist. The support agency representative was the PADEP Supervisory Project Officer. Also present were two contractors for the PRP. The purpose of the inspection was to assess the protectiveness of the remedy.

The inspection team inspected the Site, including the Leachate Extraction System taken offline per the 2015 ESD, the trenching and gabion cage erosion controls, the landfill gas venting and monitoring system, the groundwater monitoring well system, the perimeter fence, the landfill cap, the ground cover of the landfill cap, the surface water retention basins, emergency stormwater spillway, and proper O&M and Health and Safety Plan on-site documentation. All elements of the remedy were functioning as intended. However, the current ground cover did not match the originally planted seed mixture. In addition, minor damage to the lids of two monitoring wells was observed, but repairs to the wells were confirmed prior to the completion of this FYR (see Photo 2 and Photo 3).

V. TECHNICAL ASSESSMENT

QUESTION A: Is the remedy functioning as intended by the decision documents?

Yes, the remedy is functioning as intended by the decision documents, with one exception involving the landfill cover that does not affect protectiveness. The exception to the intended function of the remedy is the landfill cover, which is fully discussed in the Landfill Cap and Vegetative Cover section above. The current vegetative cover is protective, but does not promote wildlife diversity as described in the 1993 ROD. The modifications to the remedy from the 2015 ESD have been implemented. A UECA covenant fully implements the required ICs. In the past five years, there have been no exceedances of performance standards for any COCs in the on-site or off-site groundwater wells [Appendix D – Data Tables] or residential wells. There are still detections above the LEL for methane in one on-site GMP. Current O&M procedures are working in a manner that will continue to maintain the effectiveness of the remedy.

QUESTION B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Yes, the exposure assumptions and RAOs used at the time of the remedy selection are still valid, however, some of the toxicity data, cleanup levels, and risk assessment methods used at the time of the remedy selection are no longer valid. The 2015 ESD changed the outdated performance standards to ensure the protectiveness of the remedy. It also required a cumulative risk assessment once all performance standards have been met, which will take into account any changes noted above.

QUESTION C: Has any other information come to light that could call into question the protectiveness of the remedy?

No other information has come to light that could call into question the protectiveness of the remedy.

VI. ISSUES/RECOMMENDATIONS

The issue described in Table 6 does not affect current or future protectiveness. However, because it significantly deviates from the intention of the 1993 ROD, Issues and Recommendations have been identified for this FYR.

Table 6: Issues and Recommendations

Issues and Recommendations Identified in the Five-Year Review				
OU(s): Sitewide	Issue Category: O&M			
	Issue: Although current cover does not affect current or future protectiveness, it also does not promote wildlife habitat diversity without jeopardizing the integrity of the cap, as specified in the 1993 ROD			
	Recommendation: (1) Conduct an ecological investigation of the Site with the consultation of BTAG (2) Use results of the investigation to make adjustments to the O&M Plan that will meet the 1993 ROD's stated goal of promoting wildlife habitat diversity.			
Affect Current Protectiveness	**Affect Future Protectiveness**	**Party Responsible**	**Oversight Party**	**Milestone Date(s)**
NO	NO	PRP	EPA	1) August 30, 2016 2) August 30, 2018

Other Findings

No additional findings have been identified during the FYR.

VII. GOVERNMENT PERFORMANCE AND RESULTS ACT MEASURES

As part of this FYR, the Government Performance and Results Act (GPRA) Measures have also been reviewed. The GPRA Measures and their status are provided as follows:

Environmental Indicators

Human Health: HEUC-HEPR = Current Human Health Exposure Controlled and Protective Remedy in Place

Groundwater Migration: GMUC = Groundwater Migration Under Control

Site-Wide Ready for Anticipated Use (SWRAU)

The Site was considered to be SWRAU on September 9, 2011.

VIII. PROTECTIVNESS STATEMENT

"This third Five-Year review has determined that the remedy at the Novak Sanitary Landfill Superfund Site is protective of human health and the environment."

The Site remedy was constructed in accordance with the ROD and the design documents. The current vegetative cover of the landfill cap does not promote wildlife habitat diversity, but does not affect protectiveness. The groundwater and residential monitoring programs are in place and operating as intended. The measured concentrations for COCs in the on-site and off-site groundwater and residential wells are meeting the performance standards. An ESD has been issued to modify some performance standards and to require a cumulative risk assessment at the conclusion of the remedy. The landfill gas venting and monitoring programs are effective at ensuring there is no buildup of harmful gases. The leachate collection system was decommissioned following an EPA determination that there is sufficient evidence to discontinue the extraction of leachate from the Site. The institutional controls required by the ROD have been implemented by a protective UECA covenant.

Table 7: Protectiveness Determination

OU #	Protectiveness Determination	Protectiveness Statement
Sitewide	Protective	See full text quoted above

IX. NEXT REVIEW

The next five-year review report for the Novak Sanitary Landfill Superfund Site is required five years from the completion date of this review.

APPENDIX A – REFERENCE LIST

The following documents are available in the Administrative Record (https://semspub.epa.gov/src/collections/03/AR/PAD079160842):

- Novak Remedial Investigation/Feasibility Study Report; January 1993
- Novak Record of Decision; September 1993
- Second Novak Five-Year Review; May 2011
- Novak Leachate Closure Work Plan; September 2014

APPENDIX B – FIGURES

FIGURE 1: SITE LOCATION

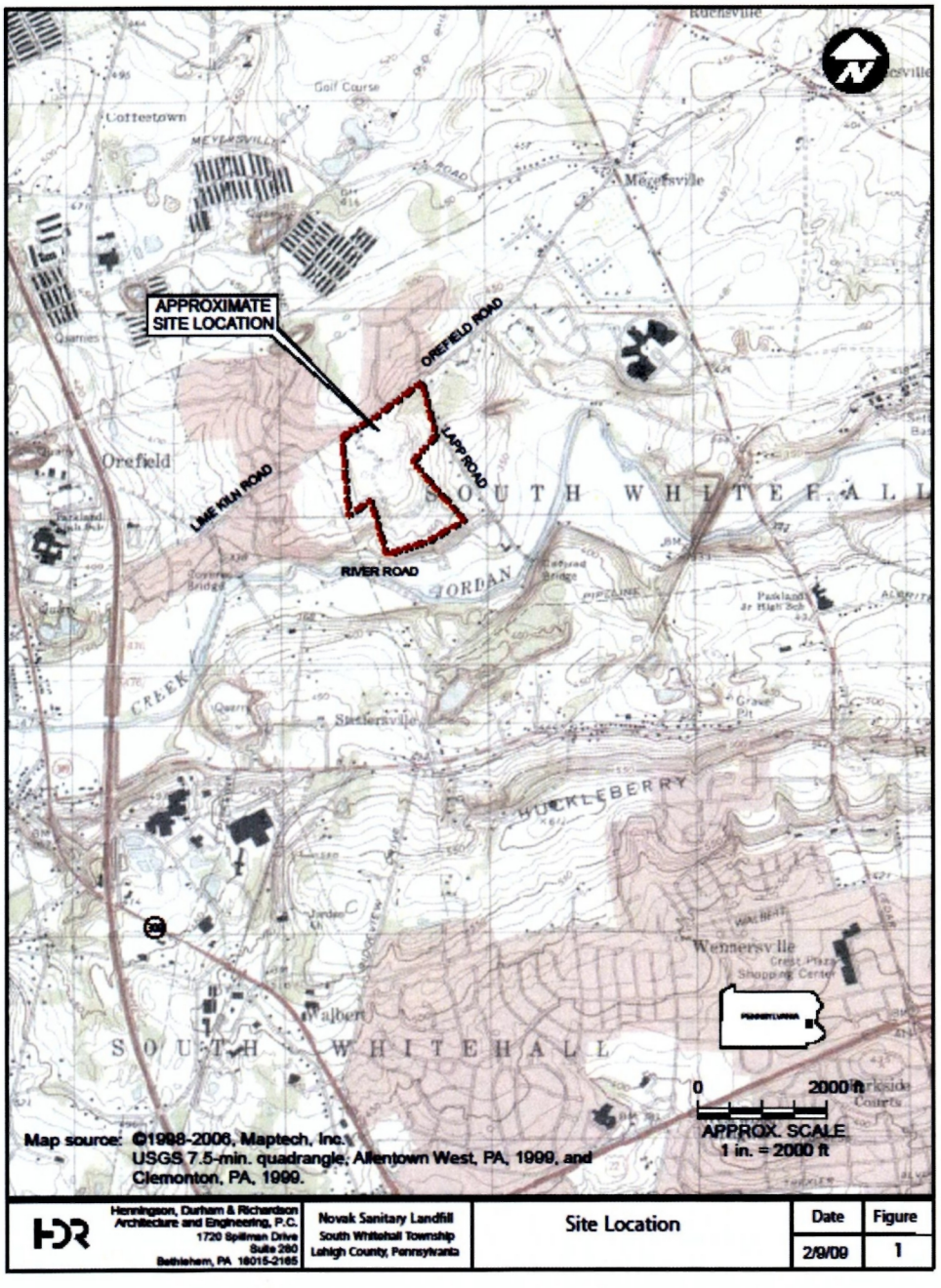
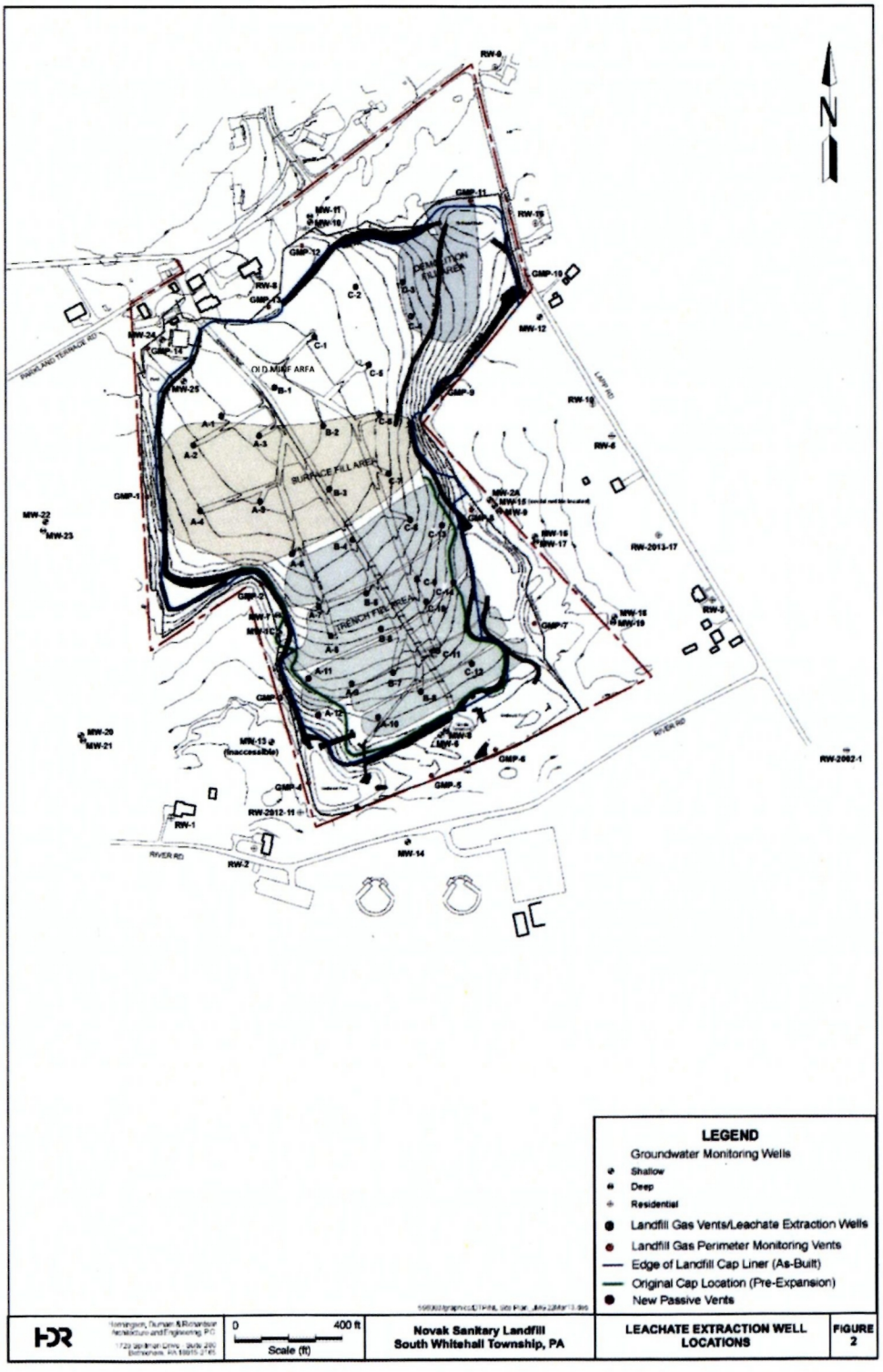


FIGURE 2: SITE WASTE DISPOSAL AND WELL LOCATIONS



APPENDIX C – PHOTOS

PHOTO 1: ADDITIONAL EROSION REPAIR - GABION CAGE EXTENSION

PHOTO 2: REPAIRED HINGE ON MONITORING WELL 6

PHOTO 3: REPAIRED HINGE ON MONITORING WELL 8

APPENDIX D – DATA TABLES

Table 4 (Page 1 of 13)
Monitoring Well Summary of Volatile Organic Compounds
Novak Sanitary Landfill

Parameter	CAS	Unit	EPA MCL/ Standard	MW-6 6/29/2000		MW-6 6/19/2001		MW-6 6/26/2002		MW-6 6/18/2003		MW-6 6/23/2004		MW-6 6/23/2005		MW-6 6/29/2006		MW-6 8/30/2007		MW-6 8/28/2008		MW-6 7/29/2009		MW-6 8/12/2010		MW-6 9/20/2011		MW-6 8/21/2012		MW-6 8/26/2013		MW-6 8/27/2014		MW-6 8/26/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	1.4		1.7		1.4		0.97		0.96	J	0.9	J	0.88	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	7.4		3.4		2.3		1.1		1.4		0.92	J	0.39	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.24	J	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	20		7.3		5.9		2.6		3.6		2.4		0.84	J	1.8		1.1		1	U	1	U	2.7		1.5		1		1	U	1.4	
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		50	UR	50	UR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	5	U	5	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	6.7	K	5.3		2	J	5	U	4.7	J	3.6	J	25	UL	25	U	25	U	25	U	25	U	25	U	25	U	25	U	25	U UL	10	U
Benzene	71-43-2	ug/L	5	0.58		0.6		0.47	J	0.32	J	0.32	J	0.3	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U UL	1	U	1	UL	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U * UL	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	23		13		9.8		4.9		5.1		3.6		2.1		2.8		1.6		1	U	1.2		2.2		1.6		1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.87		0.78		0.46	J	0.5	U	0.28	J	0.47	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.36	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	2.4		1.6		1.4		1		0.98	J	0.94	J	0.95	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1		1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	1.6		1.5		1.3		0.84		0.89	J	0.7	J	0.61	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.24	J	9.1		1	U	1	U	1	U	1	U	1	U	1	U	2.2		1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	0.85		0.64		0.67		0.5		0.49	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.42	J	0.41	J	0.39	J	0.5	U	0.31	J	0.27	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	6.1		2	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	J	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U *	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Table 4 (Page 2 of 13)
Monitoring Well Summary of Volatile Organic Compounds
Novak Sanitary Landfill

Parameter	CAS	Unit	EPA MCL/ Standard	MW-8 6/29/2000		MW-8 6/19/2001		MW-8 6/26/2002		MW-8 6/18/2003		MW-8 6/23/2004		MW-8 6/23/2005		MW-8 6/29/2006		MW-8 8/30/2007		MW-8 8/28/2008		MW-8 7/29/2009		MW-8 8/11/2010		MW-8 9/20/2011		MW-8 8/21/2012		MW-8 8/28/2013		MW-8 8/27/2014		MW-8 8/26/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	1.4		1.8		1.3		1.6		1.4		1.4		1	U	1	U	1.1		1	U	1.1		1.2		1.2		1		1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	1.4		0.82		0.71		0.61		0.55	J	0.6	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	2.4		0.89		1		0.64		0.68	J	0.62	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		33	JR	35	JBR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	5	U	5	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	2.6	K	4	J	3.1	J	5	U	3.9	J	3.9	J	25	U L	25	U	25	U	25	U	25	U	25	U	25	U	25	U	25	U UL	10	U
Benzene	71-43-2	ug/L	5	0.44	J	0.52		0.37	J	0.45	J	0.38	J	0.34	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	UL	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U * UL	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	4.1		2.9		3.3		3		2.4		2.3		0.67	J	1.6		1	U	1	U	1	U	1.9		1	U	1.3		1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.48	J	0.42	J	0.5	U	0.39	J	0.28	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	2		2.3		1.4		1.7		1.4		1.6		1	U	1.3		1.7		1	U	1.2		1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.28	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.52		0.62		0.71		0.62		0.67	J	0.54	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.34	J	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	12		1	U	1	U	1	U	1	U	1	U	1	U	4.1		1	U	7.4	
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1 *	U
Trichloroethene	79-01-6	ug/L	5	0.96		1		0.41	J	0.69		0.56	J	0.37	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.5	U	0.47	J	0.31	J	0.46	J	0.35	J	0.34	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U *	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Parameter	CAS	Unit	EPA MCL/ Standard	MW-10 6/28/2000		MW-10 6/18/2001		MW-10 6/26/2002		MW-10 6/19/2003		MW-10 6/22/2004		MW-10 6/22/2005		MW-10 6/27/2006		MW-10 8/27/2007		MW-10 8/26/2008		MW-10 7/28/2009		MW-10 8/10/2010		MW-10 9/19/2011		MW-10 8/22/2012		MW-10 8/27/2013		MW-10 8/26/2014		MW-10 8/25/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		50	UR	50	UR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	2	JK	5	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U*UL	10	U	10	U
Acetone	67-64-1	ug/L	NS	2.2	JK	5	U	5	U	5	U	5	U	5	U	25	U L	25	U	25	U	25	U, UJ	25	U	25	U	25	UL	25	U	25	U UL	10	U
Benzene	71-43-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U, UL	1	U	1	UL	1	U*	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.81	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U*	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Table 4 (Page 4 of 13)
Monitoring Well Summary of Volatile Organic Compounds
Novak Sanitary Landfill

Parameter	CAS	Unit	EPA MCL/ Standard	MW-11 6/27/2000		MW-11 6/20/2001		MW-11 6/26/2002		MW-11 6/19/2003		MW-11 6/22/2004		MW-11 6/23/2005		MW-11 6/27/2006		MW-11 8/27/2007		MW-11 8/26/2008		MW-11 7/28/2009		MW-11 8/10/2010		MW-11 9/19/2011		MW-11 8/22/2012		MW-11 8/27/2013		MW-11 8/26/2014		MW-11 8/25/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		50	UR	50	UR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	5	U	5	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U*	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	2.6	JK	5	U	5	U	5	U	5	U	5	U	25	UL	25	U	25	U	25	U, UJ	25	U	25	U	25	UL	25	U	25	U UL	10	U
Benzene	71-43-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U, UL	1	U	1	U	1	U*	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.39	J	0.5	U	0.5	U	0.5	U	1	U	1	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.66		0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U*	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Parameter	CAS	Unit	EPA MCL/ Standard	MW-12 6/29/2000		MW-12 6/18/2001		MW-12 6/24/2002		MW-12 6/17/2003		MW-12 6/22/2004		MW-12 6/22/2005		MW-12 6/29/2006		MW-12 8/29/2007		MW-12 8/27/2008		MW-12 7/29/2009		MW-12 8/11/2010		MW-12 9/20/2011		MW-12 8/22/2012		MW-12 8/29/2013		MW-12 8/28/2014		MW-12 8/25/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		50	UR	50	UR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	3	JK	5	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U *	10	U	10	U
Acetone	67-64-1	ug/L	NS	3.2	JK	5	U	5	U	5	U	5	U	5	U	25	U L	25	U	25	U	25	U	25	U	25	U	25	UL	25	U	25	U UL	10	U
Benzene	71-43-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U *	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U *	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U *	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U *	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Parameter	CAS	Unit	EPA MCL/ Standard	MW-16 7/6/2000		MW-16 6/20/2001		MW-16 6/25/2002		MW-16 6/19/2003		MW-16 6/24/2004		MW-16 6/22/2005		MW-16 6/27/2006		MW-16 8/28/2007		MW-16 8/25/2008		MW-16 7/28/2009		MW-16 8/11/2010		MW-16 9/22/2011		MW-16 8/21/2012		MW-16 8/27/2013		MW-16 8/27/2014		MW-16 8/26/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	1.4	J	1.6		2.1		1.7		1.4		0.99	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	U	0.76		0.5	U	0.5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.46	J	0.5	U	0.34	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.29	J	1.8		0.6		1.2		0.34	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		50	UR	50	UR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	5	U	5	U	8	L	5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	5	U	5	U	5	U	5	U	5	U	5	U	25	U L	25	U	25	U	25	U, UJ	25	U	25	UL	25	U	25	U	25	U UL	10	U
Benzene	71-43-2	ug/L	5	0.5	U	0.28	J	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U, UL	1	U	1	U	1	UL	5	U	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	0.93		4.5		1		3		0.72	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.65		0.5	U	0.42	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.48	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.29	J	1.2		0.55		1.1		0.42	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.28	J	0.36	J	0.42	J	0.35	J	0.36	J	1	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.21	JB	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	0.5	U	0.5	U	0.39	J	0.87	J	2.2		1	U	1	U	1	U	1	U	1	U	1	U	1.2		1.1		1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	0.5	U	0.3	J	0.5	U	0.27	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	0.44	J	0.36	J	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.42	J	0.35	J	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U*	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	

Monitoring Well Summary of Volatile Organic Compounds
Novak Sanitary Landfill

Parameter	CAS	Unit	EPA MCL/ Standard	MW-17 7/6/2000		MW-17 6/19/2001		MW-17 6/25/2002		MW-17 6/19/2003		MW-17 6/23/2004		MW-17 6/22/2005		MW-17 6/27/2006		MW-17 8/28/2007		MW-17 8/25/2008		MW-17 7/28/2009		MW-17 8/10/2010		MW-17 9/22/2011		MW-17 8/20/2012		MW-17 8/27/2013		MW-17 8/27/2014		MW-17 8/26/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	1.1		1.6		2.4		2		1		1.3		1.8		1	U	1		1.3		1.1		1.1		1.3		1.1		1	U	1	
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	U	**1**	U	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	U	**1**	U	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		50	UR	50	UR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	5	U	5	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	2.5	JBK	5	U	5	U	5	U	4.8	J	5	U	25	U L	25	U	25	U	25	U, UJ	25	U	25	UL	25	U	25	U	25	U UL	10	U
Benzene	71-43-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U, UL	1	U	1	U	1	U	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	0.5	U	0.5	U	0.38	J	0.34	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.37	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	U	0.5	U	0.42	J	0.45	J	1	U	0.29	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.25	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.53		0.45	J	0.62		0.46	J	0.56	J	0.42	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.47	JB	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	0.5	U	0.5	U	0.67	J	0.27	J	3		1.1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	0.35	J	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.34	J	1	U	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U*	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Monitoring Well Summary of Volatile Organic Compounds
Novak Sanitary Landfill

Parameter	CAS	Unit	EPA MCL/ Standard	MW-18 6/28/2000		MW-18 6/20/2001		MW-18 6/24/2002		MW-18 6/17/2003		MW-18 6/22/2004		MW-18 6/20/2005		MW-18 6/26/2006		MW-18 8/27/2007		MW-18 8/26/2008		MW-18 7/27/2009		MW-18 8/9/2010		MW-18 9/21/2011		MW-18 8/21/2012		MW-18 8/26/2013		MW-18 8/28/2014		MW-18 8/26/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromoethane	106-93-4	ug/L	0.05	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		50	UR	50	UR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	2.6	JK	5	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	2.7	JK	5	U	5	U	5	U	5	U	5	U	25	U L	25	U	25	U	25	U, UJ	25	U	25	U	25	U	25	U	25	U UL	10	U
Benzene	71-43-2	ug/L	5	0.5	U	0.6	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U, UL	1	U	1	UL	1	UL	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	0.32	J	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	0.5	U	0.5	U	0.38	J	0.44	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	0.3	J	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.29	J	1	U	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U*	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Parameter	CAS	Unit	EPA MCL/ Standard	MW-19 6/29/2000		MW-19 6/20/2001		MW-19 6/24/2002		MW-19 6/17/2003		MW-19 6/21/2004		MW-19 6/20/2005		MW-19 6/26/2006		MW-19 8/27/2007		MW-19 8/26/2008		MW-19 7/28/2009		MW-19 8/10/2010		MW-19 9/21/2011		MW-19 8/20/2012		MW-19 8/26/2013		MW-19 8/28/2014		MW-19 8/26/2015		MW-20 8/25/2014		MW-20 8/24/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.25	J	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	2.6		2.4		2.2		1.8		1.8		1.5		1.1		1.2		1		1.4		1.3		1	U	1.1		1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	U	**1**	U	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	U	**1**	U	**1**	**U**	**1**	**U**	**1**	U	**1**	U	**1**	U	**1**	U	**1**	U	**1**	U	**1**	U	**1**	U
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.88		0.67		0.61		0.31	J	0.32	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.78		0.54		0.51		0.29	J	0.28	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		50	UR	16	JR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	5	U	5	U	71	L	5	U	5	U	5	U	8.1	J N	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	5	U	5	U	2.4	J	5	U	3.4	J	5	U	25	U L	25	U	25	U	25	U, UJ	25	U	25	U	25	U	25	U	25	U UL	10	U	25	U UL	10	U
Benzene	71-43-2	ug/L	5	0.26	J	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U, UL	1	U	1	UL	1	U	5	U	5	U	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	2		1.7		1.7		1.2		1.2		0.78	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.49	J	0.5	U	0.5	U	0.33	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	1.6		1.5		1.7		1.4		1.8		1.1		1.5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.94		0.71		0.69		0.79		0.5	J	0.51	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.4	J	0.37	J	0.41	J	0.29	J	0.34	J	0.34	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	0.2	JB	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.96		0.45	J	0.39	J	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	0.5	U	0.5	U	0.3	J	0.66	J	1	U	1	B	1	U	1	U	1	U	1	U	1	U	1	U	13		1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	0.71		0.6		0.5		0.47	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	0.24	J	0.34	J	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U	2	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.23	J	0.32	J	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	1	U	1	U	1	U*	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	

Monitoring Well Summary of Volatile Organic Compounds
Novak Sanitary Landfill

Parameter	CAS	Unit	EPA MCL/ Standard	MW-21 7/5/2000		Dup MW-21 7/5/2000		MW-21 6/18/2001		Dup MW-21 6/18/2001		MW-21 6/25/2002		Dup MW-21 6/25/2002		MW-21 6/16/2003		Dup MW-21 6/16/2003	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethane	75-34-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Acetone	67-64-1	ug/L	NS	2.7	JBK	2.4	JBK	5.3		5.2		5	U	5	U	5	U	5	U
Benzene	71-43-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chlorobenzene	108-90-7	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Tetrachloroethene	127-18-4	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichloroethene	79-01-6	ug/L	5	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Vinyl Chloride	75-01-4	ug/L	2	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Parameter	MW-21 6/24/2004		MW-21 6/21/2005		MW-21 6/28/2006		MW-21 8/29/2007		MW-21 8/27/2008		MW-21 7/29/2009		MW-21 8/12/2010		MW-21 9/20/2011		MW-21 8/23/2012		MW-21 8/29/2013		MW-21 8/25/2014		MW-21 8/24/2015	
1,1,1-Trichloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	50	UR	50	UR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U
2-Hexanone	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U*	10	U	10	U	10	U
Acetone	5	U	4.4	J	25	U L	25	U	25	U	25	U	25	U	25	U	25	UL	25	U	25	U UL	10	U
Benzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U UL	1	U	1	U*	5	U	5	U	5	U
Carbon Disulfide	1	U	1	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
Chloroform	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
cis-1,2-Dichloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,3-Dichloropropene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1	U	0.21	J	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	1	U	0.79	J	0.97	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U
Trichlorofluoromethane	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1	U	0.28	J	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U
Xylene (m,p)	1	U	0.27	J	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	1	U	1	U	1	U*	NA		NA		NA		NA		NA		NA		NA		NA		NA	

Monitoring Well Summary of Volatile Organic Compounds
Novak Sanitary Landfill

Parameter	CAS	Unit	EPA MCL/ Standard	MW-24 7/6/2000		MW-24 6/21/2001		MW-24 6/25/2002		MW-24 6/18/2003		MW-24 6/24/2004		Dup MW-34 6/24/2004		MW-24 6/23/2005		Dup MW-34 6/23/2005		MW-24 6/28/2006		Dup MW-34 6/28/2006		MW-24 8/28/2007		Dup MW-34 8/28/2007	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	0.9	U	0.49	J	0.33	J	0.76	U	0.22	J	0.25	J	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.9**	**U**	**0.5**	**U**	**0.5**	**U**	**0.76**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.9**	**U**	**0.5**	**U**	**0.5**	**U**	**0.76**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		50	UR	50	UR	50	UR	50	UR	NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	9	U	5	U	6	L	7.6	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U
2-Hexanone	591-78-6	ug/L	NS	4.5	U	2.5	U	2.5	U	3.8	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	4.5	U	2.5	U	2.5	U	3.8	U	5	U	5	U	5	U	5	U	10	U	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	5.2	JBK	5	U	5	U	7.6	U	5	U	5	U	5	U	5	U	25	U L	25	U L	25	U	25	U
Benzene	71-43-2	ug/L	5	1.6		1.2		1.3		1.1		0.97	J	0.99	J	0.68	J	0.72	J	0.67	J	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	75-15-0	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroform	67-66-3	ug/L	80	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	38		40	E	35		32		26		27		22		22		15		15		14		14	
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	0.81	J	0.72	J	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.9	U	0.63		0.54		0.76	U	0.42	J	0.41	J	1	U	0.33	J	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	**12**		4.4		2.8		1.4		0.77	J	0.75	J	0.59	J	0.71	J	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	**4.7**		**6.1**		**4.9**		**4.7**		**2.5**		**2.5**		0.8	J	0.83	J	1	U	1.3		1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	2	U	2	U	2	U	2	U
Xylene (m,p)	-	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	2	U	2	U	NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.9	U	0.5	U	0.5	U	0.76	U	1	U	1	U	1	U	1	U	1	U*	1	U*	NA		NA	

Monitoring Well Summary of Volatile Organic Compounds
Novak Sanitary Landfill

Parameter	CAS	Unit	EPA MCL/ Standard	MW-24 8/27/2008		Dup MW-34 8/27/2008		MW-24 7/30/2009		Dup MW-34 7/30/2009		MW-24 8/12/2010		Dup MW-34 8/12/2010		MW-24 9/28/2011		MW-24 8/23/2012		Dup MW-34 8/23/2012		MW-24 8/28/2013		Dup MW-34 8/28/2013		MW-24 8/26/2014		Dup MW-34 8/26/2014		MW-24 8/27/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	U	**1**	**U**	**1**	**U**	**1**	U	**1**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	1	U	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U UL	10	U
2-Hexanone	591-78-6	ug/L	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U*	10	U*	10	U	10	U	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	25	U	25	U	25	U	25	U	25	U	25	U	25	U	25	UL	25	UL	25	U	25	U	25	U UL	25	U UL	10	U
Benzene	71-43-2	ug/L	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	1	U	1	U	1	U	1	U	1	U UL	1	U UL	1	UL	1	U*	1	U*	5	U	5	U	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	2	U	2	U	2	U*	2	U*	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	13		12		14		13		10		11		12		8.3		8.3		9.1		9		3.7		3.8		5.1	
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U Φ	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	1	U	1	U	1.1		1	U	1	U	1	U	1	U	1	U	1	U	1.3		1.3		1.8		1.8		1.5	
Trichlorofluoromethane	75-69-4	ug/L	NS	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	1.1		1.2		1.4		1.3		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U
Xylene (m,p)	-	ug/L	NS	NA		NA		NA		NA		NA		NA		NA		2	U	2	U	NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	NA		NA		NA		NA		NA		NA		NA		1	U*	1	U*	NA		NA		NA		NA		NA	

Parameter	CAS	Unit	EPA MCL/ Standard	MW-25 6/26/2002		MW-25 6/18/2003		MW-25 6/24/2004		MW-25 6/23/2005		MW-25 6/28/2006		MW-25 8/28/2007		MW-25 8/27/2008		MW-25 7/30/2009		MW-25 8/12/2010		MW-25 9/21/2011		Dup-1 9/21/2011		MW-25 8/23/2012		MW-25 8/29/2013		MW-25 8/26/2014		MW-25 8/27/2015		MW-34 DUP 8/27/2015	
1,1,1-Trichloroethane	71-55-6	ug/L	200	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	ug/L	5	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	ug/L	NS	0.44	J	0.5	U	0.28	J	0.2	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	ug/L	7	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	ug/L	70	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	0.2	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
1,2-Dibromoethane	106-93-4	ug/L	0.05	**0.5**	**U**	**0.5**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**
1,2-Dichlorobenzene	95-50-1	ug/L	600	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	ug/L	5	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	ug/L	5	0.46	J	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	ug/L	75	0.29	J	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dioxane	123-91-1	ug/L	NS	NA		NA		50	UR	50	UR	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
2-Butanone	78-93-3	ug/L	NS	5.6	L	5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U UL	10	U	10	U
2-Hexanone	591-78-6	ug/L	NS	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-Pentanone	108-10-1	ug/L	NS	2.5	U	2.5	U	5	U	5	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U*	10	U	10	U	10	U	10	U
Acetone	67-64-1	ug/L	NS	5	U	5	U	5	U	5	U	25	U L	25	U	25	U	25	U	25	U	25	U	25	U	25	UL	25	U	25	U UL	10	U	10	U	10	U
Benzene	71-43-2	ug/L	5	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	ug/L	80	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	ug/L	80	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U U	1	UL	1	U	1	U*	5	U	5	U	5	U	5	U	5	U
Carbon Disulfide	75-15-0	ug/L	NS	0.5	U	0.5	U	1	U	1	U	2	U	2	U	2	U	2	U*	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
Carbon Tetrachloride	56-23-5	ug/L	5	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	ug/L	100	0.39	J	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	5	U	5	U	5	U	5	U
Chloroform	67-66-3	ug/L	80	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U*	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	ug/L	70	9.2		4.9		4		1		3.4		3.2		2.9		3.3		3.2		2.9		2.8		4.6		3.7		6.2		3.9	J	2.8	J
cis-1,3-Dichloropropene	10061-01-5	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	ug/L	80	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	ug/L	700	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-tert-Butyl Ether	1634-04-4	ug/L	NS	0.5	U	0.5	U	1	U	1	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	ug/L	5	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Naphthalene	91-20-3	ug/L	NS	0.5	U	0.5	U	1	U	1	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	ug/L	100	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	ug/L	5	0.65		0.42	J	0.56	J	1	U	1.1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	ug/L	1000	0.5	U	0.5	U	1	U	0.35	J	1	U	1	U	1	U	1.1	B	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	ug/L	100	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	ug/L	5	2.6		1.5		1.9		0.99	J	1.4		2.4	B	1.9		3		1.4		1.9		1.9		3.3		2.9	*	1	U	2.1		1.5	
Trichlorofluoromethane	75-69-4	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	ug/L	2	0.31	J	0.5	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylene (total)	1330-20-7	ug/L	10000	0.5	U	0.5	U	1	U	0.22	J	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	1	U	1	U	1	U
Xylene (m,p)	-	ug/L	NS	0.5	U	0.5	U	1	U	0.21	J	2	U	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Xylene (o)	95-47-6	ug/L	NS	0.5	U	0.5	U	1	U	1	U	1	U*	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	