

# memorandum



**Date** September 14, 2020  
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**Subject** Updated: Section 4 Test Cost Estimates – WA 5-01 Memo #23

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## 1. Objective

To support the development of EPA's testing orders for ten high-priority solvent and flame retardant chemicals, Abt Associates researched the costs associated with conducting the tests to be required by the orders. This memo and accompanying Excel file describe the estimated cost and duration time for each test.

## 2. Methods

### 2.1 Identifying Vendors

We used internet searches to identify vendors whose websites indicated that they offered one or more of the tests of interest. We contacted each of these vendors initially by phone if possible, or by email or web form if a U.S. phone number was not provided online. After the initial phone call or email, we conducted most follow-up communication by email, as this allowed the vendors time to look at the list of test methods and analytes of interest and procure the requested cost information. In a few cases, we also identified potential vendors by asking vendors if they knew of other vendors that might offer a particular test. Where possible, we also used cost information that was available online, such as fee schedules posted on vendor websites.

The "Vendors Contacted" sheet in the accompanying Excel file (Solvent and Flame Retardant Test Costs\_9-14-2020.xlsx) lists the vendors that we contacted, along with their geographic location and website and the name and title of the main point of contact. Many of the vendors we contacted, particularly for the OECD test methods, are located outside the U.S.

### 2.2 Estimating Labor Burden

#### 2.2.1 NIOSH Test Methods

For the NIOSH test methods, for which the manufacturer will need to coordinate sample collection using personal sampling pumps and submit those samples for analysis, we assumed that sample collection activities will require six hours of Technical labor. We took this estimate from the burden estimates prepared by EPA for PV29. The burden estimates for PV29 included six hours of Technical labor for sample collection by NIOSH 0600, and we expect the burden for these NIOSH methods to be very similar to the burden for NIOSH 0600.

#### 2.2.2 Enclosure Methods

For the three Enclosure methods (E, F, and G), we estimated that the activities associated with contacting vendors and arranging testing will require 10 hours of Technical labor. We developed this estimate using our best professional judgment and our experience with contacting vendors during the course of this research. We estimated that the manufacturer will need to spend approximately one hour identifying potential vendors; one hour contacting several vendors to inquire about testing and request quotes; two hours initiating testing with the selected vendor; and two hours communicating with the vendor during and after the testing is being done. In addition, we estimated that personnel at the manufacturing facility will need to spend approximately four hours, cumulatively, participating in sample collection activities. However, we note that ordering multiple studies from the same vendor could reduce the time required.

### 2.2.3 OECD and OPPTS Test Methods

For the OECD and OPPTS test methods, we estimated that the activities associated with contacting vendors and arranging testing will require eight hours of Technical labor. We developed this estimate using our best professional judgment and our experience with contacting vendors during the course of this research. We estimated that the manufacturer will need to spend approximately one hour identifying potential vendors; one hour contacting several vendors to inquire about testing and request quotes; two hours initiating testing with the selected vendor; two hours arranging for the submission of the test substance to the vendor; and two hours communicating with the vendor during and after the testing is being done. However, we note that ordering multiple studies from the same vendor could reduce the time required.

## 2.3 Wage Rates

We used the manufacturing industry loaded wage rates displayed in Table 1. These wage rates are in 2019\$.

Table 1: Loaded Industry Wage Rates, December 2019								
Labor Category	Data Source	Date (mm/yy)	Wage	Fringe Benefit	Fringe as % Wage	Over-head % Wage <sup>1</sup>	Fringe + Overhead	Loaded Wages <sup>2</sup>
			(a)	(b)	(c) = (b)/(a)	(d)	(e) = (c) + (d) + 1	(f) = (a) x (e)
Managerial	BLS ECEC, Private Manufacturing industries, "Mgt, Business, and Financial" <sup>3</sup>	05/20	\$50.31	\$22.65	45.02%	17%	1.62	\$81.51
Professional/ Technical	BLS ECEC, Private Manufacturing industries, "Professional and related" <sup>3</sup>	05/20	\$45.60	\$22.86	50.13%	17%	1.67	\$76.21
Clerical	BLS ECEC, Private Manufacturing industries, "Office and Administrative Support" <sup>3</sup>	05/20	\$20.21	\$9.44	46.71%	17%	1.64	\$33.09

**Note(s):**

<sup>1</sup> An overhead rate of 17 percent was used based on assumptions in Wage Rates for Economic Analyses of the Toxics Release Inventory Program (EPA 2002), and the Revised Economic Analysis for the Amended Inventory Update Rule: Final Report (EPA 2002).

<sup>2</sup> Wage rates are rounded to the closest pennies; however, unrounded values were used in calculations.

<sup>3</sup> Employer Costs for Employee Compensation Supplementary Tables December 2019, US Bureau of Labor Statistics (Retrieved June 20, 2019, from <https://www.bls.gov/web/ecec/ecsuphst.pdf>).

## 2.4 Indexing Test Cost Estimates to 2019\$

The manufacturing industry wage rates available to us (displayed in Table 1) were in 2019\$. Thus, we indexed our test cost estimates back to 2019\$. To do so, we used the Bureau of Labor Statistics' Employment Cost Index.<sup>1</sup> We calculated the inflation factor by dividing the index for 2019 Q4 (135.6) by the index for 2020 Q1 (136.8), yielding 0.991. We then multiplied our test cost estimates by 0.991 to convert them to 2019\$. The costs presented in the "Test Cost Estimates" sheet in the accompanying Excel file and discussed in this memo are in 2019\$.

## 2.5 Currency Conversions and VAT

For cost estimates provided in currencies other than U.S. dollars, we converted to U.S. dollars using the exchange rates displayed in Table 2. For each of those cost estimates (which came from vendors located in Europe), we also added Value Added Tax (VAT) using the rates displayed in Table 3. Several vendors explicitly stated that their cost estimates did not include VAT; based on that trend we assumed that estimates from other European vendors also did not include VAT.

Table 2: Currency Exchange Rates Used		
Currency	Exchange Rate Used (number of U.S. dollars per unit of foreign currency)	Data Source
Euro	1.14066	<a href="https://www.xe.com/currencyconverter/convert/?Amount=1&amp;From=EUR&amp;To=USD">https://www.xe.com/currencyconverter/convert/?Amount=1&amp;From=EUR&amp;To=USD</a> , accessed July 15, 2020
Pound sterling	1.25832	<a href="https://www.xe.com/currencyconverter/convert/?Amount=1&amp;From=GBP&amp;To=USD">https://www.xe.com/currencyconverter/convert/?Amount=1&amp;From=GBP&amp;To=USD</a> , accessed July 15, 2020
Swiss franc	1.05772	<a href="https://www.xe.com/currencyconverter/convert/?Amount=1&amp;From=CHF&amp;To=USD">https://www.xe.com/currencyconverter/convert/?Amount=1&amp;From=CHF&amp;To=USD</a> , accessed July 15, 2020

Table 3: VAT Rates Used		
Country	VAT	Data Source
France	20%	<a href="https://www.tmf-group.com/en/services/companies/accounting-tax/vat/country-profile/france/">https://www.tmf-group.com/en/services/companies/accounting-tax/vat/country-profile/france/</a>
U.K.	20%	<a href="https://www.gov.uk/vat-rates">https://www.gov.uk/vat-rates</a>
Germany	16%	<a href="https://taxfoundation.org/germany-temporary-vat-rates-cut/">https://taxfoundation.org/germany-temporary-vat-rates-cut/</a>
Switzerland	7.7%	<a href="https://www.ch.ch/en/vat-rates-switzerland/">https://www.ch.ch/en/vat-rates-switzerland/</a>
Netherlands	21%	<a href="https://www.government.nl/topics/vat/vat-rates-and-exemptions">https://www.government.nl/topics/vat/vat-rates-and-exemptions</a>

## 2.6 Shipping Costs

For the NIOSH test methods, the customer is required to pay for the shipment of materials (such as sampling media and rental equipment) between their location and the vendor's location. For these test methods, all of the vendors we contacted are located in the U.S. Thus, in order to estimate these shipping costs, we used an algorithm available online to randomly generate a list of three U.S. cities: Akron, OH; Chula Vista, CA; and Chandler, AZ.<sup>2</sup> We then used FedEx's online shipping rate tool<sup>3</sup> to estimate the cost of shipping a package from Akron to Chula Vista; from Chula Vista to Chandler; and from Chandler to Akron, using FedEx Ground (the lowest-cost option). We used the average of

<sup>1</sup> U.S. Bureau of Labor Statistics (BLS). (2020). "Employment Cost Index-Total Compensation: Professional and Related Private Industry, Not Seasonally Adjusted (Series ID: CIU2010000120000I)." Retrieved May 2020, from <http://data.bls.gov/cgi-bin/srgate>.

<sup>2</sup> <https://www.randomlists.com/random-us-cities>

<sup>3</sup> <https://www.fedex.com/en-us/online/rating.html>

these three shipping estimates as the shipping rate in the NIOSH test cost estimates. We carried out this process for several different package weights, as needed to complete each test cost estimate. Table 4 includes our estimates for each component of the various package weights.

<b>Table 4: Components of Package Weights for Shipping Estimates</b>		
<b>Item</b>	<b>Estimated Weight (pounds)</b>	<b>Data Source</b>
Sampling media (total)	1	We were not able to find information on the weight of the sampling media, but they are small glass tubes and we expect them to be quite light. We estimated that the sampling media would weigh 1 pound all together.
Sampling pump (1)	1.1	We estimated the weight of the sampling pump based on the pumps available from [REDACTED]. The average weight of the available personal sampling pumps is 521 grams, or 1.1 pounds.
Calibrator (1)	2	Based on a calibrator available from [REDACTED], which weighs 820 grams or 1.8 pounds, we estimated that a calibrator and accessories would weigh around 2 pounds.
Packaging materials	3	We estimated this using our best judgment.

## **2.7 General Notes and Assumptions**

### **2.7.1 Scope of Cost Estimates**

Per the directions we received from EPA, our cost estimates include non-labor costs, such as analysis fees paid to test vendors, as well as estimated labor costs for contacting vendors and collecting samples. Our estimates do not cover the cost to industry of activities such as providing an initial response to the test order, developing a study plan, managing a consortium, or providing a final report to EPA.

### **2.7.2 Cost of Providing Test Substances**

For tests that do not involve sample collection (i.e., the OECD and OPPTS test methods), the manufacturer must in some way provide the test substance to the vendor. Based on our research, we expect the potential costs associated with providing the test substances to the vendor to be highly variable and situation-dependent (as described below), and as a result we did not include these costs as part of our cost estimates.

Much of this variability arises because some vendors and test methods require radiolabeled test substances while others do not. For a given test method, some vendors might prefer or require a radiolabeled test substance while others might prefer or require a non-radiolabeled one. Whether the test substance is radiolabeled can also affect the cost of the testing itself, as some tests are easier to perform with radiolabeled test substances; further details are included in the notes for each individual test method.

When a non-radiolabeled test substance is needed, the manufacturer might ship a quantity of their own chemical to the vendor, or might pay for the vendor to acquire the chemical from a generic chemical supplier (which could be more cost-effective if the vendor is overseas). When a radiolabeled test substance is required, the manufacturer may be able to find an appropriately-radiolabeled chemical available on the market, but some chemicals might require custom synthesis. Taken together, these considerations suggest that the cost of providing test substances to vendors will be situation-dependent.

### 2.7.3 Turnaround Times and Wait Times

Many vendors offer faster turnaround times for a higher price. This is true particularly for tests that have shorter turnaround times to begin with (such as the NIOSH test methods). For the cost estimates presented here, we assumed standard turnaround times.

For the longer-term studies (i.e., the OECD and OPPTS methods), vendors generally stated that the turnaround times represent the time from test substance receipt to draft report delivery. These turnaround times do not include potential time that may be required for custom synthesis of radiolabeled test substances.

It is also important to note that the estimated turnaround times presented in the accompanying Excel file do not include potential wait time before the vendor is able to begin the test. Generally, for studies with short durations (e.g., 5 days), we expect that any wait time would be short as well (and did not hear vendors mentioning any wait time). For longer-term studies (e.g., 5 months), wait times would likely be longer due to limited lab capacity and a slower turnover rate due to the longer study duration; we heard from several vendors that this is the case. Test-specific details are included in the notes and assumptions for the individual test methods.

### 2.7.4 Accounting for Ranges in Estimated Cost and Turnaround Time

For both test costs and turnaround times, vendors often provided a range to describe the possible cost or time. In order to calculate the summary statistics (minimum, maximum, and median) in the accompanying Excel file, we needed to convert the range provided by each vendor into a single number. In each of these cases, we used the upper end of the range in order to provide a conservative estimate.

### 2.7.5 Quality Assurance and Data Validation

We contacted numerous laboratories to obtain cost information. Each lab lists on their website the quality certifications they have, and quality is a part of their process. They do not explicitly detail the time it takes for quality activities as they are integrated into the testing process. Our assumption is that the turnaround times we obtained include the time for quality processes.

### 2.7.6 Volume Discounts

Several vendors noted that they offer discounted prices for customers submitting large numbers of samples or ordering large numbers of studies. We expect that negotiation for lower prices is generally available if a large quantity of work is being ordered from a given vendor. We did not account for this in our cost estimates.

## 2.8 Notes and Assumptions by Test

### *NIOSH 1003: Hydrocarbons, Halogenated*

#### *Assumptions*

- The manufacturer will submit two blanks (the published method calls for 2-10 blanks).
- The manufacturer will need one extra sampler to use for calibrating the pump(s).
- The manufacturer will need to rent the required sampling equipment (pump(s) and calibrator).
- If the manufacturer is collecting one or three samples, one pump will be needed, as the sampling time is relatively short and samples could be collected sequentially. If the

manufacturer is collecting 10 samples, two pumps will be needed to facilitate completing the sampling within one day.

*Other Notes*

- Many vendors offer discounts for analyzing multiple compounds on the same sample. For example, [REDACTED] charges [REDACTED] for the first compound in a sample, and [REDACTED] for each additional compatible compound in the same sample. We noted this but did not account for it in our cost estimates.
- When calculating the per-sample cost for submissions of one, three, and ten samples, as displayed in the accompanying Excel file, we accounted for the per-sample analysis fee; media fees (including extras for blanks and pump calibration); equipment rental fees; shipping costs for equipment, media, and samples, as applicable; and any minimum billing amounts.
- Five of the vendors that provided cost information offer rental equipment (sampling pumps and calibrators), either for no charge, for a daily fee of [REDACTED], or for the cost of shipping. Two vendors that provided cost information do not offer rental equipment. In order to complete the cost estimates for those vendors, we estimated the cost of renting the necessary equipment from a separate equipment rental vendor. To do so, we averaged the one-day pump and calibrator rental costs from three vendors offering equipment rental (displayed in Table 5) and then added estimated shipping costs, as described in section 2.6.

<b>Table 5: Equipment Rental Costs</b>			
<b>Vendor</b>	<b>Item</b>	<b>Cost per Day</b>	<b>Data Source</b>
[REDACTED]	Sampling pump	[REDACTED]	[REDACTED]
	Calibrator	[REDACTED]	[REDACTED]
	<i>Total</i>	[REDACTED]	
[REDACTED]	Sampling pump	[REDACTED]	[REDACTED]
	Calibrator	[REDACTED]	[REDACTED]
	<i>Total</i>	[REDACTED]	
[REDACTED]	Sampling pump	[REDACTED]	[REDACTED]
	Calibrator	[REDACTED]	[REDACTED]
	<i>Total</i>	[REDACTED]	

***NIOSH 1013: Propylene Dichloride***

*Assumptions*

- The manufacturer will submit two blanks (the published method calls for 2-10 blanks).
- The manufacturer will need one extra sampler to use for calibrating the pump.
- The manufacturer will need to rent the required sampling equipment (pump and calibrator).
- The cost of the PTFE tape (called for in the published method for sealing the samplers) will be \$2, based on a ballpark estimate from Google Shopping search results.
- Whether the manufacturer is collecting 1, 3, or 10 samples, one pump will be sufficient, as the sampling time is very short (around 10 minutes) and samples could be collected sequentially.

*Other Notes*

- When calculating the per-sample cost for submissions of one, three, and ten samples, as displayed in the accompanying Excel file, we accounted for the per-sample analysis fee; media fees (including extras for blanks and pump calibration); equipment rental fees;



shipping costs for equipment, media, and samples, as applicable; and any minimum billing amounts.

### ***Enclosure E: Inhalation Sample Protocol for Flame Retardants***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The main factor influencing the cost range is whether the vendor would need to purchase an Atmospheric Pressure Photoionization module (adds approx. [REDACTED]). The method calls for this device to be used, but the vendor believes an alternate methodology could be used that would not require this device.
  - When providing this cost estimate, the vendor assumed that around ten samples would need to be collected and analyzed.
  - The cost estimate assumes on-site sample collection by [REDACTED] personnel. The vendor did not believe the sampling would be possible without their team's expertise in various steps of the sample collection process including preparing samples, handling samples in the field, properly collecting field blanks, and packing and shipping samples to the lab. Sample collection by [REDACTED] personnel adds approx. [REDACTED] to this cost estimate.
  - The vendor noted that this cost is a very rough estimate and could change based on the answers to a number of outstanding questions, such as the number of samples, required detection limits, requirements for quality assurance and acceptance limits, and details of the analytical methods that would require further discussion.
  - The costs for testing by the methods described in Enclosures E, F, and G would likely be reduced if all three tests are ordered with the same vendor. We did not account for this in our cost estimates.

#### *Turnaround Time*

- The vendor stated that the turnaround time could be as short as a month, but this is an approximate figure and could be extended once further details of the testing requirements are determined. We expect that due to the custom nature of this testing, the wait time and the time needed for up-front communication with the vendor may be significant.

### ***Enclosure F: Dermal Hand Wipe Sampling Protocol – Solvents***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - When providing this cost estimate, the vendor assumed that around ten samples would need to be collected and analyzed.
  - The cost estimate assumes on-site sample collection by [REDACTED] personnel. The vendor did not believe the sampling would be possible without their team's expertise in various steps of the sample collection process including preparing samples, handling samples in the field, properly collecting field blanks, and packing and shipping samples to the lab. Sample collection by [REDACTED] personnel adds approx. [REDACTED] to this cost estimate.
  - The vendor noted that this cost is a very rough estimate and could change based on the answers to a number of outstanding questions, such as the number of samples, required detection limits, requirements for quality assurance and acceptance limits, and details of the analytical methods that would require further discussion.
  - The costs for testing by the methods described in Enclosures E, F, and G would likely be reduced if all three tests are ordered with the same vendor. We did not account for this in our cost estimates.

### *Turnaround Time*

- The vendor stated that the turnaround time could be as short as a month, but this is an approximate figure and could be extended once further details of the testing requirements are determined. We expect that due to the custom nature of this testing, the wait time and the time needed for up-front communication with the vendor may be significant.

### ***Enclosure G: Dermal Hand Wipe Sampling Protocol – Flame Retardants***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The main factor influencing the cost range is whether the vendor would need to purchase an Atmospheric Pressure Photoionization module (adds approx. [REDACTED]). The method calls for this device to be used, but the vendor believes an alternate methodology could be used that would not require this device.
  - When providing this cost estimate, the vendor assumed that around ten samples would need to be collected and analyzed.
  - The cost estimate assumes on-site sample collection by [REDACTED] personnel. The vendor did not believe the sampling would be possible without their team's expertise in various steps of the sample collection process including preparing samples, handling samples in the field, properly collecting field blanks, and packing and shipping samples to the lab. Sample collection by [REDACTED] personnel adds approx. [REDACTED] to this cost estimate.
  - The vendor noted that this cost is a very rough estimate and could change based on the answers to a number of outstanding questions, such as the number of samples, required detection limits, requirements for quality assurance and acceptance limits, and details of the analytical methods that would require further discussion.
  - The costs for testing by the methods described in Enclosures E, F, and G would likely be reduced if all three tests are ordered with the same vendor. We did not account for this in our cost estimates.

#### *Turnaround Time*

- The vendor stated that the turnaround time could be as short as a month, but this is an approximate figure and could be extended once further details of the testing requirements are determined. We expect that due to the custom nature of this testing, the wait time and the time needed for up-front communication with the vendor may be significant.

### ***OECD 428: Skin Absorption: In Vitro Method***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The lower end of the cost range is for a non-volatile test substance; the upper end is for a volatile test substance.
  - The vendor requires that the test substance be radiolabeled.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The upper end of the cost range includes QA auditing required for regulatory compliance; the lower end of the cost range does not include such auditing and would be suitable for research purposes only.
  - The vendor noted that the cost could be higher if the test substance is volatile (not reflected in cost estimate).
  - The vendor requires that the test substance be radiolabeled.
- [REDACTED] provided a cost estimate of [REDACTED].

- The cost estimate assumes only one concentration of the test substance is being tested. Each additional concentration would add approx. [REDACTED] (not reflected in cost estimate).
- The vendor stated that their standard approach is to use a radiolabeled test substance, which makes the study quite straightforward. They noted that for volatile test substances, they would not use a radiolabeled test substance, as doing so would generate radioactive vapors. Running the test with a non-radiolabeled substance is possible, but leads to a higher cost and longer turnaround time due to the method development and analytical needs (this is approximately accounted for in the upper end of the cost range).
- The vendor noted that the cost estimate assumes a full-blown study designed to meet regulatory requirements, and that a reduced study for research purposes would be possible for a lower cost.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The lower end of the cost range is for a radiolabeled test substance; the upper end is for a non-radiolabeled test substance (which is more costly due to method development and analysis needs).
  - The vendor noted that the cost could be higher if the test substance is volatile (not reflected in cost estimate).
  - The cost estimate assumes the test will be done on both rat and human skin. Rat skin alone would cost approx. [REDACTED], while human skin alone would cost approx. [REDACTED].

#### *Turnaround Time*

- The turnaround time estimates received from two of the vendors were 1-2 months and 12 weeks. Another vendor estimated an 8- to 12-week turnaround time for a radiolabeled test substance and a 4-month turnaround time for a non-radiolabeled test substance. The fourth vendor estimated a 3- to 4-month turnaround time for a radiolabeled test substance and a 4- to 5-month turnaround time for a non-radiolabeled test substance, and noted that running the test for a volatile test substance could require even more time.
- One vendor anticipated a wait time of a few months and noted that there is high demand for this type of study.

#### *Other*

- Three of these four vendors are located outside the U.S. ([REDACTED] has locations in the U.S., but this test would be performed at one of their facilities in France).

### ***NIOSH 1501: Hydrocarbons, Aromatic***

#### *Assumptions*

- Because EPA specified that they were interested only in the extraction portion of this method, our cost estimates for this method include only each vendor's per-sample analysis fee and do not include any media, equipment, shipping, labor, or other costs.

#### *Notes*

- We got cost estimates for NIOSH 1501 from four vendors; however, we found that most of EPA's analytes of interest were not offered. Thus, it is possible that our estimated cost for NIOSH 1501 is not indicative of the cost of analyzing EPA's analytes of interest by this method.
  - Of the analytes of interest, [REDACTED] offers this method only for o- and p-dichlorobenzene.
  - [REDACTED] and [REDACTED] offer the method but not for any of EPA's analytes of interest. [REDACTED] indicated that they do not offer these analytes because they are not listed in the published method.

- [REDACTED] offers the method but not for any of EPA's analytes of interest. However, their [REDACTED] uses NIOSH 1500 and NIOSH 1501 to analyze a set of analytes that includes 1,2 Dichloroethane and 1,2 Dichloropropane; it seems they are able to measure these two analytes by NIOSH 1501 but do not typically offer that service or list an individual cost for it. The vendor did not respond to a request for further detail.

### ***OECD 305: Bioaccumulation in Fish: Aqueous and Dietary Exposure***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor requires that the test substance be radiolabeled.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor stated that the test substance can be radiolabeled or non-radiolabeled.
  - The cost range arises because there are three exposure options for this test method: aqueous, minimized aqueous, and dietary. The selection of the exposure option depends on the properties of the test substance. Aqueous exposure costs approx. [REDACTED]; minimized aqueous exposure costs approx. [REDACTED]; and dietary exposure costs approx. [REDACTED]. For an additional cost of approx. [REDACTED], an additional test substance concentration can be added to the aqueous exposure option (not reflected in cost estimate).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor prefers that the test substance be non-radiolabeled.
  - The lower end of the cost range is for a study done with zebrafish; the upper end is for a study done with rainbow trout.
  - The vendor noted that the test substances of interest are likely to be challenging to work with, and stated that the estimated cost attempts to account for this.
- A fourth vendor, [REDACTED], provided a cost estimate of [REDACTED]. We asked the vendor to confirm that this cost was correct, given the extreme difference between this estimate and the other estimates we received for this test. We did not hear back, and as a result, we did not include this cost in our cost estimate.

#### *Turnaround Time*

- The turnaround time estimates received from the vendors were 4-5 months, 8-9 months, and 17 months. The vendor that estimated a 17-month turnaround time noted that the time includes 5 months for authority approval, followed by an additional 12 months to draft report delivery.
- One vendor stated that their capacity is limited to running two OECD 305 studies at any given time.

#### *Other*

- The quote provided by [REDACTED] included the following language: "According to the 'Directive 2010/63/EU on the protection of animals used for scientific purposes' and the 'German Animal Welfare Act' studies with vertebrate animals need a prior authorization from the competent authorities (see Article 36, 2010/63/EU). Therefore we need your confirmation, that the requested fish study is required by law (see Article 38, 2010/63/EU), e.g. for one of the following regulations: Plant Protection Products (EC) No 1107/2009, Chemicals (EC) No 1907/2006, Biocides (EU) No 528/2012 or Medicinal Products for Human and Veterinary (EC) No 726/2004." This suggests that it may not be possible to have this testing done in Germany or in an EU member state. Note that [REDACTED] is located in the U.K., and [REDACTED] and [REDACTED] are located in Germany.

## ***OECD 316: Phototransformation of Chemicals in Water – Direct Photolysis***

### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The variables influencing this range include whether a preliminary test is needed (adds approx. [REDACTED] if yes) and whether sample work-up or method development are needed (adds approx. [REDACTED] if yes).
  - The vendor also indicated that the cost could rise further based on other factors, largely whether the test substance is challenging to work with and how much is known about the test substance. Additional study components, such as an additional pH condition, are also available for a higher cost (not reflected in cost estimate). Overall, this vendor's estimate seems to represent a lower-cost scenario.
  - The vendor recommends, but does not require, that the test substance be radiolabeled.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor requires that the test substance be radiolabeled.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor explained that the lower end of the cost range includes only Tiers 1-2 of the test method (which can be done without a radiolabeled test substance), while the upper end of the range includes Tiers 1-3 (requiring a radiolabeled test substance). Tier 3 involves determining the quantum yield of the test substance.
  - The cost also depends on whether analytical method development is required; this might add approx. [REDACTED] and is reflected in the upper end of the cost range.
  - Additional study components, such as characterization of transformation products, are also available for a higher cost (not reflected in cost estimate).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor recommends, but does not require, that the test substance be radiolabeled. The lower end of the cost range is for a radiolabeled test substance; the upper end of the range is for a non-radiolabeled test substance. The vendor noted that identification of transformation products may not be possible if a non-radiolabeled test substance is used.

### *Turnaround Time*

- The turnaround time estimates received from the vendors were 4 months, 6-7 months, 7 months, and 6-12 months.
- One vendor stated that their capacity is limited to running two OECD 316 studies at any given time.

### *Other*

- One vendor noted that volatile substances may pose challenges for this test method. Another vendor commented that certain substances may be challenging, and that this might not always be apparent before beginning the study.
- All four of these vendors are located outside the U.S.

## ***OPPTS 835.5270: Indirect Photolysis Screening Test***

### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor explained that the large range arises because this test method is performed in a tiered approach; depending on the results of the first tiers, the later tiers may or not be required.
  - The cost also depends on whether metabolite identification is necessary (adds approx. [REDACTED] per unknown metabolite – the upper end of the cost range assumes identification of one unknown metabolite) and on whether a chemical actinometer is

requested (this adds approx. [REDACTED] and is reflected in the upper end of the cost range).

- Additional study components, such as an additional radiolabel, are also available for a higher cost (approx. [REDACTED] per additional exposure; not reflected in cost estimate).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The lower end of the cost range is for phases one and two of the test only; the upper end of the range is for all three phases (a complete test).
  - The vendor further broke down each end of the cost range into metabolism cost and RAS cost. For the lower end of the range, the metabolism portion contributes approx. [REDACTED] to the cost and RAS contributes approx. [REDACTED]. For the upper end of the range, the metabolism portion contributes approx. [REDACTED] to the cost and RAS contributes approx. [REDACTED].
  - The vendor noted that they would not run multiple test substances in the same test, due to both capacity and complexity.

#### *Turnaround Time*

- Depending on which tier(s) of the study need to be completed, one vendor estimated the turnaround time would be 1-3 months. If identification of unknown metabolites is required, this could lengthen the turnaround time.
- Both vendors anticipated that the wait time prior to starting the test could be several months. One vendor stated that they would have to stagger the study start dates as their capacity to run multiple studies at once is limited.

#### *Other*

- [REDACTED] stated that if information on metabolites is needed, then the test substance must be radiolabeled. If the test substance is non-radiolabeled, only the decline of the test substance will be measured, and no mass balance will be obtained.

### ***OECD 121: Estimation of the Adsorption Coefficient (Koc) on Soil and on Sewage Sludge using High Performance Liquid Chromatography (HPLC)***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor noted that their study director did not anticipate any particular challenges with the test substances of interest for this method.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor noted that the cost could rise if the test substance is challenging to work with.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor requires the test substance to be radiolabeled.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor stated that the cost can be reduced by including multiple test substances in the same study (this is not reflected in our cost estimates).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor prefers a non-radiolabeled test substance for this method.

#### *Turnaround Time*

- The turnaround time estimates received from the vendors were 1 month, 1-1.5 months, 7-11 weeks, 3 months, and 8-12 weeks. One vendor stated that the timeline depends on the amount of method development needed.

- One vendor stated that their capacity is limited to running about four OECD 121 studies at any given time, but that more than four might be possible.
- One vendor indicated that the wait time prior to starting the test could be several months.

*Other*

- Four of these vendors are located outside the U.S.

***OECD 307: Aerobic and Anaerobic Transformation in Soil***

*Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate is for either an aerobic study or an anaerobic study, not both.
  - The cost estimate is for a four-soil study.
  - The vendor requires that the test substance be radiolabeled.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate is for either an aerobic study or an anaerobic study, not both. An anaerobic study costs approx. [REDACTED] more than an aerobic study.
  - The cost estimate is for a four-soil study.
  - The upper end of the cost range assumes that method development is needed (adding approx. [REDACTED]). This cost was estimated based on the vendor's statement that method development typically takes 2-3 weeks and is billed at [REDACTED]/hour. We arrived at [REDACTED] by assuming that two people would spend half their time on this work for 2.5 weeks (a total of 100 hours).
  - The cost estimate assumes a radiolabeled test substance. If a non-radiolabeled test substance is provided, then only the degradation rate of the parent can be measured; no mass balance can be determined and no metabolites can be identified or studied.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate is for an aerobic study only. The vendor did not provide cost information for anaerobic studies. Because [REDACTED] and [REDACTED] stated that the cost is similar for aerobic and anaerobic studies, we assume that the cost from [REDACTED] is a representative cost for either study type, but we do not assume that [REDACTED] actually offers anaerobic studies.
  - The cost estimate is for a four-soil study.
  - The vendor requires that the test substance be radiolabeled.
  - Variables influencing the cost range include whether a preliminary test is needed (adds approx. [REDACTED] per soil if yes), whether method development is needed (adds approx. [REDACTED] if yes), whether bound residues need to be analyzed (adds up to approx. [REDACTED] if yes), and other potential analytical needs (adds up to approx. [REDACTED] if yes).
  - For additional fees, additional study components are available, such as an additional radiolabel, an additional sampling interval, attempted identification of unknown metabolites, incubation of sterile soil samples, and chiral analysis. These are not reflected in our cost estimates.

*Turnaround Time*

- The turnaround time estimates received from the vendors were 6 months, 7 months, and 6-12 months.
- Two vendors indicated that the wait time prior to starting the test could be several months or more. One of those vendors noted that their environmental fate and analytics labs are quite busy.

*Other*

- Two of these vendors are located outside the U.S.

### ***OECD 302B: Inherent Biodegradability: Zahn-Wellens/ EVPA Test***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
- [REDACTED] provided a cost estimate of [REDACTED].
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor requests a non-radiolabeled test substance.

#### *Turnaround Time*

- The turnaround time estimates received from the vendors were 10 weeks and 3 months.
- Two vendors indicated that the wait time prior to starting the test could be several months or more. One of those vendors noted that their environmental fate and analytics labs are quite busy.

#### *Other*

- One vendor advised that it would not make sense to test a chemical by both OECD 302B and OECD 314B, as doing so would be redundant.
- One vendor noted that non-aqueously soluble test substances may pose challenges.
- One of these vendors is located outside the U.S.

### ***OECD 314: Simulation Tests to Assess the Biodegradability of Chemicals Discharged in Wastewater***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate applies to any one of the five sub-tests (A-E).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate is for sub-test B only. Because [REDACTED] stated that the cost is roughly the same across all five sub-tests, we assume that the cost from [REDACTED] is a representative cost for any of the five sub-tests, but we do not assume that [REDACTED] actually offers sub-tests other than B.
  - The vendor requires that the test substance be radiolabeled.
  - The vendor noted that attempted identification of each unknown metabolite adds approx. [REDACTED]; this is not reflected in our cost estimates.

#### *Turnaround Time*

- The turnaround time estimates received from the vendors were 10 weeks and 5 months.
- Both vendors indicated that the wait time prior to starting the test could be several months or more. One of those vendors noted that their environmental fate and analytics labs are quite busy.

#### *Other*

- One vendor advised that it would not make sense to test a chemical by both OECD 302B and OECD 314B, as doing so would be redundant.
- One of these vendors is located outside the U.S.

### ***OECD 308: Aerobic and Anaerobic Transformation in Aquatic Sediment Systems***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate is for either an aerobic study or an anaerobic study, not both.
  - The cost estimate is for a two-sediment system study.
  - The vendor requires that the test substance be radiolabeled.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate is for either an aerobic study or an anaerobic study, not both.



- The cost estimate is for a two-sediment system study.
- The upper end of the cost range assumes that method development is needed (adding approx. [REDACTED]). This cost was estimated based on the vendor's statement that method development typically takes 2-3 weeks and is billed at [REDACTED]/hour. We arrived at [REDACTED] by assuming that two people would spend half their time on this work for 2.5 weeks (a total of 100 hours).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate is for an aerobic study only. The vendor did not provide cost information for anaerobic studies. Because [REDACTED] and [REDACTED] stated that the cost is similar for aerobic and anaerobic studies, we assume that the cost from [REDACTED] is a representative cost for either study type, but we do not assume that [REDACTED] actually offers anaerobic studies.
  - The cost estimate is for a two-sediment system study.
  - The vendor requires that the test substance be radiolabeled.
  - Variables influencing the cost range include whether a preliminary test is needed (adds approx. [REDACTED] per sediment system if yes), whether method development is needed (adds approx. [REDACTED] if yes), whether bound residues need to be analyzed (adds up to approx. [REDACTED] if yes), and other potential analytical needs (adds up to approx. [REDACTED] if yes).
  - For additional fees, additional study components are available, such as an additional test substance, an additional sampling interval, attempted identification of unknown metabolites, incubation of sterile soil samples, and chiral analysis. These are not reflected in our cost estimates.

#### *Turnaround Time*

- The turnaround time estimates received from the vendors were 5 months, 7 months, and 6-12 months.
- Two vendors indicated that the wait time prior to starting the test could be several months or more. One of those vendors noted that their environmental fate and analytics labs are quite busy.
- Two of these vendors are located outside the U.S.

### ***OECD 301: Ready Biodegradability***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate applies to any one of the six sub-tests (A-F).
  - The vendor stated that sub-test B is the industry standard and is used the vast majority of the time. Potential factors influencing the choice of sub-test include the characteristics of the test substance, the flexibility of the sub-test (some have sacrificial intervals while others can be extended), and the scale (volume) of the sub-test (which can impact the ease of applying the test substance and the chance of competent degraders being present).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate is for sub-test B only. The vendor can perform all six sub-tests but did not provide cost information for the others. Because [REDACTED] stated that the cost is the same across all six sub-tests, we assume that the cost from [REDACTED] is a representative cost for any of the six sub-tests.
  - The vendor stated that generally, insoluble material is tested with sub-test D.
- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost estimate is for sub-test F only. Because [REDACTED] stated that the cost is roughly the same across all six sub-tests, we assume that the cost from

[REDACTED] is a representative cost for any of the six sub-tests, but we do not assume that [REDACTED] actually offers sub-tests other than F.

- The range in cost arises because both, one, or neither of two options may be needed: determination of chemical oxygen demand (adds approx. [REDACTED]) and quantification of nitrification (adds approx. [REDACTED]).
- The vendor noted that the study can be extended for approx. [REDACTED]/week (not reflected in our cost estimate).
- The vendor requires that the test substance be non-radiolabeled.

#### *Turnaround Time*

- The turnaround time estimates received from the vendors were 10 weeks and 3 months.
- Two vendors indicated that the wait time prior to starting the test could be several months. One vendor noted that their environmental fate and analytics labs are quite busy.

#### *Other*

- One of these vendors is located outside the U.S.

### ***OECD 104: Vapour Pressure***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].

#### *Turnaround Time*

- [REDACTED] estimated turnaround time for this test is 8 weeks. The vendor anticipated that the wait time prior to starting the test could be six months or more.

### ***OECD 111: Hydrolysis as a Function of pH***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - Variables influencing the cost range include whether a preliminary test is needed (adds approx. [REDACTED] if yes) and whether method development is needed (adds approx. [REDACTED] if yes).
    - The added cost for method development was estimated based on the vendor's statement that method development typically takes 2-3 weeks and is billed at [REDACTED]/hour. We arrived at [REDACTED] by assuming that two people would spend half their time on this work for 2.5 weeks (a total of 100 hours).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor requires that the test substance be radiolabeled.
  - Variables influencing the cost range include whether a preliminary test is needed (adds approx. [REDACTED] if yes), whether work-up and/or method development are needed (adds approx. [REDACTED] if yes), and other potential analytical needs (adds up to approx. [REDACTED] if yes).
  - For additional fees, additional study components are available, such as an additional test substance, sampling interval, or pH condition, and attempted identification of unknown metabolites. These are not reflected in our cost estimates.

#### *Turnaround Time*

- One vendor estimated a 3-month turnaround time, and the other estimated 6-7 months.
- One vendor indicated that the wait time prior to starting the test could be several months or more, and noted that their environmental fate and analytics labs are quite busy; the other vendor anticipated a wait time of closer to a year.
- One of these vendors is located outside the U.S.

### **OPPTS 850.4500: Algal Toxicity**

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The upper end of the cost range assumes that method development is needed (adding approx. [REDACTED]). This cost was estimated based on the vendor's statement that the cost for method transfer is [REDACTED], while method development (in the event a transferrable freshwater algae analytical method is not provided) typically takes 2-3 weeks and is billed at [REDACTED]/hour. We arrived at [REDACTED] by assuming that two people would spend half their time on this work for 2.5 weeks (a total of 100 hours or [REDACTED], minus the [REDACTED] for method transfer).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The variables influencing the cost range are whether a range finding test is needed (adds approx. [REDACTED]), whether an algistatic test option is needed (adds approx. [REDACTED]), whether measured concentrations of the test substance are needed (adds up to approx. [REDACTED]), whether the test substance is insoluble (adds approx. [REDACTED] if so), and whether the testing needs to be conducted by GLP (adds approx. [REDACTED]).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The lower end of the cost range is a baseline cost, while the upper end of the range accounts for estimated costs of dosing verification via analytical chemistry (adds approx. [REDACTED]) and method development or other analytical work (adds approx. [REDACTED]).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor prefers, but does not require, that the test substance be radiolabeled. The lower end of the cost range is for a radiolabeled test substance; the upper end is for a non-radiolabeled test substance. The vendor noted that identification of transformation products may not be possible if a non-radiolabeled test substance is used.

#### *Turnaround Time*

- The turnaround time estimates received from the vendors were 1 month, 3-5 months, 3-6 months, and 8-9 months. One vendor noted that the test could take longer depending on the analytical work that is needed.
- Two vendors stated that they have fairly short wait times for this test.
- One vendor stated that their capacity is limited to running three OPPTS 850.4500 studies at any given time.

#### *Other*

- One vendor noted that non-soluble test substances may pose challenges.
- One of these vendors is located outside the U.S.

### **OPPTS 850.1020: Gammarid Amphipod Acute Toxicity Test**

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The upper end of the cost range assumes that method development is needed (adding approx. [REDACTED]). This cost was estimated based on the vendor's statement that the cost for method transfer is [REDACTED], while method development (in the event a transferrable freshwater analytical method is not provided) typically takes 2-3 weeks and is billed at [REDACTED]/hour. We arrived at [REDACTED] by

assuming that two people would spend half their time on this work for 2.5 weeks (a total of 100 hours or [REDACTED], minus the [REDACTED] for method transfer).

- [REDACTED] provided a cost estimate of [REDACTED].
  - The variables influencing the cost range are whether measured concentrations of the test substance are needed (adds up to approx. [REDACTED]), whether the test substance is insoluble (adds approx. [REDACTED] if so), and whether the testing needs to be conducted by GLP (adds approx. [REDACTED]).

#### *Turnaround Time*

- The turnaround time estimates received from the vendors were 1 month and 3-5 months.
- One vendor anticipated a wait time of a few months.

### ***OECD 225: Sediment-Water Lumbriculus Toxicity Test Using Spiked Sediment***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor noted that the cost could increase if the test substance proves difficult to work with.
  - The vendor requires the customer to provide both radiolabeled and non-radiolabeled versions of the test substance.
- [REDACTED] provided a cost estimate of [REDACTED].
  - Variables influencing this range include whether a preliminary range-finding test is needed (adds approx. [REDACTED] if yes), whether the test substance is radiolabeled (saves approx. [REDACTED] if yes), and whether a transferrable freshwater sediment analytical method is provided (saves approx. [REDACTED] in analytical method development cost if yes).
    - The added cost for analytical method development was estimated based on the vendor's statement that the cost for method transfer is [REDACTED], while method development (in the event a transferrable method is not provided) typically takes 2-3 weeks and is billed at [REDACTED]/hour. We arrived at [REDACTED] by assuming that two people would spend half their time on this work for 2.5 weeks (a total of 100 hours or [REDACTED], minus the [REDACTED] for method transfer). The vendor noted that method transfer or development costs for freshwater analysis can be shared between this method and OECD 233; we noted this but did not account for it in our cost estimates.

#### *Turnaround Time*

- One vendor estimated a 6-month turnaround time, and the other estimated 5-7 months. Both vendors anticipated that the wait time prior to starting the test could be several months.
- One of these vendors is located outside the U.S.

### ***OECD 233: Sediment-Water Chironomid Life-Cycle Toxicity Test Using Spiked Water or Spiked Sediment***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - Variables influencing this range include whether a preliminary range-finding test is needed (adds approx. [REDACTED] if yes), whether the test substance is radiolabeled (saves approx. [REDACTED] if yes), and whether a transferrable freshwater sediment analytical method is provided (saves approx. [REDACTED] in analytical method development cost if yes).

- The added cost for analytical method development was estimated based on the vendor's statement that the cost for method transfer is [REDACTED], while method development (in the event a transferrable method is not provided) typically takes 2-3 weeks and is billed at [REDACTED]/hour. We arrived at [REDACTED] by assuming that two people would spend half their time on this work for 2.5 weeks (a total of 100 hours or [REDACTED], minus the [REDACTED] for method transfer). The vendor noted that method transfer or development costs for freshwater analysis can be shared between this method and OECD 225; we noted this but did not account for it in our cost estimates.

#### *Turnaround Time*

- [REDACTED] estimated turnaround time for this test is 5-7 months. The vendor anticipated that the wait time prior to starting the test could be several months.

### ***OECD 222: Earthworm Reproduction Test (Eisenia fetida/ Eisenia andrei)***

#### *Cost Details by Vendor*

- [REDACTED] provided a cost estimate of [REDACTED].
  - The vendor stated that the cost includes both a non-GLP range-finding test (pre-test) and a GLP definitive test.
  - The lower end of the cost range is the cost for determining EC<sub>x</sub> only; the upper end of the range is the cost for determining both EC<sub>x</sub> and NOEC. The cost for determining NOEC only is approx. [REDACTED].
- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost depends on whether analytical confirmation is needed. Without analytical confirmation, the cost is approx. [REDACTED]; analytical confirmation adds approx. [REDACTED].
- [REDACTED] provided a cost estimate of [REDACTED].
  - Variables influencing this range include whether a preliminary range-finding test is needed (adds approx. [REDACTED] if yes), whether stock analysis at day 0 is requested (adds approx. [REDACTED] if yes), and whether soil analysis is needed to the substance being unstable in soil (adds approx. [REDACTED] if yes).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The lower end of the cost range is for the definitive test only; the upper end of the range also includes a range-finding test (pre-test).
  - The vendor noted that the cost for performing a limit study only would be approx. [REDACTED].
- [REDACTED] provided a cost estimate of [REDACTED].
  - The lower end of the cost range is for the GLP definitive test only; the upper end of the range also includes a non-GLP range-finding test (pre-test).
- [REDACTED] provided a cost estimate of [REDACTED].
  - The cost depends on whether analytical verification is needed; the upper end of the cost range includes the cost of analytical verification.

#### *Turnaround Time*

- The turnaround time estimates received from the vendors were 4 months, 5 months (from three vendors), and 6 months.
- Several vendors indicated that the wait time prior to starting the test could be on the order of 2-3 months. One vendor indicated a wait time of 2-3 weeks. Another vendor indicated that they currently do not have any wait time for the test itself, but that delays could be introduced if analytic work is needed (the vendor stated that it is rare for analytic work to be needed for this test).

- Two of these vendors are located outside the U.S.