
PCBs in the Interstate Natural Gas Transmission System – Status and Trends



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August 2010

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Prepared for:

Interstate Natural Gas Association of America

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Foreword

On April 7, 2010, the Environmental Protection Agency (EPA) issued an Advance Notice of Proposed Rulemaking (ANPRM) entitled *Polychlorinated Biphenyls (PCBs); Reassessment of Use Authorizations*. In this ANPRM, the EPA proposes to reassess the existing PCB use authorizations under the Toxic Substances Control Act (TSCA), including the use authorization for PCBs in natural gas pipelines, air compressor systems and porous surfaces. As part of this reassessment, the EPA has proposed to revise and/or eliminate these use authorizations in a way that could significantly and dramatically impact natural gas pipeline operations. Natural gas pipelines have been subject to programs addressing PCBs for the past 30 years, starting with the EPA's Compliance Monitoring Program (CMP) in the early 1980's to the EPA's present comprehensive regulatory program, better known as the PCB Mega Rule promulgated in 1998.

The Interstate Natural Gas Association of America (INGAA) is a trade association representing virtually all interstate natural gas transmission companies operating in the United States. INGAA therefore has a direct interest in the EPA's ANPRM and accordingly has prepared comments in response. In support of these comments, INGAA has commissioned several independent experts to prepare "White Papers" providing key analysis of the complex issues raised by the EPA's ANPRM with respect to the presence of PCBs in the interstate natural gas pipeline system. These papers address pipelines and pipeline operations, the presence of residual PCBs in the pipeline system, the risks to health and the environment associated with PCB-impacted pipelines, the technical feasibility of removing diminishing concentrations of PCBs and the anticipated economic impacts resulting from the EPA's proposals.

S.S. Papadopoulos & Associates, Inc. was commissioned to examine chemical and physical properties of PCBs relative to the natural gas transmission system. This report reviews the relevant history of PCBs and their presence in pipelines and pipeline equipment, and the effectiveness of the transmission industry's success in removing PCBs from the pipeline systems since they were first regulated in the 1980's. While commissioned by INGAA in support of its comments, this report is an independent analysis, and its conclusions are based on the expertise of the author.¹

¹ This report was written by Dr. Remy J.-C. Henet, Principal at S.S. Papadopoulos & Associates, Inc., Bethesda, MD. Dr. Henet holds a Ph.D. in geochemistry from Princeton University. He has more than 25 years of research and professional experience in the evaluation of the origin, fate and transport of chemicals in diverse environments. Dr. Henet started working on PCBs issues in the interstate natural gas transmission system in 1989 and has worked on numerous PCB environmental cases over the last 20 years.

Executive Summary

The physical and chemical properties of PCBs define how these materials move within the natural gas transmission system as well as the rate at which these materials can be removed from the system. The residual amounts of PCBs that remain in portions of the natural gas transmission system will continue to decrease over time, as companies continue to implement the removal of pipeline liquids. The management practices currently employed in the pipeline industry support the removal of PCBs without the introduction of extraneous solvents or disruption of the natural gas supply.

The Mega Rule and PCB use authorization have performed as expected for the interstate natural gas transmission industry. The vast majority of the PCB mass that was in the pipeline systems (i.e., lubricating oil) in the early 1980's has been removed. Large volumes of pipeline liquids containing PCBs have been collected from drips, scrubbers and filter/separators, and through pigging operations and targeted clean-ups. Large volumes of PCB waste have been disposed of according to all applicable regulations. Engineered control measures were implemented to remove PCBs from the affected locations. Pipeline segments and compressor stations that are still affected by PCBs are being monitored.

PCBs are soluble in pipeline liquids and their transport in the interstate natural gas transmission system is controlled by the formation and movement of these liquids. The transport of PCB gas in the vapor phase is immeasurable, non-detectable and entirely inconsequential in the natural gas transmission system.

Review of more than 6,000 data points reporting PCB concentrations in pipeline liquids samples collected from interstate natural gas transmission pipeline operators over the period 1981 to present shows a statistically significant decrease in PCB concentrations in recovered liquid samples over time in the interstate natural gas transmission system. The decrease has been substantial (i.e., one order of magnitude or more) and gradual. The decrease in PCB concentrations and PCB mass removal rate is due to the fact that it becomes more and more difficult to remove PCBs from the transmission systems as the remaining mass of PCBs becomes smaller and smaller over time.

Based on the data reviewed, PCB residuals remain in segments of the interstate natural gas transmission system. Over the period 2007 to present, approximately 50 percent of the pipeline

liquids samples analyzed for PCBs reported concentrations in the range 2 to 50 parts per million (ppm), 20 percent were above 50 ppm, and 30 percent were reported as non-detects.

Technologies such as solvent flushing and surfactant washing cannot remove all PCBs from the interstate natural gas transmission system. These technologies are essentially the same as the flushing with pipeline liquids which takes place naturally over time within the pipeline system. Solvent flushing and surfactant washing would introduce new chemicals into the transmission systems raising concerns about corrosion, material compatibility, and safety.

Section 1

Introduction

PCBs in the interstate natural gas transmission system were first characterized in the early 1980s. Under the supervision of the United States Environmental Protection Agency (EPA), a Compliance Monitoring Program (CMP) to control and remove PCBs, and to monitor the proper disposal of PCB waste was established. The CMP was replaced by the adoption of the PCB Mega Rule amendments in 1998 (Mega Rule). The interstate natural gas transmission pipelines affected by the presence of PCBs collected various data and information under the CMP and Mega Rule, including PCB concentrations in pipeline liquids, PCB concentration in the gas phase, and the volume of pipeline liquids collected and removed. This information is used and discussed in this report together with additional information provided by INGAA member companies that is deemed relevant to the understanding of the status and trends of PCBs in the natural gas transmission systems.

The 2010 Advance Notice of Proposed Rule Making² (ANPRM), published by EPA proposes to modify the current regulations and significantly changing the Mega Rule by first reducing the current use authorization from 50 ppm to 1 ppm, and subsequently eliminating the use authorization by 2020.

This paper is in support of INGAA's comments to the ANPRM. The paper presents information on the origin, fate, and transport of PCBs in the interstate natural gas transmission system.³ The paper provides a short review of the properties of PCBs, Aroclors and Aroclor-based products, describes the physical processes that drive the fate and transport of PCBs in

² Environmental Protection Agency, 40 CFR Part 761 [EPA-HQ-OPPT-2009-0757; FRL-8811-7]. RIN 2070-AJ38 Polychlorinated Biphenyls (PCBs); Reassessment of Use Applications. Advance notice of proposed rulemaking (ANPRM). Federal Register April 7, 2010. Vol 75 (66).

³ Unless stated otherwise, in this paper interstate transmission systems, natural gas pipelines, natural gas pipeline companies and natural gas pipeline systems all refer to interstate natural gas transmission systems.

natural gas transmission systems, the available data that document the overall rate of removal of these compounds from the impacted interstate transmission pipelines, the occurrence and interpretation of data trends, and a discussion of the limitations of clean-up technologies at removing PCBs from the interstate natural gas pipeline systems.

Section 2

Polychlorinated Biphenyls

Polychlorinated biphenyls (“PCBs”) represent a class of 209 individual chemical compounds that were synthesized by the chlorination of biphenyl with anhydrous chlorine under controlled conditions in the presence of a catalyst.⁴ PCBs are described by the generic chemical formula $C_{12}H_{(10-n)}Cl_n$, where Cl is for chlorine, C for carbon, H for hydrogen, and n for the number of chlorine atoms in the molecule (n = 1 to 10). The structure of PCBs is illustrated below; the numbers and primed numbers define the location of the chlorine atoms on the biphenyl molecular frame.

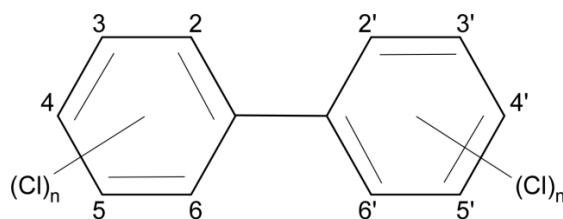


Figure 1: Polychlorinated Biphenyls -- Molecular Structure

PCBs have highly useful properties that include their chemical and physical stability (or inertness), electrical insulating properties, low vapor pressures, high boiling points, thermal conductivities, and flash points. For this reason, PCBs were commercially produced and used in large quantities in the United States between 1929 and 1977.⁵ PCBs were produced as mixtures

⁴ Individual constituent PCB compounds are called “congeners”, and sets of PCB molecules with the same number of chlorine atoms are called “homologs”. The term “isomers” is at times used to describe the congeners of a given homolog series.

⁵ During that period of time Monsanto, the sole commercial manufacturer of PCBs in the United States produced a total of approximately 1.25 billion pounds of PCBs. (Erikson, M., 1992; Analytical Chemistry of PCBs).

of congeners to confer desired properties for various applications. The mixtures were sold under the registered trade mark of “Aroclor” followed by a 4 digit code. PCB Aroclors were indicated by “12” for the number of carbon atoms in biphenyl, followed with the percentage of chlorine in the product; for example, Aroclor 1242 is a PCB product containing 42 percent chlorine by weight.⁶

Aroclors are complex mixtures of individual PCB congeners and were used in the formulation of a large variety of products. Several products were formulated with more than one Aroclor mixture to confer the product with desired properties. Aroclor 1242 was the most commonly used Aroclor, representing slightly more than 50 percent of the total production in the United States. PCB Aroclors were used in the natural gas industry due primarily to their high flash point, low flammability, and chemical stability. The main PCB products used in interstate pipelines were formulated with Aroclors 1242 and 1248 (i.e., lubricants for gas compressors), and Aroclor 1254 (i.e., lubricants for air compressors), Aroclor 1260, and Aroclor 1268 (i.e., valve sealants and lubricants).

Aroclors are soluble in non-polar liquids such as hydrocarbon fuels and oils (solubility values in the percent range) but are virtually insoluble in water (solubility values in the part per billion level). Aroclors exist as liquids or solids at ambient temperature, have very low vapor pressures and are therefore non-volatile.⁷ Aroclors have a strong affinity for organic materials⁸ into which they tend to absorb, and solid surfaces onto which they tend to adsorb. Organic materials for which Aroclors have a strong affinity include lube oils, greases and sealants, plastics, rubber, paints, and coatings. Metal and solid surfaces that come in contact with the natural gas stream

⁶ The exception to this convention is for Aroclor 1016, a PCB Aroclor which started to replace Aroclor 1242 in the early 1970's; Aroclor 1016 was produced by distillation of Aroclor 1242 and represents a narrow cut of Aroclor 1242.

⁷ For comparison, the vapor pressure of volatile compounds such as hexane or benzene, are 5 or more orders of magnitude higher than the value for Aroclor 1242.

⁸ As shown on Table 1, Aroclors have very high octanol-water partition coefficients ($\log K_{ow}$) indicating a strong affinity for hydrophobic materials such as oils, fuels, greases, plastics, rubbers, etc.

become coated with a hydrocarbon film (i.e., lube oil, and/or condensate components) regardless of whether or not synthetic protective coatings have been applied for corrosion protection. Aroclors tend to absorb and accumulate on these surfaces and become a component of the film that coats the solid surfaces in the interior of pipelines.

Representative properties of selected PCB Aroclors are summarized in Table 1.

Table 1 -- Representative Properties of Selected Aroclors

	Vapor Pressure (psi at 25°C)	Boiling Range (°F)	Average Molecular Weight (g/mol)	Density (g/cm³)	log Kow
Aroclor 1242	0.00000750	617 – 691	264	1.35	5.30
Aroclor 1248	0.00000123	644 – 707	294	1.40	6.10
Aroclor 1254	0.00000038	689 – 734	328	1.50	6.50
Aroclor 1260	0.00000004	725 – 788	374	1.60	6.90

Values selected from MacKay et al. (2006)

PCB Aroclor mixtures were used to formulate and manufacture a large variety of industrial and residential parts and products. These parts and products included dielectric fluids (transformers, capacitors, fluorescent light ballasts, etc.), oils and lubricants (compressors, turbines, hydraulic systems, heat transfer systems, vacuum pumps, casting agents, cutting oils, etc.), plasticizers (rubbers, gaskets, O-rings, synthetic resins, carbonless paper, etc.), printing inks, paints, coatings, waterproofing agents, sealants, caulking compounds, adhesives, casting waxes, wax extenders, de-dusting agents, insulation materials, flame retardants, pesticide extenders, wire coatings, PVC tubing, floor lacquers, and many others.

Because of their widespread and various uses and properties that confer environmental persistence, PCBs rapidly became ubiquitous in the global environment.⁹ More than 30 years after being banned in the United States, PCB residuals remain detectable and widespread.

The interstate natural gas transmission system does not presently use PCBs, but the presence of PCB residuals in impacted pipelines is a legacy from a foregone period that ended more than 30 years ago.

⁹ Toxicological Profile for Polychlorinated Biphenyls (PCBs), ATSDR, November 2000.

Section 3

Introduction of PCBs into the Interstate Natural Gas Transmission System

Compressor stations are part of the pipeline system and serve the main purpose of re-compressing the gas stream to keep it moving through the transmission system to its destination. Compressor stations host air and gas compressors, drivers, pig launchers and/or receivers, and other pertinent equipment. A major source of PCB contamination of natural gas transmission piping in the interstate natural gas pipeline system was the use of PCB-based lubricating oil in centrifugal compressor units.¹⁰ Only some interstate natural gas transmission systems used PCB-containing oils in their centrifugal compressors. For the pipelines that did, the use was limited to a subset of their centrifugal compressors.

While PCB containing lubricants were primarily utilized on some drivers (e.g. turbines) because of resistance to ignition at high temperatures (high flash point), some of these compressor units shared common oil reservoirs between the driver and compressor. During start-up and when compressing the gas stream, centrifugal compressors are designed to release a small amount of oil into the compressor housing seal that is directly connected to the natural gas transmission pipeline; this oil transfer occurs to assist compressor seals from leaking natural gas to the atmosphere. The amount of oil thus transferred depends on the design of the compressor equipment and its mode of operation. Compressors do not operate continuously and shut-down and start-up events occur periodically. A typical centrifugal compressor contains approximately 1,000 gallons of oil (500 to 2,000 gallons, depending on horsepower, age, and manufacturer).

¹⁰ Natural gas pipeline systems rely on several types of compressors (i.e., reciprocal positive displacement compressors, centrifugal compressors, air compressors, etc.); compressors are powered by drivers (turbines, engines, etc.).

This equipment consumes several hundred gallons of oil per compressor per year during routine operation. The oil is consumed principally by combustion; new oil is added when needed.

Parts and products such as gaskets, seals, o-rings, coatings, plastics, sealants, lubricants, etc, may have contained PCBs prior to 1977 and could therefore have been potential secondary sources of PCBs in pipeline systems. The relative PCB contribution from such sources would have varied over time, from interstate transmission pipeline to interstate transmission pipeline, as well as from compressor station to compressor station within an individual interstate transmission pipeline.

Various commercial products, including sealants, were formulated with Aroclors prior to the PCB ban. Sealants were used in valves. Sealants packaged in both sticks and cans were commonly used for pipeline maintenance and could have contained PCBs prior to the commercial ban.

Many parts and products used in pipeline systems were not formulated or manufactured with Aroclors, but may have inadvertently contained small amounts of PCBs. The historical off-site maintenance of refurbishment of equipment is an example of an inadvertent pathway through which PCBs could have entered the interstate transmission system.

Section 4

Transport of PCBs in the Interstate Natural Gas Transmission System

For the interstate natural gas transmission system, this report considers two theoretical modes of transport for PCBs; these are:

- in the liquid phase as dissolved in pipeline liquids; and
- as PCB gas in the vapor phase.

These two theoretical modes of transport are evaluated below and their relative importance is determined, within a reasonable degree of scientific certainty, using the available data. The nature of natural gas condensate and pipeline liquids is discussed through a review of the processes that lead to the formation of condensate and pipeline liquids and review of the available data..

Formation of Condensate and Pipeline Liquids

Pipeline liquids¹¹ are made of condensate and oil and/or lubricants from mechanical operations. Natural gas condensate is generated from the condensation of heavier hydrocarbons that are present in the gas stream primarily as a result of the lowering of temperature.¹² Liquids condense out of the gas stream wherever the pressure and temperature conditions are such that both gas and liquid can coexist, as illustrated in Figure 2. Interstate natural gas transmission systems that were constructed prior to the end of the PCB period of use (late 1970s) typically

¹¹ In this paper, pipeline liquids refer to hydrocarbon condensate that drops out by condensation from the natural gas, and oils, greases, and/or lubricants that enter the pipeline from operations and become mixed with the condensate. Pipeline liquids, as discussed/defined herein do not include the water that is also typically present as a liquid in pipelines since PCBs are virtually insoluble in water; thus pipeline water is not discussed further.

¹² This is described in the literature, see for example: White Paper on Liquid Hydrocarbon Drop Out in Natural Gas Infrastructure (LGC+ Liquid Hydrocarbon Drop Out Task Group, February 28, 2005).

operate within a pressure range of approximately 600 to 1,100 psi. Newer pipelines can operate at higher pressures. Temperature of the gas along the pipelines varies and tends to approach the temperature of the ground or the water bodies through which they pass. Temperature increases to 125°F or more at the discharge side of compressor stations occur due to re-pressurization of the gas stream. Consequently, the gas stream typically experiences several heating and cooling cycles as it is transported through the pipelines.¹³

The position of the “gas and liquid region” on a pressure-temperature diagram (the temperature and pressure at which liquid hydrocarbons drop out of the gas stream) is a function of gas composition and is more dependent on temperature than pressure under pipeline operating conditions. This is known as the “dew point curve” and illustrated on Figure 2 for a range of natural gas compositions. As shown on the figure, different gas compositions may or may not generate condensate over different temperature and pressure ranges. Gas Composition A and B, would generate some condensate while Gas Composition C would not. Pipeline segments that do not contain condensate are referred to as “dry” segments.

Small compositional changes of the natural gas shifts the position of the dew point curve, and pipeline operators monitor and continuously measure relevant parameters that allow for the calculation and location of the curve on pressure-temperature diagrams. These parameters are closely monitored because they are important indicators of overall gas quality.

Condensate liquids are low viscosity (less than 1 centipoise), low density (less than 0.7 mg/L) mixtures of light hydrocarbons from the natural gas. The molecular weight of the compounds that form natural gas condensate typically is between 70 to 120 grams per mole. Oils, greases, and residual PCBs have a higher viscosity and higher molecular weight than condensate liquids, but are soluble in condensate. Mixed together, these products and the natural gas condensate form the pipeline liquids.

¹³ For example, every 4 hours for a gas stream traveling at 20 miles per hour between stations located 80 miles apart.

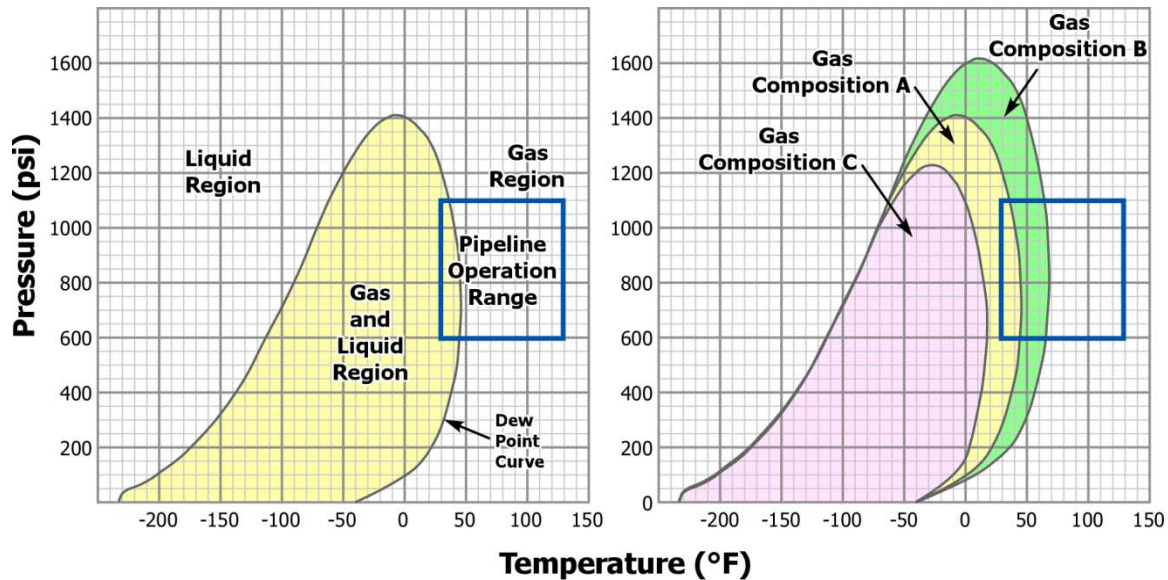


Figure 2: Typical pressure-temperature phase diagram for natural gas

Absent pipeline liquids or condensate, PCBs and other low vapor pressure and high viscosity compounds (i.e., greases, lube oils, etc.) are immobilized by adhering to the interior pipeline walls.

Pipeline Liquids

PCBs become dissolved in pipeline liquids in areas where condensate forms (e.g. certain pressure/temperature conditions), and it accumulates at drips, valve seats, and other low spots along the pipeline. Periodically, these accumulated pipeline liquids are removed and disposed of properly.

PCBs can be mobilized with pipeline liquids when sufficient liquids accumulate in geographic low points as pipeline liquids pool within the pipe. There can be accumulations in low sections of the pipeline to the extent that the pipeline liquids form liquid “slugs” that move to the next geographic low point on the pipeline. Eventually this sporadic process moves the

liquid slug to a liquid removal device (e.g., drips, scrubbers, or separators) where these accumulated pipeline liquids are removed and disposed of properly.

Pipeline companies run devices known as “pigs” through pipeline segments to clean, inspect, and remove incidental liquids in the pipeline. Pigging of lines is a standard part of pipeline maintenance and operations, and is identified in the 1981 CMP program submissions to EPA of some pipeline companies as a PCB removal procedure. The extent of pigging has increased significantly in recent years due to the requirements of the DOT’s Pipeline Integrity Management Program.¹⁴ Under the program, as discussed below, pipelines are required to periodically assess the integrity of their lines. The most efficient and effective way to do this is to run “smart pigs,” which are electronic internal inspection devices that record pipeline conditions, such as pipeline deformations and metal loss.¹⁵ Consequently, INGAA members modified their pipeline systems to allow pigging. Prior to running a smart pig, pipeline companies must run a series of scrubber pigs through the system to clean and remove free liquids and debris to ensure the smart pig sensors make proper contact with the interior surface of the pipe.¹⁶ During cleaning operations, the scrubber pig scrapes the interior of the pipeline walls. In the process, incidental liquids are pushed in front of the pig and mixed with debris, which may contain PCBs. Pipeline liquids act as a solvent to remove PCBs from the pipeline’s internal walls. Pigging is a very effective way to sweep liquids from the pipeline for ultimate disposal. For impacted pipelines, pigging leads to the gradual removal of PCBs from the interior of the pipeline. Pigging operations may not result in the full removal of the PCBs adhering to the pipeline walls and certain segments of the pipelines cannot be pigged due to design conditions (e.g., pipe diameter changes, valve configurations, river crossing designs, etc.). In those

¹⁴ See generally C.F.R. Part 192.

¹⁵ Note, however, that not all pipeline segments are “piggable.” See Pipeline Knowledge & Development, *The Interstate Natural Gas Transmission System: Scale, Physical Complexity and Business Model* (Aug. 2010).

¹⁶ Pipeline Knowledge & Development, *The Interstate Natural Gas Transmission System: Scale, Physical Complexity and Business Model* (Aug. 2010).

segments of pipeline containing PCBs at concentrations at or above 50 ppm, pipeline companies sample the liquids at each pig receiver trap or historical liquid collection point to monitor the PCB levels within the system over time.

PCB Gas in the Vapor Phase

The PCB concentration data collected in the interstate natural gas transmission system also includes analytical results for 207 gas stream samples collected between 1982 and 1997 in systems affected by PCBs. These samples were collected with Florisil tubes according to EPA procedures and guidance.¹⁷ PCBs were never detected in the gas stream of the interstate natural gas transmission system at detection limits as low as 0.1 ug/m.³ The collection of gas samples with Florisil tubes captures PCB vapors as well as any mist or particulates that might be present in the gas stream. This data confirms that PCBs are not detectable as gases in the vapor phase under the physical conditions at which interstate pipeline systems operate.

A theoretical PCB concentration in the vapor phase at equilibrium with the pipeline liquids can be estimated through a mathematical calculation using Raoult's Law and the Ideal Gas Law under conditions that are representative of a typical interstate gas pipeline impacted by PCBs. However, such a calculation would not be considered representative because instantaneous equilibrium between the liquid phase that contains PCBs and the vapor phase that flows above the liquid phase is not reached for the following reason:

- The mathematical calculation assumes instantaneous equilibrium between the liquid phase that contains PCBs and the vapor phase that flows above the liquid phase. In reality, equilibrium is not reached or approached instantaneously and the actual vapor

¹⁷ Validation of a Method to Measure Polychlorinated Biphenyls in Natural Gas Pipelines. EPA-600/4-81-048, June 1981.

phase PCB concentration is therefore much less than the theoretically calculated amount.

- First, the natural gas stream moves through the pipeline typically at 10 to 30 miles per hour (about 15 to 45 ft/s). At a 20 miles per hour gas stream velocity, it would take only 3.3 seconds for the gas to pass over a 100 foot liquid pool. This amount of contact time is not sufficient for PCB concentrations to equilibrate between the gas and liquid phases.
- Second, PCB molecules could volatilize only from the exposed surface of the pipeline liquids. As PCB concentrations become depleted in the liquids close to the surface, the PCBs would have to be replaced by PCB diffusion towards the surface from the interior pipeline liquids. Diffusion is a very slow process. There simply is not sufficient time for equilibrium to be reached between the liquid and gas phases, and for PCBs to diffuse and volatilize into the natural gas stream.

A more representative PCB concentration in the vapor phase could theoretically be calculated through the use of mass transfer coefficients for PCBs in the liquid and gas phases under the pressure and temperature conditions of the pipeline, and using pipeline specific parameters (i.e., pipeline cross sectional area, pipeline liquids pool surface area, pipeline liquids thickness, natural gas velocities). Mass transfer coefficients that would apply to an interstate gas pipeline are not available from the literature and this refined calculation cannot be performed.

Data from the analysis of 207 gas samples are consistent and support the conclusion that PCB gas in the vapor phase in the interstate natural gas transmission system is immeasurable and non-detectable. The transport for PCBs in the natural gas transmission system is controlled by the formation and movement of pipeline liquids; not by PCB gas in the vapor phase.

Section 5

Removal of PCBs from Natural Gas Transmission Systems

Once inside a natural gas transmission pipeline, PCBs mix and blend with liquids (i.e., oils, condensate, lubricants, etc.) that are periodically removed from the pipeline system. Other PCBs gradually diffuse and accumulate into hydrophobic materials (i.e., internal coatings, gaskets, o-rings, greases, sealants, lubricants, etc.), and adhere to various coatings and solid surfaces. Mixing and blending can occur rapidly but diffusion processes are very slow in comparison. The diffusion rate is proportional to the concentration gradient; the higher the concentration gradient, the faster diffusion proceeds. The diffusion of PCBs into hydrophobic materials was therefore greatest during the loading and distribution period when PCB-containing products were actually being used and, therefore when maximum concentration gradients were in place.

The reversal of diffusion to remove PCBs from the hydrophobic materials is slower and becomes gradually slower over time because the concentration gradient that drives the PCB removal becomes gradually smaller. This result implies that the removal of PCBs in hydrophobic materials is expected to be much slower and to last much longer than the loading period.¹⁸

PCB products were commercially available in the United States starting in 1929, before construction of most interstate natural gas transmission pipelines. Due to the widespread usage of lubricants containing PCBs, it is possible that pipelines constructed prior to the 1970's were exposed to PCB-containing parts or products. In the interstate natural gas pipeline systems that used PCB oils, PCBs likely diffused into pipeline materials under maximum concentration gradients.

¹⁸ For example, assuming that the loading period for hydrophobic materials in a pipeline system lasted for 20 years, the time to diffuse the PCBs out from these materials would be much longer than 20 years.

The removal of PCBs from the interstate natural gas transmission systems is limited by the reversal of the loading and distribution processes. The reversal of the loading process started in the 1970's, with the phasing out of PCB products and the removal of PCB-based oils from compressors and other equipment pieces. In practice, the reversal of these processes can be summarized in three categories for simplicity: PCB removal from the draining of equipment; PCB removal from normal pipeline operations; and PCB removal through control measures and targeted clean-ups.

PCB Removal from the Draining of Equipment

In the early 1970s, PCB oils started to be phased out and by the early 1980s, PCB-based oils had been mostly removed from the lubrication system of the natural gas compressors. Removal was achieved by draining, flushing and replacing the PCB oils with non-PCB oils. Draining of large pieces of equipment that contained thousands of gallons of PCB oils resulted in the removal of the large majority, but not all, of the PCBs that existed in the interstate natural gas transmission system.¹⁹

Flushing of PCB-impacted natural gas compressor systems was typically conducted repetitively in the 1980s to remove PCB residuals and meet or maintain the 50 ppm regulatory criterion. Repetitive draining and flushing of equipment of the complexity of lubricating systems removes very little PCB mass, but can decrease PCB concentrations to acceptable levels.²⁰ The rebound in PCB concentrations in a purged lubrication system is due to the slow and gradual, sporadic leaching of PCB residuals in the interior of the equipment. For complex pieces of

¹⁹ PCB-based oils used in centrifugal compressors were manufactured to contain approximately 90 percent PCBs by weight. Draining of 1,000 gallons of PCB oil with a density of 1.4 g/cm³ removes approximately 10,000 pounds of PCBs.

²⁰ Draining of 1,000 gallons of lube oil with a density of 0.9 g/cm³ and a PCB concentration of 50 ppm removes approximately 0.2 pounds of PCBs.

equipment like compressors, repetitive draining and flushing remove the vast majority of the PCB mass but never all of the PCB residuals.

PCB Removal from Normal Pipeline Operations

A large portion of the mass of PCBs that was introduced in the interstate natural gas transmission system was removed during and shortly after the period of PCB use. PCBs were removed through normal operations; in particular through the removal of large volumes of pipeline liquids from liquid collection points along the pipelines. Compressor stations are equipped with filter separators, scrubbers or mainline drips and accumulation tanks that remove pipeline liquids from the gas stream prior to recompression to minimize damage to equipment. Other measures to remove pipeline liquids can include mainline drips downstream of compressor stations or at low points, periodic pig runs to remove pipeline liquids where feasible, and meter station drip pots. PCB concentration in pipeline liquids started to be monitored in the early 1980s with concentrations in the order of several thousand parts per million in some affected pipeline systems (Versar 1984, Table Z1).²¹

PCB Removal through Control Measures and Targeted Clean-up

The primary methods employed by the interstate natural gas transmission industry to reduce the levels of PCBs in the pipeline systems are to remove and properly manage pipeline liquids. As part of the former CMP, natural gas pipeline companies that were impacted by PCBs submitted PCB liquid removal plans to the EPA. After review, these liquid removal plans were approved by EPA. The CMP plans, as well as the “use authorization” provisions of the PCB Mega Rule, required use of engineering controls, among other things, for the purpose of removing PCB liquids from the system.

²¹ Versar, May 2, 1984; Exposure Assessment for Polychlorinated Biphenyls. US EPA Contract No 68-01-6271.

Compressor stations are equipped with engineered measures that include scrubbers and liquid separator units to remove pipeline liquids from the gas stream prior to recompression. Pressure and temperature conditions at these locations are the most advantageous for the formation of natural gas condensate. The presence of pipeline liquids in either reciprocating or centrifugal compressors can cause extensive mechanical damage since liquids are not compressible, so it is an advantageous, operational necessity to remove liquids from the gas stream before compression.

Control measures also include periodic pig runs to remove pipeline liquids where feasible. Interstate natural gas transmission systems affected by PCBs also implemented additional, targeted clean-up measures. Targeted measures can include meter inspections and cleaning, drip flushing, drip removal, cleaning of filter housings, cleaning of valves, cleaning of tanks and other equipment found to contain PCB residuals. Some PCB containing equipment may also have been removed, decontaminated or disposed in accordance with the applicable Mega-Rule requirements and regulations.

The PCB concentration data collected in the interstate natural gas transmission system includes analytical results for 6,106 pipeline liquids samples collected between 1981 and the present. The samples are representative of pipeline liquids collected in accumulator tanks, mainline drips, meter station drip pots, filter separator units, pig receivers, and scrubbers in the interstate natural gas transmission systems that are affected by PCBs. The data is provided in Appendix I and illustrated in Figure 3. In Figure 3, measured PCB concentrations in pipeline liquids are presented on a logarithmic scale: the blue line represents the yearly median PCB concentrations;²² the red line represents the 50 ppm concentration level (current PCB use authorization); and the green line represents the year 1998 (beginning of the Mega Rule period).

²² A yearly median value represents the median PCB concentration value for all measurements for a given year (1981 to present); non-detects are considered at the reported detection limit.

The data set demonstrates or supports the following observations and conclusions on the removal of PCBs from the interstate natural gas transmission systems that are affected by PCBs:

- The impacted transmission pipelines have been monitored starting in the early 1980's to the present for the presence of PCBs in pipeline liquids.
- The 6,106 points data set indicates that the overall PCB concentration in the interstate natural gas transmission system is decreasing over time, having started in the thousands of ppm range in the early 1980's, and decreasing to the tens of ppm range at present. However, the scattered data shows that there are numerous segments and components in the system that still exceed the 50 ppm level.
- PCB concentrations are scattered over about 3 orders of magnitude at all times during the period of record. The scattering represents the range of PCB concentrations that are typically encountered in the transmission system. The scattering is explained by the complexity and scale of the system and the variability of the sampling locations and frequencies.
- The majority of the PCB concentration data points that represent recent years fall below the 50 ppm use authorization level; however, PCB concentrations remain above 50 ppm in a substantial subset of the samples.
- The data does not support that the interstate natural gas transmission system can reduce PCB concentration levels to less than the current regulatory standard of 50 ppm either now or in the foreseeable future.
- The data support that, in areas of the transmission system where PCB concentrations exceed 50 ppm, PCBs are being actively removed from the system and PCB mass is being reduced.
- The shape of the data series indicates that the rate of decreasing concentrations was faster early on and slowed down gradually toward the present (see exponential curve fit on Figure 4 as discussed below). This variation in the rate of decrease reflects the fact that it becomes harder and harder to remove PCBs as the residual PCB mass continues to diminish. This is consistent with the conclusion that the removal of PCBs is controlled and limited by processes that are driven by concentration gradients (i.e., diffusion processes).
- Starting in approximately 2006, with the advent of the PHMSA Pipeline Integrity Management Program, the data indicate a rise in the yearly median PCB concentration levels for the period 2007 to the present. The rise is believed to be

associated with the change in pipeline integrity requirements and the increase of pipeline pigging activity which likely dislodged PCB-containing material from the interior of the pipeline wall. This rise does not represent a reversal in the general trend of PCB removal from the pipeline system.

An analysis was conducted on the 6,106 points pipeline liquids data set shown in Figure 3 to test for the occurrence of a statistically significant trend. Both parametric (ordinary least-squares, OLS) and non-parametric (Mann-Kendall Theil) statistical trend analyses were conducted following the methodology outlined by Helsel and Hirsch (2002).²³ Results show that a decreasing trend is supported by the data set; the decreasing trend is statistically significant at a p value better than 0.01 (i.e., more than 99 percent probability that the trend is real) for both the parametric and non-parametric tests.

²³ Helsel, D.R., and R.M. Hirsch. 2002. *Statistical Methods in Water Resource. Techniques of Water-resources Investigations in the United States Geological Survey, Book 4, Hydrologic Analysis and Interpretation.* U.S. Geological Survey. September.

Section 6

Residual PCBs in the Interstate Natural Gas Pipeline Systems

Today, residual PCBs in the interstate natural gas transmission system represent a very small fraction of the PCBs that ever entered the affected systems. As discussed in the previous section, the great majority of the PCBs that entered the interstate natural gas transmission system were removed during the period of PCB use, the period of PCB phase-out, and the period during which compressors and other pieces of equipment were drained and flushed. Residual PCBs in the natural gas transmission system were evaluated utilizing the available data and through a case study for a single compressor stations and pipeline segment affected by PCBs.

Available Data

Typical concentrations measured in pipeline liquids collected in the early 1980s were reported in the thousands of parts per million (Versar 1984, Table Z-1). By comparison, present concentrations in these same systems have decreased by one or more orders of magnitude down to the tens to a few hundreds of parts per million range, as shown in Figure 3. The yearly median values for the 6,106 points data set shown in Figure 3 (blue line) are below the 50 ppm level (red line), however, numerous PCB concentration values remain above 50 ppm. For example, considering only the recent data available for analysis (2007 to present; 829 samples), approximately 20 percent of the pipeline liquids samples analyzed for PCBs reported concentrations above 50 ppm, 50 percent were in the range 2 to 50 ppm, and 30 percent were reported as non-detects.

The statistically significant decreasing trend for PCB concentrations that was discussed previously for the 6,106 points data set can be represented by the yearly median concentration values, as shown in Figure 3. The yearly median PCB concentrations can be fitted to a simple exponential function, as shown in Figure 4. The exponential fit is reasonable for the data set but does not capture fully the higher decrease in PCB concentrations observed in the early 1980s.

However, the exponential fit is sufficient to support the conclusion that PCBs will remain in the affected interstate natural gas transmission systems at the ppm level for decades to come.

A small amount of PCB residuals remain in certain compressors and drivers that are in use in the interstate natural gas transmission system, even though those pieces of equipment were drained and flushed repetitively to remove PCB oils in the 1970s and 1980s. The PCB concentration in the lubricating oil is periodically measured to monitor the potential rebound in PCB concentrations over time; PCB concentrations in some affected compressors remain in the low ppm range, even after repetitive purging of the oil.

Case Study

A case study of a data set available for a single compressor station in an interstate natural gas transmission system affected by PCBs can serve as an example of the progress made at removing PCBs. The data is illustrated in Figure 5a, b, and c. The data in Figure 5 comes from the analysis of pipeline liquid samples from one source control accumulator tank that served to store pipeline liquids collected at the station over a period of several years (1996 to 2007). Figure 5a represents the measured PCB concentrations over time and the yearly median concentration values connected by a line as an overlay. Figure 5b shows the yearly volume of pipeline liquids collected in the accumulator tank. Figure 5c the calculated yearly PCB mass removal rate at the compressor station. The yearly mass removal rate is calculated by multiplying the median concentrations (Figure 5a) by the volume of pipeline liquids (Figure 5b). The case study demonstrates or supports the following:

- PCB concentrations in pipeline liquids have been gradually decreasing starting from the hundreds of ppm level in 1996-97, down to the tens of ppm level in 2006-07; a decrease of about one order of magnitude.
- The recent values for PCB concentrations are between 10 and 50 ppm.
- The yearly volume of pipeline liquid collected varies from year to year but appears to generally decrease over time.

- The mass of PCBs removed annually has decreased gradually or exponentially over time from approximately 1 kilogram per year (2 lbs/yr) in 1996-97, down to a few grams per year (i.e. 0.1 lbs/yr) in 2005-07.

The yearly PCB mass removal rate is reasonably well fit by a first order exponential function (Figure 5c), indicating that the removal of PCBs from the pipeline segment is controlled by processes that depend on concentration gradients (i.e. diffusion processes). By integration to infinity of the exponential function fitted to the rate of PCB mass removal, one can estimate the mass of PCBs that remains to be removed from the system represented by the compressor station in the case study. The estimated mass of PCBs that remains to be removed is in the order of a few tens of kilograms at the case study's compressor station.

Results from the case study are similar to the results for the 6,106 measurement data set that represent the entirety of the affected transmission systems and support the same conclusions as to the removal of PCBs from the interstate natural gas transmission systems: progress is substantial, but it is slow and gradual, as it becomes harder and harder to remove smaller and smaller amounts of PCBs from the systems. It is also important to notice that the concentration of PCBs in pipeline liquids at the case study compressor station remains close to the 50 ppm use authorization level. Assuming that PCB concentrations and residual mass will continue to decrease as modeled by an exponential decay, it can be predicted that it will take several decades for concentrations in pipeline liquids to drop below the ppm level at the case study compressor station.

In summary, despite the substantial progress made in the removal of PCBs from the interstate natural gas transmission systems over the past three decades, residual PCBs remain present at the ppm level in the affected transmission systems. PCBs are removed gradually but slowly, and the removal rate decreases as less and less PCBs remain in the systems. This indicates that the removal of PCBs is controlled by processes that are dependent on concentration gradients (i.e., diffusion processes). The data for pipeline liquids PCB concentrations in the overall interstate natural gas transmission systems, and the data for PCB concentrations, volume of recovered

pipeline liquids and the calculated mass removal for the case study at the compressor station scale are all consistent and support these conclusions and interpretation.

Section 7

Existing Technologies Cannot Remove all PCBs from Natural Gas Pipelines

PCBs are being removed from the interstate natural gas transmission systems through the collection of pipeline liquids, control measures, and targeted clean-ups, as discussed above. A trend analysis shows that PCBs are decreasing slowly over time. The data indicate that PCB residuals at concentrations in the tens to hundreds of ppm, or more remain present in portions of the transmission systems.

The removal of PCBs from the interstate natural gas transmission systems cannot be accelerated at will, absent employing the extreme scenario of system replacement. The interstate transmission system is very complex at the scale of relevance to PCB removal. Under these circumstances, it is expected that the removal of PCBs from the interstate natural gas transmission system would be gradual and slow. Ultimately, diffusion processes limit the rate of removal; these types of processes cannot be substantially accelerated in the interstate natural gas transmission system (i.e., affected systems cannot be heated to high temperatures to accelerate diffusion into pipeline liquids).

Several technologies have been proposed to remove PCBs from affected interstate natural gas transmission systems, among those are solvent flushing and surfactant washing technologies. These technologies have been considered by some interstate pipeline operators and some pilot testing has been conducted. The results of this testing suggest that certain solvents and surfactants can be effective at cleaning impacted parts and/or pipes, but none of these technologies can remove all of the PCBs from an actual pipeline system that includes connecting seals, drips, coatings, and the intricate piping system at compressor stations. Furthermore, these technologies rely on introducing compounds that would not otherwise be present in the pipeline

environment, which can create major problems for operations, including concerns about corrosion, material compatibility, safety, and air emissions from volatile solvents.

Solvent flushing and surfactant washing technologies do not represent a substantial improvement upon the technologies that are presently used and implemented by some interstate natural gas transmission systems. Solvent flushing or surfactant washing is similar to the pigging operations that are being conducted to remove pipeline liquids from the systems. Pipeline liquids are mostly made of condensate from the gas stream, and condensate is a solvent in which PCBs are soluble.

Assuming, for the purpose of discussion only, that solvent flushing and/or surfactant washing technologies could substantially accelerate the removal of PCBs from the interstate natural gas transmission systems, attempting such a clean-up would be a major undertaking with uncertain results and large associated service interruptions. These technologies cannot remove all of the PCBs from the interstate natural gas transmission system to the point where PCBs would no longer be detectable; nor can these technologies be applied to all portions of the pipeline system. Specifically these technologies cannot be applied at compressors stations due to the complexity of piping, valves, rotating equipment and other parts and pieces at these facilities. Importantly, there can be no warranty that the PCBs remaining in the systems after such a clean-up would meet any specified concentration criterion. The clean-up process would include large volumes of waste liquids that would have to be disposed of as PCB waste and could involve natural gas service interruptions. Furthermore, these solvents and surfactant products may not be compatible with gasket materials and seals and could impact the integrity of gasketed flanges and connections resulting in gas leaks and risks of explosions, causing a public safety concern. The solvent and surfactant products introduced in the transmission pipelines would not all be removed during clean-up and some would remain in the systems. Those product residuals could volatilize to the gas stream (solvents) and/or decompose (surfactants) and produce corrosive by-products inside the transmission pipelines.

The main technology actively being applied for the removal of PCBs in the interstate natural gas transmission system consists of the inherent and repetitive washing and flushing of pipeline

segments with pipeline liquids. This technology does not add any chemicals or products that would not otherwise be present inside the transmission systems under normal operations. This technology works and continues to gradually remove PCB mass. Pipeline liquids (pipeline condensate and other liquids in the pipelines) are solvents for PCBs. These liquids are periodically pushed through pipeline segments and recovered for disposal. The frequency of periodic pig runs depends upon PHMSA pipeline integrity requirements, pipeline operating conditions and gas scheduling requirements (i.e., customer nominations). The normal formation and removal of pipeline liquids removes PCB residuals and does not introduce chemicals into the pipeline system. This process is conducted with minimal disturbance to pipeline operations thereby minimizing customer disruptions. The removal of pipeline liquids is required for safe operation of pipeline compressor stations and is routinely conducted by trained personnel. These operations are conducted in compliance with applicable laws and regulations to insure worker safety and the proper disposal of PCB waste.

In summary, there are no available, demonstrated and reliable technologies that could perform substantially better than what is being presently done by the interstate natural gas transmission system. PCB residuals remain in the interstate natural gas transmission system and the current technologies that are employed to control and remove PCBs remain the most reliable and effective methods for managing liquids and reduce PCB levels over time.

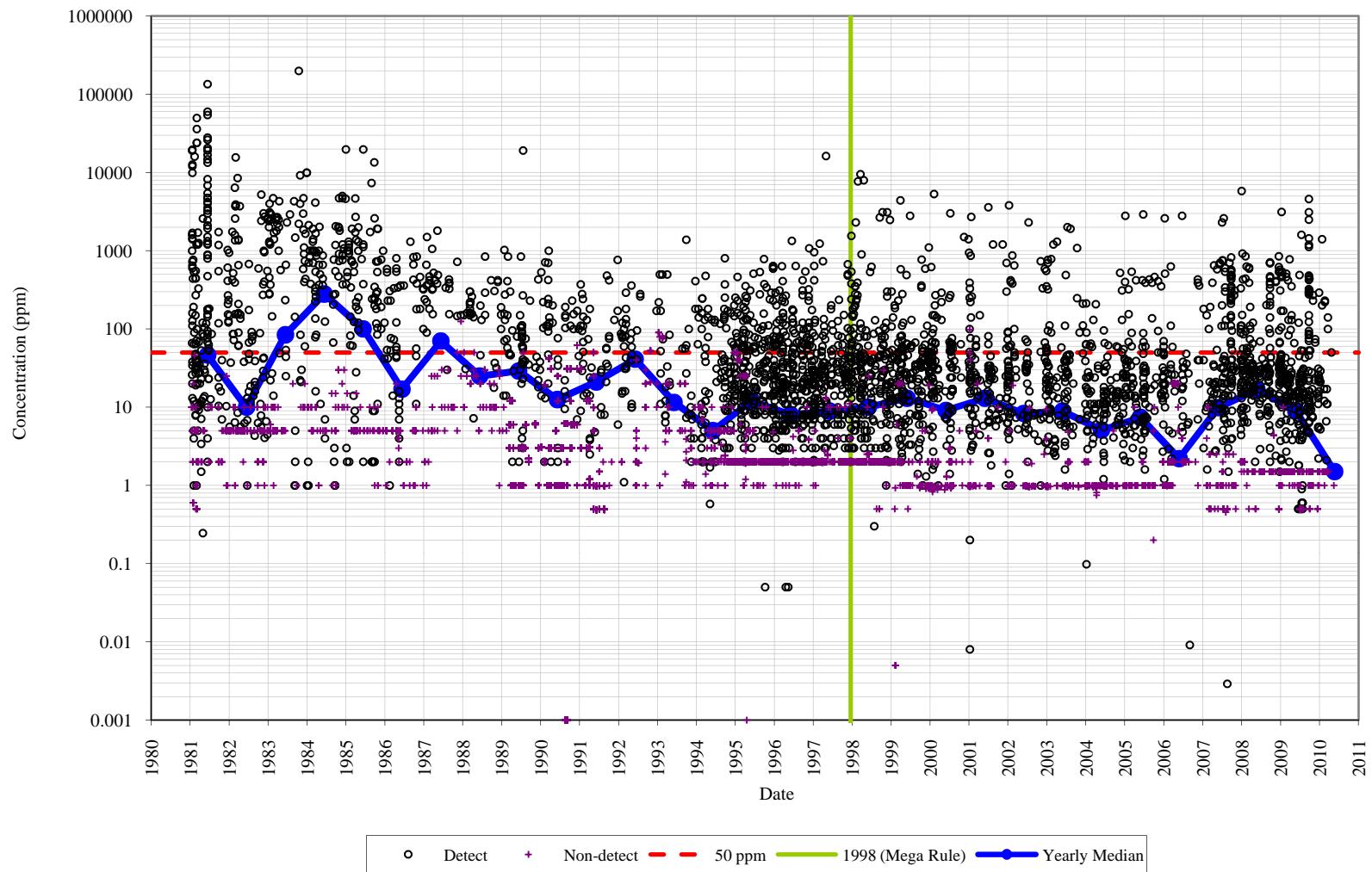


Figure 3 PCB Concentrations in Pipeline Liquid Samples

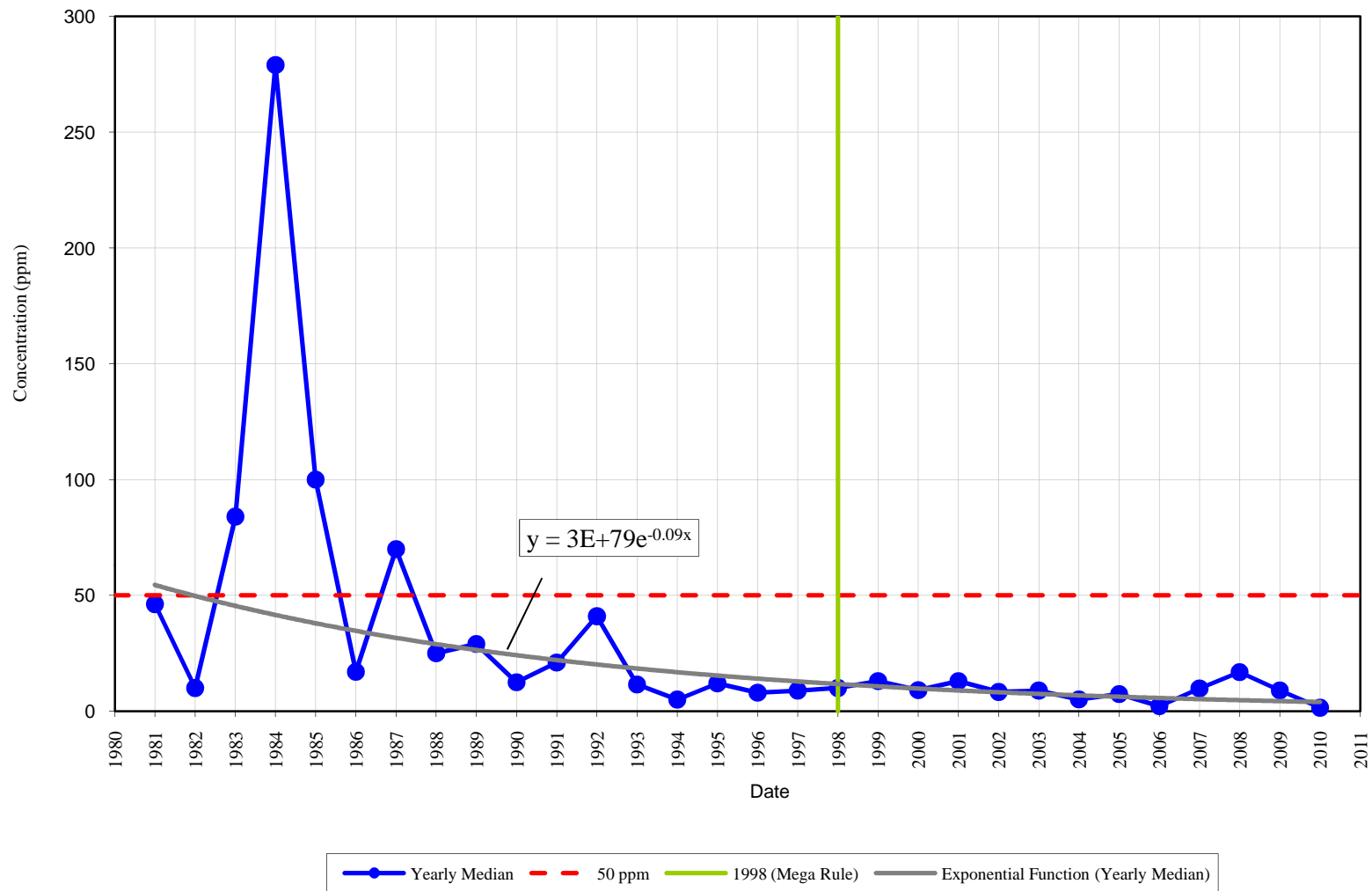


Figure 4 Yearly Median of PCB Concentrations in Pipeline Liquid Samples

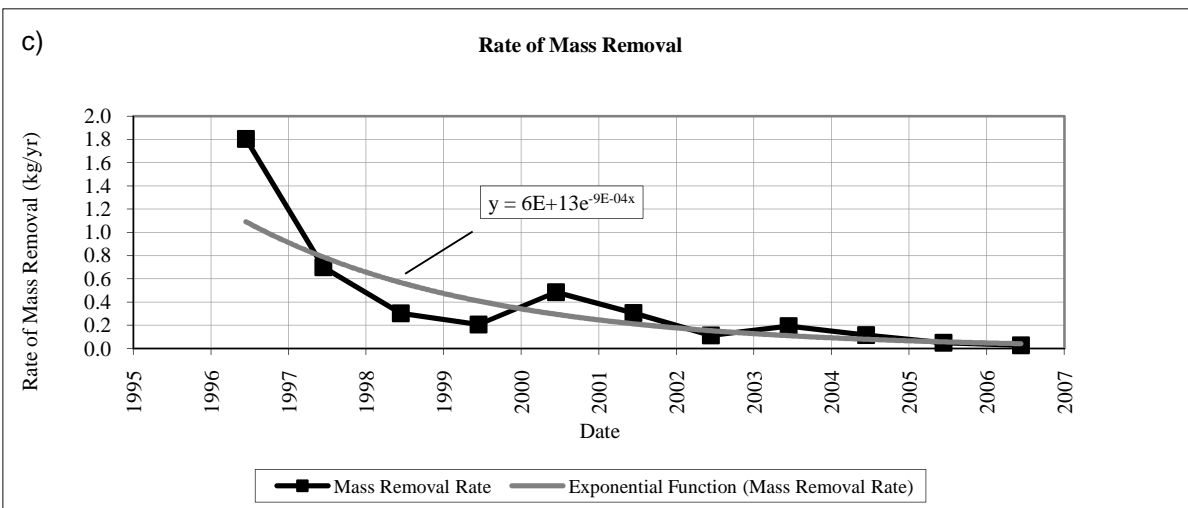
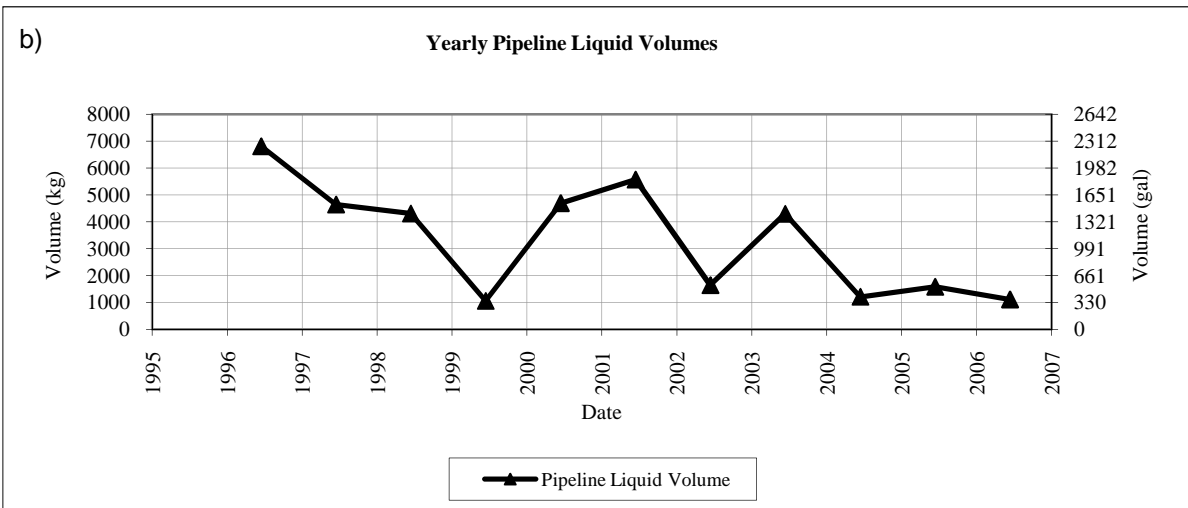
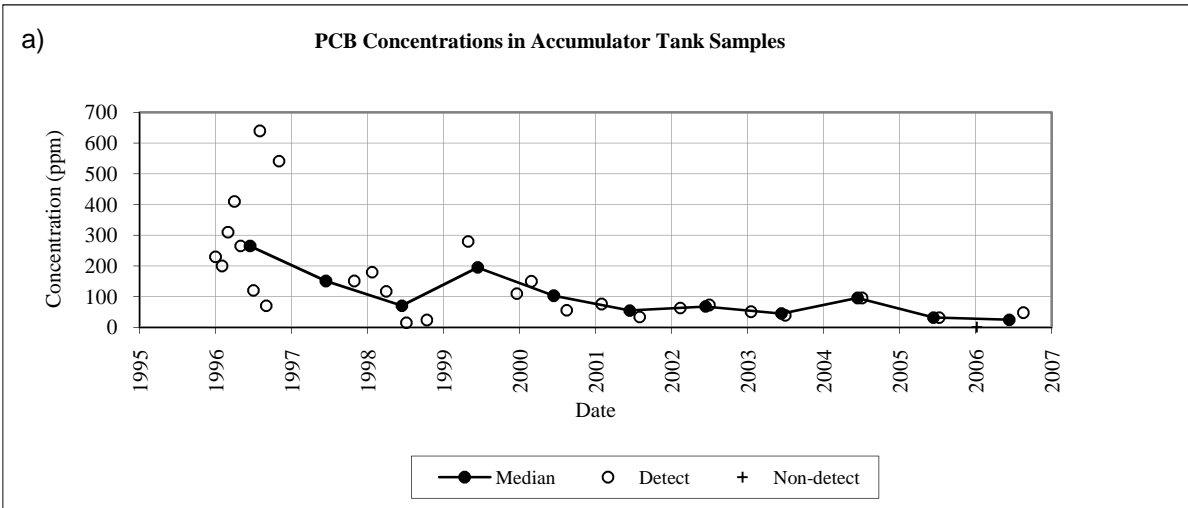


Figure 5 Case Study

Appendix I

PCB Concentrations in Pipeline Liquid Samples

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
1/12/1981	10	Non-detect
4/23/1982	5.59	Detect
6/21/1984	4	Detect
5/12/1987	380	Detect
7/25/1989	1	Non-detect
6/18/1990	12	Non-detect
6/17/1991	0.97	Non-detect
6/30/1994	2	Detect
6/1/1995	54	Detect
5/15/1996	11	Detect
5/5/1997	24	Detect
6/1/1998	80	Detect
9/27/1999	23	Detect
7/23/2001	6.4	Detect
1/30/2004	0.99	Non-detect
1/19/2006	50	Detect
2/5/2008	430	Detect
7/6/2009	1	Non-detect
1/19/1981	66	Detect
5/10/1982	5	Non-detect
6/21/1984	4	Detect
5/13/1987	25	Non-detect
7/25/1989	3	Non-detect
6/18/1990	12	Non-detect
6/17/1991	0.97	Non-detect
6/30/1994	2	Non-detect
6/1/1995	2	Non-detect
5/16/1996	22	Detect
5/6/1997	2	Non-detect
6/1/1998	2.5	Non-detect
9/28/1999	2.3	Detect
7/23/2001	0.98	Non-detect
1/30/2004	9	Detect
1/19/2006	70	Detect
2/5/2008	30	Detect
7/6/2009	13.1	Detect
1/19/1981	1000	Detect
5/10/1982	5	Non-detect
6/21/1984	7	Detect
5/13/1987	1800	Detect
7/25/1989	1	Non-detect
6/18/1990	12	Non-detect
6/17/1991	0.49	Non-detect
6/30/1994	3	Non-detect
6/6/1995	2	Non-detect
5/16/1996	2	Non-detect
5/6/1997	2	Non-detect
6/2/1998	5	Detect
9/30/1999	12	Detect
7/25/2001	8.4	Detect
2/2/2004	4.9	Detect
1/20/2006	1	Non-detect
2/6/2008	85.2	Detect
7/6/2009	1	Non-detect
1/19/1981	1600	Detect
5/10/1982	5	Non-detect
6/21/1984	7	Detect
5/13/1987	1800	Detect
7/25/1989	1	Non-detect
6/18/1990	3	Detect
6/17/1991	0.49	Non-detect
7/1/1994	121	Detect
6/8/1995	2	Non-detect
5/17/1996	2	Non-detect
5/6/1997	2	Non-detect
6/3/1998	4	Detect
9/30/1999	16	Detect
7/25/2001	0.99	Non-detect
2/2/2004	0.99	Non-detect
1/20/2006	1	Non-detect
2/6/2008	26	Detect
7/6/2009	6.6	Detect
1/19/1981	19000	Detect
5/15/1982	2	Non-detect
7/3/1984	5	Non-detect
5/15/1987	5	Non-detect
7/25/1989	1	Non-detect
7/10/1990	1	Non-detect
6/17/1991	0.49	Non-detect
7/1/1994	130	Detect
6/15/1995	3	Detect
5/17/1996	2	Non-detect
5/7/1997	2	Non-detect
6/3/1998	8	Detect
10/1/1999	11	Detect
7/29/2001	25	Detect

Date	PCBs (ppm)	Flag
3/2/1981	2	Non-detect
11/29/1982	10	Non-detect
1/31/1985	1300	Detect
9/16/1988	20	Non-detect
11/20/1989	6.2	Non-detect
9/13/1990	1	Non-detect
2/14/1992	83	Detect
10/31/1994	9	Detect
10/2/1995	108	Detect
9/2/1996	18	Detect
10/1/1997	2	Non-detect
10/13/1998	6	Detect
1/31/2000	0.96	Non-detect
2/4/2002	59	Detect
7/13/2004	11	Detect
7/18/2006	2	Non-detect
7/10/2008	25	Detect
8/17/2009	15.6	Detect
3/2/1981	5	Non-detect
11/29/1982	10	Non-detect
1/31/1985	1000	Detect
9/19/1988	10	Non-detect
12/1/1989	44	Detect
9/13/1990	2	Non-detect
2/14/1992	77	Detect
11/1/1994	170	Detect
10/3/1995	5	Detect
9/3/1996	101	Detect
10/2/1997	14	Detect
10/13/1998	3	Detect
2/1/2000	38	Detect
2/4/2002	59	Detect
7/13/2004	0.99	Non-detect
7/18/2006	2	Non-detect
7/10/2008	30	Detect
8/17/2009	1	Detect
3/2/1981	5	Non-detect
11/29/1982	402	Detect
1/31/1985	1000	Detect
9/19/1988	10	Non-detect
12/18/1989	1	Non-detect
9/15/1990	0.001	Non-detect
2/14/1992	77	Detect
11/1/1994	5	Non-detect
10/3/1995	2	Non-detect
9/3/1996	2	Non-detect
10/2/1997	6	Detect
10/14/1998	24	Detect
2/1/2000	29	Detect
2/4/2002	5	Non-detect
7/14/2004	66	Detect
7/19/2006	7.6	Detect
7/10/2008	27	Detect
8/17/2009	4.1	Detect
3/2/1981	5	Non-detect
11/29/1982	5	Non-detect
1/31/1985	1100	Detect
9/28/1988	10	Non-detect
12/18/1989	1	Non-detect
9/15/1990	0.001	Non-detect
2/14/1992	16	Detect
11/3/1994	2	Non-detect
10/3/1995	5	Detect
9/4/1996	2	Non-detect
10/4/1997	2	Non-detect
10/14/1998	2	Non-detect
2/1/2000	35	Detect
2/6/2002	59	Detect
7/14/2004	28	Detect
7/19/2006	32	Detect
7/14/2008	69	Detect
8/18/2009	24	Detect
3/2/1981	71	Detect
11/29/1982	10	Non-detect
1/31/1985	1300	Detect
10/1/1988	420	Detect
12/18/1989	1	Non-detect
9/15/1990	0.001	Non-detect
2/14/1992	16	Detect
11/3/1994	2	Non-detect
10/3/1995	37	Detect
9/17/1996	55	Detect
10/6/1997	8	Detect
10/15/1998	2	Non-detect
2/1/2000	44	Detect
2/13/2002	420	Detect

Date	PCBs (ppm)	Flag
6/15/1981	3500	Detect
4/15/1983	2000	Detect
9/16/1985	9	Detect
3/29/1989	12	Non-detect
2/19/1990	2	Non-detect
11/1/1990	230	Detect
2/8/1993	27	Detect
1/23/1995	26	Detect
1/3/1996	2	Non-detect
12/2/1996	260	Detect
12/29/1997	44	Detect
1/14/1999	20	Detect
7/6/2000	8.3	Detect
12/16/2002	7.3	Detect
1/21/2005	25	Detect
6/14/2007	0.5	Non-detect
12/10/2008	410	Detect
11/11/2009	1.5	Non-detect
6/15/1981	4725	Detect
4/15/1983	2000	Detect
9/26/1985	5	Non-detect
4/1/1989	46	Detect
2/19/1990	2	Non-detect
11/14/1990	154	Detect
2/8/1993	11	Detect
1/25/1995	45	Detect
1/3/1996	640	Detect
12/2/1996	230	Detect
12/29/1997	2	Detect
1/15/1999	13	Detect
7/11/2000	10	Detect
12/23/2002	2.5	Non-detect
1/24/2005	1	Non-detect
6/15/2007	1	Non-detect
12/10/2008	400	Detect
11/12/2009	1	Non-detect
6/15/1981	19250	Detect
4/15/1983	2000	Detect
9/26/1985	10	Non-detect
4/7/1989	1	Non-detect
2/19/1990	2	Non-detect
11/14/1990	100	Detect
2/25/1993	75.4	Non-detect
1/25/1995	50	Non-detect
1/3/1996	614	Detect
12/3/1996	2	Non-detect
12/29/1997	96	Detect
1/18/1999	2	Non-detect
7/13/2000	2	Non-detect
12/30/2002	67	Detect
1/24/2005	5.9	Detect
6/27/2007	9.5	Detect
12/10/2008	2.4	Detect
11/15/2009	7.7	Detect
6/15/1981	26250	Detect
4/15/1983	2000	Detect
9/27/1985	13445	Detect
4/7/1989	1	Non-detect
2/19/1990	2	Non-detect
11/20/1990	6	Non-detect
2/25/1993	496	Detect
1/25/1995	50	Non-detect
1/3/1996	590	Detect
12/3/1996	2	Non-detect
12/29/1997	4	Non-detect
1/19/1999	2	Non-detect
7/15/2000	250	Detect
12/30/2002	590	Detect
1/24/2005	1	Non-detect
6/28/2007	11	Detect
1/6/2009	35	Detect
11/16/2009	17	Detect
6/15/1981	875	Detect
4/18/1983	4300	Detect
9/30/1985	250	Detect
4/7/1989	1	Non-detect
2/19/1990	2	Non-detect
11/20/1990	6	Non-detect
2/25/1993	75.4	Non-detect
1/25/1995	50	Non-detect
1/4/1996	30	Detect
12/3/1996	105.5	Detect
12/31/1997	2	Non-detect
1/19/1999	41	Detect
7/17/2000	68	Detect
12/30/2002	42	Detect

Date	PCBs (ppm)	Flag
1/6/1982	5	Non-detect
1/17/1984	1	Detect
5/14/1986	4	Non-detect
6/19/1989	3	Non-detect
4/16/1990	3	Non-detect
3/18/1991	12	Non-detect
1/31/1994	10	Non-detect
4/3/1995	2	Non-detect
3/19/1996	3	Detect
2/5/1997	29	Detect
3/10/1998	7685	Detect
4/26/1999	55	Detect
1/23/2001	21	Detect
7/7/2003	3.6	Detect
7/13/2005	32	Detect
10/15/2007	110	Detect
3/8/2009	1.5	Non-detect
4/13/2010	1.5	Non-detect
1/6/1982	5	Non-detect
1/20/1984	10	Non-detect
5/19/1986	2	Detect
6/19/1989	3	Non-detect
4/16/1990	3	Non-detect
3/18/1991	12	Non-detect
1/31/1994	10	Non-detect
4/4/1995	14	Detect
3/21/1996	2	Non-detect
2/5/1997	8	Detect
3/16/1998	8	Detect
4/26/1999	35	Detect
1/23/2001	5	Detect
7/7/2003	1	Non-detect
7/13/2005	7.4	Detect
10/15/2007	140	Detect
3/9/2009	43	Detect
4/14/2010	1.5	Non-detect
1/7/1982	5.6	Detect
1/20/1984	703	Detect
5/19/1986	2	Non-detect
6/19/1989	3	Non-detect
4/16/1990	31	Non-detect
3/18/1991	12	Non-detect
1/31/1994	10	Non-detect
4/4/1995	17	Detect
3/22/1996	2	Non-detect
2/5/1997	2	Non-detect
3/18/1998	78	Detect
4/27/1999	2.6	Detect
1/23/2001	0.99	Non-detect
7/7/2003	110	Detect
7/14/2005	1	Non-detect
10/16/2007	3.9	Detect
3/10/2009	12	Detect
4/18/2010	1.5	Non-detect
1/12/1982	5	Non-detect
1/20/1984	2120	Detect
5/19/1986	4	Detect
6/19/1989	3	Non-detect
4/16/1990	31	Non-detect
3/18/1991	12	Non-detect
1/31/1994	2	Non-detect
4/5/1995	21	Detect
3/25/1996	632	Detect
2/6/1997	1	Non-detect
3/18/1998	58	Detect
4/27/1999	2	Non-detect
1/23/2001	0.96	Non-detect
7/8/2003	5.6	Detect
7/14/2005	16	Detect
10/16/2007	33	Detect
3/11/2009	22	Detect
5/17/2010	50	Detect
1/15/1982	5	Non-detect
2/1/1984	840	Detect
5/19/1986	4	Detect
6/19/1989	3	Non-detect
4/16/1990	31	Non-detect
3/18/1991	12	Non-detect
1/31/1994	10	Non-detect
4/5/1995	55	Detect
3/28/1996	228	Detect
2/6/1997	3	Detect
3/19/1998	2	Non-detect
4/28/1999	71	Detect
1/24/2001	0.99	Non-detect
7/8/2003	8.9	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
2/3/2004	0.99	Non-detect
1/23/2006	16	Detect
2/7/2008	29	Detect
7/9/2009	1.5	Non-detect
1/19/1981	5	Non-detect
5/21/1982	38	Detect
8/24/1984	5	Non-detect
5/18/1987	488	Detect
7/25/1989	3	Non-detect
7/10/1990	1	Non-detect
6/17/1991	0.49	Non-detect
7/1/1994	5	Non-detect
6/20/1995	2	Non-detect
5/20/1996	2	Non-detect
5/8/1997	9	Detect
6/4/1998	41	Detect
10/4/1999	10	Detect
7/30/2001	15	Detect
2/3/2004	0.99	Non-detect
1/23/2006	46	Detect
2/11/2008	7.4	Detect
7/9/2009	1.5	Non-detect
1/19/1981	26	Detect
5/24/1982	10	Non-detect
8/24/1984	15	Non-detect
5/18/1987	488	Detect
7/25/1989	23	Detect
7/10/1990	1	Non-detect
6/17/1991	0.49	Non-detect
7/1/1994	5	Non-detect
6/21/1995	10	Detect
5/21/1996	32	Detect
5/12/1997	3	Detect
6/8/1998	10	Non-detect
10/4/1999	9.8	Detect
7/30/2001	0.98	Non-detect
2/3/2004	17	Detect
1/24/2006	0.0005	Non-detect
2/11/2008	10	Detect
7/12/2009	1.5	Non-detect
1/21/1981	34.1	Detect
5/24/1982	5	Non-detect
9/1/1984	1	Non-detect
6/22/1987	30	Non-detect
7/28/1989	19000	Detect
7/10/1990	1	Non-detect
6/17/1991	0.98	Non-detect
7/11/1994	3.8	Detect
6/22/1995	2	Non-detect
5/22/1996	67	Detect
5/13/1997	16141	Detect
6/15/1998	61	Detect
10/5/1999	6	Detect
7/31/2001	2.6	Detect
2/3/2004	16	Detect
1/25/2006	29	Detect
2/12/2008	15	Detect
7/12/2009	1.5	Non-detect
1/21/1981	38	Detect
5/24/1982	5	Non-detect
9/6/1984	67	Detect
6/22/1987	10	Non-detect
7/28/1989	3	Non-detect
7/10/1990	1	Non-detect
6/17/1991	0.98	Non-detect
7/11/1994	2	Detect
6/28/1995	5	Non-detect
5/23/1996	2	Non-detect
5/13/1997	2	Non-detect
6/18/1998	2.5	Non-detect
10/5/1999	2.9	Detect
7/31/2001	24	Detect
2/3/2004	5.1	Detect
1/26/2006	1	Non-detect
2/13/2008	19	Detect
7/13/2009	120	Detect
1/21/1981	10	Non-detect
5/24/1982	5	Non-detect
9/6/1984	205	Detect
7/22/1987	10	Non-detect
7/28/1989	3	Non-detect
7/10/1990	1	Non-detect
6/17/1991	0.49	Non-detect
7/11/1994	3.8	Detect
6/28/1995	5	Non-detect
5/23/1996	2	Non-detect

Date	PCBs (ppm)	Flag
7/14/2004	14	Detect
7/20/2006	18	Detect
7/14/2008	23.3	Detect
8/19/2009	1.5	Non-detect
3/3/1981	39	Detect
11/30/1982	960	Detect
1/31/1985	1000	Detect
10/6/1988	5	Non-detect
12/18/1989	1	Non-detect
9/15/1990	0.001	Non-detect
2/14/1992	16	Detect
11/3/1994	2	Non-detect
10/5/1995	10	Detect
9/17/1996	2	Non-detect
10/6/1997	6	Detect
10/19/1998	73	Detect
2/1/2000	33	Detect
2/13/2002	400	Detect
7/16/2004	1	Non-detect
7/20/2006	38	Detect
7/14/2008	12	Detect
8/24/2009	0.5	Non-detect
3/5/1981	0.5	Non-detect
11/30/1982	960	Detect
1/31/1985	1000	Detect
10/17/1988	10	Non-detect
12/18/1989	1	Non-detect
9/15/1990	0.001	Non-detect
2/14/1992	16	Detect
11/7/1994	10	Detect
10/5/1995	21	Detect
9/17/1996	2	Non-detect
10/6/1997	2	Non-detect
10/19/1998	2	Non-detect
2/1/2000	2	Non-detect
2/14/2002	63	Detect
7/19/2004	9.3	Detect
7/24/2006	22	Detect
7/14/2008	2.9	Detect
8/24/2009	0.5	Non-detect
3/5/1981	0.5	Non-detect
12/1/1982	1	Non-detect
1/31/1985	1100	Detect
10/26/1988	17.8	Detect
12/18/1989	1	Non-detect
9/15/1990	0.001	Non-detect
2/14/1992	16	Detect
11/9/1994	2	Non-detect
10/5/1995	157	Detect
9/20/1996	2	Non-detect
10/6/1997	49	Detect
10/19/1998	2	Non-detect
2/1/2000	15	Detect
2/19/2002	1	Detect
7/19/2004	0.98	Non-detect
7/24/2006	22	Detect
7/15/2008	19	Detect
8/24/2009	0.5	Non-detect
3/5/1981	0.5	Non-detect
12/1/1982	2725	Detect
1/31/1985	1300	Detect
10/28/1988	20	Non-detect
12/18/1989	1	Non-detect
9/15/1990	0.001	Non-detect
2/14/1992	16	Detect
11/11/1994	2	Non-detect
10/6/1995	2	Non-detect
9/25/1996	4	Detect
10/7/1997	79	Detect
10/19/1998	81	Detect
2/1/2000	14	Detect
2/19/2002	1	Detect
7/20/2004	36	Detect
7/24/2006	22	Detect
7/15/2008	1.5	Non-detect
8/24/2009	15.6	Detect
3/5/1981	1	Non-detect
12/2/1982	4.05	Detect
1/31/1985	1000	Detect
11/1/1988	305	Detect
12/18/1989	1	Non-detect
9/16/1990	31	Non-detect
3/1/1992	100	Detect
11/14/1994	28	Detect
10/9/1995	2	Non-detect
9/26/1996	46	Detect

Date	PCBs (ppm)	Flag
1/25/2005	2800	Detect
6/28/2007	670	Detect
1/6/2009	0.5	Non-detect
11/18/2009	1.5	Non-detect
6/15/1981	6825	Detect
4/18/1983	4300	Detect
9/30/1985	2588	Detect
4/7/1989	1	Non-detect
2/19/1990	2	Non-detect
11/20/1990	6	Non-detect
2/25/1993	79	Non-detect
1/25/1995	50	Non-detect
1/4/1996	5.5	Detect
12/3/1996	21	Detect
1/2/1998	2	Non-detect
1/20/1999	107	Detect
7/17/2000	3	Non-detect
1/7/2003	3.5	Detect
1/26/2005	4.5	Detect
7/2/2007	670	Detect
1/6/2009	620	Detect
11/19/2009	7.4	Detect
6/15/1981	1225	Detect
4/18/1983	4300	Detect
9/30/1985	193	Detect
4/7/1989	1	Non-detect
2/19/1990	13	Detect
11/20/1990	6	Non-detect
2/25/1993	79	Non-detect
1/25/1995	50	Non-detect
1/4/1996	9	Detect
12/3/1996	7.9	Detect
1/5/1998	65	Detect
1/21/1999	300	Detect
7/18/2000	0.98	Non-detect
1/9/2003	0.97	Non-detect
1/26/2005	14	Detect
7/2/2007	700	Detect
1/6/2009	540	Detect
11/20/2009	1	Non-detect
6/15/1981	10	Detect
4/18/1983	4300	Detect
9/30/1985	237	Detect
4/7/1989	1	Non-detect
3/1/1990	110	Detect
11/20/1990	6	Non-detect
2/25/1993	496	Detect
1/25/1995	50	Non-detect
1/4/1996	14	Detect
12/3/1996	3.9	Non-detect
1/5/1998	42	Detect
1/22/1999	2	Non-detect
7/18/2000	2.9	Non-detect
1/10/2003	14	Detect
1/31/2005	18	Detect
7/6/2007	1	Non-detect
1/6/2009	850	Detect
11/22/2009	1.5	Non-detect
6/15/1981	4025	Detect
4/21/1983	49	Detect
9/30/1985	2	Detect
4/7/1989	1	Non-detect
3/13/1990	1	Non-detect
11/20/1990	6	Non-detect
3/1/1993	74	Detect
1/31/1995	2	Non-detect
1/4/1996	2	Non-detect
12/3/1996	3.8	Non-detect
1/5/1998	2	Non-detect
1/24/1999	18	Detect
7/19/2000	35	Detect
1/13/2003	57	Detect
1/31/2005	0.99	Non-detect
7/12/2007	31.7	Detect
1/7/2009	0.5	Non-detect
11/23/2009	270	Detect
6/15/1981	4200	Detect
4/21/1983	49	Detect
9/30/1985	2	Detect
4/17/1989	96	Detect
3/13/1990	1	Non-detect
11/20/1990	6	Non-detect
3/1/1993	74	Detect
1/31/1995	79	Detect
1/4/1996	8	Detect
12/4/1996	2	Non-detect

Date	PCBs (ppm)	Flag
7/14/2005	68	Detect
10/16/2007	23	Detect
3/11/2009	3.9	Detect
6/8/2010	1	Non-detect
1/17/1982	37	Detect
2/1/1984	1000	Detect
5/19/1986	7	Detect
6/19/1989	1	Non-detect
4/16/1990	31	Non-detect
3/18/1991	12	Non-detect
2/1/1994	140	Detect
4/5/1995	61	Detect
3/29/1996	5	Detect
2/11/1997	15	Detect
3/19/1998	2	Non-detect
4/28/1999	3.1	Detect
1/24/2001	16	Detect
7/8/2003	7.2	Detect
7/15/2005	28	Detect
10/16/2007	439	Detect
3/12/2009	22	Detect
1/20/1982	5	Non-detect
2/7/1984	376	Detect
5/19/1986	9	Detect
6/19/1989	1	Non-detect
4/16/1990	31	Non-detect
3/18/1991	15	Detect
2/17/1994	10	Non-detect
4/5/1995	9	Detect
3/29/1996	33	Detect
2/11/1997	2	Non-detect
3/20/1998	2	Non-detect
4/29/1999	60	Detect
1/25/2001	24	Detect
7/8/2003	1	Non-detect
7/18/2005	20	Detect
10/16/2007	493	Detect
3/14/2009	1.5	Non-detect
2/1/1982	425	Detect
2/14/1984	10	Non-detect
5/19/1986	11	Detect
6/19/1989	1	Non-detect
4/16/1990	31	Non-detect
4/1/1991	73.9	Detect
2/28/1994	6	Detect
4/6/1995	74	Detect
3/31/1996	8	Detect
2/12/1997	2	Non-detect
3/25/1998	2	Non-detect
4/29/1999	6.5	Detect
1/25/2001	0.2	Detect
7/8/2003	32	Detect
7/19/2005	34	Detect
10/16/2007	350	Detect
3/16/2009	1.5	Non-detect
2/3/1982	1740	Detect
2/14/1984	10	Non-detect
5/19/1986	13	Detect
6/28/1989	30	Detect
4/16/1990	31	Non-detect
4/15/1991	3.1	Non-detect
2/28/1994	11	Detect
4/6/1995	17	Detect
4/1/1996	2	Non-detect
2/13/1997	2	Non-detect
3/25/1998	46	Detect
4/29/1999	14	Detect
1/25/2001	0.008	Detect
7/8/2003	1.6	Detect
7/19/2005	14	Detect
10/16/2007	310	Detect
3/16/2009	4.9	Detect
2/8/1982	86	Detect
2/16/1984	5	Non-detect
5/19/1986	16	Detect
6/28/1989	150	Detect
4/16/1990	3	Non-detect
4/15/1991	3.1	Non-detect
2/28/1994	3	Detect
4/6/1995	16	Detect
4/1/1996	61	Detect
2/14/1997	2	Non-detect
3/31/1998	14	Detect
4/29/1999	2.3	Detect
1/25/2001	329.5	Detect
7/8/2003	3.2	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
5/13/1997	2	Non-detect
6/18/1998	2.5	Non-detect
10/6/1999	7.6	Detect
7/31/2001	31	Detect
2/4/2004	7.9	Detect
1/26/2006	1.2	Detect
2/14/2008	19	Detect
7/13/2009	11	Detect
1/21/1981	5	Non-detect
5/27/1982	5	Non-detect
9/6/1984	272	Detect
7/23/1987	5	Non-detect
7/28/1989	3	Non-detect
7/16/1990	3	Non-detect
6/17/1991	0.49	Non-detect
7/11/1994	2	Detect
6/28/1995	5	Non-detect
5/23/1996	0.05	Detect
5/14/1997	2	Non-detect
6/18/1998	2.5	Non-detect
10/6/1999	3.5	Detect
8/1/2001	34	Detect
2/4/2004	2.9	Detect
1/30/2006	94000	Detect
2/14/2008	1.5	Non-detect
7/13/2009	15	Detect
1/21/1981	724	Detect
5/27/1982	6.25	Detect
9/13/1984	767	Detect
8/1/1987	335	Detect
7/28/1989	3	Non-detect
7/16/1990	3	Non-detect
6/17/1991	0.49	Non-detect
7/19/1994	31	Detect
6/28/1995	5	Non-detect
5/23/1996	0.05	Detect
5/14/1997	13	Non-detect
6/18/1998	2.5	Non-detect
10/11/1999	0.96	Non-detect
8/1/2001	31	Detect
2/9/2004	2	Non-detect
1/31/2006	2600	Detect
2/18/2008	2	Non-detect
7/13/2009	1.5	Non-detect
1/21/1981	1400	Detect
6/1/1982	5	Non-detect
9/15/1984	2	Detect
8/13/1987	30	Detect
7/28/1989	3	Non-detect
7/16/1990	3	Non-detect
6/17/1991	0.49	Non-detect
7/20/1994	21	Detect
6/30/1995	8	Detect
6/1/1996	1	Non-detect
5/14/1997	13	Non-detect
6/18/1998	25	Non-detect
10/12/1999	1	Non-detect
8/1/2001	22	Detect
2/10/2004	1	Non-detect
1/31/2006	19	Detect
2/18/2008	6.5	Detect
7/13/2009	1.5	Non-detect
1/21/1981	1430	Detect
6/21/1982	5	Non-detect
9/15/1984	2	Detect
8/24/1987	30	Non-detect
7/28/1989	3	Non-detect
7/16/1990	3	Non-detect
6/17/1991	0.49	Non-detect
7/26/1994	2	Non-detect
6/30/1995	2	Non-detect
6/1/1996	3	Detect
5/15/1997	2	Non-detect
6/22/1998	2	Non-detect
10/12/1999	2	Non-detect
8/2/2001	34	Detect
2/10/2004	2	Non-detect
2/1/2006	14	Detect
2/18/2008	2	Non-detect
7/13/2009	6	Detect
1/21/1981	1689	Detect
6/21/1982	13	Detect
9/17/1984	3	Detect
8/24/1987	10	Non-detect
7/28/1989	50	Non-detect
7/16/1990	3	Non-detect

Date	PCBs (ppm)	Flag
10/8/1997	2	Non-detect
10/20/1998	2	Non-detect
2/1/2000	0.98	Non-detect
2/19/2002	1	Detect
7/21/2004	11	Detect
7/24/2006	2	Non-detect
7/15/2008	7.7	Detect
8/24/2009	52	Detect
3/5/1981	5	Non-detect
12/2/1982	5	Non-detect
1/31/1985	1000	Detect
11/1/1988	10	Non-detect
12/18/1989	1	Non-detect
9/16/1990	31	Non-detect
3/1/1992	1.1	Detect
11/15/1994	38	Detect
10/9/1995	2	Non-detect
9/30/1996	12	Detect
10/8/1997	2	Non-detect
10/20/1998	25	Detect
2/2/2000	50	Detect
2/20/2002	0.99	Non-detect
7/21/2004	0.99	Non-detect
8/1/2006	32	Detect
7/17/2008	16.7	Detect
8/24/2009	5.3	Detect
3/5/1981	5	Non-detect
12/9/1982	10	Non-detect
1/31/1985	1100	Detect
11/1/1988	10	Non-detect
12/18/1989	1	Non-detect
9/16/1990	31	Non-detect
3/1/1992	60	Detect
11/16/1994	2	Non-detect
10/9/1995	782	Detect
10/1/1996	2	Non-detect
10/9/1997	2	Non-detect
10/21/1998	2	Non-detect
2/2/2000	1	Non-detect
2/25/2002	12	Detect
7/26/2004	0.99	Non-detect
8/2/2006	2	Non-detect
7/17/2008	27.2	Detect
8/24/2009	1.5	Non-detect
3/5/1981	5	Non-detect
12/17/1982	6.6	Detect
2/1/1985	1200	Detect
11/1/1988	10	Non-detect
12/18/1989	1	Non-detect
9/16/1990	31	Non-detect
3/10/1992	31	Detect
11/16/1994	2	Non-detect
10/9/1995	14	Detect
10/1/1996	66	Detect
10/13/1997	38	Detect
10/21/1998	2	Non-detect
2/4/2000	9.1	Non-detect
2/26/2002	8.5	Detect
7/26/2004	0.98	Non-detect
8/2/2006	2	Non-detect
7/17/2008	29.2	Detect
8/25/2009	31	Detect
3/6/1981	24000	Detect
12/29/1982	5	Non-detect
2/1/1985	920	Detect
11/1/1988	10	Non-detect
12/18/1989	1	Non-detect
9/16/1990	31	Non-detect
3/12/1992	16	Detect
11/17/1994	3	Detect
10/9/1995	36	Detect
10/1/1996	2	Non-detect
10/13/1997	8	Detect
10/22/1998	2	Non-detect
2/4/2000	68	Detect
2/28/2002	870	Detect
8/2/2004	11	Detect
8/14/2006	2	Non-detect
7/22/2008	1.5	Non-detect
8/25/2009	1.5	Non-detect
3/6/1981	36000	Detect
12/29/1982	553	Detect
2/5/1985	2	Detect
11/1/1988	10	Non-detect
12/18/1989	1	Non-detect
9/16/1990	31	Non-detect

Date	PCBs (ppm)	Flag
1/5/1998	5.4	Detect
1/26/1999	54	Detect
7/20/2000	2/1	Detect
1/13/2003	22	Detect
1/31/2005	0.99	Non-detect
7/17/2007	109	Detect
1/7/2009	0.5	Non-detect
11/23/2009	230	Detect
6/15/1981	2	Detect
5/2/1983	563	Detect
9/30/1985	345	Detect
4/17/1989	2	Detect
3/13/1990	1	Non-detect
12/17/1990	170	Detect
3/25/1993	18	Detect
2/1/1995	40	Non-detect
1/4/1996	15	Detect
12/5/1996	2	Non-detect
1/6/1998	1542	Detect
1/28/1999	2	Non-detect
7/20/2000	1.4	Detect
1/13/2003	17	Detect
2/1/2005	26	Detect
7/18/2007	1	Non-detect
1/7/2009	14	Detect
11/25/2009	1	Non-detect
6/15/1981	175	Detect
5/12/1983	5	Non-detect
9/30/1985	9	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	62	Non-detect
3/25/1993	12	Detect
2/1/1995	160	Detect
1/4/1996	23	Detect
12/5/1996	120	Detect
1/6/1998	44	Detect
1/28/1999	2	Non-detect
7/21/2000	2	Non-detect
1/13/2003	9.4	Non-detect
2/1/2005	24	Detect
7/18/2007	20.4	Detect
1/7/2009	0.5	Non-detect
12/8/2009	22	Detect
6/15/1981	4	Detect
5/12/1983	5	Non-detect
10/1/1985	1	Non-detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	62	Non-detect
3/25/1993	7.9	Detect
2/1/1995	230	Detect
1/4/1996	9.1	Detect
12/5/1996	28	Detect
1/6/1998	18	Detect
2/2/1999	27	Detect
7/21/2000	3.9	Detect
1/13/2003	58	Detect
2/6/2005	26	Detect
7/24/2007	1	Non-detect
1/8/2009	96	Detect
12/14/2009	67	Detect
6/15/1981	1204	Detect
5/12/1983	5	Non-detect
10/16/1985	728	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	62	Non-detect
3/25/1993	7.7	Detect
2/1/1995	460	Detect
1/4/1996	4.8	Non-detect
12/5/1996	23	Detect
1/6/1998	2	Non-detect
2/2/1999	13	Detect
7/24/2000	24	Detect
1/13/2003	38	Detect
2/1/2005	13	Detect
7/24/2007	2300	Detect
1/8/2009	31	Detect
12/14/2009	74	Detect
6/15/1981	2100	Detect
5/23/1983	5	Non-detect
10/16/1985	284	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	62	Non-detect

Date	PCBs (ppm)	Flag
7/19/2005	5	Detect
10/16/2007	260	Detect
3/16/2009	6.8	Detect
2/9/1982	516	Detect
2/16/1984	5	Non-detect
5/28/1986	5	Non-detect
7/5/1989	105	Detect
4/16/1990	3	Non-detect
4/15/1991	3.1	Non-detect
3/1/1994	160	Detect
4/7/1995	5	Detect
4/1/1996	3	Detect
2/18/1997	49	Detect
3/31/1998	2	Non-detect
4/29/1999	20	Non-detect
1/25/2001	0.98	Non-detect
7/8/2003	0.99	Non-detect
7/19/2005	17	Detect
10/16/2007	477	Detect
3/17/2009	2.7	Detect
2/9/1982	5	Non-detect
2/23/1984	>500	Detect
5/28/1986	5	Non-detect
7/6/1989	842	Detect
5/1/1990	200	Detect
4/15/1991	3.1	Non-detect
3/1/1994	100	Detect
4/7/1995	2	Non-detect
4/1/1996	2	Non-detect
2/19/1997	24	Detect
3/31/1998	2	Non-detect
4/29/1999	110	Detect
1/29/2001	47	Detect
7/9/2003	12	Detect
7/20/2005	13	Detect
10/16/2007	570	Detect
3/18/2009	14	Detect
2/12/1982	86.4	Detect
2/23/1984	>500	Detect
6/1/1986	360	Detect
7/13/1989	1	Non-detect
5/1/1990	120	Detect
4/15/1991	3.1	Non-detect
3/1/1994	4	Detect
4/9/1995	2	Detect
4/1/1996	17	Detect
2/26/1997	13	Detect
3/31/1998	2	Non-detect
4/30/1999	280	Detect
1/29/2001	0.98	Non-detect
7/9/2003	0.99	Non-detect
7/21/2005	68000	Detect
10/16/2007	537	Detect
3/18/2009	460	Detect
2/12/1982	10	Non-detect
2/23/1984	>500	Detect
6/30/1986	1	Non-detect
7/13/1989	1	Non-detect
5/21/1990	3	Non-detect
4/15/1991	3.1	Non-detect
3/1/1994	7	Non-detect
4/10/1995	37	Detect
4/1/1996	15	Detect
3/4/1997	12	Detect
4/1/1998	43	Detect
5/2/1999	16	Detect
1/29/2001	220	Detect
7/9/2003	41	Detect
7/25/2005	4.7	Detect
10/16/2007	470	Detect
3/18/2009	510	Detect
2/15/1982	5	Non-detect
2/23/1984	>500	Detect
6/30/1986	1	Non-detect
7/13/1989	1	Non-detect
5/21/1990	3	Non-detect
4/15/1991	180	Detect
3/8/1994	2	Detect
4/10/1995	2	Non-detect
4/1/1996	2	Non-detect
3/7/1997	2	Non-detect
4/1/1998	13	Detect
5/3/1999	1	Non-detect
1/29/2001	15	Detect
7/9/2003	21	Detect
7/25/2005	1	Non-detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
6/17/1991	0.98	Non-detect
7/29/1994	5	Non-detect
7/1/1995	120	Detect
6/6/1996	8	Detect
5/15/1997	12	Detect
6/23/1998	2	Non-detect
10/12/1999	2	Non-detect
8/8/2001	45	Detect
2/10/2004	28	Detect
2/1/2006	1	Non-detect
2/19/2008	45	Detect
7/13/2009	1.5	Non-detect
1/21/1981	9900	Detect
6/21/1982	13	Detect
9/20/1984	1	Detect
9/1/1987	430	Detect
8/1/1989	1	Non-detect
7/16/1990	3	Non-detect
6/17/1991	0.98	Non-detect
7/29/1994	5	Non-detect
7/1/1995	510	Detect
6/11/1996	2	Non-detect
5/16/1997	6	Detect
6/29/1998	2	Non-detect
10/12/1999	0.93	Non-detect
8/8/2001	1	Non-detect
2/10/2004	24	Detect
2/1/2006	20	Detect
2/27/2008	25	Detect
7/13/2009	8.4	Detect
1/21/1981	12000	Detect
6/21/1982	5	Non-detect
9/26/1984	279	Detect
9/1/1987	380	Detect
8/11/1989	3	Non-detect
7/16/1990	3	Non-detect
7/15/1991	1.5	Non-detect
7/29/1994	5	Non-detect
7/1/1995	1	Non-detect
6/17/1996	7	Detect
5/20/1997	6	Detect
6/30/1998	2	Non-detect
10/14/1999	38	Detect
8/9/2001	0.98	Non-detect
2/17/2004	15	Detect
2/1/2006	510	Detect
2/28/2008	93	Detect
7/13/2009	0.5	Detect
1/21/1981	12600	Detect
6/21/1982	5	Non-detect
9/26/1984	1	Detect
9/3/1987	390	Detect
8/11/1989	3	Non-detect
7/19/1990	3	Non-detect
7/15/1991	1.5	Non-detect
7/29/1994	5	Non-detect
7/3/1995	60	Detect
6/22/1996	37	Detect
5/22/1997	2	Non-detect
7/1/1998	27	Detect
10/18/1999	3.9	Detect
8/10/2001	13	Detect
2/23/2004	0.99	Non-detect
2/1/2006	10	Detect
2/28/2008	440	Detect
7/13/2009	0.5	Detect
1/21/1981	19596	Detect
6/22/1982	1	Detect
9/28/1984	5	Non-detect
9/3/1987	325	Detect
8/11/1989	3	Non-detect
7/19/1990	3	Non-detect
7/15/1991	1.5	Non-detect
7/29/1994	5	Non-detect
7/3/1995	2	Non-detect
6/25/1996	1332	Detect
5/22/1997	11	Detect
7/1/1998	25	Detect
10/19/1999	36	Detect
8/13/2001	1.8	Detect
2/25/2004	61	Detect
2/17/2006	1	Non-detect
2/28/2008	850	Detect
7/13/2009	1	Non-detect
1/21/1981	5	Non-detect
6/22/1982	1	Detect

Date	PCBs (ppm)	Flag
3/12/1992	16	Detect
11/17/1994	27	Detect
10/9/1995	2	Non-detect
10/2/1996	34	Detect
10/15/1997	30	Detect
10/27/1998	3108	Detect
2/4/2000	18	Detect
2/28/2002	380	Detect
8/2/2004	33	Detect
8/14/2006	2	Non-detect
7/28/2008	1.5	Non-detect
8/27/2009	22	Detect
3/6/1981	49600	Detect
12/29/1982	10	Non-detect
2/15/1985	62	Detect
11/2/1988	36.7	Detect
12/18/1989	430	Detect
9/16/1990	31	Non-detect
3/17/1992	80	Detect
11/21/1994	14	Detect
10/9/1995	11	Detect
10/2/1996	2	Non-detect
10/16/1997	2	Non-detect
10/29/1998	26	Detect
2/4/2000	68	Detect
3/5/2002	19	Non-detect
8/2/2004	8.2	Detect
8/15/2006	2	Non-detect
7/30/2008	1.5	Non-detect
8/27/2009	30.6	Detect
3/6/1981	100	Detect
12/29/1982	4.48	Detect
2/15/1985	82	Detect
11/14/1988	10	Non-detect
12/18/1989	1	Non-detect
9/17/1990	0.001	Non-detect
3/19/1992	290	Detect
11/22/1994	5	Detect
10/9/1995	2	Non-detect
10/2/1996	2	Non-detect
10/17/1997	8	Detect
10/30/1998	2	Non-detect
2/4/2000	42	Detect
3/12/2002	1	Non-detect
8/2/2004	16	Detect
8/21/2006	48	Detect
8/4/2008	31	Detect
9/1/2009	7.5	Detect
3/6/1981	100	Detect
12/29/1982	5	Non-detect
2/15/1985	144	Detect
11/15/1988	10	Non-detect
12/18/1989	1	Non-detect
9/17/1990	0.001	Non-detect
3/19/1992	43	Detect
11/29/1994	33	Detect
10/10/1995	2	Non-detect
10/2/1996	17	Detect
10/17/1997	17	Detect
10/30/1998	29	Detect
2/4/2000	42	Detect
3/13/2002	0.99	Non-detect
8/3/2004	15	Detect
8/23/2006	36	Detect
8/4/2008	42	Detect
9/8/2009	15	Detect
3/6/1981	24000	Detect
1/1/1983	2630	Detect
2/19/1985	340	Detect
11/18/1988	31.8	Detect
12/18/1989	1	Non-detect
9/17/1990	0.001	Non-detect
3/19/1992	134	Detect
11/30/1994	6	Detect
10/10/1995	27	Detect
10/2/1996	47	Detect
10/17/1997	63	Detect
10/31/1998	10	Non-detect
2/4/2000	18	Detect
3/18/2002	650	Detect
8/3/2004	0.97	Non-detect
8/30/2006	6	Detect
8/5/2008	1.5	Non-detect
9/10/2009	43	Detect
3/6/1981	24000	Detect
1/1/1983	2540	Detect

Date	PCBs (ppm)	Flag
3/25/1993	6.4	Detect
2/1/1995	40	Non-detect
1/5/1996	9	Detect
12/6/1996	1075	Detect
1/6/1998	26	Detect
2/2/1999	140	Detect
7/24/2000	2	Non-detect
1/13/2003	38	Detect
2/2/2005	1	Non-detect
7/24/2007	200	Detect
1/8/2009	0.5	Non-detect
12/29/2009	15	Detect
6/15/1981	3252.5	Detect
6/3/1983	5	Non-detect
10/16/1985	180	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	62	Non-detect
3/25/1993	3.6	Non-detect
2/7/1995	2	Non-detect
1/5/1996	2	Non-detect
12/10/1996	62	Detect
1/7/1998	23	Detect
2/3/1999	2	Non-detect
7/24/2000	2	Non-detect
1/13/2003	20	Detect
2/2/2005	35	Detect
7/25/2007	1.5	Non-detect
1/8/2009	11	Detect
1/4/2010	0.5	Non-detect
6/15/1981	175	Detect
6/15/1983	5	Non-detect
10/16/1985	117	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	62	Non-detect
3/25/1993	1.4	Non-detect
2/7/1995	2	Non-detect
1/5/1996	80	Detect
12/11/1996	74	Detect
1/8/1998	37	Detect
2/10/1999	44.029	Detect
7/24/2000	59	Detect
1/13/2003	550	Detect
2/2/2005	13	Detect
7/25/2007	1.5	Non-detect
1/8/2009	1.5	Non-detect
1/5/2010	0.5	Non-detect
6/15/1981	175	Detect
6/15/1983	233	Detect
10/26/1985	1900	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	62	Non-detect
3/31/1993	5	Non-detect
2/15/1995	2	Non-detect
1/5/1996	19	Detect
12/11/1996	2	Non-detect
1/8/1998	8	Detect
2/16/1999	2	Non-detect
7/24/2000	65	Detect
1/13/2003	3.9	Non-detect
2/2/2005	1	Non-detect
7/26/2007	9.7	Detect
1/8/2009	1	Non-detect
1/7/2010	1.5	Non-detect
6/15/1981	68	Detect
6/20/1983	660	Detect
10/26/1985	534	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	1	Non-detect
3/31/1993	5	Non-detect
2/15/1995	67	Detect
1/5/1996	10	Detect
12/12/1996	8	Detect
1/8/1998	9	Detect
2/17/1999	2	Non-detect
7/24/2000	2	Non-detect
1/13/2003	0.98	Non-detect
2/7/2005	1	Non-detect
7/26/2007	750	Detect
1/12/2009	6.1	Detect
1/10/2010	1.5	Non-detect
6/15/1981	20478.5	Detect
6/20/1983	54	Detect

Date	PCBs (ppm)	Flag
10/16/2007	18	Detect
3/18/2009	23	Detect
2/16/1982	72	Detect
2/23/1984	>500	Detect
7/1/1986	360	Detect
7/13/1989	1	Non-detect
5/21/1990	3	Non-detect
4/15/1991	1	Non-detect
3/8/1994	2	Detect
4/10/1995	2	Non-detect
4/1/1996	56	Detect
3/7/1997	2	Non-detect
4/1/1998	17	Detect
5/4/1999	12	Detect
1/29/2001	2	Non-detect
7/9/2003	24	Detect
7/26/2005	16	Detect
10/16/2007	485	Detect
3/19/2009	12	Detect
2/22/1982	10	Non-detect
2/23/1984	>500	Detect
7/28/1986	2	Non-detect
7/13/1989	1	Non-detect
5/21/1990	3	Non-detect
4/15/1991	1	Non-detect
3/8/1994	7	Non-detect
4/1/1995	2	Non-detect
4/1/1996	2	Non-detect
3/7/1997	2	Non-detect
4/1/1998	117	Detect
5/4/1999	2	Non-detect
1/30/2001	9.6	Detect
7/14/2003	0.99	Non-detect
7/27/2005	1	Non-detect
10/16/2007	563	Detect
3/23/2009	1.5	Non-detect
2/22/1982	10	Non-detect
2/23/1984	>500	Detect
7/28/1986	2	Non-detect
7/13/1989	1	Non-detect
5/21/1990	3	Non-detect
4/15/1991	1	Non-detect
3/8/1994	10	Non-detect
4/1/1995	25	Detect
4/1/1996	20	Detect
3/12/1997	2	Non-detect
4/1/1998	9480	Detect
5/6/1999	44	Detect
1/30/2001	0.98	Non-detect
7/14/2003	0.99	Non-detect
7/27/2005	1.6	Detect
10/16/2007	330	Detect
3/24/2009	26	Detect
2/22/1982	10	Non-detect
2/23/1984	>500	Detect
8/28/1986	2	Non-detect
7/13/1989	20	Detect
5/21/1990	3	Non-detect
4/15/1991	1	Non-detect
3/8/1994	246	Detect
4/12/1995	4	Detect
4/1/1996	12	Detect
3/12/1997	24	Detect
4/1/1998	9	Detect
5/6/1999	2	Non-detect
1/30/2001	0.99	Non-detect
7/15/2003	490	Detect
7/28/2005	28	Detect
10/16/2007	429	Detect
3/24/2009	8.4	Detect
2/24/1982	10	Non-detect
2/23/1984	>500	Detect
8/28/1986	1	Non-detect
7/14/1989	36	Detect
5/21/1990	3	Non-detect
4/15/1991	1	Non-detect
3/8/1994	2	Detect
4/16/1995	39	Detect
4/1/1996	5.2	Detect
3/12/1997	2	Non-detect
4/1/1998	41	Detect
5/7/1999	1	Non-detect
1/30/2001	40	Non-detect
7/15/2003	0.99	Non-detect
8/1/2005	11	Detect
10/17/2007	40	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
9/28/1984	549	Detect
9/3/1987	154	Detect
8/11/1989	3	Non-detect
7/19/1990	3	Non-detect
7/15/1991	1.5	Non-detect
7/29/1994	5	Non-detect
7/4/1995	56	Detect
6/26/1996	17	Detect
5/29/1997	34	Detect
7/2/1998	536	Detect
10/20/1999	34	Detect
8/14/2001	0.98	Non-detect
2/25/2004	25	Detect
2/21/2006	0.98	Non-detect
2/28/2008	22	Detect
7/13/2009	13.6	Detect
1/21/1981	13	Detect
6/22/1982	1	Non-detect
9/28/1984	1180	Detect
9/21/1987	10	Non-detect
8/11/1989	3	Non-detect
7/19/1990	3	Non-detect
7/15/1991	1.5	Non-detect
7/29/1994	5	Non-detect
7/5/1995	18	Detect
6/28/1996	2	Non-detect
5/29/1997	7.3	Detect
7/3/1998	40	Detect
10/25/1999	32	Detect
8/16/2001	29	Detect
3/1/2004	11	Detect
2/23/2006	1	Non-detect
3/4/2008	25	Detect
7/13/2009	1.8	Detect
1/21/1981	10	Non-detect
6/23/1982	5	Non-detect
9/28/1984	5	Non-detect
9/21/1987	10	Non-detect
8/11/1989	3	Non-detect
7/19/1990	3	Non-detect
7/15/1991	3	Non-detect
7/29/1994	5	Non-detect
7/5/1995	12	Detect
6/28/1996	50	Detect
5/29/1997	2.5	Non-detect
7/6/1998	38	Detect
10/25/1999	32	Detect
8/16/2001	24	Detect
3/8/2004	16	Detect
2/28/2006	1	Non-detect
3/5/2008	31	Detect
7/13/2009	7.2	Detect
1/21/1981	10	Non-detect
6/23/1982	5	Non-detect
9/28/1984	5	Non-detect
10/5/1987	10	Non-detect
8/11/1989	3	Non-detect
7/19/1990	3	Non-detect
7/15/1991	3	Non-detect
8/1/1994	1	Non-detect
7/5/1995	2	Non-detect
7/1/1996	120	Detect
5/29/1997	2.4	Non-detect
7/6/1998	2	Non-detect
10/26/1999	16	Detect
8/16/2001	28	Detect
3/8/2004	65	Detect
3/1/2006	2	Non-detect
3/10/2008	9.6	Detect
7/14/2009	1.5	Non-detect
1/21/1981	5	Non-detect
6/23/1982	1	Detect
9/28/1984	10	Non-detect
10/5/1987	10	Non-detect
8/14/1989	39	Detect
7/19/1990	3	Non-detect
7/15/1991	0.5	Non-detect
8/1/1994	5	Non-detect
7/6/1995	12	Detect
7/1/1996	44	Detect
6/5/1997	10	Non-detect
7/6/1998	5	Detect
10/27/1999	1	Non-detect
8/20/2001	9.4	Detect
3/17/2004	59	Detect
3/2/2006	22	Detect

Date	PCBs (ppm)	Flag
2/19/1985	340	Detect
12/1/1988	400	Detect
12/18/1989	1	Non-detect
9/17/1990	0.001	Non-detect
3/19/1992	31	Detect
11/30/1994	5	Non-detect
10/10/1995	5	Detect
10/2/1996	2	Non-detect
10/21/1997	2	Non-detect
11/3/1998	64	Detect
2/7/2000	2	Non-detect
3/18/2002	100	Detect
8/4/2004	12	Detect
9/11/2006	27	Detect
8/5/2008	1.5	Non-detect
9/10/2009	15	Detect
3/9/1981	33	Detect
1/13/1983	2000	Detect
2/19/1985	340	Detect
12/1/1988	417	Detect
12/18/1989	1	Non-detect
9/17/1990	0.001	Non-detect
3/19/1992	180	Detect
12/1/1994	2	Non-detect
10/11/1995	4	Detect
10/3/1996	45	Detect
10/22/1997	2	Non-detect
11/3/1998	62	Detect
2/7/2000	2	Non-detect
3/20/2002	44	Detect
8/6/2004	1	Non-detect
9/11/2006	6.4	Detect
8/5/2008	1.5	Non-detect
9/24/2009	1.5	Non-detect
3/9/1981	40	Detect
1/13/1983	2400	Detect
2/25/1985	5	Non-detect
12/7/1988	30	Non-detect
12/18/1989	1	Non-detect
9/17/1990	0.001	Non-detect
3/19/1992	33	Detect
12/1/1994	2	Non-detect
10/11/1995	373	Detect
10/4/1996	21	Detect
10/23/1997	8	Detect
11/4/1998	2	Non-detect
2/7/2000	0.96	Non-detect
3/20/2002	50	Detect
8/10/2004	44	Detect
9/11/2006	2	Non-detect
8/7/2008	13	Detect
9/24/2009	5	Detect
3/9/1981	5	Non-detect
1/15/1983	1298	Detect
2/25/1985	753	Detect
12/15/1988	1	Non-detect
12/18/1989	1	Non-detect
9/17/1990	0.001	Non-detect
3/19/1992	115	Detect
12/1/1994	2	Non-detect
10/13/1995	58	Detect
10/6/1996	420	Detect
10/28/1997	2	Non-detect
11/4/1998	30	Non-detect
2/7/2000	38	Detect
3/20/2002	46	Detect
8/17/2004	62	Detect
9/14/2006	2	Non-detect
8/7/2008	1.5	Non-detect
9/27/2009	1.5	Non-detect
3/11/1981	20	Detect
1/15/1983	1254	Detect
2/25/1985	5	Non-detect
12/19/1988	25	Non-detect
12/18/1989	3	Non-detect
9/17/1990	6.2	Non-detect
5/1/1992	73	Detect
12/1/1994	160	Detect
10/13/1995	71	Detect
10/6/1996	310	Detect
10/28/1997	2	Non-detect
11/9/1998	105	Detect
2/7/2000	2	Non-detect
4/1/2002	7.3	Detect
8/30/2004	70000	Detect
9/22/2006	0.0091	Detect

Date	PCBs (ppm)	Flag
10/26/1985	300	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	1	Non-detect
4/1/1993	20	Non-detect
2/21/1995	40	Non-detect
1/5/1996	9.4	Detect
12/13/1996	2	Non-detect
1/8/1998	13	Detect
2/17/1999	43	Detect
7/25/2000	36	Detect
1/13/2003	0.97	Non-detect
2/9/2005	39	Detect
7/30/2007	18	Detect
1/12/2009	1.5	Non-detect
1/10/2010	1.5	Non-detect
6/15/1981	94	Detect
6/20/1983	44	Detect
10/26/1985	103	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	1	Non-detect
4/1/1993	20	Non-detect
2/21/1995	40	Non-detect
1/8/1996	2	Non-detect
12/16/1996	12	Detect
1/8/1998	16	Detect
2/17/1999	200	Detect
7/25/2000	270	Detect
1/14/2003	0.97	Non-detect
2/9/2005	32	Detect
7/30/2007	2	Non-detect
1/12/2009	36	Detect
1/10/2010	1.5	Non-detect
6/15/1981	2450	Detect
6/20/1983	25	Detect
10/26/1985	85	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	1	Non-detect
4/12/1993	498	Detect
2/21/1995	40	Non-detect
1/9/1996	32	Detect
12/18/1996	2	Non-detect
1/8/1998	54	Detect
2/18/1999	0.5	Non-detect
7/25/2000	3000	Detect
1/14/2003	0.96	Non-detect
2/9/2005	17	Detect
7/30/2007	750	Detect
1/12/2009	31	Detect
1/10/2010	14	Detect
6/15/1981	86	Detect
6/30/1983	2290	Detect
10/29/1985	5	Non-detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	1	Non-detect
4/12/1993	33	Detect
2/21/1995	40	Non-detect
1/9/1996	2	Non-detect
12/18/1996	45	Detect
1/8/1998	61	Detect
2/18/1999	2	Non-detect
7/25/2000	14	Detect
1/15/2003	53	Detect
2/25/2005	39	Detect
7/31/2007	1.5	Non-detect
1/12/2009	38	Detect
1/10/2010	1.5	Non-detect
6/15/1981	178.5	Detect
7/29/1983	2900	Detect
10/29/1985	10	Non-detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	1	Non-detect
4/20/1993	10	Non-detect
2/21/1995	40	Non-detect
1/11/1996	40	Detect
12/18/1996	71	Detect
1/8/1998	27	Detect
2/18/1999	19	Detect
7/26/2000	1	Non-detect
1/15/2003	350	Detect
2/25/2005	155	Detect
7/31/2007	24	Detect

Date	PCBs (ppm)	Flag
3/25/2009	14	Detect
2/24/1982	6400	Detect
2/23/1984	>500	Detect
9/1/1986	1300	Detect
7/14/1989	105	Detect
5/21/1990	1	Non-detect
4/15/1991	1	Non-detect
3/8/1994	2	Detect
4/18/1995	9	Detect
4/1/1996	160	Detect
3/13/1997	2	Non-detect
4/1/1998	14	Detect
5/7/1999	1	Non-detect
1/31/2001	27	Detect
7/16/2003	1	Non-detect
8/1/2005	7.6	Detect
10/17/2007	820	Detect
3/25/2009	14	Detect
2/24/1982	10	Non-detect
2/24/1984	>500	Detect
9/25/1986	5	Non-detect
7/17/1989	61	Detect
5/21/1990	1	Non-detect
4/15/1991	1	Non-detect
3/8/1994	4	Detect
4/18/1995	25	Non-detect
4/1/1996	410	Detect
3/13/1997	2	Non-detect
4/1/1998	2	Non-detect
5/7/1999	1	Non-detect
1/31/2001	76	Detect
7/18/2003	39	Detect
8/1/2005	31	Detect
10/17/2007	473	Detect
3/25/2009	1.5	Non-detect
2/24/1982	10	Non-detect
2/24/1984	>500	Detect
10/1/1986	5	Non-detect
7/17/1989	61	Detect
5/21/1990	1	Non-detect
4/15/1991	1	Non-detect
3/8/1994	246	Detect
4/18/1995	25	Non-detect
4/1/1996	1	Non-detect
3/14/1997	1231	Detect
4/1/1998	2	Non-detect
5/7/1999	1	Non-detect
2/1/2001	860	Detect
7/21/2003	0.99	Non-detect
8/2/2005	7.4	Detect
10/17/2007	240	Detect
3/26/2009	20	Detect
2/24/1982	10	Non-detect
2/24/1984	5	Non-detect
10/1/1986	828	Detect
7/17/1989	77	Detect
5/21/1990	1	Non-detect
4/15/1991	1	Non-detect
3/8/1994	10	Non-detect
4/19/1995	6	Detect
4/1/1996	24	Detect
3/18/1997	2	Non-detect
4/2/1998	2	Non-detect
5/10/1999	120	Detect
2/5/2001	140	Detect
7/22/2003	6.3	Detect
8/2/2005	1	Non-detect
10/24/2007	9	Detect
3/26/2009	1.5	Non-detect
2/25/1982	10	Non-detect
2/24/1984	>500	Detect
10/1/1986	663	Detect
7/17/1989	77	Detect
5/21/1990	1	Non-detect
4/15/1991	1	Non-detect
3/8/1994	7	Non-detect
4/19/1995	135	Detect
4/1/1996	2	Detect
3/18/1997	2	Non-detect
4/2/1998	41	Detect
5/11/1999	27	Detect
2/5/2001	34	Detect
7/23/2003	27	Detect
8/2/2005	60	Detect
10/24/2007	23	Detect
3/27/2009	13	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
3/10/2008	630	Detect
7/14/2009	8.9	Detect
1/21/1981	20.1	Detect
6/23/1982	6.79	Detect
9/28/1984	15	Non-detect
10/5/1987	10	Non-detect
8/14/1989	3	Non-detect
7/30/1990	1	Non-detect
7/15/1991	0.5	Non-detect
8/1/1994	5	Non-detect
7/6/1995	2	Non-detect
7/1/1996	177	Detect
6/11/1997	2	Non-detect
7/6/1998	2	Non-detect
10/27/1999	360	Detect
8/29/2001	1200	Detect
3/22/2004	3.4	Detect
3/2/2006	2	Non-detect
3/11/2008	57	Detect
7/14/2009	16	Detect
1/22/1981	110	Detect
6/23/1982	13	Detect
10/1/1984	1	Non-detect
10/19/1987	10	Non-detect
8/14/1989	3	Non-detect
7/30/1990	1	Non-detect
7/15/1991	0.5	Non-detect
8/10/1994	5	Non-detect
7/6/1995	2	Non-detect
7/1/1996	2	Non-detect
6/25/1997	10	Non-detect
7/7/1998	15	Detect
10/27/1999	340	Detect
9/7/2001	30	Detect
3/22/2004	1	Non-detect
3/2/2006	27	Detect
3/11/2008	1	Non-detect
7/15/2009	1.8	Detect
1/22/1981	127	Detect
7/6/1982	676	Detect
10/1/1984	2050	Detect
10/19/1987	10	Non-detect
8/14/1989	3	Non-detect
7/30/1990	1	Non-detect
7/15/1991	0.5	Non-detect
8/10/1994	5	Non-detect
7/7/1995	11	Detect
7/1/1996	136	Detect
6/26/1997	31	Detect
7/8/1998	18	Detect
10/29/1999	770	Detect
9/10/2001	23	Detect
3/23/2004	0.98	Non-detect
3/3/2006	2	Non-detect
3/12/2008	15	Detect
7/15/2009	11	Detect
1/22/1981	160	Detect
7/6/1982	175	Detect
10/1/1984	1	Non-detect
11/16/1987	50	Non-detect
8/14/1989	3	Non-detect
7/30/1990	1	Non-detect
7/15/1991	0.5	Non-detect
8/11/1994	2	Non-detect
7/7/1995	2	Non-detect
7/1/1996	18	Detect
6/26/1997	4	Detect
7/8/1998	3	Detect
11/2/1999	14	Detect
9/24/2001	7.9	Detect
3/29/2004	0.95	Non-detect
3/5/2006	2	Non-detect
3/13/2008	52	Detect
7/15/2009	1.5	Non-detect
1/22/1981	600	Detect
7/6/1982	67	Detect
10/26/1984	30	Non-detect
11/16/1987	146	Detect
8/14/1989	3	Non-detect
7/30/1990	1	Non-detect
7/15/1991	0.99	Non-detect
8/23/1994	116	Detect
7/7/1995	2	Non-detect
7/3/1996	2	Non-detect
6/30/1997	2	Non-detect
7/9/1998	9	Detect

Date	PCBs (ppm)	Flag
8/19/2008	1.5	Non-detect
9/29/2009	9.5	Detect
3/12/1981	2	Non-detect
1/15/1983	454	Detect
3/1/1985	1900	Detect
12/19/1988	5	Non-detect
12/18/1989	3	Non-detect
9/17/1990	6.2	Non-detect
5/11/1992	360	Detect
12/1/1994	5	Non-detect
10/15/1995	22	Detect
10/6/1996	270	Detect
10/28/1997	2	Non-detect
11/10/1998	45	Detect
2/7/2000	9.4	Non-detect
4/2/2002	24	Detect
8/31/2004	1	Non-detect
11/16/2006	2	Non-detect
8/20/2008	15	Detect
9/29/2009	13	Detect
3/12/1981	10	Detect
1/15/1983	284	Detect
3/1/1985	720	Detect
1/1/1989	152.5	Detect
12/18/1989	3	Non-detect
9/17/1990	6.2	Non-detect
5/11/1992	88	Detect
12/1/1994	5	Non-detect
10/17/1995	8	Detect
10/6/1996	120	Detect
10/29/1997	2	Non-detect
11/12/1998	11	Detect
2/7/2000	4.2	Detect
4/2/2002	30	Detect
9/10/2004	22	Detect
12/8/2006	40	Detect
8/22/2008	1.5	Non-detect
10/4/2009	10	Detect
3/16/1981	1200	Detect
1/15/1983	276	Detect
3/6/1985	61	Detect
1/1/1989	189	Detect
12/18/1989	3	Non-detect
9/17/1990	6.2	Non-detect
5/14/1992	59	Detect
12/2/1994	2	Non-detect
10/18/1995	0.05	Detect
10/6/1996	84	Detect
10/29/1997	151	Detect
11/13/1998	2	Non-detect
2/7/2000	43	Detect
4/22/2002	5.2	Detect
9/10/2004	17	Detect
12/8/2006	40	Detect
9/3/2008	35.5	Detect
10/7/2009	12	Detect
3/16/1981	1700	Detect
1/17/1983	4000	Detect
3/6/1985	61	Detect
1/1/1989	100	Detect
12/18/1989	3	Non-detect
9/17/1990	6.2	Non-detect
5/14/1992	47	Detect
12/6/1994	2	Non-detect
10/18/1995	0.05	Detect
10/6/1996	58	Detect
10/29/1997	2	Non-detect
11/14/1998	2	Non-detect
2/7/2000	43	Detect
6/10/2002	0.99	Non-detect
9/13/2004	1	Non-detect
12/8/2006	390	Detect
9/8/2008	18	Detect
10/11/2009	29	Detect
3/16/1981	5	Detect
1/17/1983	5	Non-detect
3/6/1985	61	Detect
1/16/1989	5	Non-detect
12/18/1989	3	Non-detect
9/17/1990	6.2	Non-detect
5/14/1992	40	Detect
12/7/1994	2	Non-detect
10/19/1995	2	Non-detect
10/6/1996	30	Detect
10/29/1997	4	Detect
11/14/1998	2	Non-detect

Date	PCBs (ppm)	Flag
1/12/2009	21	Detect
1/10/2010	1.5	Non-detect
6/15/1981	474	Detect
8/25/1983	20	Non-detect
10/29/1985	223	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	1	Non-detect
4/20/1993	10	Non-detect
2/21/1995	40	Non-detect
1/11/1996	73	Detect
12/20/1996	2	Non-detect
1/8/1998	540	Detect
2/20/1999	184	Detect
7/27/2000	5.3	Detect
1/15/2003	50	Detect
2/25/2005	320	Detect
7/31/2007	8.46	Detect
1/12/2009	19	Detect
1/10/2010	1.5	Non-detect
6/15/1981	1225	Detect
9/6/1983	4300	Detect
10/29/1985	1	Non-detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	6	Non-detect
4/28/1993	5	Non-detect
2/23/1995	2	Non-detect
1/11/1996	5	Detect
12/31/1996	34	Detect
1/8/1998	380	Detect
2/22/1999	2	Non-detect
7/28/2000	2	Non-detect
1/15/2003	23	Detect
2/25/2005	68	Detect
7/31/2007	0.5	Non-detect
1/12/2009	26	Detect
1/11/2010	5.4	Detect
6/15/1981	153	Detect
9/9/1983	1	Detect
10/29/1985	11	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	6	Non-detect
4/28/1993	10	Non-detect
2/23/1995	40	Non-detect
1/14/1996	26	Detect
12/31/1996	2	Non-detect
1/8/1998	240	Detect
2/23/1999	0.93	Non-detect
7/28/2000	6.3	Detect
1/16/2003	28	Detect
2/28/2005	1	Non-detect
7/31/2007	1.5	Non-detect
1/13/2009	15	Detect
1/11/2010	13	Detect
6/15/1981	144	Detect
9/12/1983	142	Detect
11/1/1985	730	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	6	Non-detect
4/28/1993	10	Non-detect
2/23/1995	40	Non-detect
1/15/1996	16	Detect
12/31/1996	7.7	Detect
1/9/1998	2	Non-detect
2/24/1999	0.005	Non-detect
7/31/2000	55	Detect
1/20/2003	51	Detect
2/28/2005	1	Non-detect
7/31/2007	1.5	Non-detect
1/13/2009	68	Detect
1/11/2010	5.6	Detect
6/18/1981	10	Non-detect
9/15/1983	2	Detect
11/1/1985	1900	Detect
4/17/1989	12	Non-detect
3/13/1990	1	Non-detect
12/17/1990	6	Non-detect
4/28/1993	20	Non-detect
2/25/1995	2	Non-detect
1/15/1996	2	Non-detect
1/1/1997	2	Detect
1/9/1998	2	Non-detect
2/24/1999	0.005	Non-detect

Date	PCBs (ppm)	Flag
2/25/1982	393	Detect
2/24/1984	>500	Detect
10/1/1986	425	Detect
7/17/1989	77	Detect
5/21/1990	1	Non-detect
4/15/1991	1	Non-detect
3/8/1994	7	Non-detect
4/19/1995	37	Detect
4/1/1996	38	Detect
3/20/1997	10	Detect
4/2/1998	2	Non-detect
5/13/1999	13	Detect
2/5/2001	2.8	Detect
7/23/2003	29	Detect
8/2/2005	390	Detect
10/24/2007	95	Detect
3/30/2009	1.5	Non-detect
2/25/1982	10	Non-detect
2/24/1984	>500	Detect
10/1/1986	1	Non-detect
7/17/1989	80	Detect
5/21/1990	1	Non-detect
4/15/1991	1	Non-detect
3/8/1994	8	Detect
4/19/1995	353	Detect
4/3/1996	6	Detect
3/24/1997	4	Detect
4/2/1998	2	Non-detect
5/13/1999	16	Detect
2/5/2001	26	Detect
7/23/2003	40	Detect
8/2/2005	5	Detect
10/24/2007	20	Detect
3/30/2009	1.5	Non-detect
2/25/1982	393	Detect
2/29/1984	5	Non-detect
10/15/1986	5	Non-detect
7/17/1989	81	Detect
5/24/1990	1	Non-detect
4/15/1991	3.1	Non-detect
3/8/1994	2	Detect
4/19/1995	263	Detect
4/3/1996	36	Detect
3/25/1997	2	Non-detect
4/2/1998	2	Non-detect
5/14/1999	1	Non-detect
2/5/2001	20	Detect
7/23/2003	28	Detect
8/4/2005	28	Detect
10/24/2007	30	Detect
3/31/2009	21	Detect
2/25/1982	6.4	Detect
2/29/1984	1300	Detect
10/15/1986	1	Non-detect
7/17/1989	87	Detect
5/24/1990	1	Non-detect
4/15/1991	3.1	Non-detect
3/8/1994	7	Non-detect
4/19/1995	220	Detect
4/3/1996	16	Detect
3/26/1997	2	Non-detect
4/3/1998	16	Detect
5/14/1999	43	Detect
2/6/2001	24	Detect
7/24/2003	38	Detect
8/4/2005	18	Detect
10/24/2007	41	Detect
3/31/2009	19	Detect
2/26/1982	1	Non-detect
2/29/1984	1910	Detect
10/15/1986	5	Non-detect
7/17/1989	92	Detect
5/24/1990	1	Non-detect
4/15/1991	3.1	Non-detect
3/8/1994	246	Detect
4/19/1995	174	Detect
4/3/1996	23	Detect
3/27/1997	7	Detect
4/3/1998	2	Non-detect
5/14/1999	57	Detect
2/6/2001	22	Detect
7/24/2003	45	Detect
8/17/2005	7.2	Detect
10/24/2007	54	Detect
4/1/2009	1.5	Non-detect
2/26/1982	1600	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
11/5/1999	5	Non-detect
9/24/2001	5.7	Detect
3/29/2004	5.1	Detect
3/6/2006	2	Non-detect
3/17/2008	6.4	Detect
7/15/2009	16	Detect
1/22/1981	641	Detect
7/6/1982	48	Detect
10/26/1984	10	Non-detect
11/16/1987	146	Detect
8/14/1989	3	Non-detect
7/30/1990	1	Non-detect
7/15/1991	0.99	Non-detect
8/25/1994	5	Non-detect
7/10/1995	4	Detect
7/3/1996	2	Non-detect
6/30/1997	52	Detect
7/9/1998	2	Non-detect
11/6/1999	51	Detect
10/2/2001	6.9	Detect
3/29/2004	130	Detect
3/7/2006	2.9	Detect
3/18/2008	1.5	Non-detect
7/15/2009	1	Non-detect
1/22/1981	10	Non-detect
7/6/1982	41	Detect
10/26/1984	470	Detect
11/16/1987	5	Non-detect
8/21/1989	6	Non-detect
7/30/1990	1	Non-detect
7/29/1991	8	Detect
8/25/1994	5	Non-detect
7/11/1995	21	Detect
7/3/1996	2	Non-detect
6/30/1997	178	Detect
7/10/1998	37	Detect
11/6/1999	57	Detect
10/15/2001	9.9	Non-detect
3/29/2004	4	Detect
3/7/2006	2	Non-detect
3/18/2008	1.5	Non-detect
7/15/2009	1	Non-detect
1/26/1981	2	Non-detect
7/6/1982	15.8	Detect
10/26/1984	10	Non-detect
11/17/1987	720	Detect
8/21/1989	6	Non-detect
8/9/1990	3	Non-detect
7/29/1991	8	Detect
8/25/1994	5	Non-detect
7/12/1995	9	Detect
7/3/1996	2	Non-detect
7/1/1997	20	Detect
7/13/1998	2	Non-detect
11/6/1999	52	Detect
10/24/2001	7	Detect
4/6/2004	11	Detect
3/13/2006	5	Detect
3/19/2008	32	Detect
7/16/2009	45	Detect
1/26/1981	2	Non-detect
7/21/1982	5	Non-detect
10/26/1984	2010	Detect
12/21/1987	125	Non-detect
8/21/1989	6	Non-detect
8/9/1990	3	Non-detect
7/30/1991	28	Detect
8/25/1994	5	Non-detect
7/12/1995	78	Detect
7/3/1996	33	Detect
7/1/1997	19	Detect
7/13/1998	2	Non-detect
11/9/1999	1	Detect
10/31/2001	9.5	Detect
4/8/2004	0.99	Non-detect
3/14/2006	2	Non-detect
3/19/2008	50	Detect
7/16/2009	23	Detect
1/28/1981	440	Detect
7/22/1982	10	Non-detect
10/26/1984	2010	Detect
12/21/1987	150	Detect
8/21/1989	6	Non-detect
8/9/1990	3	Non-detect
7/30/1991	10	Detect
8/27/1994	23	Detect

Date	PCBs (ppm)	Flag
2/8/2000	0.88	Non-detect
6/13/2002	8	Detect
9/21/2004	14	Detect
12/8/2006	430	Detect
9/12/2008	201	Detect
10/12/2009	16	Detect
3/16/1981	5	Non-detect
1/18/1983	3100	Detect
3/18/1985	14	Detect
1/25/1989	10	Non-detect
12/18/1989	18	Detect
9/17/1990	6.2	Non-detect
5/14/1992	11	Detect
12/7/1994	23	Detect
10/19/1995	2	Non-detect
10/6/1996	20	Detect
10/29/1997	26	Detect
11/16/1998	2	Non-detect
2/8/2000	24	Detect
6/29/2002	0.99	Non-detect
9/28/2004	16	Detect
12/8/2006	1	Non-detect
9/17/2008	32	Detect
10/12/2009	8.7	Detect
3/17/1981	27	Detect
1/24/1983	1200	Detect
3/19/1985	5	Non-detect
1/26/1989	14	Detect
12/18/1989	22	Detect
10/15/1990	110	Detect
5/14/1992	10	Detect
12/8/1994	10	Non-detect
10/20/1995	2	Non-detect
10/6/1996	9.1	Detect
11/3/1997	2	Non-detect
11/16/1998	30	Detect
2/8/2000	23	Detect
7/1/2002	2	Non-detect
9/30/2004	0.99	Non-detect
12/8/2006	7	Detect
9/22/2008	9.1	Detect
10/13/2009	1	Non-detect
3/18/1981	2	Non-detect
1/26/1983	5	Non-detect
3/19/1985	123	Detect
2/1/1989	156	Detect
1/1/1990	38	Detect
10/15/1990	3	Non-detect
5/14/1992	9.9	Detect
12/8/1994	68	Detect
10/20/1995	2	Non-detect
10/6/1996	7.8	Detect
11/3/1997	42	Detect
11/16/1998	79	Detect
2/8/2000	88	Detect
7/1/2002	5.7	Detect
10/4/2004	5	Non-detect
12/21/2006	20	Detect
9/23/2008	8.8	Detect
10/13/2009	12	Detect
3/18/1981	2	Non-detect
1/26/1983	368	Detect
3/19/1985	534	Detect
2/1/1989	1020	Detect
1/1/1990	30	Detect
10/15/1990	3	Non-detect
6/26/1992	2	Non-detect
12/9/1994	11	Detect
10/20/1995	9	Detect
10/6/1996	7.2	Detect
11/4/1997	2	Non-detect
11/17/1998	2	Non-detect
2/8/2000	0.83	Non-detect
7/1/2002	1	Non-detect
10/6/2004	11	Detect
12/21/2006	360	Detect
9/24/2008	7.8	Detect
10/14/2009	13	Detect
3/19/1981	327	Detect
1/26/1983	5	Non-detect
3/19/1985	657	Detect
2/1/1989	70.5	Detect
1/15/1990	530	Detect
10/15/1990	3	Non-detect
6/26/1992	2	Non-detect
12/12/1994	2	Non-detect

Date	PCBs (ppm)	Flag
7/31/2000	0.94	Non-detect
1/21/2003	37	Detect
3/2/2005	1	Non-detect
8/1/2007	32	Detect
1/13/2009	1.5	Detect
1/12/2010	1	Non-detect
6/23/1981	23	Detect
9/15/1983	2	Detect
11/1/1985	1	Non-detect
4/17/1989	12	Non-detect
3/20/1990	700	Detect
12/17/1990	6	Non-detect
4/28/1993	20	Non-detect
2/28/1995	6	Non-detect
1/15/1996	23	Detect
1/2/1997	2	Non-detect
1/9/1998	9	Detect
2/24/1999	13	Detect
7/31/2000	2	Non-detect
1/22/2003	3.6	Detect
3/2/2005	1	Non-detect
8/1/2007	3.7	Detect
1/13/2009	1.5	Non-detect
1/12/2010	1	Non-detect
6/23/1981	53	Detect
9/15/1983	5	Detect
11/15/1985	5	Non-detect
4/17/1989	12	Non-detect
3/20/1990	423	Detect
12/17/1990	6	Non-detect
4/28/1993	5	Non-detect
3/1/1995	150	Detect
1/16/1996	5	Detect
1/2/1997	6	Detect
1/9/1998	28	Detect
3/4/1999	6.1	Detect
7/31/2000	63	Detect
1/23/2003	1	Non-detect
3/10/2005	2	Detect
8/1/2007	1	Non-detect
1/13/2009	29.3	Detect
1/12/2010	5.6	Detect
6/24/1981	56.7	Detect
9/16/1983	1	Detect
11/15/1985	5	Non-detect
4/17/1989	1	Non-detect
3/20/1990	242	Detect
12/17/1990	7	Detect
5/4/1993	21	Detect
3/1/1995	25	Non-detect
1/16/1996	15	Detect
1/2/1997	174	Detect
1/12/1998	3	Detect
3/10/1999	21	Detect
7/31/2000	54	Detect
1/27/2003	2.8	Detect
3/16/2005	4.6	Detect
8/2/2007	40.9	Detect
1/14/2009	1.5	Non-detect
1/12/2010	11	Detect
6/25/1981	23	Detect
9/16/1983	1476	Detect
12/1/1985	770	Detect
4/17/1989	1	Non-detect
3/20/1990	210	Detect
12/17/1990	31	Non-detect
5/4/1993	84	Detect
3/1/1995	25	Non-detect
1/16/1996	2	Non-detect
1/2/1997	39	Detect
1/12/1998	2	Non-detect
3/10/1999	40	Detect
7/31/2000	51	Detect
1/28/2003	0.96	Non-detect
3/16/2005	1	Non-detect
8/2/2007	5.07	Detect
1/14/2009	1.5	Non-detect
1/12/2010	1.5	Non-detect
6/25/1981	63	Detect
10/1/1983	1	Non-detect
12/1/1985	190	Detect
4/17/1989	1	Non-detect
3/20/1990	108	Detect
12/17/1990	31	Non-detect
5/5/1993	19	Detect
3/6/1995	4	Detect

Date	PCBs (ppm)	Flag
2/29/1984	5	Non-detect
10/20/1986	5	Non-detect
7/17/1989	111	Detect
5/24/1990	1	Non-detect
4/15/1991	3.1	Non-detect
3/13/1994	2	Non-detect
4/19/1995	14	Detect
4/3/1996	3	Detect
3/31/1997	11	Detect
4/3/1998	47	Detect
5/20/1999	4.7	Detect
2/7/2001	2700	Detect
7/28/2003	13	Detect
8/24/2005	1	Non-detect
10/24/2007	1	Non-detect
4/1/2009	19	Detect
2/26/1982	1600	Detect
3/1/1984	990	Detect
10/22/1986	5	Non-detect
7/17/1989	111	Detect
5/24/1990	1	Non-detect
4/15/1991	3.1	Non-detect
3/13/1994	2	Non-detect
4/19/1995	13	Detect
4/3/1996	51	Detect
3/31/1997	20	Detect
4/3/1998	45	Detect
5/24/1999	6	Detect
2/12/2001	260	Detect
7/29/2003	9.3	Detect
9/6/2005	430	Detect
10/24/2007	4	Detect
4/2/2009	420	Detect
2/26/1982	10	Non-detect
3/1/1984	1400	Detect
10/22/1986	10	Non-detect
7/17/1989	111	Detect
5/24/1990	1	Non-detect
4/15/1991	3.1	Non-detect
3/13/1994	2	Non-detect
4/19/1995	12	Detect
4/3/1996	2	Non-detect
4/1/1997	2	Non-detect
4/3/1998	31	Detect
6/2/1999	28	Detect
2/13/2001	4.3	Detect
7/30/2003	16	Detect
9/6/2005	10	Detect
10/24/2007	14	Detect
4/2/2009	420	Detect
2/26/1982	1	Non-detect
3/1/1984	700	Detect
10/27/1986	45	Detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	12	Non-detect
3/13/1994	2	Non-detect
4/19/1995	4.3	Non-detect
4/3/1996	2	Non-detect
4/1/1997	30	Detect
4/6/1998	36	Detect
6/2/1999	7	Detect
2/14/2001	3.1	Detect
7/30/2003	46	Detect
9/9/2005	1	Non-detect
11/5/2007	1	Non-detect
4/2/2009	11	Detect
3/1/1982	2570	Detect
3/16/1984	>500	Detect
10/27/1986	56	Detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	12	Non-detect
3/17/1994	2	Non-detect
4/19/1995	3.3	Non-detect
4/3/1996	250	Detect
4/1/1997	51	Detect
4/8/1998	6	Detect
6/2/1999	1	Non-detect
2/15/2001	8.1	Detect
7/30/2003	2000	Detect
9/9/2005	1	Non-detect
11/5/2007	1	Non-detect
4/7/2009	83	Detect
3/1/1982	1360	Detect
3/16/1984	>500	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
7/12/1995	9	Detect
7/3/1996	2	Non-detect
7/1/1997	26	Detect
7/13/1998	13	Detect
11/9/1999	1	Detect
11/1/2001	13	Detect
4/12/2004	24	Detect
3/14/2006	2	Non-detect
3/24/2008	1.5	Non-detect
7/16/2009	1.5	Non-detect
1/29/1981	0.6	Non-detect
7/22/1982	5	Non-detect
10/26/1984	30	Non-detect
12/21/1987	150	Detect
8/21/1989	6	Non-detect
8/9/1990	3	Non-detect
7/30/1991	28	Detect
8/31/1994	2	Nondetect
7/14/1995	2	Non-detect
7/5/1996	35	Detect
7/2/1997	200.8	Detect
7/14/1998	2	Non-detect
11/9/1999	51	Detect
11/1/2001	10	Detect
4/13/2004	9.2	Detect
3/15/2006	2	Non-detect
3/24/2008	1.5	Non-detect
7/20/2009	1.5	Non-detect
1/29/1981	0.6	Non-detect
7/22/1982	10	Non-detect
10/31/1984	910	Detect
12/21/1987	25	Non-detect
8/21/1989	75	Detect
8/9/1990	3	Non-detect
7/30/1991	10	Detect
8/31/1994	3.3	Nondetect
7/17/1995	8	Detect
7/5/1996	2	Non-detect
7/3/1997	4	Detect
7/16/1998	2	Non-detect
11/9/1999	1	Non-detect
11/29/2001	1200	Detect
4/14/2004	1	Non-detect
3/16/2006	1	Non-detect
3/31/2008	0.5	Non-detect
7/20/2009	8.6	Detect
1/29/1981	0.6	Non-detect
7/23/1982	11.7	Detect
10/31/1984	740	Detect
1/18/1988	10	Non-detect
8/21/1989	6	Non-detect
8/9/1990	3	Non-detect
8/2/1991	30	Detect
8/31/1994	2.2	Nondetect
7/19/1995	60	Detect
7/5/1996	6	Detect
7/3/1997	9	Detect
7/16/1998	625	Detect
11/9/1999	6	Detect
12/5/2001	7.4	Detect
4/14/2004	8.1	Detect
3/23/2006	2	Non-detect
4/1/2008	15	Detect
7/20/2009	1.5	Non-detect
1/29/1981	0.6	Non-detect
7/23/1982	18.6	Detect
10/31/1984	910	Detect
1/18/1988	149	Detect
8/21/1989	6	Non-detect
8/9/1990	3	Non-detect
8/2/1991	30	Detect
9/1/1994	5	Non-detect
7/20/1995	2	Non-detect
7/8/1996	8	Detect
7/8/1997	26	Detect
7/16/1998	26	Detect
11/9/1999	43	Detect
12/27/2001	25	Detect
4/15/2004	9.8	Detect
3/23/2006	2	Non-detect
4/2/2008	19	Detect
7/20/2009	13	Detect
1/29/1981	0.6	Non-detect
8/2/1982	91	Detect
10/31/1984	740	Detect
1/18/1988	50	Non-detect

Date	PCBs (ppm)	Flag
10/24/1995	38	Detect
10/6/1996	5.7	Detect
11/6/1997	27	Detect
11/17/1998	29	Detect
2/9/2000	2	Non-detect
7/1/2002	4.7	Detect
10/6/2004	4.1	Detect
12/21/2006	40	Detect
9/25/2008	9.9	Detect
10/15/2009	45.8	Detect
3/19/1981	10.5	Detect
1/26/1983	2980	Detect
3/19/1985	5	Non-detect
2/8/1989	275	Detect
1/15/1990	3.1	Non-detect
10/15/1990	3	Non-detect
6/26/1992	5	Non-detect
12/12/1994	19	Detect
10/24/1995	24	Detect
10/7/1996	20	Detect
11/6/1997	10	Non-detect
11/18/1998	3.1	Detect
2/9/2000	2	Non-detect
7/2/2002	0.99	Non-detect
10/6/2004	11	Detect
1/30/2007	40	Detect
9/29/2008	10	Detect
10/15/2009	21.8	Detect
3/22/1981	1250	Detect
1/26/1983	6	Non-detect
3/19/1985	5	Non-detect
2/8/1989	130	Detect
1/15/1990	3.1	Non-detect
10/15/1990	3	Non-detect
6/26/1992	3	Non-detect
12/13/1994	19	Detect
10/24/1995	2	Non-detect
10/8/1996	9	Detect
11/7/1997	3	Detect
11/21/1998	41	Detect
2/9/2000	33	Detect
7/2/2002	33	Detect
10/25/2004	9.9	Detect
1/30/2007	180	Detect
9/30/2008	22.2	Detect
10/15/2009	6.3	Detect
3/23/1981	68	Detect
1/26/1983	6	Non-detect
3/22/1985	5	Non-detect
2/17/1989	14	Detect
1/15/1990	3.1	Non-detect
10/15/1990	3	Non-detect
6/26/1992	4	Non-detect
12/13/1994	17	Detect
10/24/1995	2	Non-detect
10/10/1996	2	Detect
11/7/1997	2	Non-detect
11/23/1998	2	Non-detect
2/9/2000	150	Detect
7/2/2002	30	Detect
10/26/2004	5.9	Detect
1/30/2007	3	Detect
10/1/2008	24.6	Detect
10/15/2009	4.7	Detect
3/23/1981	9.22	Detect
1/26/1983	22	Detect
3/28/1985	5	Non-detect
2/20/1989	5	Non-detect
1/15/1990	3.1	Non-detect
10/15/1990	3	Non-detect
6/26/1992	40	Non-detect
12/15/1994	2	Non-detect
10/25/1995	14	Detect
10/11/1996	4	Detect
11/10/1997	30	Detect
11/23/1998	100	Detect
2/10/2000	0.96	Non-detect
7/3/2002	73	Detect
10/27/2004	1	Non-detect
2/20/2007	9	Detect
10/1/2008	30.4	Detect
10/15/2009	83.1	Detect
3/31/1981	35	Detect
1/26/1983	5	Non-detect
3/28/1985	7	Detect
2/22/1989	74	Detect

Date	PCBs (ppm)	Flag
1/17/1996	12	Detect
1/2/1997	30	Detect
1/12/1998	2	Non-detect
3/10/1999	6	Non-detect
7/31/2000	0.92	Non-detect
1/28/2003	320	Detect
3/17/2005	14	Detect
8/2/2007	31.2	Detect
1/14/2009	570	Detect
1/12/2010	31	Detect
6/25/1981	63	Detect
10/20/1983	2200	Detect
12/1/1985	100	Detect
4/17/1989	1	Non-detect
3/21/1990	107	Detect
12/17/1990	31	Non-detect
8/11/1993	5	Non-detect
3/6/1995	2	Non-detect
1/17/1996	34	Detect
1/2/1997	10.8	Detect
1/13/1998	68	Detect
3/11/1999	2	Non-detect
8/1/2000	0.97	Non-detect
1/28/2003	95	Detect
3/17/2005	34	Detect
8/2/2007	12.9	Detect
1/14/2009	530	Detect
1/12/2010	22	Detect
6/29/1981	181	Detect
10/20/1983	198000	Detect
12/19/1985	3/5	Non-detect
4/17/1989	1	Non-detect
3/21/1990	93	Detect
12/17/1990	31	Non-detect
8/11/1993	20	Non-detect
3/7/1995	14	Detect
1/19/1996	23	Detect
1/2/1997	20	Detect
1/15/1998	2	Non-detect
3/15/1999	7.2	Detect
8/1/2000	0.97	Non-detect
1/28/2003	760	Detect
3/22/2005	18	Detect
8/7/2007	0.5	Non-detect
1/14/2009	66	Detect
1/13/2010	1.5	Non-detect
6/29/1981	2	Non-detect
11/1/1983	4000	Detect
12/19/1985	1000	Detect
4/17/1989	1	Non-detect
3/21/1990	47	Detect
12/17/1990	31	Non-detect
8/11/1993	20	Non-detect
3/7/1995	2	Non-detect
1/21/1996	2	Non-detect
1/2/1997	3	Detect
1/15/1998	9	Detect
3/18/1999	2	Non-detect
8/2/2000	1	Non-detect
1/28/2003	700	Detect
3/24/2005	18	Detect
8/7/2007	0.5	Non-detect
1/19/2009	34.1	Detect
1/13/2010	2.2	Detect
6/29/1981	2	Non-detect
11/1/1983	9200	Detect
12/19/1985	5	Non-detect
4/28/1989	29	Detect
3/21/1990	20	Detect
12/17/1990	31	Non-detect
8/11/1993	5	Non-detect
3/8/1995	58	Detect
1/23/1996	60	Detect
1/2/1997	8	Detect
1/15/1998	150	Detect
3/19/1999	2	Non-detect
8/2/2000	0.97	Non-detect
1/28/2003	34	Detect
3/25/2005	60	Detect
8/7/2007	2600	Detect
1/19/2009	28.5	Detect
1/13/2010	1.5	Non-detect
7/13/1981	10	Non-detect
11/2/1983	22	Detect
1/1/1986	42	Detect
4/28/1989	3	Non-detect

Date	PCBs (ppm)	Flag
10/27/1986	11	Detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	12	Non-detect
3/24/1994	2	Detect
4/19/1995	2.8	Non-detect
4/3/1996	120	Detect
4/1/1997	10	Detect
4/8/1998	2	Non-detect
6/3/1999	1	Non-detect
2/15/2001	45	Detect
7/30/2003	28	Detect
9/20/2005	17	Detect
11/5/2007	1	Non-detect
4/8/2009	130	Detect
3/1/1982	155	Detect
3/16/1984	>500	Detect
10/28/1986	10	Non-detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	12	Non-detect
3/24/1994	9	Detect
4/19/1995	1.9	Non-detect
4/3/1996	120	Detect
4/1/1997	2	Non-detect
4/8/1998	29	Detect
6/8/1999	1	Non-detect
2/20/2001	3.3	Detect
8/4/2003	0.95	Non-detect
10/1/2005	1	Non-detect
11/6/2007	2.5	Non-detect
4/9/2009	1.5	Non-detect
3/2/1982	3700	Detect
3/16/1984	>500	Detect
10/29/1986	178	Detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	12	Non-detect
3/24/1994	2	Nondetect
4/19/1995	1.2	Non-detect
4/4/1996	21	Detect
4/1/1997	17	Detect
4/8/1998	2	Non-detect
6/9/1999	490	Detect
2/20/2001	0.97	Non-detect
8/4/2003	2	Non-detect
10/4/2005	390	Detect
11/6/2007	30	Detect
4/13/2009	25	Detect
3/2/1982	3700	Detect
3/16/1984	>500	Detect
10/29/1986	178	Detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	12	Non-detect
3/24/1994	5	Detect
4/20/1995	2	Non-detect
4/4/1996	32	Detect
4/1/1997	2	Non-detect
4/8/1998	2	Non-detect
6/10/1999	65	Detect
2/21/2001	7.7	Detect
8/5/2003	26	Detect
10/4/2005	137	Detect
11/6/2007	33	Detect
4/13/2009	1.5	Non-detect
3/3/1982	3700	Detect
3/16/1984	>500	Detect
11/1/1986	840	Detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	1.2	Non-detect
3/24/1994	2	Nondetect
4/21/1995	13	Detect
4/5/1996	159	Detect
4/1/1997	52	Detect
4/8/1998	4	Detect
6/10/1999	22	Detect
2/22/2001	3.3	Detect
8/5/2003	4.8	Non-detect
10/13/2005	1	Non-detect
11/13/2007	270	Detect
4/14/2009	2	Detect
3/3/1982	3700	Detect
3/16/1984	>500	Detect
11/1/1986	380	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
8/21/1989	6	Non-detect
8/17/1990	1	Non-detect
8/20/1991	2	Non-detect
9/1/1994	5	Non-detect
7/20/1995	18	Detect
7/8/1996	35	Detect
7/9/1997	114	Detect
7/18/1998	2	Non-detect
11/9/1999	8	Detect
12/27/2001	1	Detect
4/19/2004	9.7	Detect
3/27/2006	31	Detect
4/2/2008	390	Detect
7/20/2009	3.8	Detect
1/29/1981	761	Detect
8/6/1982	71	Detect
10/31/1984	910	Detect
1/18/1988	149	Detect
8/21/1989	6	Non-detect
8/17/1990	1	Non-detect
8/29/1991	0.49	Non-detect
9/6/1994	38	Detect
7/20/1995	12	Detect
7/8/1996	2	Non-detect
7/10/1997	46	Detect
7/20/1998	11	Detect
11/9/1999	1	Detect
12/27/2001	2	Non-detect
4/21/2004	0.96	Non-detect
3/27/2006	2	Non-detect
4/2/2008	606	Detect
7/20/2009	20	Detect
2/1/1981	20	Non-detect
8/6/1982	80	Detect
10/31/1984	740	Detect
1/18/1988	10	Non-detect
8/21/1989	6	Non-detect
8/17/1990	1	Non-detect
8/29/1991	0.49	Non-detect
9/6/1994	28	Detect
7/20/1995	2	Non-detect
7/8/1996	11	Detect
7/14/1997	20	Detect
7/20/1998	2	Non-detect
11/6/1999	40	Detect
1/2/2002	13	Detect
4/22/2004	0.98	Non-detect
3/29/2006	35	Detect
4/2/2008	590	Detect
7/20/2009	0.5	Detect
2/2/1981	190	Detect
8/13/1982	81	Detect
10/31/1984	910	Detect
1/18/1988	10	Non-detect
8/21/1989	6	Non-detect
8/17/1990	1	Non-detect
8/29/1991	0.49	Non-detect
9/9/1994	47	Detect
7/21/1995	16	Detect
7/8/1996	8	Detect
7/15/1997	2	Non-detect
7/20/1998	2	Non-detect
11/18/1999	33	Detect
1/2/2002	56	Detect
4/22/2004	0.99	Non-detect
3/29/2006	630	Detect
4/8/2008	29	Detect
7/20/2009	0.5	Non-detect
2/4/1981	1	Detect
8/19/1982	13.9	Detect
10/31/1984	740	Detect
2/2/1988	30.7	Detect
8/21/1989	6	Non-detect
8/17/1990	1	Non-detect
8/29/1991	0.49	Non-detect
9/14/1994	3.5	Detect
7/22/1995	50	Detect
7/8/1996	27	Detect
7/15/1997	2	Non-detect
7/20/1998	2	Non-detect
11/22/1999	85	Detect
1/3/2002	300	Detect
4/22/2004	0.96	Non-detect
3/29/2006	110	Detect
4/8/2008	15	Detect
7/20/2009	0.5	Non-detect

Date	PCBs (ppm)	Flag
1/15/1990	3.1	Non-detect
10/15/1990	12	Non-detect
6/26/1992	2	Non-detect
12/28/1994	2	Non-detect
10/30/1995	10	Non-detect
10/11/1996	7	Detect
11/10/1997	26	Detect
11/30/1998	2	Non-detect
2/11/2000	5.6	Detect
7/5/2002	1	Non-detect
10/28/2004	13	Detect
2/27/2007	1	Non-detect
10/1/2008	31.7	Detect
10/15/2009	87.2	Detect
4/1/1981	28	Detect
2/1/1983	2520	Detect
3/28/1985	7	Detect
2/22/1989	74	Detect
1/15/1990	3.1	Non-detect
10/15/1990	12	Non-detect
6/26/1992	5	Non-detect
12/29/1994	2	Non-detect
10/30/1995	40	Detect
10/14/1996	2	Non-detect
11/11/1997	23	Detect
11/30/1998	6.3	Detect
2/11/2000	1.6	Detect
7/8/2002	1	Non-detect
10/28/2004	13	Detect
2/27/2007	10	Detect
10/2/2008	14.3	Detect
10/15/2009	75.9	Detect
4/2/1981	10.6	Detect
2/1/1983	2880	Detect
3/28/1985	9	Detect
3/1/1989	410	Detect
1/15/1990	3.1	Non-detect
10/15/1990	12	Non-detect
6/26/1992	1	Non-detect
12/29/1994	5	Non-detect
10/31/1995	2	Non-detect
10/14/1996	2	Non-detect
11/11/1997	21	Detect
11/30/1998	120	Detect
2/14/2000	9.6	Non-detect
7/8/2002	0.99	Non-detect
10/28/2004	13	Detect
2/27/2007	150	Detect
10/3/2008	28.6	Detect
10/15/2009	94.3	Detect
4/2/1981	20	Detect
2/7/1983	10	Non-detect
4/1/1985	1720	Detect
3/1/1989	150	Detect
1/15/1990	14	Detect
10/15/1990	12	Non-detect
6/26/1992	2	Non-detect
12/29/1994	63	Detect
10/31/1995	2	Non-detect
10/15/1996	99	Detect
11/11/1997	2	Non-detect
11/30/1998	1	Non-detect
2/14/2000	0.89	Non-detect
7/9/2002	30	Detect
10/28/2004	14	Detect
2/28/2007	4	Non-detect
10/6/2008	21	Detect
10/15/2009	70.5	Detect
4/8/1981	11	Detect
2/9/1983	10	Non-detect
4/1/1985	4640	Detect
3/1/1989	57.5	Detect
2/1/1990	220	Detect
10/15/1990	12	Non-detect
6/26/1992	1	Non-detect
12/29/1994	63	Detect
11/1/1995	39	Detect
10/16/1996	20	Detect
11/13/1997	24	Detect
11/30/1998	1	Detect
2/14/2000	2.7	Detect
7/9/2002	28	Detect
11/2/2004	15	Detect
3/1/2007	1	Non-detect
10/8/2008	15	Detect
10/15/2009	23.1	Detect

Date	PCBs (ppm)	Flag
3/26/1990	3	Non-detect
1/1/1991	45	Detect
9/1/1993	5	Non-detect
3/9/1995	6	Detect
1/25/1996	2	Non-detect
1/2/1997	2	Non-detect
1/15/1998	150	Detect
3/19/1999	20	Non-detect
8/3/2000	45	Detect
2/3/2003	4.2	Detect
3/25/2005	540	Detect
8/8/2007	0.5	Non-detect
1/20/2009	310	Detect
1/13/2010	1.5	Non-detect
7/13/1981	12.6	Detect
11/4/1983	84	Detect
1/1/1986	120	Detect
4/28/1989	3	Non-detect
3/26/1990	3	Non-detect
1/1/1991	100	Detect
9/1/1993	56	Detect
3/9/1995	10	Detect
1/26/1996	290	Detect
1/3/1997	2	Non-detect
1/19/1998	2	Non-detect
3/20/1999	49	Detect
8/7/2000	2.8	Detect
2/3/2003	12	Detect
3/25/2005	89	Detect
8/9/2007	13.8	Detect
1/20/2009	1	Non-detect
1/14/2010	1	Non-detect
7/21/1981	10	Non-detect
11/8/1983	10	Non-detect
1/16/1986	1	Non-detect
4/28/1989	3	Non-detect
3/26/1990	3	Non-detect
1/21/1991	31	Non-detect
9/27/1993	1	Non-detect
3/9/1995	2	Non-detect
1/26/1996	19	Detect
1/3/1997	59	Detect
1/22/1998	22	Detect
3/22/1999	230	Detect
8/7/2000	9.6	Detect
2/4/2003	33	Detect
3/30/2005	23	Detect
8/9/2007	7.33	Detect
1/21/2009	1.5	Non-detect
1/14/2010	1.5	Non-detect
7/21/1981	10	Non-detect
11/8/1983	21	Detect
1/16/1986	5	Non-detect
4/28/1989	3	Non-detect
3/26/1990	3	Non-detect
1/21/1991	31	Non-detect
9/27/1993	20	Non-detect
3/10/1995	8	Detect
1/26/1996	4	Detect
1/6/1997	2	Non-detect
1/22/1998	22	Detect
3/22/1999	20	Detect
8/7/2000	32	Detect
2/5/2003	9.1	Detect
3/30/2005	24	Detect
8/13/2007	45	Detect
1/21/2009	37	Detect
1/14/2010	26	Detect
7/22/1981	86	Detect
11/15/1983	30	Detect
1/16/1986	5	Non-detect
4/28/1989	3	Non-detect
3/26/1990	3	Non-detect
1/21/1991	9	Detect
9/27/1993	56	Detect
3/10/1995	7	Detect
1/26/1996	16	Detect
1/6/1997	28	Detect
1/22/1998	144	Detect
3/22/1999	20	Non-detect
8/7/2000	0.97	Non-detect
2/5/2003	18	Detect
3/30/2005	1	Non-detect
8/13/2007	20	Detect
1/21/2009	41.3	Detect
1/17/2010	1.5	Non-detect

Date	PCBs (ppm)	Flag
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	1.2	Non-detect
4/1/1994	130	Detect
4/21/1995	89	Detect
4/6/1996	2	Non-detect
4/1/1997	26	Detect
4/9/1998	13	Detect
6/15/1999	26	Detect
3/1/2001	1	Non-detect
8/6/2003	1.9	Non-detect
10/13/2005	1	Non-detect
11/15/2007	1	Non-detect
4/14/2009	15	Detect
3/4/1982	15500	Detect
3/16/1984	>500	Detect
12/1/1986	180	Detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	1.2	Non-detect
4/1/1994	45	Detect
4/24/1995	52	Detect
4/6/1996	13	Detect
4/1/1997	45	Detect
4/9/1998	13	Detect
6/18/1999	14	Detect
3/5/2001	16	Detect
8/8/2003	2	Non-detect
10/13/2005	1	Non-detect
11/20/2007	310	Detect
4/15/2009	4.5	Detect
3/4/1982	15500	Detect
3/16/1984	>500	Detect
12/1/1986	460	Detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	1.2	Non-detect
4/4/1994	16	Detect
4/25/1995	25	Non-detect
4/8/1996	18	Detect
4/2/1997	2	Non-detect
4/13/1998	4	Detect
6/20/1999	64	Detect
3/5/2001	28	Detect
8/19/2003	47	Detect
10/13/2005	1	Non-detect
11/27/2007	0.5	Non-detect
4/15/2009	1	Non-detect
3/5/1982	3900	Detect
3/16/1984	>500	Detect
12/29/1986	5	Non-detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	1.2	Non-detect
4/8/1994	475	Detect
4/25/1995	25	Non-detect
4/8/1996	141	Detect
4/3/1997	2	Non-detect
4/13/1998	20	Detect
6/21/1999	46	Detect
3/15/2001	9.6	Detect
8/19/2003	40	Detect
10/13/2005	1	Non-detect
11/27/2007	1	Non-detect
4/16/2009	31	Detect
3/5/1982	3700	Detect
3/23/1984	300	Detect
12/29/1986	1	Non-detect
7/17/1989	1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	2.5	Detect
4/8/1994	57	Detect
4/25/1995	25	Non-detect
4/9/1996	92	Detect
4/5/1997	34	Detect
4/13/1998	897	Detect
6/22/1999	0.5	Non-detect
3/15/2001	41	Detect
8/20/2003	47	Detect
10/17/2005	0.2	Non-detect
11/28/2007	29	Detect
4/16/2009	1.5	Non-detect
3/5/1982	3900	Detect
3/23/1984	225	Detect
12/30/1986	329	Detect
7/17/1989	3.1	Non-detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
2/4/1981	540	Detect
8/27/1982	5	Non-detect
11/1/1984	1960	Detect
2/15/1988	25	Non-detect
8/21/1989	6	Non-detect
8/17/1990	1	Non-detect
8/29/1991	0.49	Non-detect
9/14/1994	5.2	Detect
7/24/1995	28	Detect
7/8/1996	4.2	Non-detect
7/16/1997	95	Detect
7/21/1998	2	Non-detect
11/30/1999	63	Detect
1/3/2002	700	Detect
4/23/2004	6	Detect
3/30/2006	1	Non-detect
4/9/2008	110	Detect
7/20/2009	0.5	Non-detect
2/5/1981	4	Detect
8/27/1982	5	Non-detect
11/1/1984	4680	Detect
2/15/1988	160	Detect
8/21/1989	6	Non-detect
8/17/1990	1	Non-detect
8/29/1991	0.98	Non-detect
9/14/1994	3.5	Detect
7/24/1995	2	Non-detect
7/8/1996	2.8	Non-detect
7/16/1997	38	Detect
7/25/1998	2	Non-detect
12/1/1999	5	Non-detect
1/9/2002	6.3	Detect
4/23/2004	207	Detect
4/1/2006	2	Non-detect
4/9/2008	74	Detect
7/20/2009	5.9	Detect
2/5/1981	5	Detect
8/31/1982	4.31	Detect
11/5/1984	1800	Detect
2/15/1988	160	Detect
8/21/1989	6	Non-detect
8/20/1990	6.2	Non-detect
8/29/1991	0.98	Non-detect
9/14/1994	5.2	Detect
7/25/1995	2	Non-detect
7/9/1996	26	Detect
7/16/1997	95	Detect
7/27/1998	7	Detect
12/2/1999	590	Detect
1/10/2002	13	Detect
4/27/2004	0.99	Non-detect
4/4/2006	1	Non-detect
4/9/2008	44	Detect
7/20/2009	16	Detect
2/5/1981	12	Detect
9/1/1982	39	Detect
11/5/1984	1800	Detect
2/15/1988	25	Non-detect
8/21/1989	6	Non-detect
8/20/1990	6.2	Non-detect
8/29/1991	0.5	Non-detect
9/19/1994	13	Detect
7/25/1995	2	Non-detect
7/9/1996	21	Detect
7/21/1997	2	Non-detect
7/30/1998	42	Detect
12/6/1999	21	Detect
1/14/2002	18	Detect
4/27/2004	1	Non-detect
4/6/2006	26	Detect
4/10/2008	40	Detect
7/21/2009	490	Detect
2/6/1981	64	Detect
9/1/1982	21	Detect
11/5/1984	1800	Detect
3/14/1988	300	Detect
8/21/1989	6	Non-detect
8/20/1990	6.2	Non-detect
8/29/1991	0.5	Non-detect
9/21/1994	10	Non-detect
7/25/1995	2	Non-detect
7/9/1996	6	Detect
7/21/1997	55	Detect
7/31/1998	2	Non-detect
12/7/1999	1	Non-detect
1/14/2002	73	Detect

Date	PCBs (ppm)	Flag
4/14/1981	23	Detect
2/10/1983	27	Detect
4/4/1985	2700	Detect
3/8/1989	842	Detect
2/1/1990	103	Detect
10/15/1990	12	Non-detect
6/26/1992	2	Non-detect
12/29/1994	5	Non-detect
11/1/1995	340	Detect
10/17/1996	63	Detect
11/13/1997	2	Non-detect
12/1/1998	50	Detect
2/15/2000	100	Detect
7/9/2002	29	Detect
11/2/2004	12	Detect
3/5/2007	1	Non-detect
10/9/2008	5.9	Detect
10/15/2009	4590	Detect
4/14/1981	1.5	Detect
2/10/1983	27	Detect
4/4/1985	2700	Detect
3/20/1989	49	Detect
2/12/1990	2	Detect
10/15/1990	12	Non-detect
6/26/1992	1	Non-detect
12/29/1994	5	Non-detect
11/1/1995	2	Non-detect
10/18/1996	40	Detect
11/17/1997	2	Non-detect
12/1/1998	18	Detect
2/17/2000	21	Detect
7/9/2002	0.99	Non-detect
11/2/2004	12	Detect
3/5/2007	23000	Detect
10/9/2008	1.5	Non-detect
10/15/2009	1430	Detect
4/14/1981	3.4	Detect
2/10/1983	145	Detect
4/4/1985	2700	Detect
3/20/1989	6	Non-detect
2/12/1990	2	Non-detect
10/15/1990	3	Non-detect
6/26/1992	1	Non-detect
12/29/1994	5	Non-detect
11/2/1995	31	Detect
10/18/1996	3	Detect
11/17/1997	2	Non-detect
12/1/1998	48	Detect
2/21/2000	53	Detect
7/9/2002	0.98	Non-detect
11/2/2004	16	Detect
3/6/2007	1.6	Detect
10/9/2008	100	Detect
10/15/2009	463	Detect
4/14/1981	7.1	Detect
2/21/1983	5	Non-detect
4/11/1985	28	Detect
3/20/1989	6	Non-detect
2/12/1990	2	Non-detect
10/15/1990	3	Non-detect
6/26/1992	2	Non-detect
12/29/1994	63	Detect
11/3/1995	2	Non-detect
10/19/1996	2	Non-detect
11/18/1997	2	Non-detect
12/2/1998	2	Non-detect
2/21/2000	16	Detect
7/11/2002	8.9	Detect
11/2/2004	60	Detect
3/7/2007	1	Non-detect
10/10/2008	26	Detect
10/15/2009	1120	Detect
4/14/1981	2	Non-detect
2/21/1983	5	Non-detect
4/11/1985	5	Non-detect
3/20/1989	6	Non-detect
2/12/1990	2	Non-detect
10/15/1990	3	Non-detect
6/26/1992	3	Non-detect
1/1/1995	200	Detect
11/3/1995	2	Non-detect
10/19/1996	6	Detect
11/18/1997	25	Detect
12/2/1998	10	Detect
2/21/2000	13	Detect
7/11/2002	36	Detect

Date	PCBs (ppm)	Flag
7/22/1981	86	Detect
11/15/1983	30	Detect
1/24/1986	5	Non-detect
4/28/1989	3	Non-detect
3/26/1990	3	Non-detect
1/21/1991	31	Non-detect
9/27/1993	1	Non-detect
3/13/1995	5.2	Detect
1/29/1996	2	Non-detect
1/6/1997	2	Non-detect
1/22/1998	144	Detect
3/23/1999	50	Detect
8/7/2000	2	Non-detect
2/5/2003	17	Detect
4/5/2005	3	Detect
8/16/2007	110	Detect
1/21/2009	3.7	Detect
1/17/2010	1.5	Non-detect
7/22/1981	10	Non-detect
11/29/1983	10	Non-detect
1/24/1986	54	Detect
4/28/1989	3	Non-detect
3/26/1990	3	Non-detect
1/21/1991	31	Non-detect
9/27/1993	20	Non-detect
3/13/1995	17	Detect
1/29/1996	2	Non-detect
1/6/1997	5	Detect
1/23/1998	180	Detect
3/23/1999	67	Detect
8/8/2000	24	Detect
2/5/2003	8.5	Detect
4/11/2005	20	Detect
8/16/2007	14.38	Detect
1/26/2009	1.5	Non-detect
1/18/2010	1	Non-detect
9/25/1981	118	Detect
11/29/1983	10	Non-detect
1/24/1986	528	Detect
4/28/1989	1	Non-detect
3/26/1990	1000	Detect
1/21/1991	31	Non-detect
9/27/1993	5	Non-detect
3/15/1995	73	Detect
1/29/1996	7	Detect
1/6/1997	2	Detect
1/28/1998	21	Detect
3/23/1999	20	Detect
8/9/2000	76	Detect
2/5/2003	16	Detect
4/15/2005	5.8	Detect
8/16/2007	9.38	Detect
1/26/2009	1.5	Non-detect
1/18/2010	21	Detect
9/25/1981	2	Non-detect
11/30/1983	582	Detect
1/24/1986	582	Detect
4/28/1989	1	Non-detect
3/26/1990	1000	Detect
1/21/1991	31	Non-detect
9/27/1993	56	Detect
3/17/1995	2	Non-detect
1/30/1996	62	Detect
1/6/1997	17	Detect
1/28/1998	2	Non-detect
3/24/1999	20	Detect
8/11/2000	8.9	Detect
2/5/2003	25	Detect
4/20/2005	10	Non-detect
8/16/2007	6.92	Detect
1/26/2009	31.9	Detect
1/18/2010	21	Detect
9/25/1981	549	Detect
11/30/1983	2970	Detect
1/24/1986	5	Non-detect
4/28/1989	1	Non-detect
3/26/1990	42	Non-detect
1/21/1991	31	Non-detect
10/8/1993	1380	Detect
3/17/1995	2	Non-detect
1/30/1996	79	Detect
1/10/1997	89	Detect
1/29/1998	3	Detect
3/24/1999	20	Detect
8/11/2000	64	Detect
2/10/2003	22	Detect

Date	PCBs (ppm)	Flag
5/24/1990	1	Non-detect
4/15/1991	1.2	Non-detect
4/8/1994	38	Detect
4/25/1995	25	Non-detect
4/9/1996	19	Detect
4/7/1997	31	Detect
4/14/1998	17	Detect
6/23/1999	1	Non-detect
3/16/2001	1	Non-detect
8/21/2003	2	Non-detect
10/17/2005	5	Non-detect
1/14/2008	9.1	Detect
4/16/2009	1.5	Non-detect
3/5/1982	3700	Detect
3/23/1984	136	Detect
12/30/1986	329	Detect
7/17/1989	3.1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	3.8	Detect
4/8/1994	12	Detect
4/25/1995	25	Non-detect
4/9/1996	18	Detect
4/7/1997	2	Detect
4/14/1998	101	Detect
6/29/1999	6.6	Detect
3/19/2001	24	Detect
8/21/2003	5.6	Detect
10/25/2005	10	Non-detect
1/14/2008	19	Detect
4/17/2009	773	Detect
3/8/1982	5	Non-detect
3/23/1984	78	Detect
1/1/1987	320	Detect
7/17/1989	3.1	Non-detect
5/24/1990	1	Non-detect
4/15/1991	4	Detect
4/8/1994	12	Detect
4/25/1995	25	Non-detect
4/10/1996	6	Detect
4/9/1997	24	Detect
4/14/1998	10	Detect
6/29/1999	1	Non-detect
3/19/2001	0.0005	Non-detect
8/21/2003	1	Non-detect
10/26/2005	19	Detect
1/14/2008	5.2	Detect
4/17/2009	22	Detect
3/8/1982	5	Non-detect
3/23/1984	4120	Detect
1/1/1987	100	Detect
7/17/1989	3.1	Non-detect
5/30/1990	5	Non-detect
4/15/1991	14	Detect
4/8/1994	6.3	Detect
4/25/1995	25	Non-detect
4/11/1996	6	Detect
4/9/1997	2	Non-detect
4/15/1998	38	Detect
6/30/1999	1	Non-detect
3/19/2001	6.3	Detect
8/27/2003	1900	Detect
10/26/2005	460	Detect
1/14/2008	40	Detect
4/20/2009	12	Detect
3/11/1982	5	Non-detect
3/23/1984	335	Detect
1/16/1987	2	Non-detect
7/17/1989	3.1	Non-detect
5/30/1990	5	Non-detect
4/15/1991	24	Detect
4/8/1994	1.4	Non-detect
4/25/1995	25	Non-detect
4/11/1996	13	Detect
4/9/1997	2	Non-detect
4/16/1998	28	Detect
7/1/1999	12	Detect
3/20/2001	26	Detect
8/28/2003	0.99	Non-detect
10/26/2005	9	Detect
1/14/2008	330	Detect
4/20/2009	24	Detect
3/22/1982	5	Non-detect
3/26/1984	10	Non-detect
1/16/1987	240	Detect
7/17/1989	3.1	Non-detect
5/30/1990	5	Non-detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
4/28/2004	0.95	Non-detect
4/6/2006	2.2	Detect
4/10/2008	28	Detect
7/21/2009	21	Detect
2/9/1981	90	Detect
9/1/1982	19	Detect
11/5/1984	1800	Detect
3/14/1988	300	Detect
8/21/1989	6	Non-detect
8/20/1990	6.2	Non-detect
8/29/1991	0.5	Non-detect
9/27/1994	2	Non-detect
7/31/1995	5	Detect
7/9/1996	2	Non-detect
7/21/1997	2	Non-detect
7/31/1998	11	Detect
12/9/1999	1.3	Detect
1/15/2002	20	Detect
4/29/2004	0.75	Non-detect
4/7/2006	2	Non-detect
4/11/2008	100	Detect
7/21/2009	21	Detect
2/10/1981	46	Non-detect
9/1/1982	16	Detect
11/29/1984	10	Non-detect
3/14/1988	219	Detect
8/21/1989	6	Non-detect
8/20/1990	6.2	Non-detect
8/29/1991	0.5	Non-detect
9/28/1994	5	Non-detect
7/31/1995	8	Detect
7/9/1996	170	Detect
7/21/1997	2	Non-detect
8/4/1998	87	Detect
12/9/1999	0.91	Non-detect
1/16/2002	38	Detect
4/29/2004	0.81	Non-detect
4/11/2006	1	Non-detect
4/11/2008	57	Detect
7/21/2009	1.5	Non-detect
2/13/1981	16000	Detect
9/21/1982	10	Non-detect
11/30/1984	20	Non-detect
3/14/1988	205	Detect
8/21/1989	6	Non-detect
8/20/1990	6.2	Non-detect
8/29/1991	0.5	Non-detect
9/28/1994	5	Non-detect
7/31/1995	17	Detect
7/9/1996	96	Detect
7/24/1997	2	Non-detect
8/4/1998	16	Detect
12/10/1999	35	Detect
1/16/2002	92	Detect
5/10/2004	0.99	Non-detect
4/12/2006	20	Non-detect
4/11/2008	190	Detect
7/23/2009	1.5	Non-detect
2/17/1981	5	Non-detect
9/28/1982	10	Non-detect
12/1/1984	4700	Detect
3/14/1988	180	Detect
8/21/1989	6	Non-detect
8/20/1990	6.2	Non-detect
8/29/1991	0.99	Non-detect
9/28/1994	5	Non-detect
8/1/1995	14	Detect
7/9/1996	58	Detect
7/24/1997	3.2	Detect
8/4/1998	6.6	Detect
12/20/1999	110	Detect
1/16/2002	16	Detect
5/12/2004	31	Detect
4/12/2006	59	Detect
4/14/2008	18	Detect
7/23/2009	1.5	Non-detect
2/17/1981	5	Non-detect
9/28/1982	5	Non-detect
12/1/1984	5000	Detect
3/14/1988	160	Detect
8/21/1989	6	Non-detect
8/22/1990	22	Detect
8/29/1991	0.99	Non-detect
9/28/1994	5	Non-detect
8/8/1995	1	Non-detect
7/10/1996	2	Non-detect

Date	PCBs (ppm)	Flag
11/2/2004	0.99	Non-detect
3/12/2007	10	Non-detect
10/14/2008	8.5	Detect
10/15/2009	53.1	Detect
4/16/1981	53	Detect
2/21/1983	5	Non-detect
4/11/1985	15	Non-detect
3/20/1989	6	Non-detect
2/12/1990	2	Non-detect
10/15/1990	3	Non-detect
6/26/1992	2	Non-detect
1/1/1995	2	Non-detect
11/6/1995	2	Non-detect
10/21/1996	8	Detect
11/20/1997	2	Non-detect
12/2/1998	2.1	Detect
2/21/2000	33	Detect
7/11/2002	6.2	Detect
11/3/2004	13	Detect
3/13/2007	10	Non-detect
10/15/2008	1.5	Non-detect
10/15/2009	150	Detect
4/21/1981	12	Detect
2/21/1983	5	Non-detect
4/11/1985	193	Detect
3/20/1989	6	Non-detect
2/12/1990	2	Non-detect
10/15/1990	3	Non-detect
6/26/1992	1	Non-detect
1/1/1995	50	Non-detect
11/6/1995	2	Non-detect
10/22/1996	2	Non-detect
11/20/1997	2	Non-detect
12/2/1998	19	Detect
2/22/2000	5300	Detect
7/15/2002	42	Detect
11/4/2004	0.99	Non-detect
3/13/2007	10	Non-detect
10/15/2008	16	Detect
10/15/2009	2490	Detect
4/22/1981	2	Non-detect
2/21/1983	5	Non-detect
4/11/1985	221	Detect
3/20/1989	6	Non-detect
2/12/1990	2	Non-detect
10/15/1990	3	Non-detect
6/26/1992	1	Non-detect
1/1/1995	50	Non-detect
11/8/1995	2	Non-detect
10/22/1996	2	Non-detect
11/20/1997	2	Non-detect
12/3/1998	20	Detect
2/22/2000	1.8	Detect
7/15/2002	32	Detect
11/4/2004	0.99	Non-detect
3/13/2007	11	Detect
10/15/2008	400	Detect
10/15/2009	3100	Detect
4/27/1981	86	Detect
2/21/1983	4680	Detect
4/11/1985	1380	Detect
3/20/1989	6	Non-detect
2/19/1990	2	Non-detect
10/15/1990	3	Non-detect
6/26/1992	1	Non-detect
1/3/1995	32	Detect
11/9/1995	2	Non-detect
10/23/1996	2	Non-detect
11/22/1997	34	Detect
12/3/1998	3.2	Detect
2/27/2000	0.98	Non-detect
7/15/2002	0.97	Non-detect
11/4/2004	0.99	Non-detect
3/20/2007	5.7	Detect
10/15/2008	260	Detect
10/15/2009	1190	Detect
4/29/1981	120	Detect
2/21/1983	5	Non-detect
4/11/1985	5	Non-detect
3/20/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	3	Non-detect
6/26/1992	1	Non-detect
1/3/1995	12	Detect
11/10/1995	2	Non-detect
10/23/1996	23	Detect

Date	PCBs (ppm)	Flag
4/21/2005	7.2	Detect
8/21/2007	27	Detect
1/26/2009	47.3	Detect
1/18/2010	24	Detect
9/25/1981	10	Non-detect
12/1/1983	4700	Detect
2/1/1986	42	Detect
4/28/1989	1	Non-detect
3/26/1990	42	Non-detect
1/21/1991	31	Non-detect
10/8/1993	62	Detect
3/21/1995	16	Detect
1/30/1996	66	Detect
1/14/1997	19	Detect
1/29/1998	85	Detect
3/24/1999	40	Detect
8/11/2000	16	Detect
2/11/2003	7	Detect
4/25/2005	1	Non-detect
8/21/2007	40	Detect
1/26/2009	20.2	Detect
1/18/2010	5.6	Detect
9/25/1981	1180	Detect
12/1/1983	1850	Detect
2/1/1986	230	Detect
4/28/1989	1	Non-detect
3/26/1990	42	Non-detect
1/21/1991	110	Detect
10/8/1993	27	Detect
3/21/1995	62	Detect
1/30/1996	29	Detect
1/14/1997	11	Detect
1/29/1998	5	Detect
3/26/1999	13.5	Detect
8/11/2000	64	Detect
2/11/2003	111	Detect
4/26/2005	14	Detect
8/21/2007	28	Detect
1/26/2009	2.2	Detect
1/18/2010	23	Detect
9/25/1981	1730	Detect
12/1/1983	910	Detect
2/19/1986	2	Non-detect
4/28/1989	1	Non-detect
3/26/1990	42	Non-detect
1/21/1991	3	Non-detect
10/8/1993	7.3	Detect
3/22/1995	31	Detect
1/30/1996	2	Non-detect
1/15/1997	21	Detect
1/29/1998	154	Detect
3/30/1999	20	Detect
8/11/2000	17	Detect
2/11/2003	7	Detect
4/27/2005	13	Detect
8/21/2007	540	Detect
1/26/2009	6.5	Detect
1/18/2010	1.5	Non-detect
9/25/1981	10	Non-detect
12/7/1983	1100	Detect
2/20/1986	304	Detect
4/28/1989	1	Non-detect
3/26/1990	42	Non-detect
1/21/1991	3	Non-detect
10/8/1993	3.9	Non-detect
3/28/1995	127	Detect
1/31/1996	2	Non-detect
1/15/1997	7	Detect
1/29/1998	154	Detect
3/30/1999	50	Detect
8/11/2000	16	Detect
2/12/2003	9.4	Detect
4/27/2005	1	Non-detect
8/21/2007	600	Detect
1/26/2009	10.7	Detect
1/18/2010	1.5	Non-detect
9/25/1981	10.4	Detect
12/7/1983	910	Detect
2/20/1986	304	Detect
4/28/1989	6	Non-detect
3/26/1990	42	Non-detect
1/21/1991	3	Non-detect
10/8/1993	2.7	Non-detect
3/28/1995	59	Detect
1/31/1996	16	Detect
1/15/1997	1	Non-detect

Date	PCBs (ppm)	Flag
5/1/1991	32	Detect
4/8/1994	1	Non-detect
4/25/1995	25	Non-detect
4/11/1996	2	Non-detect
4/10/1997	60	Detect
4/17/1998	24	Detect
7/2/1999	2	Non-detect
3/20/2001	21	Detect
9/16/2003	4.4	Detect
10/31/2005	1	Non-detect
1/14/2008	2	Non-detect
4/20/2009	23	Detect
3/22/1982	155	Detect
3/26/1984	538	Detect
1/16/1987	240	Detect
7/17/1989	4	Detect
5/30/1990	5	Non-detect
5/20/1991	5	Non-detect
4/22/1994	3	Non-detect
4/26/1995	13	Detect
4/15/1996	2	Non-detect
4/10/1997	2	Non-detect
4/18/1998	2	Non-detect
7/2/1999	2	Non-detect
3/21/2001	0.98	Non-detect
9/22/2003	5.6	Detect
11/10/2005	24	Detect
1/14/2008	47	Detect
4/21/2009	20	Detect
3/22/1982	155	Detect
3/26/1984	1660	Detect
1/16/1987	2	Non-detect
7/17/1989	3.1	Non-detect
5/30/1990	5	Non-detect
5/20/1991	5	Non-detect
4/26/1994	5	Non-detect
4/26/1995	15	Detect
4/16/1996	13	Detect
4/10/1997	2	Non-detect
4/20/1998	18	Detect
7/6/1999	23	Detect
3/22/2001	62	Detect
9/23/2003	1	Non-detect
11/30/2005	50	Detect
1/15/2008	89	Detect
4/21/2009	16	Detect
3/22/1982	5	Non-detect
3/26/1984	16	Detect
1/30/1987	660	Detect
7/19/1989	1	Non-detect
5/30/1990	5	Non-detect
5/20/1991	5	Non-detect
5/1/1994	140	Detect
4/26/1995	2	Non-detect
4/18/1996	2	Non-detect
4/10/1997	2	Non-detect
4/20/1998	18	Detect
7/6/1999	12	Detect
3/22/2001	59	Detect
9/23/2003	0.97	Non-detect
11/30/2005	410	Detect
1/15/2008	110	Detect
4/24/2009	15	Detect
3/22/1982	5	Non-detect
3/26/1984	10	Non-detect
1/30/1987	660	Detect
7/19/1989	1	Non-detect
5/30/1990	5	Non-detect
5/20/1991	5	Non-detect
5/1/1994	180	Detect
4/26/1995	28	Detect
4/19/1996	6	Detect
4/14/1997	731	Detect
4/21/1998	2	Non-detect
7/6/1999	3.3	Detect
3/22/2001	73	Detect
9/24/2003	20	Detect
11/30/2005	94	Detect
1/15/2008	100	Detect
4/27/2009	6.6	Detect
3/22/1982	5	Non-detect
3/28/1984	260	Detect
2/1/1987	360	Detect
7/19/1989	1	Non-detect
6/18/1990	34	Detect
5/20/1991	5	Non-detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
7/25/1997	2	Non-detect
8/7/1998	2	Non-detect
12/23/1999	2	Non-detect
1/16/2002	4.7	Detect
5/13/2004	11	Detect
4/12/2006	4.6	Detect
4/15/2008	18	Detect
7/24/2009	1	Non-detect
2/20/1981	150	Detect
9/29/1982	1	Non-detect
12/5/1984	370	Detect
3/14/1988	150	Detect
8/21/1989	6	Non-detect
8/22/1990	16	Detect
8/30/1991	8	Detect
9/28/1994	131	Detect
8/8/1995	1	Non-detect
7/10/1996	120	Detect
7/30/1997	14	Detect
8/10/1998	0.3	Detect
12/27/1999	50	Detect
1/16/2002	89	Detect
5/14/2004	34	Detect
4/13/2006	1	Non-detect
4/15/2008	33	Detect
7/27/2009	26	Detect
2/23/1981	7.8	Detect
9/30/1982	2	Non-detect
12/5/1984	870	Detect
3/21/1988	20	Non-detect
8/21/1989	6	Non-detect
8/22/1990	9.5	Detect
8/30/1991	8	Detect
9/30/1994	39	Detect
8/14/1995	2	Non-detect
7/10/1996	27	Detect
7/31/1997	6	Detect
8/10/1998	2	Non-detect
12/27/1999	42	Detect
1/17/2002	6.3	Detect
5/26/2004	11	Detect
4/13/2006	20	Non-detect
4/15/2008	22	Detect
7/27/2009	0.5	Detect
2/23/1981	19	Detect
9/30/1982	2	Non-detect
12/5/1984	760	Detect
3/21/1988	221	Detect
8/21/1989	6	Non-detect
8/27/1990	103	Detect
9/16/1991	21	Detect
9/30/1994	3	Detect
8/14/1995	102	Detect
7/10/1996	19	Detect
7/31/1997	2	Non-detect
8/17/1998	30	Detect
12/28/1999	1	Non-detect
1/17/2002	0.98	Non-detect
5/26/2004	1	Non-detect
4/18/2006	20	Non-detect
4/25/2008	30	Detect
7/27/2009	0.5	Non-detect
2/23/1981	27	Detect
9/30/1982	2	Non-detect
12/5/1984	900	Detect
3/21/1988	221	Detect
8/21/1989	6	Non-detect
8/28/1990	0.001	Non-detect
9/16/1991	21	Detect
9/30/1994	2	Non-detect
8/16/1995	27	Detect
7/10/1996	6.8	Detect
8/1/1997	2	Non-detect
8/17/1998	2	Non-detect
12/28/1999	1	Non-detect
1/18/2002	8.7	Detect
5/26/2004	7	Detect
4/18/2006	2	Non-detect
4/25/2008	12.2	Detect
7/27/2009	0.5	Non-detect
2/23/1981	30	Detect
9/30/1982	6.26	Detect
12/5/1984	370	Detect
3/21/1988	20	Non-detect
8/21/1989	6	Non-detect
8/28/1990	0.001	Non-detect

Date	PCBs (ppm)	Flag
11/25/1997	2	Non-detect
12/3/1998	8.8	Detect
2/28/2000	150	Detect
7/16/2002	36	Detect
11/4/2004	24	Detect
3/21/2007	100	Detect
10/15/2008	260	Detect
10/15/2009	123	Detect
5/1/1981	0.245	Detect
2/21/1983	5	Non-detect
4/11/1985	5	Non-detect
3/20/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	3	Non-detect
7/1/1992	41	Detect
1/3/1995	16	Detect
11/13/1995	4	Detect
10/24/1996	2	Non-detect
11/25/1997	2	Non-detect
12/3/1998	14	Detect
3/2/2000	200	Detect
7/17/2002	68	Detect
11/5/2004	0.98	Non-detect
3/22/2007	0.5	Non-detect
10/15/2008	330	Detect
10/15/2009	277	Detect
5/1/1981	2580	Detect
2/22/1983	14	Detect
4/25/1985	5	Non-detect
3/20/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	3	Non-detect
7/1/1992	96	Detect
1/3/1995	146	Detect
11/15/1995	2	Non-detect
10/25/1996	2	Non-detect
11/26/1997	2	Non-detect
12/6/1998	2	Non-detect
3/3/2000	67	Detect
7/17/2002	20	Detect
11/8/2004	1	Non-detect
3/26/2007	0.5	Non-detect
10/15/2008	330	Detect
10/15/2009	290	Detect
5/5/1981	13	Detect
2/23/1983	10	Non-detect
4/30/1985	1988	Detect
3/20/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	3	Non-detect
7/16/1992	1.94	Non-detect
1/3/1995	2	Non-detect
11/16/1995	74	Detect
10/28/1996	8	Detect
12/2/1997	2	Non-detect
12/7/1998	2	Non-detect
3/6/2000	2	Non-detect
7/19/2002	7.6	Detect
11/8/2004	0.99	Non-detect
3/27/2007	21	Detect
10/15/2008	200	Detect
10/15/2009	324	Detect
5/5/1981	5	Non-detect
3/1/1983	1400	Detect
4/30/1985	254	Detect
3/20/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	3	Non-detect
7/16/1992	1.94	Non-detect
1/3/1995	18	Detect
11/16/1995	4	Detect
10/30/1996	2	Non-detect
12/3/1997	102	Detect
12/8/1998	4	Detect
3/7/2000	270	Detect
7/22/2002	50	Detect
11/18/2004	16	Detect
3/28/2007	2.5	Non-detect
10/15/2008	370	Detect
10/15/2009	300	Detect
5/6/1981	5	Non-detect
3/1/1983	1690	Detect
4/30/1985	174	Detect
3/20/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	3	Non-detect

Date	PCBs (ppm)	Flag
1/30/1998	102	Detect
3/31/1999	26	Detect
8/11/2000	16	Detect
2/18/2003	9.1	Detect
4/28/2005	4.2	Detect
8/21/2007	340	Detect
1/26/2009	44.5	Detect
1/19/2010	290	Detect
9/25/1981	24	Detect
12/7/1983	1100	Detect
2/20/1986	1	Detect
4/28/1989	6	Non-detect
3/26/1990	3	Non-detect
1/21/1991	3	Non-detect
10/8/1993	2.1	Non-detect
3/28/1995	24	Detect
1/31/1996	64	Detect
1/15/1997	2	Detect
1/30/1998	3	Detect
3/31/1999	2	Non-detect
8/11/2000	17	Detect
2/18/2003	0.97	Non-detect
4/28/2005	13	Detect
8/21/2007	300	Detect
1/26/2009	29.8	Detect
1/19/2010	1.5	Non-detect
9/28/1981	2	Non-detect
12/7/1983	910	Detect
3/1/1986	53	Detect
4/28/1989	6	Non-detect
3/26/1990	3	Non-detect
1/21/1991	3	Non-detect
10/8/1993	1.1	Non-detect
3/29/1995	25	Non-detect
1/31/1996	6	Detect
1/16/1997	2	Non-detect
2/3/1998	17	Detect
4/1/1999	19	Detect
8/11/2000	16	Detect
2/19/2003	9.6	Detect
4/29/2005	5.8	Detect
8/22/2007	39	Detect
1/26/2009	46.9	Detect
1/19/2010	16	Detect
9/28/1981	2	Non-detect
12/7/1983	1100	Detect
3/1/1986	230	Detect
4/28/1989	6	Non-detect
3/26/1990	3	Non-detect
1/21/1991	3	Non-detect
11/1/1993	100	Detect
3/29/1995	25	Non-detect
1/31/1996	2	Non-detect
1/16/1997	10	Detect
2/5/1998	190	Detect
4/1/1999	11	Detect
8/14/2000	0.98	Non-detect
2/26/2003	8.6	Detect
5/4/2005	1	Non-detect
8/27/2007	0.455	Non-detect
1/26/2009	26.5	Detect
1/25/2010	1.5	Non-detect
9/28/1981	18	Detect
12/7/1983	910	Detect
3/3/1986	76	Detect
4/28/1989	6	Non-detect
3/26/1990	3	Non-detect
1/21/1991	370	Detect
11/1/1993	1	Non-detect
3/29/1995	25	Non-detect
2/1/1996	1	Non-detect
1/16/1997	28	Detect
2/5/1998	190	Detect
4/1/1999	3.9	Detect
8/15/2000	32	Detect
2/28/2003	90	Detect
5/5/2005	1	Non-detect
8/28/2007	130	Detect
1/26/2009	21.5	Detect
1/31/2010	5.2	Detect
10/15/1981	16	Detect
12/7/1983	1100	Detect
3/3/1986	76	Detect
4/28/1989	6	Non-detect
3/26/1990	3	Non-detect
1/21/1991	31	Non-detect

Date	PCBs (ppm)	Flag
5/1/1994	79	Detect
4/27/1995	19	Detect
4/19/1996	220	Detect
4/15/1997	4	Detect
4/22/1998	2	Non-detect
7/6/1999	1	Non-detect
3/23/2001	5	Non-detect
10/30/2003	1080	Detect
12/27/2005	14	Detect
1/15/2008	17	Detect
4/28/2009	97	Detect
3/22/1982	8470	Detect
3/30/1984	84	Detect
2/1/1987	220	Detect
7/19/1989	1	Non-detect
6/18/1990	41	Detect
5/20/1991	9.9	Non-detect
5/9/1994	15	Detect
4/28/1995	2	Non-detect
4/19/1996	21	Detect
4/16/1997	24	Detect
4/22/1998	2	Non-detect
7/7/1999	1	Non-detect
4/4/2001	23	Detect
10/30/2003	248	Detect
12/27/2005	50	Detect
1/16/2008	2	Non-detect
4/29/2009	15	Detect
3/22/1982	5	Non-detect
4/1/1984	950	Detect
2/1/1987	90	Detect
7/19/1989	1	Non-detect
6/18/1990	25	Non-detect
5/20/1991	9.9	Non-detect
5/18/1994	1.7	Detect
4/28/1995	2	Non-detect
4/19/1996	6.2	Detect
4/16/1997	82	Detect
4/22/1998	2	Non-detect
7/12/1999	1	Non-detect
4/5/2001	16	Detect
11/10/2003	1	Non-detect
12/27/2005	350	Detect
1/17/2008	4.4	Detect
5/4/2009	38	Detect
3/22/1982	155	Detect
4/1/1984	870	Detect
2/2/1987	1	Non-detect
7/19/1989	1	Non-detect
6/18/1990	25	Non-detect
5/20/1991	5	Non-detect
5/18/1994	0.58	Detect
4/28/1995	2	Non-detect
4/19/1996	5.7	Detect
4/16/1997	2	Non-detect
4/23/1998	2	Non-detect
7/12/1999	1	Non-detect
4/5/2001	20	Non-detect
11/12/2003	0.95	Non-detect
12/27/2005	15	Detect
1/17/2008	2	Non-detect
5/5/2009	1.5	Non-detect
3/22/1982	5	Non-detect
4/11/1984	5	Non-detect
2/5/1987	1500	Detect
7/19/1989	1	Non-detect
6/18/1990	25	Non-detect
5/20/1991	5	Non-detect
5/18/1994	1.7	Detect
5/1/1995	250	Detect
4/22/1996	2	Non-detect
4/16/1997	2	Non-detect
4/24/1998	37	Detect
7/12/1999	2800	Detect
4/5/2001	20	Non-detect
11/21/2003	7	Detect
1/10/2006	1	Non-detect
1/21/2008	2	Non-detect
5/5/2009	130	Detect
3/22/1982	5	Non-detect
4/24/1984	1	Non-detect
2/20/1987	5	Non-detect
7/25/1989	38	Detect
6/18/1990	25	Non-detect
5/20/1991	5	Non-detect
5/18/1994	0.58	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
9/16/1991	21	Detect
9/30/1994	2	Non-detect
8/16/1995	75	Detect
7/11/1996	2	Non-detect
8/13/1997	8.9	Detect
8/17/1998	129	Detect
12/28/1999	0.98	Non-detect
1/21/2002	21	Detect
6/1/2004	0.98	Non-detect
4/19/2006	2	Non-detect
4/30/2008	36	Detect
7/27/2009	13.7	Detect
2/23/1981	32	Detect
10/7/1982	593	Detect
12/5/1984	870	Detect
4/1/1988	260	Detect
9/18/1989	35	Detect
8/28/1990	0.001	Non-detect
9/17/1991	57	Detect
9/30/1994	23.9	Detect
8/25/1995	2	Non-detect
7/12/1996	55	Detect
8/14/1997	20.2	Detect
8/18/1998	2	Non-detect
12/30/1999	2	Non-detect
1/21/2002	25	Detect
6/17/2004	1	Non-detect
4/24/2006	20	Non-detect
4/30/2008	16	Detect
7/27/2009	0.5	Non-detect
2/23/1981	31.5	Detect
10/18/1982	88	Detect
12/5/1984	760	Detect
4/1/1988	156	Detect
9/18/1989	2.2	Non-detect
8/28/1990	0.001	Non-detect
9/17/1991	55	Detect
9/30/1994	42	Detect
8/29/1995	34	Detect
7/16/1996	2	Non-detect
8/19/1997	35.8	Detect
8/18/1998	2	Non-detect
12/30/1999	46	Detect
1/21/2002	39	Detect
6/28/2004	1	Non-detect
4/25/2006	2	Non-detect
5/2/2008	17	Detect
7/27/2009	4.4	Detect
2/23/1981	39	Detect
10/25/1982	5	Non-detect
12/5/1984	900	Detect
4/1/1988	30	Non-detect
9/18/1989	2.2	Non-detect
8/28/1990	0.001	Non-detect
9/17/1991	55	Detect
10/1/1994	150	Detect
9/1/1995	31	Detect
7/17/1996	2	Non-detect
8/26/1997	10	Non-detect
8/19/1998	34	Detect
12/30/1999	13	Detect
1/21/2002	26	Detect
6/29/2004	11	Detect
4/26/2006	20	Non-detect
5/3/2008	20	Detect
8/3/2009	28	Detect
2/23/1981	45	Detect
10/25/1982	11	Detect
12/5/1984	1200	Detect
4/1/1988	141	Detect
9/18/1989	2.2	Non-detect
8/28/1990	0.001	Non-detect
9/18/1991	36	Detect
10/1/1994	180	Detect
9/1/1995	1	Non-detect
7/17/1996	2	Non-detect
8/28/1997	4	Detect
8/19/1998	21	Detect
12/30/1999	23	Detect
1/22/2002	0.98	Non-detect
7/5/2004	2.6	Detect
4/27/2006	20	Non-detect
5/5/2008	65	Detect
8/3/2009	21	Detect
2/23/1981	46.3	Detect
10/25/1982	5	Non-detect

Date	PCBs (ppm)	Flag
8/1/1992	280	Detect
1/4/1995	14	Detect
11/16/1995	2	Non-detect
10/31/1996	16	Detect
12/3/1997	19	Detect
12/9/1998	2	Non-detect
3/8/2000	65	Detect
7/23/2002	7.2	Detect
11/18/2004	7	Detect
3/29/2007	1	Non-detect
10/16/2008	1.5	Non-detect
10/15/2009	479	Detect
5/8/1981	81	Detect
3/1/1983	5	Non-detect
4/30/1985	120	Detect
3/21/1989	47	Detect
2/19/1990	2	Non-detect
10/15/1990	3	Non-detect
8/1/1992	260	Detect
1/4/1995	20	Detect
11/20/1995	111	Detect
11/1/1996	541	Detect
12/3/1997	15	Detect
12/9/1998	3100	Detect
3/8/2000	39	Detect
7/23/2002	2	Detect
11/18/2004	58	Detect
3/30/2007	2.5	Non-detect
10/16/2008	140	Detect
10/15/2009	421	Detect
5/14/1981	30	Detect
3/2/1983	10	Non-detect
4/30/1985	97	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	12	Non-detect
9/21/1992	10	Non-detect
1/4/1995	33	Detect
11/20/1995	2	Non-detect
11/1/1996	2	Non-detect
12/3/1997	15	Detect
12/10/1998	2	Non-detect
3/8/2000	2	Non-detect
7/30/2002	0.96	Non-detect
11/18/2004	6	Detect
4/2/2007	1	Non-detect
10/16/2008	5	Detect
10/15/2009	4.85	Detect
5/15/1981	36	Detect
3/9/1983	10	Non-detect
5/1/1985	1000	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	12	Non-detect
9/21/1992	10	Non-detect
1/4/1995	27	Detect
11/20/1995	2	Non-detect
11/7/1996	2	Non-detect
12/5/1997	670	Detect
12/10/1998	260	Detect
3/13/2000	16	Detect
7/30/2002	5.2	Detect
11/24/2004	7	Detect
4/2/2007	10	Detect
10/16/2008	57	Detect
10/15/2009	9	Detect
5/15/1981	105	Detect
3/9/1983	10	Non-detect
5/1/1985	1300	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	12	Non-detect
9/21/1992	10	Non-detect
1/4/1995	12	Detect
11/21/1995	61	Detect
11/12/1996	2	Non-detect
12/5/1997	500	Detect
12/10/1998	300	Detect
3/20/2000	140	Detect
7/31/2002	2300	Detect
11/24/2004	6	Detect
4/2/2007	190	Detect
10/16/2008	3	Detect
10/16/2009	11	Detect
5/15/1981	5	Non-detect
3/16/1983	2500	Detect

Date	PCBs (ppm)	Flag
11/1/1993	8	Detect
3/29/1995	25	Non-detect
2/1/1996	200	Detect
1/20/1997	24	Detect
2/6/1998	2	Non-detect
4/1/1999	2	Non-detect
8/15/2000	17	Detect
2/28/2003	780	Detect
5/6/2005	39	Detect
8/28/2007	2.5	Non-detect
1/26/2009	170	Detect
1/31/2010	29	Detect
10/23/1981	2	Non-detect
12/7/1983	910	Detect
3/3/1986	76	Detect
4/28/1989	1	Non-detect
3/26/1990	3	Non-detect
1/21/1991	31	Non-detect
11/18/1993	10	Detect
3/29/1995	12	Detect
2/1/1996	95	Detect
1/20/1997	8	Detect
2/9/1998	44	Detect
4/6/1999	24	Detect
8/16/2000	56	Detect
3/17/2003	14	Detect
5/6/2005	420	Detect
8/29/2007	3.9	Detect
1/27/2009	1.5	Non-detect
1/31/2010	21	Detect
10/26/1981	7	Detect
12/7/1983	1100	Detect
3/17/1986	5	Non-detect
4/28/1989	1	Non-detect
3/26/1990	3	Non-detect
1/21/1991	31	Non-detect
11/19/1993	4	Detect
3/29/1995	89	Detect
2/1/1996	2	Non-detect
1/20/1997	2.1	Detect
2/12/1998	6	Detect
4/6/1999	2	Non-detect
8/21/2000	1	Non-detect
3/20/2003	1200	Detect
5/6/2005	11	Detect
8/29/2007	9	Detect
1/28/2009	44.6	Detect
2/17/2010	200	Detect
10/27/1981	40	Detect
12/7/1983	910	Detect
3/17/1986	5	Non-detect
4/28/1989	1	Non-detect
3/26/1990	0.1	Non-detect
1/21/1991	31	Non-detect
11/19/1993	4	Detect
3/29/1995	32	Detect
2/5/1996	119	Detect
1/21/1997	11	Detect
2/12/1998	5	Detect
4/8/1999	20	Non-detect
8/23/2000	1	Non-detect
3/20/2003	22	Detect
5/9/2005	1	Non-detect
8/30/2007	1	Non-detect
1/28/2009	39	Detect
2/17/2010	1400	Detect
10/27/1981	2	Non-detect
12/7/1983	1100	Detect
3/20/1986	5	Non-detect
4/28/1989	1	Non-detect
4/1/1990	120	Detect
2/1/1991	29	Detect
11/23/1993	3	Non-detect
3/29/1995	2	Non-detect
2/6/1996	25	Detect
1/21/1997	960	Detect
2/12/1998	7	Detect
4/12/1999	36	Detect
8/31/2000	39	Detect
3/24/2003	2.6	Detect
5/10/2005	1	Non-detect
9/5/2007	20	Detect
1/29/2009	22.7	Detect
2/21/2010	1.5	Non-detect
10/27/1981	5	Non-detect
12/9/1983	400	Detect

Date	PCBs (ppm)	Flag
5/1/1995	45	Detect
4/23/1996	7	Detect
4/17/1997	37	Detect
4/24/1998	15	Detect
7/12/1999	8.2	Detect
4/6/2001	13	Detect
11/21/2003	90	Detect
1/10/2006	1	Non-detect
1/21/2008	2	Non-detect
5/5/2009	350	Detect
3/22/1982	5	Non-detect
4/24/1984	365	Detect
2/20/1987	375	Detect
7/25/1989	268	Detect
6/18/1990	25	Non-detect
5/20/1991	5	Non-detect
5/24/1994	1	Non-detect
5/1/1995	0.001	Non-detect
4/23/1996	2	Non-detect
4/17/1997	2	Non-detect
4/27/1998	2	Non-detect
7/12/1999	1	Non-detect
4/17/2001	14	Detect
11/21/2003	7	Detect
1/10/2006	13	Detect
1/22/2008	110	Detect
5/5/2009	150	Detect
3/22/1982	5	Non-detect
4/24/1984	661	Detect
2/20/1987	375	Detect
7/25/1989	59	Detect
6/18/1990	25	Non-detect
5/20/1991	5	Non-detect
5/24/1994	2	Non-detect
5/1/1995	2	Non-detect
4/24/1996	8	Detect
4/18/1997	16	Detect
4/28/1998	2	Non-detect
7/13/1999	4.7	Detect
4/26/2001	0.99	Non-detect
12/22/2003	49	Detect
1/10/2006	2	Non-detect
1/22/2008	5800	Detect
5/6/2009	26	Detect
3/23/1982	8.47	Detect
4/24/1984	1	Non-detect
2/20/1987	2	Non-detect
7/25/1989	56	Detect
6/18/1990	76	Detect
5/20/1991	10	Non-detect
5/24/1994	2	Non-detect
5/1/1995	5	Non-detect
4/25/1996	2	Non-detect
4/19/1997	2	Non-detect
4/28/1998	20	Detect
7/14/1999	23	Detect
4/27/2001	4.4	Detect
12/22/2003	210	Detect
1/10/2006	2	Non-detect
1/22/2008	2	Non-detect
5/6/2009	28	Detect
3/25/1982	5	Non-detect
4/25/1984	>500	Detect
3/1/1987	470	Detect
7/25/1989	41	Detect
6/18/1990	12	Non-detect
5/20/1991	10	Non-detect
5/24/1994	4	Non-detect
5/2/1995	132	Detect
4/26/1996	11	Detect
4/23/1997	33	Detect
4/28/1998	8	Detect
7/19/1999	27	Detect
4/27/2001	150	Detect
12/22/2003	111	Detect
1/11/2006	1	Non-detect
1/22/2008	1.5	Non-detect
5/6/2009	1.5	Non-detect
3/31/1982	5	Non-detect
4/25/1984	>500	Detect
3/1/1987	420	Detect
7/25/1989	35	Detect
6/18/1990	12	Non-detect
5/20/1991	0.5	Non-detect
5/24/1994	5	Non-detect
5/5/1995	2	Non-detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
12/5/1984	370	Detect
4/18/1988	141	Detect
9/18/1989	2.2	Non-detect
8/28/1990	0.001	Non-detect
9/18/1991	36	Detect
10/1/1994	140	Detect
9/1/1995	276	Detect
7/18/1996	14	Detect
9/3/1997	126	Detect
8/24/1998	3	Detect
12/30/1999	0.98	Non-detect
1/22/2002	32	Detect
7/5/2004	1.2	Detect
4/28/2006	20	Non-detect
5/5/2008	1.5	Non-detect
8/3/2009	0.5	Detect
2/23/1981	48	Detect
10/25/1982	5	Non-detect
12/5/1984	870	Detect
4/18/1988	7.2	Detect
9/18/1989	2.2	Non-detect
8/28/1990	190	Detect
9/24/1991	480	Detect
10/1/1994	5	Non-detect
9/1/1995	536	Detect
7/23/1996	14	Detect
9/3/1997	38	Detect
9/1/1998	0.5	Non-detect
12/30/1999	0.93	Non-detect
1/22/2002	32	Detect
7/6/2004	1	Non-detect
5/2/2006	20	Non-detect
5/6/2008	36	Detect
8/3/2009	0.5	Non-detect
2/23/1981	270	Detect
10/26/1982	5	Non-detect
12/5/1984	760	Detect
4/18/1988	25	Non-detect
9/18/1989	2.2	Non-detect
8/28/1990	150	Detect
10/1/1991	33	Detect
10/1/1994	5	Non-detect
9/5/1995	29	Detect
7/23/1996	88	Detect
9/3/1997	10	Detect
9/4/1998	2	Non-detect
12/31/1999	41	Detect
1/23/2002	1	Non-detect
7/6/2004	0.98	Non-detect
5/3/2006	2	Non-detect
5/6/2008	34	Detect
8/3/2009	0.5	Non-detect
2/23/1981	444	Detect
10/28/1982	7.8	Detect
12/5/1984	900	Detect
4/25/1988	50	Non-detect
9/18/1989	2.2	Non-detect
8/28/1990	140	Detect
10/14/1991	420	Detect
10/7/1994	803	Detect
9/5/1995	2	Non-detect
7/24/1996	2	Non-detect
9/3/1997	7	Detect
9/8/1998	2	Non-detect
1/1/2000	2	Non-detect
1/23/2002	29	Detect
7/6/2004	16	Detect
5/4/2006	16	Detect
5/6/2008	27	Detect
8/3/2009	53	Detect
2/23/1981	550	Detect
10/29/1982	5.57	Detect
12/5/1984	1200	Detect
5/16/1988	25	Non-detect
9/18/1989	2	Non-detect
9/5/1990	13	Detect
10/14/1991	81	Detect
10/7/1994	371	Detect
9/5/1995	2	Non-detect
7/28/1996	6	Detect
9/3/1997	6	Detect
9/9/1998	2	Non-detect
1/5/2000	0.96	Non-detect
1/23/2002	22	Detect
7/6/2004	14	Detect
5/4/2006	26	Detect

Date	PCBs (ppm)	Flag
5/14/1985	5	Non-detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	12	Non-detect
9/21/1992	20	Non-detect
1/5/1995	2	Non-detect
11/21/1995	2	Non-detect
11/12/1996	2	Non-detect
12/5/1997	480	Detect
12/10/1998	300	Detect
3/20/2000	0.94	Non-detect
7/31/2002	0.97	Non-detect
12/2/2004	7.6	Detect
4/10/2007	16	Detect
10/16/2008	2	Detect
10/19/2009	6.6	Detect
5/15/1981	13.8	Detect
3/16/1983	2500	Detect
5/15/1985	5	Non-detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	12	Non-detect
9/21/1992	30	Non-detect
1/5/1995	18	Detect
11/21/1995	45	Detect
11/13/1996	2	Non-detect
12/8/1997	11	Detect
12/13/1998	8	Detect
3/27/2000	0.88	Non-detect
8/1/2002	11	Detect
12/6/2004	520	Detect
4/10/2007	0.5	Non-detect
10/16/2008	28	Detect
10/19/2009	1.5	Non-detect
5/19/1981	28	Detect
3/16/1983	2500	Detect
5/20/1985	10	Non-detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	12	Non-detect
9/21/1992	20	Non-detect
1/5/1995	2	Non-detect
11/21/1995	2	Non-detect
11/13/1996	2	Non-detect
12/9/1997	25	Detect
12/16/1998	3	Detect
3/27/2000	30	Detect
8/1/2002	35	Detect
12/24/2004	50	Detect
4/13/2007	12	Detect
10/16/2008	220	Detect
10/20/2009	1.5	Non-detect
5/19/1981	28	Detect
3/16/1983	2500	Detect
6/1/1985	780	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	12	Non-detect
9/21/1992	10	Non-detect
1/5/1995	2	Non-detect
11/29/1995	70	Detect
11/13/1996	11	Detect
12/9/1997	21	Detect
12/16/1998	2	Non-detect
3/29/2000	13	Detect
8/7/2002	0.98	Non-detect
12/24/2004	310	Detect
4/16/2007	11	Detect
10/16/2008	470	Detect
10/20/2009	16	Detect
6/1/1981	117	Detect
3/18/1983	5	Non-detect
6/15/1985	375	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	31	Non-detect
9/21/1992	3	Non-detect
1/5/1995	2	Non-detect
12/1/1995	240	Detect
11/14/1996	10	Non-detect
12/9/1997	3	Detect
12/18/1998	2	Non-detect
3/31/2000	31	Detect
8/8/2002	16	Detect
12/24/2004	130	Detect
4/17/2007	7.9	Detect

Date	PCBs (ppm)	Flag
3/20/1986	5	Non-detect
4/28/1989	1	Non-detect
4/1/1990	140	Detect
2/1/1991	280	Detect
11/23/1993	5	Non-detect
3/29/1995	25	Non-detect
2/19/1996	2	Non-detect
1/21/1997	640	Detect
2/12/1998	10	Detect
4/12/1999	1	Non-detect
9/19/2000	2	Non-detect
3/28/2003	2.7	Detect
5/11/2005	9.8	Detect
9/10/2007	6.2	Detect
1/29/2009	463	Detect
2/22/2010	1.5	Non-detect
11/13/1981	5	Non-detect
12/9/1983	400	Detect
3/20/1986	5	Non-detect
4/28/1989	1	Non-detect
4/16/1990	3	Non-detect
2/1/1991	94	Detect
11/23/1993	14	Detect
3/29/1995	25	Non-detect
2/19/1996	2	Non-detect
1/21/1997	420	Detect
2/12/1998	34	Detect
4/12/1999	53	Detect
9/20/2000	30	Detect
3/31/2003	3.9	Detect
5/19/2005	1	Non-detect
9/10/2007	0.0029	Detect
1/29/2009	105	Detect
2/22/2010	1.5	Non-detect
11/30/1981	5	Non-detect
12/9/1983	400	Detect
3/20/1986	14	Detect
4/28/1989	1	Non-detect
4/16/1990	3	Non-detect
2/11/1991	242	Detect
11/23/1993	8	Detect
3/29/1995	25	Non-detect
2/19/1996	2	Non-detect
1/22/1997	40	Detect
2/12/1998	39	Detect
4/12/1999	80	Detect
10/20/2000	5	Non-detect
4/4/2003	3.7	Detect
6/2/2005	29000	Detect
9/11/2007	0.5	Non-detect
1/29/2009	1	Non-detect
2/23/2010	1.5	Non-detect
12/7/1981	5	Non-detect
12/9/1983	400	Detect
3/20/1986	14	Detect
5/15/1989	1	Non-detect
4/16/1990	3	Non-detect
2/11/1991	108	Detect
11/23/1993	2	Detect
3/29/1995	25	Non-detect
2/21/1996	2	Non-detect
1/22/1997	30	Detect
2/12/1998	350	Detect
4/12/1999	3.3	Detect
10/30/2000	64	Detect
4/4/2003	3	Detect
6/22/2005	3.9	Detect
9/11/2007	0.5	Non-detect
1/29/2009	1	Non-detect
2/25/2010	1.5	Non-detect
12/8/1981	5	Non-detect
12/9/1983	400	Detect
4/1/1986	73	Detect
5/15/1989	1	Non-detect
4/16/1990	3	Non-detect
2/12/1991	144	Detect
11/23/1993	1	Non-detect
3/29/1995	25	Non-detect
2/22/1996	20	Detect
1/22/1997	9.7	Detect
2/12/1998	280	Detect
4/13/1999	2	Non-detect
11/3/2000	24	Detect
4/7/2003	2.4	Detect
6/28/2005	2	Non-detect
9/11/2007	0.5	Non-detect

Date	PCBs (ppm)	Flag
4/26/1996	5	Detect
4/23/1997	134	Detect
4/28/1998	49	Detect
7/20/1999	57	Detect
5/1/2001	22	Detect
1/5/2004	2	Non-detect
1/12/2006	12	Detect
1/23/2008	2	Non-detect
5/12/2009	1.5	Non-detect
3/31/1982	5	Non-detect
4/25/1984	>500	Detect
3/1/1987	180	Detect
7/25/1989	23	Detect
6/18/1990	12	Non-detect
5/20/1991	0.5	Non-detect
6/1/1994	1	Non-detect
5/8/1995	130	Detect
4/29/1996	19	Detect
4/23/1997	24	Detect
4/29/1998	2	Non-detect
7/20/1999	61	Detect
5/31/2001	5.8	Detect
1/15/2004	1	Non-detect
1/12/2006	25	Detect
1/23/2008	15	Detect
5/12/2009	1.5	Non-detect
3/31/1982	160	Detect
4/25/1984	>500	Detect
3/20/1987	5	Non-detect
7/25/1989	3	Detect
6/18/1990	12	Non-detect
5/20/1991	0.5	Non-detect
6/1/1994	2	Detect
5/8/1995	61	Detect
4/30/1996	82	Detect
4/24/1997	2	Non-detect
4/29/1998	2	Non-detect
7/23/1999	3.3	Detect
7/12/2001	1	Non-detect
1/15/2004	39	Detect
1/12/2006	2	Non-detect
1/23/2008	13	Detect
5/13/2009	14	Detect
4/1/1982	1390	Detect
5/1/1984	2020	Detect
3/20/1987	25	Non-detect
7/25/1989	1	Non-detect
6/18/1990	12	Non-detect
5/20/1991	0.5	Non-detect
6/1/1994	2	Non-detect
5/9/1995	15	Detect
5/1/1996	2	Non-detect
4/25/1997	2	Non-detect
4/29/1998	2	Non-detect
7/26/1999	130	Detect
7/12/2001	16	Detect
1/15/2004	11	Detect
1/13/2006	1	Non-detect
1/23/2008	21	Detect
5/13/2009	1.5	Non-detect
4/1/1982	1360	Detect
5/6/1984	502	Detect
3/20/1987	5	Non-detect
7/25/1989	1	Non-detect
6/18/1990	12	Non-detect
5/20/1991	0.5	Non-detect
6/3/1994	1	Non-detect
5/17/1995	2	Non-detect
5/1/1996	3	Detect
4/25/1997	108	Detect
5/4/1998	7921	Detect
7/27/1999	62	Detect
7/12/2001	0.98	Non-detect
1/15/2004	1	Non-detect
1/13/2006	32	Detect
1/24/2008	15	Detect
5/14/2009	3.8	Detect
4/1/1982	653	Detect
5/10/1984	5	Non-detect
3/25/1987	319	Detect
7/25/1989	1	Non-detect
6/18/1990	1	Non-detect
5/20/1991	0.99	Non-detect
6/3/1994	3	Non-detect
5/17/1995	2	Non-detect
5/1/1996	265	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
5/7/2008	33	Detect
8/3/2009	13.4	Detect
2/23/1981	0.5	Non-detect
11/1/1982	5210	Detect
12/5/1984	370	Detect
5/16/1988	25	Non-detect
9/18/1989	2	Non-detect
9/12/1990	0.001	Non-detect
10/14/1991	75	Detect
10/7/1994	252	Detect
9/6/1995	9	Detect
7/28/1996	48	Detect
9/3/1997	4	Non-detect
9/17/1998	43	Detect
1/5/2000	1100	Detect
1/24/2002	29	Detect
7/6/2004	5.5	Detect
5/4/2006	20	Non-detect
5/7/2008	1.5	Non-detect
8/3/2009	0.5	Non-detect
2/23/1981	10	Non-detect
11/1/1982	2410	Detect
12/5/1984	870	Detect
6/6/1988	5	Non-detect
9/18/1989	2	Non-detect
9/12/1990	0.001	Non-detect
10/14/1991	1	Non-detect
10/7/1994	29	Detect
9/7/1995	2	Non-detect
7/31/1996	2	Detect
9/3/1997	4	Non-detect
9/21/1998	44	Detect
1/6/2000	48	Detect
1/24/2002	9.9	Detect
7/6/2004	6.9	Detect
5/11/2006	20	Non-detect
5/8/2008	120	Detect
8/3/2009	5.1	Detect
2/23/1981	5	Non-detect
11/12/1982	5	Non-detect
12/5/1984	760	Detect
6/10/1988	5	Non-detect
9/18/1989	2	Non-detect
9/12/1990	0.001	Non-detect
10/15/1991	75	Detect
10/7/1994	21	Detect
9/8/1995	2	Non-detect
7/31/1996	7	Detect
9/4/1997	8	Detect
9/21/1998	2	Non-detect
1/6/2000	19	Non-detect
1/24/2002	1	Non-detect
7/6/2004	1	Non-detect
5/26/2006	20	Non-detect
5/8/2008	25	Detect
8/4/2009	12	Detect
2/23/1981	46	Detect
11/16/1982	272	Detect
12/5/1984	900	Detect
6/20/1988	46	Detect
9/18/1989	2	Non-detect
9/12/1990	0.001	Non-detect
11/7/1991	2	Non-detect
10/7/1994	18	Detect
9/12/1995	2	Non-detect
7/31/1996	2	Non-detect
9/5/1997	82	Detect
9/22/1998	94	Detect
1/6/2000	0.94	Non-detect
1/25/2002	34	Detect
7/6/2004	1	Non-detect
6/1/2006	20	Non-detect
5/9/2008	1.5	Non-detect
8/5/2009	26	Detect
2/23/1981	444	Detect
11/18/1982	2	Non-detect
12/5/1984	1200	Detect
6/20/1988	46	Detect
9/18/1989	2	Non-detect
9/12/1990	0.001	Non-detect
12/1/1991	130	Detect
10/7/1994	9.4	Detect
9/12/1995	54	Detect
8/1/1996	1	Non-detect
9/5/1997	62	Detect
9/28/1998	0.5	Non-detect

Date	PCBs (ppm)	Flag
10/16/2008	450	Detect
10/21/2009	440	Detect
6/12/1981	77	Detect
3/22/1983	2660	Detect
6/15/1985	374	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	31	Non-detect
9/21/1992	1	Non-detect
1/5/1995	2	Non-detect
12/6/1995	14	Detect
11/14/1996	10	Non-detect
12/10/1997	11	Detect
12/19/1998	19	Detect
3/31/2000	2	Non-detect
8/8/2002	9.8	Non-detect
1/4/2005	10	Detect
4/24/2007	20	Detect
10/16/2008	690	Detect
10/21/2009	310	Detect
6/15/1981	8225	Detect
3/22/1983	5	Non-detect
6/15/1985	1203	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	31	Non-detect
11/1/1992	21	Non-detect
1/6/1995	44	Detect
12/7/1995	2	Non-detect
11/14/1996	2	Non-detect
12/10/1997	43	Detect
12/21/1998	2	Detect
4/3/2000	0.98	Non-detect
8/8/2002	0.96	Non-detect
1/4/2005	27	Detect
4/24/2007	390	Detect
10/16/2008	700	Detect
10/21/2009	12	Detect
6/15/1981	1327.5	Detect
3/23/1983	5	Non-detect
6/15/1985	19683	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	31	Non-detect
11/1/1992	52.4	Non-detect
1/9/1995	2	Non-detect
12/7/1995	2	Non-detect
11/15/1996	16	Detect
12/11/1997	2	Non-detect
12/28/1998	51	Detect
4/3/2000	2	Non-detect
8/27/2002	1.9	Non-detect
1/4/2005	5.2	Detect
4/24/2007	13	Detect
10/16/2008	710	Detect
10/21/2009	1.5	Non-detect
6/15/1981	1501	Detect
3/23/1983	5	Non-detect
6/15/1985	1112	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	31	Non-detect
11/6/1992	21	Non-detect
1/10/1995	14	Detect
12/12/1995	2	Non-detect
11/15/1996	78	Detect
12/11/1997	32	Detect
12/30/1998	2	Non-detect
4/4/2000	17	Detect
8/29/2002	0.97	Non-detect
1/4/2005	2.4	Detect
5/4/2007	35	Detect
10/16/2008	88	Detect
10/22/2009	1	Non-detect
6/15/1981	54250	Detect
3/23/1983	5	Non-detect
6/15/1985	2	Detect
3/21/1989	3	Non-detect
2/19/1990	2	Non-detect
10/15/1990	31	Non-detect
11/6/1992	52.4	Non-detect
1/11/1995	2	Non-detect
12/12/1995	2	Non-detect
11/18/1996	2	Non-detect
12/11/1997	15	Detect
1/4/1999	14	Detect

Date	PCBs (ppm)	Flag
2/2/2009	3120	Detect
3/7/2010	17	Detect
12/8/1981	1	Non-detect
12/9/1983	400	Detect
4/1/1986	330	Detect
5/15/1989	1	Non-detect
4/16/1990	1	Non-detect
2/12/1991	68	Detect
11/23/1993	3	Non-detect
3/30/1995	97	Detect
2/26/1996	7.9	Detect
1/22/1997	8.7	Detect
2/12/1998	350	Detect
4/13/1999	4400	Detect
11/14/2000	2	Non-detect
4/21/2003	18	Detect
7/5/2005	59	Detect
9/12/2007	0.0005	Non-detect
2/2/2009	10	Detect
3/7/2010	1.5	Non-detect
12/8/1981	10.3	Detect
12/14/1983	20	Non-detect
4/23/1986	43	Detect
5/15/1989	1	Non-detect
4/16/1990	1	Non-detect
2/12/1991	51	Detect
11/23/1993	5	Non-detect
3/30/1995	58	Detect
2/26/1996	5.8	Detect
1/23/1997	7	Detect
2/12/1998	200	Detect
4/13/1999	23	Detect
11/14/2000	1	Non-detect
4/23/2003	0.99	Non-detect
7/5/2005	420	Detect
9/17/2007	14	Detect
2/2/2009	2.1	Detect
3/10/2010	1.5	Non-detect
12/9/1981	5	Non-detect
12/14/1983	60	Detect
4/23/1986	5	Non-detect
5/15/1989	1	Non-detect
4/16/1990	1	Non-detect
2/12/1991	36	Detect
12/2/1993	7	Detect
3/31/1995	20	Detect
2/26/1996	2.8	Detect
1/23/1997	13	Detect
2/12/1998	200	Detect
4/14/1999	2	Non-detect
11/30/2000	1500	Detect
4/23/2003	1300	Detect
7/5/2005	7	Detect
9/18/2007	3	Detect
2/3/2009	1	Non-detect
3/10/2010	12	Detect
12/10/1981	25	Non-detect
12/14/1983	10	Non-detect
4/23/1986	5	Non-detect
5/15/1989	1	Non-detect
4/16/1990	1	Non-detect
2/18/1991	14	Detect
12/2/1993	7	Detect
3/31/1995	2	Non-detect
2/27/1996	2	Non-detect
1/24/1997	11	Detect
2/17/1998	7	Detect
4/14/1999	2	Non-detect
1/8/2001	9.8	Detect
4/23/2003	24	Detect
7/6/2005	1	Non-detect
9/20/2007	1.5	Detect
2/4/2009	1	Non-detect
3/11/2010	1	Non-detect
12/10/1981	5	Non-detect
12/15/1983	740	Detect
4/23/1986	20	Non-detect
5/15/1989	1	Non-detect
4/16/1990	1	Non-detect
3/1/1991	1	Non-detect
12/14/1993	1	Non-detect
3/31/1995	2	Non-detect
3/1/1996	74	Detect
1/24/1997	29	Detect
2/17/1998	2304	Detect
4/15/1999	5.9	Detect

Date	PCBs (ppm)	Flag
4/27/1997	18	Detect
5/6/1998	23	Detect
7/29/1999	19	Detect
7/12/2001	16	Detect
1/15/2004	0.97	Non-detect
1/13/2006	20	Detect
1/25/2008	9.8	Detect
5/15/2009	1	Non-detect
4/1/1982	208	Detect
5/10/1984	11	Detect
3/25/1987	319	Detect
7/25/1989	3	Non-detect
6/18/1990	1	Non-detect
5/20/1991	0.99	Non-detect
6/3/1994	3	Non-detect
5/17/1995	2	Non-detect
5/1/1996	1	Non-detect
4/27/1997	18	Detect
5/6/1998	40	Detect
8/3/1999	1	Non-detect
7/12/2001	20	Detect
1/15/2004	0.98	Non-detect
1/13/2006	2	Non-detect
1/28/2008	151	Detect
5/19/2009	1.5	Non-detect
4/1/1982	90	Detect
5/10/1984	11	Detect
3/27/1987	1057	Detect
7/25/1989	1	Non-detect
6/18/1990	1	Non-detect
5/20/1991	25	Non-detect
6/3/1994	131	Detect
5/23/1995	33	Detect
5/1/1996	112	Detect
4/28/1997	30	Detect
5/7/1998	3	Detect
8/4/1999	2	Non-detect
7/12/2001	0.99	Non-detect
1/16/2004	0.99	Non-detect
1/13/2006	2.7	Detect
1/28/2008	2	Non-detect
5/19/2009	1.5	Non-detect
4/1/1982	62	Detect
5/31/1984	871	Detect
3/27/1987	10	Non-detect
7/25/1989	1	Non-detect
6/18/1990	1	Non-detect
5/20/1991	25	Non-detect
6/3/1994	131	Detect
5/23/1995	85	Detect
5/1/1996	0.05	Detect
4/28/1997	24	Detect
5/8/1998	80	Detect
8/5/1999	23	Detect
7/16/2001	30	Detect
1/16/2004	1	Non-detect
1/13/2006	2	Non-detect
1/29/2008	33.1	Detect
5/26/2009	1.5	Non-detect
4/1/1982	61	Detect
5/31/1984	363	Detect
3/27/1987	5	Non-detect
7/25/1989	1	Non-detect
6/18/1990	1	Non-detect
5/20/1991	25	Non-detect
6/3/1994	1	Non-detect
5/24/1995	5	Non-detect
5/2/1996	5	Detect
4/29/1997	22	Detect
5/1/1998	5	Detect
8/9/1999	28	Detect
7/16/2001	1	Non-detect
1/20/2004	2	Non-detect
1/16/2006	2	Non-detect
1/29/2008	6.4	Detect
6/1/2009	66	Detect
4/13/1982	3700	Detect
6/1/1984	660	Detect
4/1/1987	329	Detect
7/25/1989	3	Non-detect
6/18/1990	1	Non-detect
5/20/1991	25	Non-detect
6/3/1994	2	Non-detect
5/24/1995	5	Non-detect
5/3/1996	2	Non-detect
4/29/1997	3	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
1/7/2000	51	Detect
1/25/2002	60	Detect
7/7/2004	96	Detect
6/5/2006	20	Non-detect
5/13/2008	16	Detect
8/6/2009	1600	Detect
2/23/1981	8	Detect
11/18/1982	2	Non-detect
12/17/1984	30	Non-detect
6/20/1988	20	Non-detect
10/1/1989	230	Detect
9/12/1990	0.001	Non-detect
1/1/1992	760	Detect
10/7/1994	2.4	Non-detect
9/13/1995	2	Non-detect
8/1/1996	639.5	Detect
9/5/1997	30	Detect
9/28/1998	0.5	Non-detect
1/7/2000	39	Detect
1/25/2002	5	Detect
7/7/2004	8.1	Detect
6/5/2006	10	Non-detect
5/13/2008	14	Detect
8/10/2009	0.6	Detect
2/23/1981	1	Non-detect
11/18/1982	2	Non-detect
12/18/1984	1070	Detect
6/20/1988	20	Non-detect
11/20/1989	6	Non-detect
9/12/1990	0.001	Non-detect
1/1/1992	170	Detect
10/7/1994	2.4	Non-detect
9/13/1995	97	Detect
8/1/1996	1	Non-detect
9/9/1997	2	Non-detect
9/29/1998	2	Non-detect
1/7/2000	29	Detect
1/28/2002	20	Detect
7/7/2004	2.4	Detect
6/5/2006	5	Non-detect
5/16/2008	18	Detect
8/10/2009	0.5	Non-detect
2/24/1981	10.9	Detect
11/19/1982	370	Detect
12/18/1984	10	Non-detect
6/20/1988	198	Detect
11/20/1989	6	Non-detect
9/13/1990	1	Non-detect
1/6/1992	6	Detect
10/7/1994	2	Non-detect
9/14/1995	2	Non-detect
8/2/1996	12	Detect
9/10/1997	2	Non-detect
9/30/1998	2	Non-detect
1/7/2000	37	Detect
1/28/2002	3.9	Detect
7/7/2004	3.7	Detect
7/12/2006	26	Detect
5/19/2008	1.5	Non-detect
8/10/2009	0.5	Detect
2/24/1981	34	Detect
11/19/1982	370	Detect
1/1/1985	4600	Detect
6/20/1988	198	Detect
11/20/1989	6	Non-detect
9/13/1990	2	Non-detect
1/6/1992	6	Detect
10/7/1994	1	Non-detect
9/15/1995	2	Non-detect
8/5/1996	26	Detect
9/12/1997	28	Detect
10/1/1998	2668	Detect
1/10/2000	41	Detect
1/28/2002	1.4	Detect
7/7/2004	12	Detect
7/12/2006	2	Non-detect
5/21/2008	27.3	Detect
8/10/2009	53.4	Detect
2/24/1981	39	Detect
11/19/1982	42	Detect
1/4/1985	19683	Detect
6/20/1988	10	Non-detect
11/20/1989	32	Detect
9/13/1990	1	Non-detect
2/1/1992	87	Detect
10/7/1994	1	Non-detect

Date	PCBs (ppm)	Flag
4/4/2000	1	Detect
9/10/2002	8.4	Detect
1/4/2005	0.99	Non-detect
5/9/2007	650	Detect
10/21/2008	43.2	Detect
10/22/2009	0.5	Non-detect
6/15/1981	1925	Detect
3/23/1983	1780	Detect
6/24/1985	5	Non-detect
3/28/1989	300	Detect
2/19/1990	2	Non-detect
10/25/1990	6	Non-detect
11/6/1992	52.4	Non-detect
1/12/1995	251	Detect
12/13/1995	2	Non-detect
11/18/1996	2	Non-detect
12/12/1997	27	Detect
1/5/1999	12	Detect
4/12/2000	19	Detect
9/10/2002	0.99	Non-detect
1/5/2005	8.3	Detect
5/9/2007	15	Detect
10/22/2008	36.2	Detect
10/25/2009	1.5	Non-detect
6/15/1981	19250	Detect
3/29/1983	5	Non-detect
6/24/1985	5	Non-detect
3/29/1989	6	Non-detect
2/19/1990	2	Non-detect
10/25/1990	3	Non-detect
1/1/1993	170	Detect
1/12/1995	56	Detect
12/14/1995	25	Detect
11/18/1996	20	Detect
12/15/1997	77	Detect
1/5/1999	2463	Detect
4/28/2000	0.98	Non-detect
9/18/2002	7.8	Detect
1/5/2005	15	Detect
5/10/2007	33	Detect
10/23/2008	43.6	Detect
10/25/2009	11	Detect
6/15/1981	5425	Detect
3/29/1983	5	Non-detect
7/25/1985	5	Non-detect
3/29/1989	12	Non-detect
2/19/1990	2	Non-detect
10/25/1990	6	Non-detect
1/4/1993	10	Non-detect
1/12/1995	2	Non-detect
12/15/1995	290	Detect
11/18/1996	25	Detect
12/16/1997	2	Non-detect
1/5/1999	15	Detect
5/3/2000	220	Detect
9/23/2002	4.5	Detect
1/5/2005	26	Detect
5/10/2007	19	Detect
10/29/2008	1.5	Non-detect
10/25/2009	0.5	Non-detect
6/15/1981	4725	Detect
4/1/1983	2210	Detect
7/26/1985	5	Non-detect
3/29/1989	6	Non-detect
2/19/1990	2	Non-detect
10/25/1990	3	Non-detect
1/4/1993	20	Non-detect
1/12/1995	2	Non-detect
12/18/1995	2	Non-detect
11/19/1996	2	Non-detect
12/16/1997	54	Detect
1/5/1999	8	Detect
5/3/2000	130	Detect
9/24/2002	0.97	Non-detect
1/6/2005	24	Detect
5/11/2007	20	Detect
10/29/2008	1.5	Non-detect
10/25/2009	14	Detect
6/15/1981	14700	Detect
4/1/1983	2690	Detect
8/15/1985	10	Non-detect
3/29/1989	12	Non-detect
2/19/1990	2	Non-detect
10/25/1990	6	Non-detect
1/22/1993	90	Non-detect
1/12/1995	2	Non-detect

Date	PCBs (ppm)	Flag
1/9/2001	0.99	Non-detect
4/28/2003	0.99	Non-detect
7/6/2005	1	Non-detect
9/25/2007	1	Non-detect
2/6/2009	540	Detect
3/16/2010	220	Detect
12/18/1981	1	Non-detect
12/15/1983	740	Detect
4/23/1986	5	Non-detect
5/18/1989	1	Non-detect
4/16/1990	1	Non-detect
3/2/1991	1	Non-detect
12/14/1993	1	Non-detect
3/31/1995	14	Detect
3/1/1996	310	Detect
1/27/1997	81	Detect
2/19/1998	230	Detect
4/15/1999	2	Non-detect
1/11/2001	1400	Detect
4/30/2003	13	Detect
7/7/2005	2.4	Detect
9/25/2007	2.5	Non-detect
2/6/2009	480	Detect
3/16/2010	230	Detect
12/19/1981	610	Detect
12/15/1983	740	Detect
4/23/1986	803	Detect
5/18/1989	1	Non-detect
4/16/1990	1	Non-detect
3/2/1991	1	Non-detect
12/14/1993	2	Non-detect
3/31/1995	1	Non-detect
3/1/1996	130	Detect
1/28/1997	120	Detect
2/23/1998	6	Detect
4/15/1999	580	Detect
1/15/2001	38	Detect
5/7/2003	6.6	Detect
7/7/2005	1	Non-detect
10/1/2007	700	Detect
2/6/2009	24	Detect
3/16/2010	1.5	Non-detect
12/20/1981	412	Detect
12/15/1983	740	Detect
4/23/1986	121	Detect
5/18/1989	1	Non-detect
4/16/1990	1	Non-detect
3/2/1991	1	Non-detect
12/21/1993	4	Detect
3/31/1995	2	Non-detect
3/1/1996	15	Detect
1/28/1997	2	Non-detect
2/24/1998	29	Detect
4/16/1999	30	Detect
1/16/2001	0.98	Non-detect
5/7/2003	7.8	Detect
7/11/2005	14	Detect
10/10/2007	26	Detect
2/9/2009	28.9	Detect
3/22/2010	1.5	Non-detect
12/20/1981	1020	Detect
12/15/1983	740	Detect
4/23/1986	54	Detect
5/18/1989	1	Non-detect
4/16/1990	1	Non-detect
3/2/1991	1	Non-detect
12/21/1993	4	Detect
4/1/1995	190	Detect
3/6/1996	77	Detect
1/28/1997	2	Non-detect
2/24/1998	2	Non-detect
4/18/1999	2	Detect
1/18/2001	940	Detect
5/27/2003	6	Detect
7/11/2005	14	Detect
10/15/2007	21	Detect
2/16/2009	21	Detect
3/28/2010	6.6	Detect
12/22/1981	153	Detect
12/15/1983	740	Detect
4/23/1986	45	Detect
5/18/1989	1	Non-detect
4/16/1990	1	Non-detect
3/2/1991	1	Non-detect
12/28/1993	10	Non-detect
4/1/1995	1	Non-detect

Date	PCBs (ppm)	Flag
5/13/1998	2	Non-detect
8/30/1999	35	Detect
7/16/2001	34	Detect
1/20/2004	2	Non-detect
1/16/2006	2	Non-detect
1/29/2008	41	Detect
6/1/2009	1.5	Non-detect
4/13/1982	3700	Detect
6/1/1984	440	Detect
4/1/1987	155	Detect
7/25/1989	5	Detect
6/18/1990	1	Non-detect
5/20/1991	25	Non-detect
6/3/1994	3	Non-detect
5/24/1995	5	Non-detect
5/6/1996	2	Non-detect
4/29/1997	2	Non-detect
5/14/1998	4	Detect
8/30/1999	33	Detect
7/17/2001	64	Detect
1/21/2004	63	Detect
1/16/2006	1	Non-detect
1/29/2008	36.1	Detect
6/2/2009	14	Detect
4/13/1982	3700	Detect
6/1/1984	660	Detect
4/8/1987	520	Detect
7/25/1989	1	Non-detect
6/18/1990	1	Non-detect
5/20/1991	50	Non-detect
6/3/1994	3	Non-detect
5/24/1995	5	Non-detect
5/6/1996	15	Detect
4/29/1997	2	Non-detect
5/14/1998	45	Detect
9/1/1999	67	Detect
7/17/2001	6.6	Detect
1/21/2004	18	Detect
1/16/2006	19	Detect
1/29/2008	8	Detect
6/3/2009	12	Detect
4/13/1982	3700	Detect
6/1/1984	440	Detect
4/8/1987	520	Detect
7/25/1989	1	Non-detect
6/18/1990	1	Non-detect
5/20/1991	50	Non-detect
6/6/1994	1	Non-detect
5/26/1995	2	Non-detect
5/7/1996	2	Non-detect
4/30/1997	91	Detect
5/14/1998	6	Detect
9/21/1999	30	Detect
7/17/2001	4	Non-detect
1/22/2004	1	Non-detect
1/17/2006	6	Detect
1/29/2008	20.5	Detect
6/3/2009	12	Detect
4/19/1982	136	Detect
6/1/1984	660	Detect
4/8/1987	520	Detect
7/25/1989	1	Non-detect
6/18/1990	1	Non-detect
5/23/1991	1	Non-detect
6/6/1994	1	Non-detect
5/30/1995	2	Non-detect
5/8/1996	2	Non-detect
4/30/1997	5.9	Detect
5/21/1998	2	Non-detect
9/2/1999	7.9	Detect
7/17/2001	4	Non-detect
1/22/2004	7.2	Detect
1/17/2006	2	Non-detect
1/29/2008	32.5	Detect
6/4/2009	1	Non-detect
4/19/1982	152	Detect
6/1/1984	440	Detect
4/16/1987	25	Non-detect
7/25/1989	3	Non-detect
6/18/1990	1	Non-detect
6/1/1991	4.8	Detect
6/6/1994	1	Non-detect
5/30/1995	5	Non-detect
5/9/1996	2	Non-detect
4/30/1997	2.8	Non-detect
5/25/1998	96	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
9/20/1995	2	Non-detect
8/12/1996	67	Detect
9/12/1997	236	Detect
10/1/1998	16	Detect
1/10/2000	0.96	Non-detect
1/28/2002	3800	Detect
7/7/2004	18	Detect
7/12/2006	2	Non-detect
5/21/2008	28.7	Detect
8/10/2009	16.7	Detect
2/24/1981	64.5	Detect
11/19/1982	29	Detect
1/7/1985	375	Detect
7/1/1988	130	Detect
11/20/1989	6	Non-detect
9/13/1990	2	Non-detect
2/10/1992	2	Non-detect
10/14/1994	9	Detect
9/22/1995	10	Non-detect
8/16/1996	17	Detect
9/12/1997	2	Non-detect
10/2/1998	2	Non-detect
1/10/2000	27	Detect
1/28/2002	0.99	Non-detect
7/7/2004	2	Detect
7/12/2006	18	Detect
5/27/2008	1.5	Non-detect
8/10/2009	0.9	Detect
2/24/1981	1	Non-detect
11/19/1982	24	Detect
1/10/1985	3	Detect
7/18/1988	10	Non-detect
11/20/1989	6	Non-detect
9/13/1990	1	Non-detect
2/10/1992	2	Non-detect
10/18/1994	102.5	Detect
9/26/1995	65	Detect
8/16/1996	12	Detect
9/12/1997	2	Non-detect
10/5/1998	47	Detect
1/10/2000	5.1	Detect
1/28/2002	0.99	Non-detect
7/8/2004	0.98	Non-detect
7/12/2006	4	Non-detect
5/29/2008	2	Detect
8/10/2009	3.8	Detect
2/24/1981	1	Non-detect
11/22/1982	3000	Detect
1/15/1985	2	Detect
7/18/1988	10	Non-detect
11/20/1989	6	Non-detect
9/13/1990	2	Non-detect
2/13/1992	80	Detect
10/26/1994	2	Non-detect
9/27/1995	2	Non-detect
8/19/1996	2	Non-detect
9/19/1997	2	Non-detect
10/5/1998	2	Non-detect
1/10/2000	5.2	Detect
1/29/2002	1	Non-detect
7/8/2004	0.98	Non-detect
7/12/2006	17	Detect
5/29/2008	23.8	Detect
8/13/2009	1.5	Non-detect
2/24/1981	10	Non-detect
11/22/1982	3000	Detect
1/15/1985	2	Detect
8/1/1988	30	Non-detect
11/20/1989	6.2	Non-detect
9/13/1990	1	Non-detect
2/13/1992	80	Detect
10/26/1994	3	Detect
9/27/1995	2	Non-detect
8/19/1996	2	Non-detect
9/19/1997	10	Non-detect
10/7/1998	2	Non-detect
1/11/2000	22	Detect
1/30/2002	7.4	Detect
7/9/2004	0.99	Non-detect
7/13/2006	5.6	Detect
5/30/2008	0.5	Non-detect
8/17/2009	29	Detect
2/24/1981	5	Non-detect
11/23/1982	1000	Detect
1/17/1985	15	Non-detect
8/1/1988	30	Non-detect

Date	PCBs (ppm)	Flag
12/20/1995	2	Non-detect
11/19/1996	8	Detect
12/16/1997	4	Detect
1/5/1999	35	Detect
5/3/2000	290	Detect
9/25/2002	8.2	Detect
1/6/2005	3.4	Detect
5/16/2007	2.7	Detect
10/31/2008	1.5	Non-detect
10/26/2009	10	Detect
6/15/1981	888	Detect
4/7/1983	10	Non-detect
8/20/1985	5	Non-detect
3/29/1989	6	Non-detect
2/19/1990	2	Non-detect
10/25/1990	3	Non-detect
1/22/1993	218	Detect
1/13/1995	2	Non-detect
12/22/1995	2	Non-detect
11/20/1996	2	Non-detect
12/17/1997	45	Detect
1/5/1999	6	Detect
6/2/2000	0.88	Non-detect
10/1/2002	0.97	Non-detect
1/10/2005	14	Detect
5/16/2007	0.5	Non-detect
11/4/2008	1.5	Non-detect
10/26/2009	1.5	Non-detect
6/15/1981	13300	Detect
4/13/1983	2500	Detect
8/21/1985	1730	Detect
3/29/1989	12	Non-detect
2/19/1990	710	Detect
10/25/1990	6	Non-detect
1/22/1993	218	Detect
1/16/1995	2	Non-detect
12/28/1995	5	Detect
11/20/1996	2	Non-detect
12/17/1997	2	Non-detect
1/5/1999	32	Detect
6/6/2000	7.3	Detect
10/28/2002	3.7	Detect
1/10/2005	55	Detect
5/23/2007	2.8	Detect
11/5/2008	1.5	Non-detect
10/27/2009	53	Detect
6/15/1981	2975	Detect
4/13/1983	1000	Detect
9/1/1985	7300	Detect
3/29/1989	6	Non-detect
2/19/1990	19	Non-detect
10/25/1990	3	Non-detect
1/22/1993	90	Non-detect
1/16/1995	2	Non-detect
1/1/1996	230	Detect
11/20/1996	63	Detect
12/17/1997	7	Detect
1/6/1999	2	Non-detect
6/7/2000	16	Detect
11/13/2002	8.3	Detect
1/18/2005	42	Detect
5/24/2007	21	Detect
11/10/2008	14.9	Detect
10/27/2009	1.5	Non-detect
6/15/1981	28000	Detect
4/13/1983	2500	Detect
9/5/1985	2	Detect
3/29/1989	12	Non-detect
2/19/1990	19	Non-detect
10/25/1990	6	Non-detect
2/1/1993	1	Non-detect
1/19/1995	88	Detect
1/1/1996	59	Detect
11/21/1996	56	Detect
12/17/1997	3	Detect
1/6/1999	2	Detect
6/10/2000	1	Non-detect
11/21/2002	51	Detect
1/19/2005	4.6	Detect
5/25/2007	17	Detect
11/10/2008	13	Detect
11/4/2009	1	Non-detect
6/15/1981	134375	Detect
4/13/1983	1000	Detect
9/6/1985	242	Detect
3/29/1989	6	Non-detect

Date	PCBs (ppm)	Flag
3/6/1996	79	Detect
1/28/1997	2	Non-detect
2/25/1998	2	Non-detect
4/20/1999	6.5	Detect
1/22/2001	51	Detect
6/3/2003	31	Detect
7/11/2005	6.6	Detect
10/15/2007	6.3	Detect
2/16/2009	27	Detect
3/28/2010	1.5	Non-detect
12/22/1981	208	Detect
12/21/1983	435	Detect
4/24/1986	5	Non-detect
5/18/1989	1	Non-detect
4/16/1990	1	Non-detect
3/2/1991	1	Non-detect
1/1/1994	180	Detect
4/1/1995	2	Non-detect
3/6/1996	76	Detect
1/29/1997	130	Detect
2/26/1998	240	Detect
4/22/1999	18	Detect
1/22/2001	31	Detect
6/3/2003	58	Detect
7/11/2005	24	Detect
10/15/2007	69	Detect
2/16/2009	32	Detect
3/29/2010	2.1	Detect
12/22/1981	268	Detect
12/21/1983	1650	Detect
4/24/1986	59	Detect
5/18/1989	1	Non-detect
4/16/1990	1	Non-detect
3/2/1991	1	Non-detect
1/1/1994	410	Detect
4/1/1995	25	Non-detect
3/7/1996	70	Detect
1/29/1997	13	Detect
2/27/1998	60	Detect
4/22/1999	44	Detect
1/23/2001	100	Detect
6/16/2003	0.98	Non-detect
7/11/2005	16	Detect
10/15/2007	33	Detect
2/17/2009	170	Detect
3/31/2010	17	Detect
12/28/1981	121	Detect
1/1/1984	10000	Detect
4/24/1986	537	Detect
6/1/1989	80	Detect
4/16/1990	2	Detect
3/18/1991	130	Detect
1/1/1994	2	Non-detect
4/1/1995	25	Non-detect
3/12/1996	5	Detect
1/29/1997	5	Non-detect
3/3/1998	2	Non-detect
4/22/1999	29	Detect
1/23/2001	390	Detect
7/3/2003	39	Detect
7/11/2005	2900	Detect
10/15/2007	150	Detect
2/18/2009	10	Non-detect
4/1/2010	11	Detect
12/28/1981	126	Detect
1/1/1984	9900	Detect
4/24/1986	595	Detect
6/19/1989	1	Non-detect
4/16/1990	2	Detect
3/18/1991	3	Non-detect
1/13/1994	2	Non-detect
4/3/1995	9	Detect
3/12/1996	2	Non-detect
1/31/1997	20	Detect
3/4/1998	2	Non-detect
4/22/1999	44	Detect
1/23/2001	35	Detect
7/3/2003	1	Non-detect
7/11/2005	16	Detect
10/15/2007	230	Detect
2/18/2009	10	Non-detect
4/4/2010	1.5	Non-detect
12/28/1981	234	Detect
1/6/1984	1	Detect
5/8/1986	4	Non-detect
6/19/1989	1	Non-detect

Date	PCBs (ppm)	Flag
9/15/1999	1.3	Non-detect
7/17/2001	1	Non-detect
1/22/2004	64	Detect
1/17/2006	24	Detect
1/30/2008	36	Detect
6/8/2009	9.4	Detect
4/19/1982	5	Non-detect
6/1/1984	660	Detect
4/16/1987	5	Non-detect
7/25/1989	1	Non-detect
6/18/1990	1	Non-detect
6/17/1991	0.49	Non-detect
6/6/1994	2	Non-detect
5/30/1995	5	Non-detect
5/9/1996	2	Non-detect
5/1/1997	12	Detect
5/26/1998	2	Non-detect
9/21/1999	35	Detect
7/18/2001	12	Detect
1/22/2004	212	Detect
1/17/2006	2	Non-detect
1/30/2008	39.3	Detect
6/11/2009	4.6	Detect
4/22/1982	5	Non-detect
6/1/1984	440	Detect
4/24/1987	420	Detect
7/25/1989	1	Non-detect
6/18/1990	2	Detect
6/17/1991	0.49	Non-detect
6/6/1994	5	Non-detect
5/30/1995	2	Non-detect
5/10/1996	2	Non-detect
5/2/1997	37	Detect
5/28/1998	2	Non-detect
9/21/1999	21	Detect
7/18/2001	81	Detect
1/22/2004	24	Detect
1/17/2006	1	Non-detect
1/31/2008	2	Non-detect
6/29/2009	1	Non-detect
4/22/1982	5	Non-detect
6/1/1984	5	Non-detect
4/24/1987	420	Detect
7/25/1989	1	Non-detect
6/18/1990	12	Non-detect
6/17/1991	0.49	Non-detect
6/6/1994	10	Non-detect
5/31/1995	2	Non-detect
5/14/1996	37	Detect
5/5/1997	8	Detect
5/29/1998	2	Non-detect
9/22/1999	17	Detect
7/18/2001	3600	Detect
1/26/2004	0.098	Detect
1/18/2006	16	Detect
1/31/2008	920	Detect
6/30/2009	16.2	Detect
4/23/1982	5	Non-detect
6/20/1984	124	Detect
4/24/1987	420	Detect
7/25/1989	1	Non-detect
6/18/1990	12	Non-detect
6/17/1991	0.49	Non-detect
6/30/1994	2	Non-detect
6/1/1995	150	Detect
5/14/1996	2	Non-detect
5/5/1997	74	Detect
5/29/1998	2	Non-detect
9/22/1999	7.8	Detect
7/18/2001	2.6	Detect
1/26/2004	90	Detect
1/19/2006	48	Detect
2/4/2008	56	Detect
7/6/2009	1	Non-detect
4/23/1982	5	Non-detect
6/21/1984	5	Non-detect
5/12/1987	380	Detect
7/25/1989	1	Non-detect
6/18/1990	12	Non-detect
6/17/1991	0.49	Non-detect
6/30/1994	3	Non-detect
6/1/1995	310	Detect
5/15/1996	42	Detect
5/5/1997	29	Detect
6/1/1998	2	Non-detect
9/24/1999	1.4	Detect

Appendix I -- PCB Concentrations in Pipeline Liquid Samples

Date	PCBs (ppm)	Flag
11/20/1989	6.2	Non-detect
9/13/1990	2	Non-detect
2/13/1992	15	Detect
10/27/1994	2	Non-detect
9/29/1995	12	Detect
8/23/1996	2	Non-detect
9/20/1997	2	Non-detect
10/7/1998	17	Detect
1/18/2000	30	Detect
1/30/2002	22	Detect
7/12/2004	8.3	Detect
7/13/2006	4	Non-detect
6/5/2008	0.5	Non-detect
8/17/2009	26	Detect
2/24/1981	5	Non-detect
11/23/1982	1000	Detect
1/17/1985	464	Detect
8/3/1988	842	Detect
11/20/1989	6.2	Non-detect
9/13/1990	1	Non-detect
2/13/1992	15	Detect
10/27/1994	13	Detect
9/29/1995	2	Non-detect
8/30/1996	5	Non-detect
9/20/1997	2	Non-detect
10/7/1998	45	Detect
1/20/2000	1	Non-detect
1/31/2002	0.99	Non-detect
7/12/2004	10	Detect
7/13/2006	4	Non-detect
7/8/2008	33.4	Detect
8/17/2009	21	Detect
3/1/1981	1200	Detect
11/23/1982	43	Detect
1/17/1985	536	Detect
8/3/1988	290	Detect
11/20/1989	6.2	Non-detect
9/13/1990	2	Non-detect
2/14/1992	120	Detect
10/27/1994	5	Non-detect
9/29/1995	9.9	Detect
8/30/1996	5	Non-detect
9/25/1997	2	Non-detect
10/7/1998	2	Non-detect
1/28/2000	620	Detect
2/4/2002	24	Detect
7/12/2004	1	Non-detect
7/13/2006	2800	Detect
7/8/2008	11	Detect
8/17/2009	0.6	Detect
3/1/1981	1200	Detect
11/29/1982	10	Non-detect
1/17/1985	1000	Detect
8/3/1988	151	Detect
11/20/1989	6.2	Non-detect
9/13/1990	1	Non-detect
2/14/1992	120	Detect
10/27/1994	5	Non-detect
10/1/1995	1	Non-detect
9/1/1996	70	Detect
9/25/1997	2	Non-detect
10/8/1998	15	Detect
1/28/2000	49	Detect
2/4/2002	22	Detect
7/13/2004	1	Non-detect
7/14/2006	12	Detect
7/8/2008	8.2	Detect
8/17/2009	0.5	Detect
3/2/1981	1	Detect
11/29/1982	10	Non-detect
1/18/1985	10	Non-detect
8/15/1988	10	Non-detect
11/20/1989	6.2	Non-detect
9/13/1990	2	Non-detect
2/14/1992	83	Detect
10/31/1994	2	Non-detect
10/1/1995	2	Non-detect
9/1/1996	1	Non-detect
10/1/1997	19	Detect
10/12/1998	56	Detect
1/31/2000	59	Detect
2/4/2002	8.2	Detect
7/13/2004	29	Detect
7/17/2006	4.8	Detect
7/9/2008	1.5	Non-detect
8/17/2009	0.6	Detect

Date	PCBs (ppm)	Flag
2/19/1990	19	Non-detect
10/25/1990	3	Non-detect
2/1/1993	1	Non-detect
1/19/1995	23	Detect
1/2/1996	2	Non-detect
11/22/1996	101	Detect
12/17/1997	2	Non-detect
1/6/1999	11	Detect
6/20/2000	3.2	Detect
11/21/2002	730	Detect
1/20/2005	2.1	Detect
6/1/2007	2.5	Non-detect
11/12/2008	1.5	Non-detect
11/4/2009	1	Non-detect
6/15/1981	792.5	Detect
4/13/1983	2500	Detect
9/12/1985	2	Detect
3/29/1989	12	Non-detect
2/19/1990	19	Non-detect
10/25/1990	6	Non-detect
2/1/1993	79	Non-detect
1/23/1995	2	Non-detect
1/2/1996	3	Detect
11/24/1996	7	Detect
12/19/1997	4	Detect
1/6/1999	2	Non-detect
6/20/2000	1.3	Non-detect
11/22/2002	7	Detect
1/21/2005	1	Non-detect
6/1/2007	1	Non-detect
11/13/2008	1.5	Non-detect
11/5/2009	9.3	Detect
6/15/1981	59987.5	Detect
4/13/1983	1000	Detect
9/13/1985	5	Non-detect
3/29/1989	6	Non-detect
2/19/1990	19	Non-detect
10/25/1990	3	Non-detect
2/1/1993	496	Detect
1/23/1995	2	Non-detect
1/2/1996	2	Non-detect
11/29/1996	2	Non-detect
12/19/1997	2	Non-detect
1/8/1999	2	Non-detect
6/20/2000	1.3	Non-detect
11/22/2002	1	Detect
1/21/2005	1	Non-detect
6/4/2007	54	Detect
11/19/2008	4.38	Non-detect
11/8/2009	1.5	Non-detect
6/15/1981	175	Detect
4/13/1983	2500	Detect
9/15/1985	2	Detect
3/29/1989	12	Non-detect
2/19/1990	19	Non-detect
10/25/1990	6	Non-detect
2/8/1993	170	Detect
1/23/1995	10	Detect
1/2/1996	2	Non-detect
12/2/1996	7	Detect
12/23/1997	11	Non-detect
1/11/1999	0.0005	Non-detect
6/21/2000	7	Detect
12/4/2002	1	Non-detect
1/21/2005	40	Detect
6/6/2007	580	Detect
11/19/2008	4.38	Non-detect
11/9/2009	28	Detect
6/15/1981	16800	Detect
4/13/1983	1000	Detect
9/15/1985	2	Detect
3/29/1989	6	Non-detect
2/19/1990	2	Non-detect
10/25/1990	3	Non-detect
2/8/1993	52	Detect
1/23/1995	55	Detect
1/3/1996	2	Non-detect
12/2/1996	320	Detect
12/29/1997	4	Non-detect
1/12/1999	21	Detect
6/27/2000	1	Non-detect
12/9/2002	330	Detect
1/21/2005	400	Detect
6/6/2007	15	Detect
12/3/2008	1.5	Non-detect
11/11/2009	1.5	Non-detect

Date	PCBs (ppm)	Flag
4/16/1990	3	Non-detect
3/18/1991	3	Non-detect
1/24/1994	64	Detect
4/3/1995	3	Detect
3/12/1996	2	Non-detect
1/31/1997	2	Non-detect
3/4/1998	390	Detect
4/22/1999	4	Detect
1/23/2001	250	Detect
7/7/2003	15	Detect
7/11/2005	2.8	Detect
10/15/2007	250	Detect
2/21/2009	1.5	Non-detect
4/6/2010	11	Detect
12/28/1981	5	Non-detect
1/11/1984	10	Non-detect
5/8/1986	5	Non-detect
6/19/1989	1	Non-detect
4/16/1990	3	Non-detect
3/18/1991	3	Non-detect
1/31/1994	10	Non-detect
4/3/1995	13	Detect
3/14/1996	49	Detect
2/3/1997	19	Detect
3/4/1998	270	Detect
4/22/1999	2	Non-detect
1/23/2001	50	Non-detect
7/7/2003	40	Detect
7/11/2005	48	Detect
10/15/2007	65	Detect
2/24/2009	24	Detect
4/11/2010	1.5	Non-detect
12/29/1981	5	Non-detect
1/11/1984	10	Non-detect
5/8/1986	340	Detect
6/19/1989	2	Detect
4/16/1990	3	Non-detect
3/18/1991	3	Non-detect
1/31/1994	10	Non-detect
4/3/1995	37	Detect
3/14/1996	2	Non-detect
2/3/1997	2	Detect
3/4/1998	270	Detect
4/26/1999	82	Detect
1/23/2001	22	Detect
7/7/2003	7	Detect
7/11/2005	2	Non-detect
10/15/2007	210	Detect
3/3/2009	26.4	Detect
4/12/2010	100	Detect
1/1/1982	944	Detect
1/15/1984	2	Detect
5/8/1986	340	Detect
6/19/1989	3	Non-detect
4/16/1990	3	Non-detect
3/18/1991	3	Non-detect
1/31/1994	180	Detect
4/3/1995	17	Detect
3/15/1996	2	Non-detect
2/3/1997	26	Detect
3/9/1998	2	Non-detect
4/26/1999	14	Detect
1/23/2001	98	Non-detect
7/7/2003	24	Detect
7/12/2005	6.3	Detect
10/15/2007	64	Detect
3/5/2009	22	Detect
4/12/2010	140	Detect
1/6/1982	148	Detect
1/15/1984	2	Detect
5/14/1986	3	Non-detect
6/19/1989	3	Non-detect
4/16/1990	3	Non-detect
3/18/1991	3	Non-detect
1/31/1994	180	Detect
4/3/1995	9	Detect
3/19/1996	2	Non-detect
2/4/1997	26	Detect
3/9/1998	2	Non-detect
4/26/1999	52	Detect
1/23/2001	5.4	Detect
7/7/2003	7.1	Detect
7/12/2005	88	Detect
10/15/2007	140	Detect
3/5/2009	1.5	Non-detect
4/13/2010	1.5	Non-detect

Date	PCBs (ppm)	Flag
7/19/2001	6.8	Detect
1/28/2004	1	Non-detect
1/19/2006	60	Detect
2/4/2008	26	Detect
7/6/2009	0.5	Detect