



May 8, 2013

Delivered via E-Mail

Environmental Administrator  
Hazardous Waste Supervisor  
Florida Department of Environmental Protection  
2600 Blair Stone Rd., MS #4560  
Tallahassee, FL 32399-2400

**RE: Safety-Kleen Systems, Inc., 8755 NW 95<sup>th</sup> St., Medley, FL 33178. EPA ID # FLD984171694, Permit Number 56019/HO/010.**

Dear Mr. Russell:

As suggested by the Department during our conference call on May 3, 2013, Safety-Kleen Systems, Inc. (S-K) hereby submits for the Medley facility, notification of the detected presence of a potential contaminant in the environment pursuant to Part V Corrective (Remedial) Action Condition 2 found in Hazardous Waste Operating Permit Number 56019/HO/010.

In accordance with the Miami-Dade DERM Industrial Waste Operating Permit (IW-000333) for the above referenced facility, S-K is required to annually monitor water quality in the well closest to point of stormwater discharge from the mineral spirits and used oil tank farm. On behalf of S-K, Environmental Consulting & Technology, Inc. (ECT) conducted the annual ground water sampling of monitoring well MW-1 on April 15, 2013. A peristaltic pump was used to purge and sample the well. The sample from MW-1 was submitted to Pace Analytical Services, Inc. Laboratories, Inc. for analyses of Florida Petroleum Range Organics (FLPRO), semi-volatile organic compounds (SVOCs) by EPA Method 8270, and volatile organic compounds (VOCs) by EPA Method 8260B. The locations of the facility's ground water monitoring wells are shown on the enclosed Figure 2.1-1.

The Pace laboratory report identified that FLPRO and VOC concentrations were all below the Method Detection Limits (MDLs). One SVOC, bis(2-Ethylhexyl)phthalate, was detected at a concentration of 49.4 ug/L. Bis(2-Ethylhexyl)phthalate is a plasticizer compound and commonly detected as a sampling and laboratory cross-contaminant. As discussed previously, S-K only manages mineral spirits and used oil in this area. Due to this compounds common detection as a cross-contaminant, the absence of the detection of any other compound, and the non-managed of phthalates in the area, S-K elected to conduct a second sampling event.

SAFETY-KLEEN SYSTEMS, INC.

8755 NW 95TH STREET

MEDLEY, FL 33178

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On April 25, ECT collected a split-sample from MW-1, a ground water sample from monitoring well MW-2, and equipment blanks. A peristaltic pump was used to purge and sample the wells. The MW-1 split samples (and equipment blanks) from April 25<sup>th</sup> were sent to Pace Analytical Services, Inc., and Advanced Environmental Laboratories, Inc. for analyses of SVOCs by EPA Method 8270. The MW-2 sample from April 25<sup>th</sup> was sent to Pace Analytical Services, Inc. for analyses of FLPRO, SVOCs, and VOCs. The laboratory reports indicate that FLPRO, and VOC concentrations were below the Method Detection Limits (MDLs) in all samples from MW-1, and MW-2, and that again only one SVOC was detected: bis(2-Ethylhexyl)phthalate.

Bis(2-Ethylhexyl)phthalate was detected in the samples from both wells at varying concentrations. The Maximum Contaminant Level (MCL) for this compound is 6 ug/L. A summary table of samples and laboratory reported concentrations along with equipment blank analyses is found below, all in units of micrograms per liter (ug/L):

Sample	Date	Laboratory	SVOCs (Method 8270)	Concentration (ug/L)	VOCs (Method 8260)	PROs (FL-PRO)
MW-1	4/15/13	Pace	bis(2-Ethylhexyl)phthalate	49.4	all BDL	BDL
MW-2	4/25/13	Pace	bis(2-Ethylhexyl)phthalate	24.2	all BDL	BDL
MW-1	4/25/13	Pace	bis(2-Ethylhexyl)phthalate	22.7	N/A	N/A
Equip. Blank	4/25/13	Pace	bis(2-Ethylhexyl)phthalate	2.9 I (value below PQL)	N/A	N/A
MW-1	4/25/13	Advanced	bis(2-Ethylhexyl)phthalate	39	N/A	N/A
Equip. Blank	4/25/13	Advanced	bis(2-Ethylhexyl)phthalate	17	N/A	N/A

MW-1 and MW-2 are located on the west and east sides, respectively, of the above ground storage tank structure. This area is used for storage of mineral spirits (clean and spent), and used oil. Phthalates are not stored nor off-loaded in this area of the facility. Safety-Kleen has no information of a new release of any kind at the site.

MW-1 is 21 years old and MW-2 is 12 years old; both are constructed of PVC. As part of the previous remediation project, numerous additional PVC monitoring wells and air-sparging wells were installed at the site (Figure 2). This included a substantial PVC underground piping network in the area of MW-1. Problems of false-positives associated with these items (e.g., old PVC) and others are discussed in the enclosed publication from

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the Wisconsin Department of Natural Resources (*"Problems Associated with bis(2-Ethylhexyl)phthalate Detections in Groundwater Monitoring Wells, Publication WA 1011 Rev. 2002"*). In addition, the split-samples laboratory results from MW-1 and the equipment blanks, dated 4/25/13, show detections of this compound and a great variance when being analyzed by two independent labs.

Based on the weight of evidence provided above, S-K believes that the detections of bis(2-Ethylhexyl)phthalate do not represent a release from S-K's operations at the facility but are probably false positives attributable to the combination of factors presented.

To reiterate, bis(2-Ethylhexyl)phthalate is repeatedly the only constituent detected. Under very similar circumstances, the attached publication WA 1011 specifies a policy of not requiring the facility to advance to assessment monitoring. S-K recommends that approach for this facility. That is, instead of advancing to assessment monitoring under the RCRA permit, S-K recommends continuation of "detection-like" monitoring as currently being implemented in accordance with the Miami-Dade DERM Industrial Waste Operating Permit.

If you have any questions regarding this report, please contact me at (561) 523-4719. Thank you for the Department's time in this matter.

Sincerely,

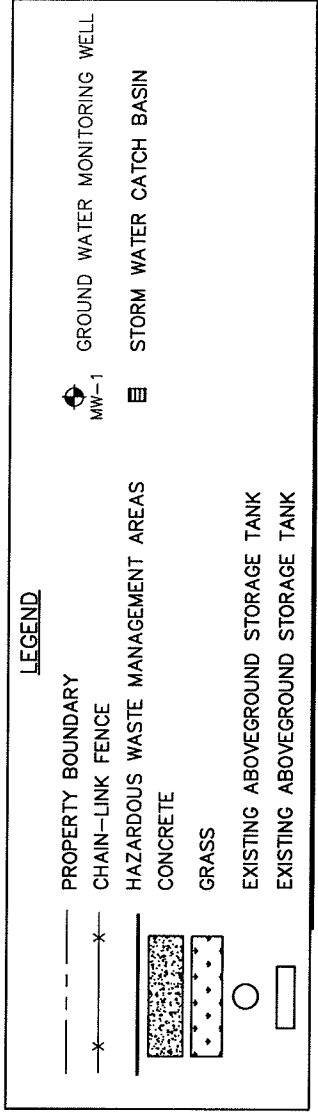
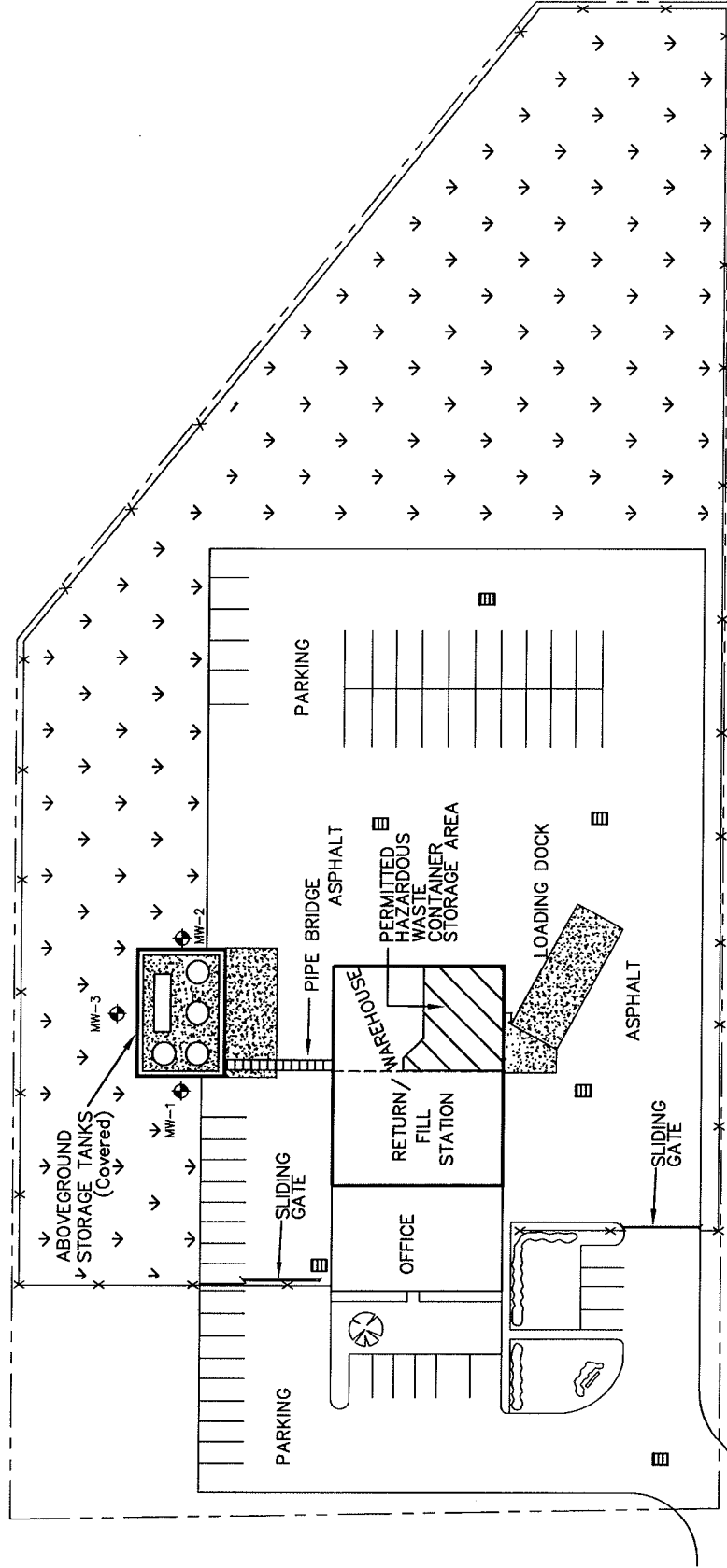


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Enclosures: Figure 2.1-1  
Figure 2  
Publication WA 1011 Rev. 2002

cc: Karen Kantor, FDEP Southeast District  
Bob Schoepke, S-K  
Rick Stebnisky, ECT

Figure 2.1-1  
Facility Layout & Access Control Features  
Safety-Kleen Systems, Inc. Facility  
Medley, Florida



0 APPROXIMATE SCALE 80  
FEET



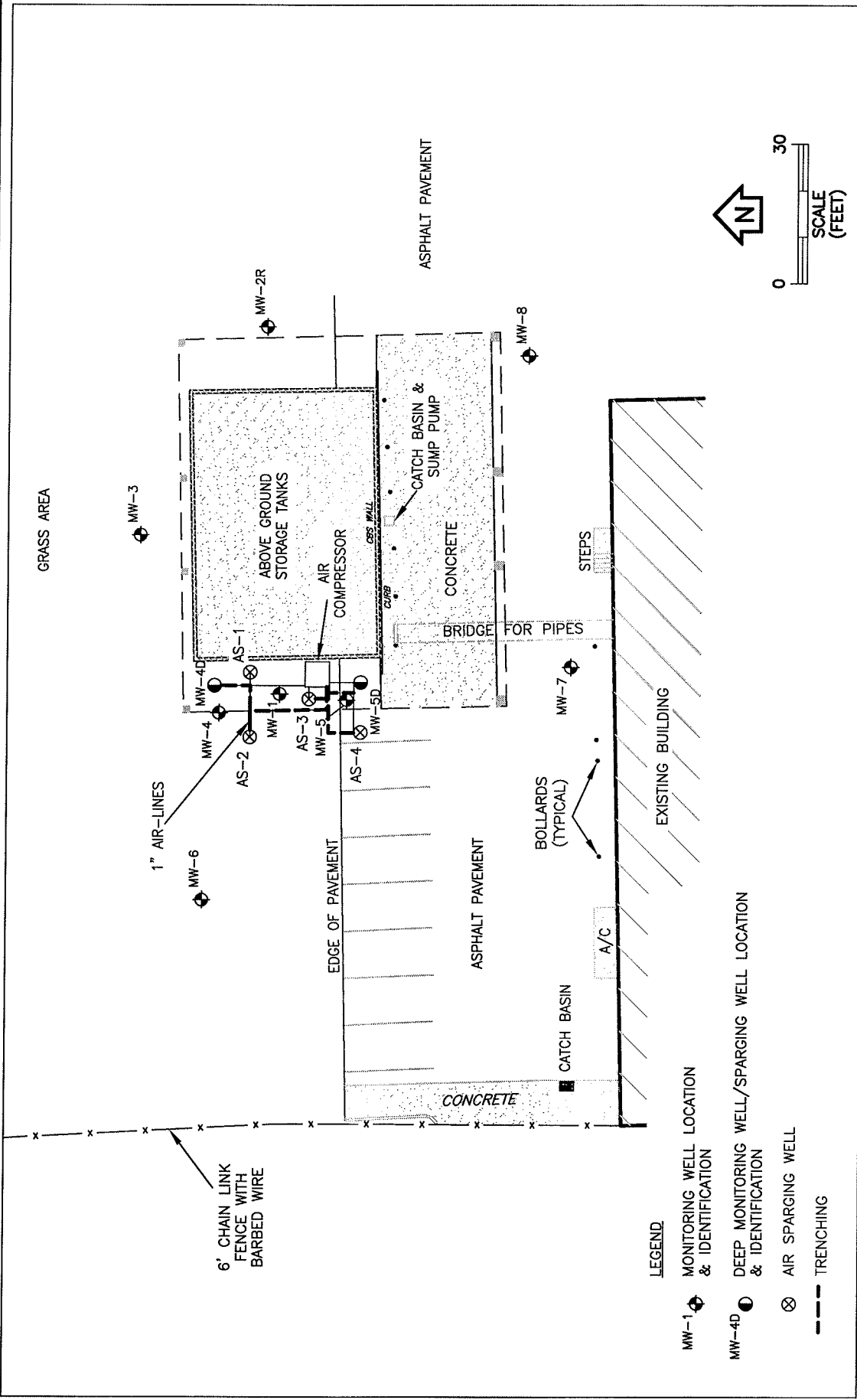


FIGURE 2.  
TRENCHING PLAN AND WELL LOCATIONS  
SAFETY-KLEEN SYSTEMS, INC.  
8755 NW 95TH STREET  
MEDLEY, MIAMI-DADE COUNTY, FLORIDA  
Sources: Bloomster Professional Land Surveyors, Inc., 2010; ECT, 2012.

# Problems Associated with bis(2-ethylhexyl)phthalate Detections in Groundwater Monitoring Wells



Publication WA 1011  
Rev. 2002

Waste & Materials Management  
P.O. Box 7921  
Madison, WI 53707-7921

**Description:** This document provides guidance for investigating whether phthalate detections in monitoring wells are false exceedances or real groundwater contaminants, and the application of NR 50716, NR 507.17, NR 507.28(3), NR 508.05, NR 140.16 in these situations.

**Guidance manager/Contact:** Jack Connelly, Solid Waste Program Coordinator

**Applicability:** This guidance primarily is intended for evaluating the need for assessment monitoring when di-(2-ethylhexyl)phthalate is detected in monitoring wells at landfills regulated under NR 507 Wis. Adm. Code. In addition, it may be applicable to landfills for which corrective action is necessary or cases where NR 507 and NR 716 may both be applicable. The recommendations contained in this guidance may have general applicability to site investigations, brownfields, or remediation sites; however, it is not intended to supersede Superfund guidance or existing guidance in the Remediation and Redevelopment program related to acceptable levels of contamination.

## Problem Statement:

Consultants, facilities, and staff have had questions about the validity of bis(2-ethylhexyl)phthalate in landfill monitoring wells, particularly when it is the only contaminant detected.

Bis(2-ethylhexyl)phthalate is a semi-volatile organic compound (SVOC) that is also known as di-(2-ethylhexyl)phthalate, and DEHP. Some DNR programs refer to this compound as BEHP; however, this is not a recognized synonym in many chemical databases. Using this acronym can cause confusion because in scientific literature, BEHP usually refers to butyl(2-ethylhexyl)phthalate (cas number 85-69-8). Although DEHP has been identified as a common laboratory contaminant, phthalates are prevalent in the environment because of their use in plastics like PVC. Groundwater monitoring plans may include SVOCs when facilities investigate elevated indicator parameter concentrations, leachate results indicate possible problems, special circumstances at a landfill raise concerns or a general site investigation is being performed by the Department or others. Data in GEMS indicates that most detection limits reported are at or above the NR 140 Groundwater Quality Preventive Action Limit (PAL) of 0.6 ug/L, so almost every quantifiable result is a PAL exceedance. This guidance attempts to lay out the problems and appropriate approaches to assessing whether with phthalates are really present in the groundwater or an artifact of the sampling and analysis procedures (in other words, a false exceedance). We have reviewed a number of reports for Wisconsin sites and queried other states for their experience with this problem.

## Recommendations

Whether DEHP is detected during assessment monitoring or in conjunction with other monitoring done at a site, staff should ask the facility to investigate whether the DEHP is a false exceedance attributable to sampling or laboratory procedures.

If sampling procedures or field conditions are identified as contamination sources, the facility should be instructed to change their sampling procedures to eliminate the contamination source. This may mean changing sampling equipment, materials or collection method. Although some have proposed filtering as a means of excluding DEHP particulates from sampling, there is a general consensus that **filtering samples is not an appropriate option.**

If the source of DEHP is attributed to laboratory contamination, the facility should be directed to obtain additional analyses for which laboratory contamination is controlled. The facility may need to switch laboratories if their laboratory is unable to control contamination adequately.

If the facility is requesting the cessation of assessment monitoring and DEHP is the only substance detected above the NR 140 PAL and the facility has demonstrated that DEHP is a false exceedance as per 508.05(1), then staff may allow the facility to discontinue assessment monitoring. If the concentrations of DEHP cannot be fully attributed to a false exceedance, staff should consider whether it is more appropriate to discontinue assessment monitoring or to propose alternate assessment monitoring as provided in NR 508.05(2) and (3)(a).

If the facility has not begun assessment monitoring, DEHP is the only substance detected above the PAL and there are no other reasons for assessment monitoring, then it would not be necessary for the facility to initiate assessment monitoring.

### **Suggested Approach to Determine the Credibility of DEHP Detects**

Given the prevalence of DEHP in the environment and the high potential for contaminating samples, the source of DEHP in groundwater cannot be dismissed automatically as sampling or laboratory error. It may be necessary to modify sampling plans to incorporate additional blanks and to change sampling protocols. Ultimately, any corrective action or requirements for assessment monitoring will need to be based on evaluation of all available information and the applicable rules.

### **Assess Blank Results**

Method blanks are useful for determining whether laboratory procedures introduced any contamination into the analysis. Although facilities are supposed to flag data when a contaminant is detected in the method blank, you should not rely solely on the flag in assessing the source. Experience has taught us that data is not flagged reliably and even when flags are present, the concentration of the contaminant in the method blank may not be reported or available in GEMS. If method blank results are available and the concentration of the blank is less than 5% of the sample concentration, the DEHP concentrations in the sample may be biased high, but cannot be attributed entirely to laboratory contamination. If the concentration of the sample is in the same range as the method blank, sample results may be the result of laboratory contamination. If the concentration of the method blank is near the detection limit or less than the limit of quantitation and sample results are in the same range, we suggest that sample results could be attributed to contamination. If method blank results exceed the LOQ, the facility should take steps to obtain sample results under circumstances in which laboratory contamination is better controlled.

Field blanks may be quite useful in determining whether sampling is contributing contamination. You should be clear about how these blanks were collected and what they represent. To the extent possible, field blanks should be collected in the same manner as the samples, i.e. be exposed to the same equipment and materials as the samples. In evaluating these results, you may need to consider what water was used for a field blank. If the water in the blank is from the same container as was used to clean equipment and without additional information, it may not be possible to determine whether the water or the sampling equipment is the source of contamination.

Rinsate blanks may also be useful indicators that sampling is the source of DEHP. As with field blanks, investigators should be clear about what rinsate blanks represent. Typically, these blanks are collected after equipment is cleaned and represent potential carry-over between sampling stations. These blanks may also provide an indication of rinse water contamination if this blank is from the same source as the rinse water.

Trip blanks are not generally collected or used for semi-volatiles and may have limited use in evaluating the source of the contamination because DEHP does not volatilize at an appreciable rate. These blanks typically are supplied by the laboratory and accompany samples without direct exposure to field conditions.

### ***Change Sampling Procedures***

Although evaluating blanks is an important first step in investigating sources of contamination, not all procedural problems result in contaminated blanks. The History section below highlights possible sampling artifacts that are not easily proven or addressed. Obviously, any equipment or supplies that are plastic or are in contact with plastics should be carefully evaluated. It may be necessary to choose another sampling procedure and compare results. For instance, if investigators believe that bailing is causing abrasion to the well casing or that the well casing is flaking, it may be wise to sample using a pumping procedure. Because DEHP adheres strongly to any particulates, filtering the samples is not an acceptable modification to sampling procedures nor can it be used to "prove" that the source of DEHP is the well casing.

### **Other Considerations**

In addition to evaluating blank results, facility or staff investigations of DEHP detections should include the following considerations:

- What about well construction materials?  
Is the piping or casing PVC or other plastic?  
Is the piping or casing steel?
- Is there other evidence that the landfill is leaking?  
Are indicator parameters elevated or do they show a trend?  
Are VOCs present? (VOCs may increase DEHP solubility)  
Are petroleum contaminants present? (As with VOCs, gasoline and other petroleum products can act as a solvent for DEHP)
- Is there a pattern to the detected values?  
Is it detected in the leachate?  
Was it detected in background or up-gradient wells in the "same" concentration range?  
Has it been detected historically in the affected wells?  
Are detected concentrations consistent over time? Are they erratic?  
Were affected wells constructed in the same time period?

Evaluating whether the detected concentrations in the down-gradient wells are the "same" as background wells can be somewhat subjective. Usually there is only one result per sample, so investigators may not be able to determine the variability associated with sampling and laboratory analysis adequately. Absent other information and as a rule of thumb, down-gradient results two to five times the concentration in the background well may be considered to be in the same concentration range. This evaluation can easily be complicated if blanks also show contamination. Frequently, there are insufficient data to apply statistical techniques to determine whether differences are significant. For instance, to understand and assess the variability in various data points, multiple analyses of the same samples may be necessary. Before using a statistical approach, it is important to consider the underlying principles and assumptions of the statistical tool proposed to assure that it can be applied appropriately to the data set.



## History – Sites Where DEHP is Attributed to Sampling

After detecting DEHP in groundwater monitoring wells at concentrations in excess of the NR 140 PAL, a number of consultants and laboratories performed investigations to determine whether the source was sample contamination. The investigations generally ruled out laboratory contamination as the source because method blanks were either free of contamination or the concentrations of DEHP in the method blanks were much lower than concentrations in the samples. The investigators have attributed detects in the wells to degradation (aging) of the well casing, microbial action (iron bacteria) on sample tubing and abrasion on well casing, bailer and rope associated with bailing procedures.

At this point, contamination from sampling cannot be attributed to any single sampling technique. At one facility using bailers, the field collection personnel reported that visually turbid samples seemed to be a predictor of phthalate concentrations. Subsequent analyses of scrapings from the bailer and ropes indicated the presence of DEHP. They proposed filtering samples as a means to more accurately assess the true DEHP concentrations in the wells. At another facility where sample crews used low-flow pumping and collected field blanks, investigators visually examined tubing that had been dedicated to sampling an affected monitoring well and noted the presence of black mucilaginous material on the walls. Field blanks collected through new tubing did not contain detectable DEHP concentrations; however, blanks prepared using the tubing dedicated to the well contained significant concentrations of DEHP.

During Superfund Site Inspections in Northeast Region, DNR staff found phthalates both in groundwater and rinse samples, regardless of the site under investigation. The investigators traced the phthalates to contaminated rinse water. They tested water directly from the still and found that it, too, contained high phthalates so contamination could not be attributed solely to storing the rinse water in plastic carboys. There are sites, however, for which phthalate concentrations cannot be attributed to sampling or laboratory analysis.

## Additional Chemical Information and Environmental Fate of Bis(2-ethylhexyl)phthalate

Bis(2-ethylhexyl)phthalate (CAS Number 117-81-7) is one of several common names for 1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester. DEHP is common in the environment because of its use in plastics. Sampling and laboratory equipment, monitoring wells, and waste disposed in landfills may contain or be constructed of plastics. In addition to its use in plastics, DEHP is also used in inks, adhesives, coatings, pesticides, cosmetics, vacuum pump oil and as a dielectric fluid in ballast capacitors and other electrical equipment (e.g., transformers).

DEHP has low solubility in water (300 - 400 µg/L), is soluble in most organic solvents, and evaporates slowly into the air. In the environment, DEHP will attach strongly to soil particles or humic material. Although DEHP may biodegrade under aerobic conditions (e.g. in lakes or rivers), DEHP has not been shown to degrade in anaerobic conditions, such as landfill leachate. Additional information on DEHP, its environmental fate and toxicity can be obtained through EPA's Substance Registry System (SRS) by searching for the compound and following the Related Links at the end of the compound listing ([http://ofmpub.epa.gov/sor\\_internet/registry/substreg/home/overview/home.do](http://ofmpub.epa.gov/sor_internet/registry/substreg/home/overview/home.do)). The TOXNET web site accesses several chemical databases and is also good source of information. <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?TOXLINE>

**Contact 608/266-2111 or [DNRWasteMaterials@Wisconsin.gov](mailto:DNRWasteMaterials@Wisconsin.gov) for further information.**

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