TRILLIUM INC.

Forensic Report
for
The Hartz Mountain Corporation Former Facility
Located at 700 South 4th Street, Harrison, New Jersey

Prepared for:

The Hartz Consumer Group, Inc.
Secaucus, New Jersey

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January 11, 2016

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I. INTRODUCTION

The property located at 700 South 4th Street in Harrison, New Jersey was owned by Sternco Dominion Reality Corporation from 1970-1999, and used by Hartz Mountain Corporation ("Hartz") from 1970 to approximately 1996. The facility encompassed 10.3 acres in the Lower Passaic River Study Area. Hartz has been included as a potential responsible party (PRP) for the Passaic River sediment CERCLA site. Volume 7 of 8 of the July 13, 2006 submission to USEPA Region II entitled "Indirect Discharge PRP Cases for the Lower Passaic River Study Area" implies that Hartz operations contaminated the Passaic River sediments. This allegedly occurred via an extremely convoluted pathway on an intermittent basis.

The pathway is described as follows:

1. Hazardous substances that are not named were used by Hartz and released to a combined storm and sanitary sewer that flows into the Passaic Valley Sewer Commission (PVSC) municipal system.

2. This combined storm water run off and sanitary sewer from the Hartz facility is a portion of the Middlesex Street Combined Sewer Outfall (CSO) district in Harrison.

3. The PVSC has reports indicating that during periods of rain some of the flow is discharged through a pipe to the Passaic River.

II. DOCUMENTS REVIEWED

See Appendix A.

III. OBJECTIVE

This report is based on the premise of alleged discharges of hazardous substances to the sediments of the Passaic River. This investigation is to determine if there were hazardous substances or wastes generated or used by Hartz that have contaminated the sediments of the Passaic River Study Area (PRSA). In addition, if there were hazardous substances used by Hartz Mountain and discharged to the Passaic River then the amount of these substances will be estimated.

IV. OPINIONS

- Hartz used small amounts of chemicals in their pet supply businesses.

- If the laboratory operated by Hartz released any hazardous substances in very small amounts into the laboratory sink, the substance would go into a combined sewer. Copious amounts of water were used by Hartz. This dilutes the substance or substances to undetectable concentrations prior to entering the Passaic Valley Sewer Commission (PVSC) system.

- Evaporation and biodegradation would remove the Hartz substances from the sewer system readily because these substances are or are similar to normal household sanitary sewer substances.

- In order to reach the Passaic River, the combined PVSC sewer must overflow at or near the Middlesex Street vault and flow into the Passaic River during major storm events.[1] These storm event floods would dilute the substances from the sewer, if they were present.

- It is not logical to present a highly speculative forensic scenario that Hartz released hazardous substances to the laboratory sink, diluted with 30,000 gallons of water per day and then overflow from the combined Middlesex Street sewer vault to the Passaic river only when there was a major storm event. No substance used by Hartz Mountain would be detectable in the sediments of the Passaic River. It is a de minimus amount that can not and will not be measured and the scenario would be considered not only highly unlikely but absurd.

- The hazardous substances, if any, that became incorporated in the Passaic River sediments by the overflow of the CSO of Middlesex Street originated in the six decades of roller bearing manufacturing, prior to Hartz' ownership/occupancy of the Harrison site.

V. SITE HISTORY

Prior to the Hartz operation at this facility, there was roller bearing manufacturing by the Hyatt Roller Bearing Company from about 1907 to 1970. In 1993, an ECRA investigation was performed by Metcalf & Eddy for Hartz. Their findings can be placed into three categories of hazardous substances, all of which would be found in sludge and sediments. They are:

1. Petroleum hydrocarbons (TPHC)
2. Polychlorinated biphenyls (PCBs)
3. Metals including antimony, cadmium, chromium, copper, lead, nickel, and zinc

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[1]Maxus0496549 that schematically shows the combined sewer overflow to the Passaic River.

The manufacture of roller bearings is directly responsible for these three categories of hazardous substances. The TPHC contamination came from the use of quench oil to harden the bearings. PCBs were from the hydraulic fluid in the systems handling hot metal due to their stability and resistance to combustion.[2] The metals listed along with iron are the metals used in roller bearing alloys.[3] The contamination by TPHC, PCBs, and metals occurred in over six decades of roller bearing manufacturing. There were numerous probabilities for releases - 6,000 gallon quench oil tanks[4], metal chip pits[5], and PCBs in an underground storage tank beneath building 9.[6]

Hartz did not use large quantities of heavy petroleum oil.[7] Hartz did not use any PCBs,[8] which were not sold by the U.S. manufacturer Monsanto after 1971,[9] and did not use iron alloys containing the hazardous metals. The Hartz facility housed the manufacturing of aquariums, storage, and packaging of pet foods and supplies. From the mid 1980s until operations ceased, Hartz assembled the Carpet Magic rug shampooing machine along with its supplies. Also in the mid 1980s, there was a research and development laboratory[10] for these businesses. Hartz operations stopped at this location in 1993 and the company left the site in 1996.

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[2]The Aroclor used was 1248 (see Hartz03491-Hartz03493, Hartz04177, and Hartz04179). This Aroclor was a liquid and ideal for hydraulic systems moving hot metal. The evaporation of Aroclor 1248 would change the chromatographic appearance of these PCBs to be similar to Aroclor 1254 and/or 1260.

[3]Kirk-Othmer Concise Encyclopedia of Chemical Technology, page 1089, John Wiley & Sons, Inc., 1985.

[4]NJDEPE Letter to Hartz Re: Approval of Site Investigation/Remedial Investigation Work Plan (Exhibit F of 5/30/1997 Certification of Keith Ryan, Hartz08161-Hartz08169) dated 9/14/1993.

[5]June 1994 Metcalf & Eddy Remedial Investigation Report and Remedial Investigation Workplan (Exhibit H of 5/30/1997 Certification of Keith Ryan, Hartz 08173-Hartz08225).

[6]1/7/1997 Memorandum from Bob Ferguson and Ed Hicks of ATC Environmental to Louis Pepper Re: Additional Concerns at the site (Hartz01631-Hartz01632).

[7]The Lower Passaic River Study Area Indirect Discharge PRP Cases for the Lower Passaic River Study Area, Volume 7 of 8, states that on September 29, 1981, Hartz was responsible for a release of about 500 gallons of No. 2 fuel oil producing a sheen in the Passaic River. The Hartz Mountain Corporation of 700 Frank E. Rodgers Boulevard never owned nor operated the 1000 First Street property in Harrison, New Jersey (Track VI Certification of Louis J. Maggiotto in the matter of New Jersey Department of Environmental Protection, The Commissioner of the New Jersey Department of Environmental Protection, and The Administrator of the New Jersey Spill Compensation Board v. Occidental Chemical Corporation, Tierra Solutions, Inc., Maxus Energy Corporation, Repsol YPF, S.A., YPF, S.A; YPF Holdings, Inc. and CLH Holdings, Inc.). Therefore, The Hartz Mountain Corporation is not responsible for the No. 2 fuel oil discharge from 1000 First Street, Harrison, New Jersey.

[8]Transformers were owned by PSE&G and did not contain PCBs, PSE&G Letter dated 7/23/1993.

[9]O. Hutzinger, S. Safe, and V. Zitko, The Chemistry of PCBs, CRC Press, 1974.

[10]Research and Development Laboratory was present from 1975 to 1995 (Hartz06690).

VI. CHEMICALS USED BY HARTZ

A. Main Business

Hartz produced and packaged consumer products for pets. This included aquarium supplies, pet foods for birds, dogs, cats, fish, and other live animals. None of the materials were hazardous to people or their pets. The pesticides and fungicides were for use with pets. The few hazardous substances reported by Hartz in 1991 deal with automotive maintenance and the welding and painting of aquarium stands, which are similar to substances found in most home garages.

The Carpet Magic rug shampooing machine operation consisted of the machine assembly and the packaging of surfactants used in rug shampooing.

B. Research and Development ("R&D") Laboratory

The functions of an industrial R&D laboratory are to perform investigations into customer complaints, production problems with products, reverse engineering of competitor products, formulation, and testing of new products. All of these endeavors use basic laboratory techniques including extraction, titration, chemical separations by chromatography, gravimetric, colorimetric, and instrumental analytical chemistry methods. These laboratory functions are to determine qualitative and quantitative results for constituents being tested. As a part of this work, the laboratory will procure small amounts of known products and chemicals as standards for comparison and verification of their tests.

The chemicals associated with the Hartz R&D laboratory are available on MSDSs. This list includes many commonly used laboratory reagents as well as chemicals and substances that would be used by the Hartz research and development laboratory functions. For example, various chromatographic methods would utilize materials called "Phase B", "OV", and "MicroCel" for chemical separations. Nessler solution, methylene blue, and bromothymol blue are colorimetric indicators. Charcoal, glass wool, filteraids, and common laboratory solvents are used for chemical extractions and filtration. Products such as Chemosorb, Prosorb, and Drierite are chemical adsorbants used for chromatography and moisture removal. The pH measurements with a meter require pH buffer solutions. The list of substances[11] taken from the MSDS documents are given in Appendix B and are listed by the trade name of the substances in alphabetical order. If possible, each material has been placed into one of the following categories in order to understand its use. The chemical name is listed if it is known. The categories are as follows:

1. Solvent/Reagent
2. Surfactant/Emulsifier/Chelating Agents

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[11] TAC000322-TAC000337.

3. Food additive/Colorants/Thickners/Vitamins/Antioxidants/Fragrances
4. Insecticide/Bacteriacide/Algaecide
5. Sealants/Plasticizers
6. Other

The R&D laboratory used and/or stored very small quantities of these chemicals. The work done by the R&D chemists would use only gram amounts or less of the reagents for any experiment. If experimental materials, leftover reagents, and/or the cleaning of glassware and equipment that were used in the various tests were poured down the laboratory sink, then the only transport mechanism to move any chemical from the laboratory to the Passaic River would be via the laboratory sink into the sewer system. This is a combined sanitary and storm water sewer system that joins the PVSC. According to PVSC and as reported in the Lower Passaic River Study Area, over 11 million gallons of water were discharged by Hartz to the sewer system in 1971. This amount decreased to over three million gallons in 1974 and then to about eight million gallons in 1985.[12] Using water usage of five million gallons of water being placed into the sewer system by Hartz per year, the daily flow from Hartz would be about 50,000 liters of water per day[13] diluting any chemical released to the laboratory sinks. One gram of a substance would be diluted to a concentration of 20 μg/L (parts per billion [ppb]) assuming it was soluble in water. This concentration value has not taken into account the following factors that can decrease the resulting concentration of the chemical from the laboratory that can reach the Passaic River:

- Storm water addition to the combined sewer
- Adsorption onto particulate matter
- Biodegradation in the sewer sludge
- Evaporation in the sewer system
- The fraction of the sewer flow leaving the sewer and entering the river
- The amount of chemical remaining in the sediment

[12]Pages 6 and 7 of the 7/13/2006 Lower Passaic River Study Area Indirect Discharge PRP Cases for the Lower Passaic River Study Area, Volume 7 of 8, PRP Extraction Form and Evidence Concerning Hartz Mountain.

[13]Hartz sent an average of 13,000 gallons per day to the POTW of PVSC (Maxus3951732).

VII. HARTZ CHEMICALS FATE AND TRANSPORT

A. Dilution

In order for any substance used by the Hartz R&D laboratory to end up in the Passaic River sediments, it must go to and through the combined sewer system. In the previous section describing this pathway, it is apparent that the major fate of any soluble material is dilution. There will be other fate processes occurring during this transport to and by the flow of sanitary sewer and storm water in the sewer system.

B. Evaporation and Adsorption to Sediments

Volatile organic chemicals (VOCs) with high Henry's Law constants will be lost at the liquid-air interface into the air space and be removed from the sewer flow. Turbulence and time will determine the amount of volatile chemical lost to the air. Volatile organic chemicals are not likely to be adsorbed onto sediment particles and, therefore, VOCs are not found in river sediments.

C. Biodegradation

The materials used by Hartz are either food grade substances or closely related to food grade chemicals because of their use by home owners for cleaning and/or their pets. Hazardous substances would not promote Hartz business products. These materials are biodegradable. Sanitary wastes add micro-organisms to the sewer to aid in the biodegradation of all organic substances including any recalcitrant chemicals such as a chlorinated pesticide or aromatic hydrocarbons.[14,15]

D. Pathway to the Passaic River Sediments

As described in the introduction, the pathway for Hartz materials to end up in the sediments of the Passaic River is a long and tenuous path. Small amounts of water soluble substances do not adsorb to particulate matter if a chemical that could be adsorbed in to a particulate was poured into a sink in the R&D laboratory, it would enter the combined sewer system with sanitary waste, non-contact cooling water, and storm water. This flow during a storm event must exceed the sewer system's capacity and go into a pipe that carries this particulate containing hazardous substances to

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[14]Rodenburg, Lisa A., Songyan Du, Donna E. Fennell, and Gregory J. Cavallo, "Evidence for Widespread Dechlorination of Polychlorinated Biphenyls in Groundwater, Landfills, and Wastewater Collection Systems," Environmental Science & Technology, Vol. 44, No. 19, pp. 7534-7540, 2010.

[15]Rodenburg, Lisa A., Songyan Du, Hui Lui, Jia Guo, Nicole Oseagulu, and Donna E. Fennell, "Evidence for Dechlorination of Polychlorinated Biphenyls and Polychlorinated Dibenzo-p-Dioxins and -Furans in Wastewater Collection Systems in the New York Metropolitan Area," Environmental Science & Technology, Vol. 46, pp. 6612-6620, 2012.

the Passaic River. This event is only going to occur occasionally and may not happen during the laboratory's operating schedule. This intermittent convoluted pathway cannot produce a measurable amount of any substance used by Hartz in the Passaic River sediments.

VIII. QUALIFICATIONS/EXPERIENCE/PUBLICATIONS

CREDENTIALS

Education

- Ph.D. Chemistry - Iowa State University (1964)
- B.A. Chemistry, with honors thesis - Williams College (1960)
- N.I.H. Postdoctoral Fellowship, Organic Chemistry - University of Illinois (1965-66)
- Visiting Lecturer, General and Organic Chemistry - University of Illinois (1966)
- Assistant Professor, Organic and Analytical Chemistry - Eastern Michigan University (1966-68)
- N.I.H. Postdoctoral Fellowship, Organic Mass Spectrometry - Cornell University (1968-69)

Professional Societies

- American Chemical Society (1960 to present)
  - Chairman of the North Jersey Mass Spectrometry discussion group, 1970-71
- American Society for Testing and Materials
  - Committee D-19 on Water (1979 to present)
  - Committee D-18 on Soil and Rock (1993 to present)
  - Committee D-22 on Air Quality (2012 to present)
  - Committee E-30 on Forensic Sciences (2014)
- American Society of Mass Spectroscopists
- Association of Official Analytical Chemists
  - Technical Division on Reference Materials
- The American Institute of Chemists (AIC) (1992 to present)
  - Fellow, American Institute of Chemists (FAIC)
  - Certified Professional Chemist (CPC)
  - Board of Directors (2002 - 2007)
- American Academy of Forensic Sciences (1997 to present)
  - Fellow - Engineering Sciences Section
  - Secretary of the Engineering Sciences Section (2002)
  - Chairman of the Engineering Sciences Section (2003)
  - Recipient of the Engineering Sciences Section Andrew Payne, Jr. Special Achievement Award (2002)

EXPERIENCE SUMMARY

Consulting

1987 to Present - President/Chemist, Trillium, Inc., Coatesville, PA

- Critical review and interpretation of environmental data based on the fundamental principles of chemistry. Expert testimony, depositions, affidavits and consulting in the general discipline of environmental chemistry including the development of defensible scenarios regarding the genesis of contamination, when the release occurred and the abiotic and biotic fate of the pollutants in the environment as well as their respective transport by air, water and other mechanisms. The assessment of the environmental data quality for its intended use. Design of quality assurance programs, sampling plans, analytical methods, data collection, and presentation. Data validation by EPA guidelines and professional understanding of analytical chemistry.

1985 to 1987 - Chemistry Manager, Walter B. Satterthwaite Associates, Inc., West Chester, PA

- Responsible for all chemistry involved with hydrogeology and engineering projects of the firm. This included sampling and analysis plans, quality assurance procedures, analytical data validation, interpretation of results, innovative problem solving, and expert witness testimony.

1981 to 1985 - Laboratory Director, Roy F. Weston, Inc., West Chester, PA

- Four years of experience as a director of analytical chemistry laboratory services for a major environmental engineering consulting firm. Responsibilities included administration, supervision, project management, quality assurance/quality control, problem solving, data interpretation, and research and development of analytical protocols. Major emphasis was placed on the analytical chemistry for hazardous waste sites, ground water, industrial effluents, RCRA listing, toxics in air, chlorinated dioxins/furans, and wood preservative facilities. The laboratory serviced all branches of government--local, state and federal--including the EPA Contract Laboratory Program and the U.S. Army Toxic and Hazardous Materials Agency. Also, the laboratory was responsive to industrial clients, consultants, and the individual with environmental analyses.

Industrial

1969 to 1981 - Manager, Corporate Research Center, Analytical Department, Allied Chemical Corporation (Now Honeywell), Morristown, NJ

- Twelve years of experience with a major chemical company as a problem solver and supervisor in the corporate analytical chemistry group. Major areas of effort were devoted to the solving of problems related to corporate research and development projects, environmental compliance and monitoring, product purity and safety, and production problems. The laboratories' emphasis was on the innovative development of analytical methods utilizing instrumental technologies. In-depth experience was obtained in organic chemicals, inorganic chemicals, specialty chemicals, polymers, synthetic fibers, tire manufacture, solvents, fluorine chemicals, coal, coke, and coal tar industries. This broad background combined with the entire responsibility for the environmental analytical chemistry resulted in nomination to three Chemical Manufacturers Association's Environmental Task Groups--Ground Water, Hazardous Waste, and Effluent Guidelines.

Academic

1968 to 1969 - N.I.H. Postdoctoral Fellow, Cornell University - Mass Spectrometry

1966 to 1968 - Assistant Professor, Eastern Michigan University

1964 to 1966 - Visiting Lecturer and N.I.H. Postdoctoral Fellow, University of Illinois

- Six years of intensive research in the areas of organic and analytical chemistry. Extensive skills developed in the fields of organic synthesis, isotopic labeling, reaction kinetics and mechanisms utilizing all major analytical instrumentation, including mass spectrometry, gas and liquid chromatography, and nuclear magnetic resonance, visible, ultra-violet and infra-red spectroscopy.

- Teaching general, organic and analytical chemistry and instrumental analysis was an integral part of the academic program responsibilities. Classes included agriculture, engineering, human ecology, biology and chemistry majors that provided a broad base for instructional talent.

FIELDS OF COMPETENCE

Environmental Chemistry

- **Trillium, Inc.**

  - Founded the first company exclusively devoted to environmental chemistry consulting.

- **Laboratories**

  - Developed new environmental analytical laboratories, including designs and instrumentation.

- **Laboratory Functions**

  - Seventeen years managerial experience with an analytical laboratory including quality assurance programs, governmental protocols, and environmental analyses.

- **Sampling Methods**

  - Developed a method to sample volatile organic chemicals in soils, sediments and solid wastes that minimized the losses of the volatile organic chemicals including vinyl chloride and chlorofluorocarbons. This sampling methodology was used at a Superfund site; results obtained were part of testimony presented to Federal Court on behalf of the Department of Justice. The basic method is now part of SW-846 sampling protocols used as a guideline by the U.S. EPA.

- **Analytical Methods**

  - Designed trace environmental analytical methods including the research and development to make the methods defensible in the scientific community. For example, the first use of GC/MS/MS in environmental analysis was an innovation utilized by the U.S. EPA for the measurement of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD).

  - Designed and developed a method using solid phase microextraction (SPME) to determine 1,2-dichloroethane and bis(2-chloroethyl)ether in cranberries to a detection limit of 1 μg/kg to be accomplished in the field with a one-hour turnaround time.

  - Developed a method that removes much of the high bias that occurs with the present U.S. EPA method for the analysis of hexavalent chromium (Cr^{+6}) in soil and other solid samples. This method has allowed the steel industry to classify their slag as aggregate instead of a waste material.

Detective Work

  - Studied a wide variety of chemical categories in support of many projects in which the contaminant(s) needed to be identified and quantified, and environmental fate and transport needed to be determined, in order to understand the site or facility, identify

sources, interpret the data and establish exposure routes, and age-date releases. The chemical categories studied include:

- Hydrocarbons
  - petroleum products and by-products
  - coal products and by-products
  - wood materials
  - biodegradation of organic materials
- Polychlorinated biphenyls (PCBs)
- Pesticides and herbicides (agricultural)
- Polychlorinated dibenzodioxins/polychlorinated dibenzofurans (PCDDs/PCDFs)
- Polynuclear aromatic hydrocarbons (PAHs)
- Phthalates
- Anions, including azide and perchlorate
- Metals, metalloids and metal complexes
- Isocyanates and polyurethanes
- Epoxides and by-products
- Tires and tire fires
- Plastics
- Paint
- Explosives
- Agents

- Environmental chemical detective work: What do the data mean? Using peer-reviewed literature, education, fundamental chemistry laws, and 46 years of experience in the practice of chemistry, interpret the data into usable scenarios concerning the origin and time of contaminant releases to the environment, the fate of the contaminants in various environmental matrices and conditions, and the transport of pollutants by various mechanisms.

- Used literature values for the hydrolysis of 1,1,1-trichloroethane (TCA) to develop an age-dating methodology for TCA releases to groundwater. To date, it is the only age-dating chemistry for environmental releases available that is scientifically defensible and used in Federal Court.

- Experience with analytical instrumental methods and instruments that are used to identify and measure trace pollutants in air, water and solids. This includes the historical (1960s and 70s) development of the methods and instruments used to determine chlorinated volatile organic compounds and BTEX.

- Identification of unknown non-target chemicals or tentatively identified compounds (TICs) is used to add "marker" chemicals to the waste materials or site soil and/or groundwater in order to help identify the company and/or process used to generate the pollutants under investigation.

- **Quality Assurance/Quality Control**

  - Audit environmental analytical laboratories; develop specific QA/QC programs for sensitive projects to insure the accuracy and precision of the data are within requirements. This type of work includes the design and written protocols for a State hazardous substances program.

- **Expert Witness**

  - Data gathering, interpretation, detective work, consulting, expert report preparation, deposition and trial testimony have been a portion of the expertise in environmental chemistry. Litigation experience has been in numerous chemicals including PCBs, PAHs, petroleum products, coal products, polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans, chlorinated solvents, fluorinated chemicals, landfills and landfill gases, priority pollutants, metals/elements, dyes, pesticides, and numerous other chemicals not included on any hazardous substances list.

Publications

The following is a list of all publications in the previous ten years:

- Smith, J.S., *"Is Your Analytical Result Accurate?,"* 57th Annual Meeting, American Academy of Forensic Sciences, New Orleans, Louisiana, February 21-26, 2005.

- Smith, J.S., *"Forensic Science,"* Presented at the Hartford County Teachers Inservice Day, Bel Air, Maryland, April 7, 2005.

- Smith, J.S., *"Is Your Analytical Result Accurate?,"* GSA North-Central Section 39th Annual Meeting, Minneapolis, Minnesota, May 20, 2005.

- Smith, J.S. and C. McLane, *"Environmental Forensics: Methods and Applications,"* National Ground Water Association Seminar, Baltimore, Maryland, July 19-20, 2005.

- Smith, J.S., *"Is Your Analytical Result Accurate?,"* 2005 National Ground Water and Environmental Law Conference, Baltimore, Maryland, July 22, 2005.

- Smith, J.S. and C. McLane, *"Environmental Forensics: Methods and Applications,"* National Ground Water Association Course, Columbus, Ohio, June 20-21, 2006.

- Smith, J.S., *"Daubert Rules Challenge Scientists,"* 2006 National Ground Water and Environmental Law Conference, Chicago, Illinois, July 6, 2006.

- Lane, V.A. and J.S. Smith, *"Fact or Fiction: The Source of Perchloroethylene Contamination in Groundwater is a Manufacturing Impurity in Chlorinated Solvents,"* 2006 National Ground Water and Environmental Law Conference, Chicago, Illinois, July 6, 2006.

- Smith, J.S. and G.W. DeWitt, *"Released Hydrocarbons - Aerobically or Anaerobically Biodegraded,"* 2006 National Ground Water and Environmental Law Conference, Chicago, Illinois, July 7, 2006.

- DeWitt, G.W. and J.S. Smith, *"First-Order Exponential Regression of Ethylbenzene/Xylenes Ratios for Estimating Release Date,"* 2006 National Ground Water and Environmental Law Conference, Chicago, Illinois, July 7, 2006.

- DeWitt, G.W. and J.S. Smith, *"First-Order Exponential Regression of Ethylbenzene/Xylenes Ratios for Estimating Release Date,"* Michigan Basin Geological Society Meeting, Dimondale, Michigan, September 13, 2006.

- Smith, J.S. and C. McLane, *"Environmental Forensics: Methods and Applications,"* National Ground Water Association Seminar, Houston, Texas, November 8-9, 2006.

- Smith, J.S. and G.W. DeWitt, *"Released Petroleum Products Containing BTEX - Aerobic or Anaerobic Biodegradation,"* 59th Annual Meeting, American Academy of Forensic Sciences, San Antonio, Texas, February 22, 2007.

- DeWitt, G.W. and J.S. Smith, *"First-Order Exponential Regression of Ethylbenzene/Xylenes Ratios for Estimating Release Date,"* 59th Annual Meeting, American Academy of Forensic Sciences, San Antonio, Texas, February 22, 2007.

- DeWitt, G.W. and J.S. Smith, *"First-Order Exponential Regression of Ethylbenzene/Xylenes Ratios for Estimating Release Date,"* NGWA 2007 Ground Water Summit, Albuquerque, New Mexico, May 1, 2007.

- Smith, J.S. and C. McLane, *"Environmental Forensics: Methods and Applications,"* National Ground Water Association Course, Fair Lawn, New Jersey, June 26-27, 2007.

- Peale, James G.D., M. French, and J.S. Smith, *"Perception vs. Reality: Countering Claims of Co-solvency Effects Using Good Science,"* NGWA Ground Water and Environmental Law Conference, Dublin, Ohio, July 24, 2007.

- Smith, J.S. and K.L. Shoop, *"ESI: Environmental Scene Investigation, Who are You?,"* NGWA Ground Water and Environmental Law Conference, Dublin, Ohio, July 25, 2007.

- Smith, J.S., B.L. Jolin, and C.A. Erikson, *"Automobile Shredder Residue: Waste or Wasted Resource?,"* NGWA Ground Water and Environmental Law Conference, Dublin, Ohio, July 25, 2007.

- Lane, V.A. and J.S. Smith, *"Fact or Fiction: The Source of Perchloroethylene Contamination in Groundwater is a Manufacturing Impurity in Chlorinated Solvents,"* The 23rd Annual International Conference on Soils, Sediments and Water, Amherst, Massachusetts, October 15-18, 2007.

- Smith, J.S. and C.A. Erikson, *"Automobile Shredder Residue: Waste or Wasted Resource?,"* 60th Annual Meeting, American Academy of Forensic Sciences, Washington, D.C., February 21, 2008.

- Peale, James G.D., M. French, and J.S. Smith, *"Perception vs. Reality: Countering Claims of Co-solvency Effects Using Good Science,"* 60th Annual Meeting, American Academy of Forensic Sciences, Washington, D.C., February 22, 2008.

- Smith, J.S. and M. Zdepski, *"New Jersey Hillbillies,"* 60th Annual Meeting, American Academy of Forensic Sciences, Washington, D.C., February 22, 2008.

- DeWitt, G.W., J.S. Smith, and F.J. Hoitash, *"Determination of Free-Phase Conditions Using Ethylbenzene/Xylenes Ratios,"* NGWA 2008 Ground Water Summit, Memphis, Tennessee, March 31, 2008.

- Smith, J.S. and S. Pitkin, *"Environmental Forensics: Methods and Applications,"* National Ground Water Association Course, Denver, Colorado, June 9-10, 2008.

- DeWitt, G.W., J.S. Smith, and F.J. Hoitash, *"Determination of Free-Phase Conditions Using Ethylbenzene/Xylenes Ratios,"* 61st Annual Meeting, American Academy of Forensic Sciences, Denver, Colorado, February 20, 2009.

- Smith, J.S. and S. Pitkin, *"Environmental Forensics: Methods and Applications,"* National Ground Water Association Course, Pittsburgh, Pennsylvania, June 15-16, 2009.

- Adamus, G.M., K.S. Murray, G.W. DeWitt, and J.S. Smith, *"Review of Groundwater Ethylbenzene/Xylenes Model to Estimate Petroleum Release Date,"* Air and Waste Management Association 102 Annual Conference, Detroit, Michigan, June 17, 2009.

- Smith, J.S., *"Some Chemistry Concerning Vapor Intrusion,"* Association of Environmental and Engineering Geologists, New York - Philadelphia Section Meeting, Somerset, New Jersey, January 19, 2011.

- Smith, J.S. , *"Environmental Forensics: A Repository for Junk Science,"* 63rd Annual Meeting, American Academy of Forensic Sciences, Chicago, Illinois, February 24, 2011.

- Hadka, M.C. and J.S. Smith, *"Finding the Genie in a Bottle,"* 64th Annual Meeting, American Academy of Forensic Sciences, Atlanta, Georgia, February 23, 2012.

- Erikson, C.A. and J.S. Smith, *"Chemistry Ignored-A Case Study,"* 64th Annual Meeting, American Academy of Forensic Sciences, Atlanta, Georgia, February 23, 2012.

- DeWitt, G.W. and J.S. Smith, *"Free Product Determination Using Ethylbenzene to Total Xylenes Ratio,"* 64th Annual Meeting, American Academy of Forensic Sciences, Atlanta, Georgia, February 23, 2012.

- Smith, J.S., *"The Road to the Supreme Court,"* 64th Annual Meeting, American Academy of Forensic Sciences, Atlanta, Georgia, February 23, 2012.

- Smith, J.S., *"Attorneys, Journalists, Environmental Forensic Scientists, and Four Words,"* 64th Annual Meeting, American Academy of Forensic Sciences, Atlanta, Georgia, February 23, 2012.

- Smith, J.S., *"Environmental Site Forensic Investigations: Where Junk Science in Litigation is King,"* The American Institute of Chemists Annual Meeting, E. Carmichael Members & Fellows Lecture, Philadelphia, Pennsylvania, April 13, 2012.

- Smith, J.S., *"Environmental Chemistry,"* 65th Annual Meeting, American Academy of Forensic Sciences, Washington, D.C., February 21, 2013.

- Smith, J.S., *"Nothing Has Changed in Environmental Forensics,"* Guest Editorial, The Chemist, Vol. 86, No. 2, pp. 33-34, April 2014.

- Hadka, M.C. and J.S. Smith, *"Let's Leave the Junk in the Junk Yard,"* 67th Annual Meeting, American Academy of Forensic Sciences, Orlando, FL, February 20, 2015.

IX. PRIOR TESTIMONY

The following is a list of all depositions and court testimony in the previous four years:

Deposition Testimony

Dattilo Realty v. Chevron U.S.A. Inc., United States District Court for the District of New Jersey, Civil Action No. 2:09-CV-02278

Expert for Plaintiff

David R. Forrey, Esquire
Lewis & Forrey, L.L.C.
34 Chambers Street
Princeton, NJ 08542
(609) 924-0180

Date of Deposition Testimony: January 11, 2011

Plantation Pipe Line Company v. Associated Electric and Gas Insurance Services, Limited, United States District Court for the Northern District of Georgia Atlanta Division, Civil Action File No. 1:09-cv-1260-TCB

Expert for Defendant

John Rivkin, Esquire
Rivkin Radler, LLP
926 RXR Plaza
Uniondale, NY 11556

Date of Deposition Testimony: June 16, 2011

James V. Atria, Jr. and Margaret Mary Atria v. Cumberland Farms, Inc., Tiger Claw, Inc. D/b/a Exxon; Exxon Mobil; New Jersey Department of Transportation; John Doe 1-10; GHI, Co. 1-10 (said names being fictitious, and Cumberland Farms, Inc., v. Sunoco, Inc.; Barker Bus Company, Martha's Cleaners and Launderers, Inc. And John Does 1-10 (said names being fictitious, Superior Court of New Jersey Law Division - Somerset County, Docket No. SOM-L-1647-04

Expert for Defendant/Third-Party Plaintiff - Cumberland Farms, Inc.

Martha N. Donovan, Esquire
Norris McLaughlin & Marcus, P.A.

721 Route 202-206, Suite 200
P.O. Box 5933
Bridgewater, NJ 08807
(908) 722-0700

Date of Deposition Testimony: November 8, 2011

The Newark Group, Inc. v. Crown Beverage Packaging, Inc. and Continental Holdings, Inc., Commonwealth of Massachusetts - Middlesex - Superior Court, Docket No. C.A. 09-4552

Expert for Plaintiff

Amy E. Boyd, Esquire
Jonathan M. Ettinger, Esquire
Foley Hoag LLP
Seaport World Trade Center West
155 Seaport Boulevard
Boston, MA 02210
(617) 832-1000

Dates of Deposition Testimony: July 24, 2012 and April 24, 2013

Compass Bank, as Successor in Interest to the Laredo National Bank v. Howard Ruhlman, Thomas H. Yates, Jr., and Chevron USA, Inc., Walter C. Keller Distributor, Inc., and Tom Yates Petroleum Co., Inc. v. Exxon Mobil Corporation, et al., HEB Grocery Company, LP v. Chevron USA, Inc., United States District Court for the Southern District of Texas Laredo Division, C.A. No. 5-08-CV-00068

Expert for Plaintiff

Caroline Newman Small, Esquire
Davis & Santos (formerly The Davis Group)
The Weston Centre
112 E. Pecan Street, Suite 900
San Antonio, TX 78205
210-853-5882

Date of Deposition Testimony: October 3, 2012

Richard Catena v. Raytheon Company, etc., et als., Superior Court of New Jersey Law Division: Bergen County, Docket No. BER-L-1267-11

Expert for Defendant - Raytheon Company

Dennis Krumholz, Esquire
Michele Glass, Esquire
Riker Danzig Scherer Hyland & Perretti, LLP
Headquarters Plaza
One Speedwell Avenue
Morristown, NJ 07962
(973) 538-0800

Dates of Deposition Testimony: March 5, 2013, March 6, 2013, March 12, 2013, and March 28, 2013

Tri-Realty Company v. Ursinus College, United States District Court for the Eastern District of Pennsylvania, Case No. 2:11-05885

Expert for Plaintiff

Scott J. Etish, Esquire
Gibbons, P.C.
1700 Two Logan Square
18th & Arch Streets
Philadelphia, PA 19103
(215) 446-6261

Date of Deposition Testimony: July 22, 2014

Duke Energy Progress, Inc. v. 3M Company, et al., and Consolidation Coal Company v. 3M Company, et al., United States District Court for the Eastern District of North Carolina Western Division, Civil Action Nos.: 5:08-CV-00460-FL and 5:08-CV-00463-FL

Expert for Defendant - IES Commercial, Inc.

David M. Bates, Esquire
Gardere Wynne Sewell LLP
1000 Louisiana, Suite 3400
Houston, TX 77002
(713) 276-5355

Date of Deposition Testimony: December 8, 2014

Bartlett et al v. E. I. du Pont de Nemours and Company and Wolf v. E. I. du Pont de Nemours and Company., United States District Court, Southern District of Ohio, Eastern Division, Case Nos. 2:13-cv-00170 (S.D. Ohio 2013) and 2:14-cv-00095 (S.D. Ohio 2014) in regard to E. I. du Pont de Nemours and Company C-8 Personal Injury Litigation, Case No. 2:13-MD-2433

Expert for Plaintiff

Robert A. Bilott, Esquire
Taft, Stettinius & Hollister
1800 Star Bank Center
425 Walnut Street
Cincinnati, OH 45202-3957
(513) 381-2838

Date of Deposition Testimony: March 9, 2015

Trial Testimony

Before the Corporation Commission of Oklahoma, Applicant: Michelin North America, Inc., Respondent: Gary S. Walker, Director, Petroleum Storage Tank Division, Oklahoma Corporation Commission, Relief Sought: Determination of Jurisdiction, Cause No. PSD 200800004

Expert for Applicant - Michelin North America, Inc.

Connie M. Bryan, Esquire
Rubenstein McCormick & Pitts, P.L.L.C.
1503 East 19th Street
Edmond, OK 73013
(405) 340-1900

Dates of Hearing Testimony: April 22, 2010 and March 2 & 3, 2011

James V. Atria, Jr. And Margaret Mary Atria v. Cumberland Farms, Inc., Tiger Claw, Inc. D/b/a Exxon; Exxon Mobil; New Jersey Department of Transportation; John Doe 1-10; GHI, Co. 1-10 (said names being fictitious, and Cumberland Farms, Inc., v. Sunoco, Inc.; Barker Bus Company, Martha's Cleaners and Launderers, Inc. And John Does 1-10 (said names being fictitious, Superior Court of New Jersey Law Division - Somerset County, Docket No. SOM-L-1647-04

Expert for Defendant/Third-Party Plaintiff - Cumberland Farms, Inc.

Martha N. Donovan, Esquire
Norris McLaughlin & Marcus, P.A.

TRILLIUM INC.

721 Route 202-206, Suite 200
P.O. Box 5933
Bridgewater, NJ 08807
(908) 722-0700

Date of Trial Testimony: February 28, 2012

X. COMPENSATION

The basis of compensation for James S. Smith, Ph.D. is an hourly rate of $250.00, including deposition testimony and plus expenses, per Trillium, Inc.'s January 24, 2015, Professional Fee Schedule.

XI. SIGNATORY

The preceding report includes opinions that I hold to a reasonable degree of scientific certainty and represents my best professional judgment based on the documents and facts with which I have been presented. I reserve the right to update this report based on additional information that comes to my attention.

January 11, 2016

Date

James S. Smith, Ph.D., CPC
President/Chemist

ED_013676A_00002196-00022

TRILLIUM INC.

APPENDIX A

TRILLIUM INC.

Lists of Hartz Drawings.

Lists of drawings from site (Hartz07483-Hartz07526).

Handwritten Lists of Hartz Drawings (Hartz00191-Hartz00231).

Chemicals Used in Harrison Plant (Hartz04281-Hartz04298).

Manifests (Hartz04336-Hartz04794).

Data and maps (Hartz04969-Hartz05037).

Metcalf & Eddy Invoices (Hartz05140-Hartz05460).

G&S Technology Specialized Technology in Disposal of PCB Contaminated Transformers (Hartz05461-Hartz05482).

Historical documents (Hartz06945-Hartz07134).

Summary of Floor Space Allocations (Hartz07135-Hartz07157).

Hartz Monitoring Well Logs and Industrial Inventory Sheets (MAXUS0902098-MAXUS0902101).

Companies with Discharges in More than One Category (MAXUS2397388-MAXUS2397389).

Syntron Spiral Feeders Brochure (TSI-DBR-00008127).

Documents on Hyatt Roller Bearing Company (Hartz07230-Hartz07268).

Monsanto Pydraul F-9 (Hartz07269-Hartz07307, Hartz07316-Hartz07319, and Hartz07629).

Monsanto Pydraul A-200 (Hartz07308-Hartz07315).

Monsanto Pydraul Fire-Resistant Hydraulic Fluid Selectors - Various Versions (Hartz07334-Hartz07414, Hartz07756-Hartz07814).

Hyatt Bearings Division Guide for Control and Use of Hazardous Materials (Hartz07415-Hartz07454).

Monsanto Pydraul A-200 Labels (Hartz07631-Hartz07636).

Monsanto Pydraul Fluids Toxicity and Safe Handling Information (Hartz07673-Hartz07690).

Monsanto Pydraul F-9 Brochures (Hartz07691-Hartz07729, Hartz07738-Hartz07741)

Monsanto Pydraul A-200 Brochures (Hartz07730-Hartz07737).

Monsanto Know Your Hydraulic Fire Hazards (Hartz07746-Hartz07755).

Dr. Lenhardt's Files, which include, but are not limited to, 12/2/1994 through 12/9/1995 Metcalf & Eddy Boring Logs, URS Figures, Dr. Lenhardt's Personal Notes, sections of his draft reports, and the June 1994 Metcalf & Eddy Remedial Investigation Report (Hartz09128-Hartz09482).

NJDEP Letter to Hartz Re: SI/RIWP Approval (MAXUS3910343-MAXUS3910350; also marked as TAG000133-TAG000140).

Hartz Company Profile and Related Industry (TAC001255-TAC001271).

Hyatt Bearings Guide for Control and Use of Hazardous Materials (HARTZ00792-Hartz00860).

Documents associated with ECRA GIS and SES (TAC000252-TAC000295).

MSDS - Harrison (TAC000322-TAC000337).

Figures and Photos (TAC000690-TAC000758).

Track VI Certification of Louis J. Maggiotto in the matter of New Jersey Department of Environmental Protection, The Commissioner of the New Jersey Department of Environmental Protection, and The Administrator of the New Jersey Spill Compensation Board v. Occidental Chemical Corporation, Tierra Solutions, Inc., Maxus Energy Corporation, Repsol YPF, S.A., YPF, S.A; YPF Holdings, Inc. and CLH Holdings, Inc.

7/5/1904	Hyatt Flexible Roller, Bulletin No. 22 (Hartz07184-Hartz07223).
February 1913	The Hyatt Way (Hartz07224-Hartz07229).
May 1942	GM World Vol. XXI, Number 3, VIII Hyatt Bearing Division (Hartz07168-Hartz07182).
1/12/1954	PSE&G Letter to Division Superintendent Re: GM Hyatt Bearing Division with attached 1/5/1954 Hyatt Bearing Letter to PSE&G Re: Power Situation at Harrison (Hartz07472-Hartz07482).

1954-1977	Sales Summary - PCB Products GM (Hartz07158-Hartz07167).
6/1954-7/1955	Monsanto Formulations for Pydraul F9 (Hartz07815-Hartz07816).
5/9/1956 - ?	Monsanto Pydraul F-9 Labels (Hartz07637-Hartz07672).
4/14/1959-3/25/1960	Monsanto A-200 Specifications (Hartz07817-Hartz07820 and Hartz07822-Hartz07826).
7/10/1961	Revised Pydraul Formulation (Hartz07821).
October 1961	Monsanto Fire-Resistant Hydraulic Fluids (Hartz07320-Hartz07333).
October 1961	Monsanto Fire-Resistant Hydraulic Fluids Physical Property Comparison Chart (Hartz07742-Hartz07745).
1/24/1967	The Bayonne Times, "Once Dormant, Bayonne Now on Move" (TSI-AK-00024974).
1/24/1967	The Bayonne Times, "Hook Reclamation Program is Big Boon to Bayonne" (TSI-AK-00024972).
12/15/1969	Monsanto Pydraul F-9 and 150 (Hartz07827-Hartz07829).
1/13/1970	Argonaut Realty Division Letter to Mr. J. Tobin Re: Sternco's revised list of items that need attention (Hartz06703-Hartz06705).
2/28/1975	National Pollutant Discharge Elimination System Permit to Discharge for Passaic Valley Sewerage Commission (KLL006250-KLL006265).
9/30/1981	United States Coast Guard Letter to Hartz Re: Pollution at Harrison (TAC000517-TAC000518).
10/5/1981	Stream Contamination Report (TAC000513-TAC000514).
July 1984	Passaic Valley Sewerage Commissioners Sewer System Evaluation Survey Internal Inspection (TSI-AK-00024996-TSI-AK-00024997).
3/12/1986	Hartz Letter to Passaic Valley Sewerage Commission Re: Completed Application for Sewer Connection Permit.

9/9/1986	Hartz Letter to Passaic Valley Sewerage Commission Re: Followup to Application of 3/12/1986 (TSI-AK-00025051-TSI-AK-00025093).
July 1987	State of New Jersey Annual POTW Pretreatment Program Report Outline (MAXUS3951708-MAXUS3951752).
6/6/1988	Hartz Letter to Passaic Valley Sewerage Commission Re: Approval and Installation of 35 ton cooling tower.
6/9/1988	Passaic Valley Sewerage Commission Letter to Hartz Re: Revised sewer connection application.
9/11/1989	Hartz Letter to Passaic Valley Sewerage Commission Re: Leak in cistern.
7/6/1990	USEPA Draft Consent Agreement (Hartz00077-Hartz00095).
7/24/1991	Envirotech Consultants, Inc., Report on UST Closure Plan Implementation for Hartz Mountain Corporation (TAC000134-TAC000147).
11/5/1991	Envirotech Consultants, Inc., Discharge Investigation and Corrective Action Report for Hartz Mountain Corporation (TAC000192-TAC000223).
2/24/1992	Hartz Letter to NJDEPE Re: Community Right-to-Know Survey (TAC000447-TAC000457).
3/19/1992	Note from Bernard Suchowski to Don Dolan and Rob Post Re: UL Manufacturer report for water pump and motors dated 11/26/1991 (Hartz00098-Hartz00190).
1/17/1993	Metcalf & Eddy Fax to Curt Michael Re: Preliminary Data Tables (Hartz04813-Hartz04835).
May 1993	Metcalf & Eddy ECRA Sampling Plan (Exhibit C of 5/30/1997 Certification of Keith Ryan, Hartz08123-Hartz08149;also marked as Hartz08124-Hartz08149 and TAC000344-TAC000350).
5/21/1993	Metcalf & Eddy Letter to NJDEP Re: ECRA Initial Notice Submission, Additional Sewerage Information (MAXUS3910333-MAXUS3910334; also marked as TAG000120-TAG000121).

6/24/1993	Metcalf & Eddy Letter to Hartz Re: Estimate of Potential Costs (Hartz04796-Hartz04799).
7/16/1993	NJDEPE Letter to Hartz Re: Report of Inspection on 6/30/1993 (Hartz03837-Hartz03840).
7/23/1993	PSE&G Letter to Metcalf & Eddy Re: Transformer Oil Inquiry (Hartz03836).
8/18/1993	Metcalf & Eddy Letter to Hartz Re: Inspection Letter dated 7/16/1993 (Exhibit E of 5/30/1997 Certification of Keith Ryan, Hartz08155-Hartz08160; also marked as MAXUS3910338-MAXUS3910341 and TAG000125-TAG000128).
8/18/1993	Metcalf & Eddy Letter to NJDEPE Re: Addendum to Sampling Plan dated May 1993 (Hartz03832-Hartz03835).
9/14/1993	NJDEPE Letter to Hartz Re: Approval of Site Investigation/Remedial Investigation Work Plan (Exhibit F of 5/30/1997 Certification of Keith Ryan, Hartz08161-Hartz08169; also marked as Hartz03824-Hartz03831).
10/12/1993	Metcalf & Eddy Letter to Hartz Re: Proposed Remedial Investigation (Hartz04800-Hartz04812).
12/30/1993	Metcalf & Eddy Letter to NJDEP Re: Current Status of Production Wells (Hartz04202-Hartz04203).
12/3/1993	NJDEP Notification Report Re: Report of spill at Hartz (TAC000482).
2/15/1994	Metcalf & Eddy Letter to Hartz re: Proposal for Environmental Services (Hartz04836-Hartz04844).
June 1994	Metcalf & Eddy Remedial Investigation Report and Remedial Investigation Workplan (Exhibit H of 5/30/1997 Certification of Keith Ryan, Hartz 08173-Hartz08225; also marked as MAXUS3910352-MAXUS3910535; TAG000159-TAG000342; and TAC000580-TAC000657).
10/4/1994	Complaint and Demand for Jury Trial (TSI-AK00024082-TSI-AK00024088).

11/15/1994	Metcalf & Eddy Letter to Hartz Re: Change Order Phase III (Hartz04845-Hartz04859).
11/22/1994	Metcalf & Eddy Memorandum to Curt Michael Re; Update of field activities (Hartz04860-Hartz04861).
12/12/1994	Metcalf & Eddy Memorandum to Curt Michael Re: Field Work Status (Hartz04864).
12/19/1994	Metcalf & Eddy Letter to Hartz Re: Potential Remedial Activities [some pages say 12/21/1994] (Hartz04865-Hartz04872).
3/17/1995	Metcalf & Eddy Letter to NJDEP Re: Request for waiver of investigation of transformer pad (Hartz03822-Hartz03823).
3/17/1995	General Motors Initial Disclosures (Hartz02100-Hartz02238).
4/12/1995	Metcalf & Eddy Letter to Hartz re: Alternatives for two AOCs (Hartz04879-Hartz04899).
4/12/1995	Plaintiff's Initial Interrogatories to Defendant (Hartz02303-Hartz02344).
5/3/1995	Metcalf & Eddy Letter to Hartz Re: Comparison of Costs for cleaning of combined sewer system (Hartz04873-Hartz04878).
5/5/1995	Metcalf & Eddy Letter to Hartz Re: Expanded version of Phase II remedial Investigation (Hartz04900-Hartz04909).
5/16/1995	Metcalf & Eddy Letter to Hartz Re: Phase II Remedial Investigation - Sewer/Tunnel Investigation (Hartz04908-Hartz04909).
5/16/1995	GM's First Request for Production of Documents (Hartz02870-Hartz02878).
6/15/1995	State of New Jersey Draft Conditional Acceptance of Phase II Remedial Investigation Report (Hartz03816-Hartz03821).
7/6/1995	Metcalf & Eddy Letter Report Re: Combined Sewer System Subsurface Investigation and Lateral Remediation (Hartz03278-Hartz03363).
7/6/1995	Metcalf & Eddy Letter to Hartz Re: Cleaning and video inspection of combined sewer system (Hartz04936-Hartz04940).

8/25/1995	GM's Answers to Plaintiff's Initial Interrogatories and Objections and Responses with Attachments to Plaintiff's Initial Demand for Production of Documents (Hartz02239-Hartz02302).
9/27/1995	Metcalf & Eddy Letter to Hartz Re: Phase II Remedial Investigation Status Update (Hartz04914-Hartz04920).
10/17/1995	PSEG Letter to Hartz Re: Ownership of transformers (Hartz03848).
11/6/1995	Metcalf & Eddy Letter to Hartz Re: Alternatives for Chip Pit (Hartz04921-Hartz04935).
11/21/1995	Metcalf & Eddy Letter to Hartz Re: Additional services (Hartz04941-Hartz04951).
11/27/1995	Notice of deposition and subpoena duces tecum served on Monsanto (Hartz07527-Hartz07534).
12/7/1995	Deposition of Henry Armstrong (Hartz00918-Hartz00943; Part of 6/2/1997 Certification of Curtis Michael).
12/20/1995	Deposition of Thomas M. Bistline (Hartz07535-Hartz07597).
12/22/1995	Monsanto Letter to Hartz and Sternco Re: Open items from deposition (Hartz07599-Hartz07627).
1/2/1996	Metcalf & Eddy Letter to NJDEP Re: Hartz Status of AOCs (Hartz03849-Hartz03864).
1/4/1996	Hartz Letter to NJDEP Re: Followup to 10/18/1995 meeting and approval of supplemental groundwater investigation (Hartz03842-Hartz03843).
1/15/1996	Metcalf & Eddy Letter to Hartz Re: Estimate for Phase III Remedial Investigation (Hartz05054-Hartz05064).
2/13/1996	NJDEP Letter to Hartz Re: Review of January 1996 RIR (Hartz03844-Hartz03847).
3/14/1996	Hartz Letter to PSE&G Re: Transformer Pad (Hartz05093-Hartz05094).
3/20/1996	Hartz Letter to PSE&G Re: Transformer Pad (Hartz05095).

5/16/1996	Notice to Take Oral deposition (Hartz02368-Hartz02385).
June 1996	Metcalf & Eddy Phase III Remedial Investigation Report and Volume II Figures (TAG000351-TAG000609; also marked as MAXUS3910553-MAXUS3910811).
7/29/1996	Hartz Letter to PSEG Re: Transformers (Attachments filed separately) (Hartz03841).
8/1/1996	GM's First Request for Production of Documents and Hartz's Response (Hartz02352-Hartz02366).
8/13/1996	Plaintiffs Answers to Initial Interrogatories of Defendant (Hartz06677-Hartz06749; also marked as Hartz02409-Hartz02427 and Hartz02428-Hartz02664).
8/22/1996	Hartz Letter to PSE&G Re: Transformers with attachments (Hartz03762-Hartz03927).
8/28/1995	Defendant's Objections and Responses to plaintiff's Initial demand for Production of Documents (Hartz02666-Hartz02869).
9/11/1996	GM's Supplementary Response to Initial Interrogatories (Hartz02346-Hartz02350).
9/12/1996	Metcalf & Eddy Memo to Curt Michael Re: Project costs (Hartz05050-Hartz05052).
9/12/1996	Metcalf & Eddy Memo to Karen Ricciardi Re: Project Status (Hartz05053).
9/17/1996	Deposition of Gilbert Kaye (Hartz06508-Hartz06636).
9/25/1996	Deposition of Leonard Stern (Hartz06785-Hartz06814).
10/2/1996	Deposition of Gilbert Kaye Volume II (Hartz06637-Hartz06664).
10/9/1996	Metcalf & Eddy Letter to Hartz Re: NJDEP Draft Response Letter Phase III Remedial Investigation Report (Hartz05038-Hartz05049; also marked as Hartz05065-Hartz05075).
10/31/1996	Deposition of Eugene Heller (Hartz06751-Hartz06780).

11/6/1996	Answer of General Motors Corporation to Plaintiffs Initial Request for Admission (Hartz02071-Hartz02099).
11/13/1996	Hartz Letter to PSE&G Re: Transformers (Hartz03806).
11/21/1996	PSE&G Letter to Hartz Re: AOC No. 9 (Transformer Pad) (Hartz03804-Hartz03805).
11/25/1996	IEA Letter to PSE&G Re: Sampling of Transformers and Pad (Hartz03801-Hartz03803; also marked as Hartz07455-Hartz07471).
12/9/1996	Hartz Letter to PSE&G Re: IEA Sampling Plan for transformers with attached Metcalf & Eddy Letter regarding review of same (Hartz03797-Hartz03800).
12/12/1996	URS Greiner Memo Re: Five Scope Items (Hartz05920-Hartz05926).
12/13/1996	URS Greiner Letter to Carpenter Bennett Re: Scope Clarification and Data Gathering Meeting of 12/10/1996 (Hartz05910-Hartz05914).
12/13/1996	URS Greiner Memo Re: Sampling Protocol/Modification (Hartz05927).
12/13/1996	URS Greiner Scope of Work Revision 1 (Hartz05915-Hartz05919).
12/17/1996	Personal Project Notes of J. Jacobi (Hartz05907-Hartz05908).
12/18/1996	Metcalf & Eddy Letter to Hartz Re: Work out of scope (Hartz05087-Hartz05092).
12/18/1996	Harrison Site Document Inventory (Hartz06228-Hartz06245).
12/19/1996	Metcalf & Eddy Letter to Hartz Re: Proposal for Environmental services (Hartz05077-Hartz05086).
12/26/1996	IEA Data for Transformer and Pad sampling with Figure 10 Transformer Pad (Hartz03928-Hartz04009).
1/1997	Jacobi and Lenhardt Draft Report of Findings (Hartz06042-Hartz06075).
1/3/1997	Personal Notes of J. Jacobi (Hartz05904-Hartz05906).

1/5/1997	URS Greiner Memorandum, Jerald W. Jacobi, Personal Note File (Hartz06184-Hartz06192).
1/6/1997	Jacobi Personal Note File (Hartz06177-Hartz06178).
1/7/1997	Memorandum from Bob Ferguson and Ed Hicks of ATC Environmental to Louis Pepper Re: Additional Concerns at the site (Hartz01631-Hartz01632).
1/7/1997	Handwritten Summary of Operations at Hartz which could account for site contamination documented by Metcalf & Eddy (Hartz05793-Hartz05796).
1/8/1997	Metcalf & Eddy Fax to Curt Michael Re: PCB results - transformer (Hartz05115-Hartz05120).
1/9/1997	ATC Environmental Letter to Louis Pepper Re: Sampling of Surfaces (Hartz05852-Hartz05863).
1/16/1997	Carpenter Bennett Fax to Jerry Jacobi Re: MSDS Index for Hartz (Hartz05881-Hartz05899).
1/30/1997	Notes from assessment of M&E Invoices, Table 1 (Hartz05972-Hartz05979).
2/7/1997	Accutest Data for sample from Process UST collected 1/21/1997, Job No. E17909 (Hartz07832-Hartz08065).
March 1997	Draft Expert Report of Duane Lenhardt, Ph.D., CPG and Jerald Jacobi, PE (Hartz05762-Hartz05781).
3/18/1997	Deposition of Robert J. Ferguson and Edwin J. Hicks (Hartz01523-Hartz02070).
4/19/1997	Metcalf & Eddy Fax to Hartz Re: Well and Borehole Logs (Hartz05096-Hartz05114).
5/8/1997	Draft Expert Report of Duane Lenhardt, Ph.D., CPG and Jerald Jacobi, PE (Hartz08504-Hartz08608 and Hartz08678-Hartz08905).
5/28/1997	Certification of Gilbert Kaye with attached exhibits (Hartz01452-Hartz01486).

5/30/1997	Certification of W. Leigh Short Ph.D., PE with attached expert report (Hartz00232-Hartz00291).
5/30/1997	Certification of Keith Ryan with Attachments A-Z (Hartz08066-Hartz08502).
June 1997	Expert Report of Duane Lenhardt, Ph.D., CPG and Jerald Jacobi, PE (Hartz08906-Hartz09127).
6/2/1997	Certification of Curtis Michael with attached exhibits (Hartz00292-Hartz00877).
6/9/1997	TriState Environmental Letter to Hartz Re: Chip and wipe sampling/Buildings 1 and 8 with Attachments A-D (Hartz08609-Hartz08677).
6/11/1997	Metcalf & Eddy Letter to Hartz Re: Tank Closure and Findings (Hartz05121-Hartz05127).
8/25/1997	Environ Proposal to Prepare Sampling and Analysis Plan (Hartz05528-Hartz05593).
9/3/1997	Certification of James Savage with attached exhibits (Hartz00878-Hartz01221).
9/3/1997	Certification of Jerald Jacobi with attached Exhibits A & B (Hartz01222-01451).
9/4/1997	Certification of Duane Lenhardt with Exhibit A (Hartz01489-Hartz01496).
9/18/1997	Supplemental Certification of Gilbert D. Kaye (Hartz01487-Hartz01488).
9/19/1997	Supplemental Reply Certification of Curtis Michael with Exhibits A through D (Hartz01497-Hartz01522).
9/23/1997	Deposition of Duane Lenhardt (Hartz06335-Hartz06377).
9/23/1997	Deposition of Jerald Jacobi (Hartz06815-Hartz06924).
December 1997	Request for Proposal from Hartz and GM (Hartz04010-Hartz04152).

December 1997	Metcalf & Eddy Phase IV Remedial Investigation Report Vol. I with no appendices (TAG000622-TAG000725; also marked as MAXUS3910833-MAXUS3910936).
December 1997	BBL Proposal (Hartz05665-Hartz05758).
12/23/1997	Environ Proposal Letter to Hartz and GM Re: Proposal to Implement Risk-Based/Remedial Action Investigation (Hartz05484-Hartz05527).
12/24/1997	McLaren/Hart Inc., Proposal Letter Re: Building Interior Surface Sampling (Hartz05594-Hartz05664).
1/28/1998	State of New Jersey Letter to Hartz Re: RIR dated December 1997 (TAC001213-TAC001220).
5/5/1998	GM's Response to Plaintiff's Supplemental Demand for Production of Documents (Hartz02879-Hartz03277).
6/6/1998	Metcalf & Eddy Letter to NJDEP Re: Phase IV RIR and Project Status (TAC001231-TAC001239).
6/16/1998	Deposition of G. Engel (Hartz06389-Hartz06421).
7/7/1998	Metcalf & Eddy Letter to Hartz Re: Phase V (Hartz05128-Hartz05131).
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TRILLIUM INC.

APPENDIX B

CHEMICAL CATEGORIES
(Best Estimates)

1. R&D Laboratory Chemicals
2. Surfactants
3. Pet Food
4. Pesticides
5. Polymers
6. Solvents
7. Other

TRILLIUM INC.

1. R&D Laboratory Chemicals

Clay (Cat Litter)
Veegum
Veegum F
acetyl chloride
ammonium acetate
ammonium bicarbonate
ammonium hydroxide
ammonium sulfate
ascorbic acid
barbituric acid
benzaldehyde
benzoic acid
borax
borax 10 mole
borax (5 mole) granular
boric acid
bromothymol blue 1%
buffer 10
buffer 4
buffer 7
caffeine anhydrous
calcium chloride, anhydrous
calcium nitrate
calcium sulfate
celite 535
celite 545
chalic acid sodium salt
charcoal - activated
chlorophyll JJ
chloline chloride 70%
chromium trioxide
chromo sorb Whp 100/120
Citral E02
citric acid, USP
citric acid anhydrous
cupric sulfate
dehyquat E
dextran
diatom powder
diethanalamine

ED_013676A_00002196-00039

diisodecyl glutarate
diisopropyl adipate
disodium phosphate
DOA
dodecyl sulfate, sodium salt
drierite
emsorb 2721-A
ethylene glycol
glass/wool/angel hair/dry filler
glycerine USP (96%)
glycerine, USP (99.5%)
gravel sand grade 0
hectorite (200 mesh)
hexacid C-18-1
hexadecyltrimethyl ammonium bromide
hexamethylenetriamine
hydrachloric acid
hydrogen peroxide
industrene 105
lithium chloride
manganese gluconate
malachite green oxalate
methylene blue
micro-cel C
micro-cel E
micro cel T-26
monoethanolamine
nessler solution
nickel nitrate, hexahydrate
nitric acid
oleic acid
OV-7
OV-1 silicone gum
perchloric acid #10 in glacial acetic acid
Phase B-1
Phase B-10
Phase B-11
Phase B-13
Phase B-15
Phase B-15 2x
Phase B-17
Phase B-18

Phase B-20
Phase B-22
Phase B-30
Phase B-5
Phase B-6
Phase B-9
phosphoric acid
potassium oxalate
potassium iodate
potassium iodide
potassium sorbate
potassium sulfate
protasorb L-20
propyl paraben
propylene glycol
sodium benzeate, USP
sodium bicarbonate
sodium carbonate, anhydrous
sodium carbonate, monohydrate
sodium chloride
sodium citrate
sodium desoxychalate
sodium hydroxide
sodium lauryl sulfate
sodium nitrite
sodium silicate
sodium stearate OP-100
sodium sulfate anhydrous
sodium sulfathiozole
sodium tetraphenyl borate
sodium thiosulfate, anhydrous
sodium thiosulfate, crystal
sorbic acid
titanium dioxide
undecylenic acid
universal indicator solution
nickel Ba 78
nickel BA77
phosphalic EFA
polyex water solution
triethyl amine 99% gold label
triethylamine

zinc sulfate

2. Surfactants

Emcompress
Hamp-ene 100S
Hamp-ene 220S
Hamp-ene NA4
Hampene 14.5% copper
Hampene 7.5% copper
hampene acid
Syntran 1580
Syntran DX6-101
SyntranDX 911
Syntran DX10-11
Syntran DX6-54
Trilon Bs
versenorchilon/Hampene
Egmo 7C
Emerest 2452
Stephanate AXS
Stepan-mild LSB
tetrapotassium pyrophosphate
hetamide Ln
Acintol FA-1
Acintol FA-2
Acrysol Ase-60
Aerosil R972
Aethoxal B
AHCOWET-RS
alconate SBFA 30
allantoin
amber gum 4521
amerchol L-101
amerchol OE-10
Ameroxol OE-20
Amersil DMC-287
Amersil DMC-357
Amersil ME-358
Ammonyx CDO
Amp regular

Antifoam 1520-US
Barlox C
Barquat CME-35
BIO Terge LD 100
Brij 78
Brij 99
bulk soap F/54008 Canada
Carsonon 144P
Carsonan 169P
CataPal B
Cedepal Ca-620
cellosize polymer PCG-10
cellulose gum 71F PH
cellulose gum 7MF PH
Ceraphyl 230
Ceraphyl 45
Ceraphyl 55
Ceraphyl 60
Ceraphyl 65
Ceraphyl 85
Cerasynt IP
cocamide Mea
colloids 1560
Cosmedia Guar C26IN
Crill Co
Crovol PK70
DCA Bernel ester
dioctyl sebacate
Dow Corning Antifoam A
Dow Corning Antifoam 1520-US
Dow Corning Antifoam 2210
Dowanal Blend EB & DPM
Dowanal PNB glycol ether
Dowanal TpM glycol ether
DTT
Dupanol Wage
Emerest 2410 W/A emulsifier
Emery 2485
Emid 6500
Emid 6547 W/A emulsifier
Emsorb 272B
Emthox 2737

Emthox 5882
Emulphor EL-62C
Emulphor EL-719
Emulphor EL-980
Ethosperse Ca-2
Ethoxylan 1685
Ethoxylan 1686
Exbar puffed borax
FB (TM) sodium percarbonate
Finquat Ct
Finsolve TN
Fizul MD-318C
Gafac Re 610
Gafac RP-710
Galactosol 651
Galoryl DP-25
Galoryl MT840
Galoryl Old 50516
Gelcarin GP 359
Gelcarin PS 398
Gelcarin PS 402
Glucam P-20
Glucamate Doe-120
Glucquat 100
Glycomul C
Glycomul SOC
gum arabic
Hamposyl L-30
Hetester PCA
HoDag Antifoam FD-62
Igepal Ca 620
Igepal Co 620
Igepal C0 630
Igepon T-33 surfactant
Incromide Ca
Incromide Cac
Incromide L-90
Katapone VV-328
Keltrol
Kemamine P-6500
Kemamine P-999
Kessco ethylene glycol monostearate

Kessco glyceral monoaleae
Lamequat L
Lanette 16-95
Lanoquat 1756
lantrol 1674
Lanzest 143-S (Lonzest 143-S)
Lexquat CH
Liposorb S-2C
Lonzaine C
Lonzaine CO
Lonzaine CS
M-quat 522
M-quat JO 50
Mazer DF 1105 (10% silicone defoamer)
Merquate 280
Methocel K4M
Micro step H-301
Micro step H-302
Micro step H-303
Micro step H-304
Micro step H-305
Miranal C_2 MNP
Miranal C_2m NP-PG
Mirataine CB
Monamid 1224
Monamid 150-Ady
Monamid 150-Is
Monamid 150-MW
Monamid 716
Monamid 779
Monamid LM-MA
Monamid LMA
Monaterge 1164
Monateric C-M365
Monateric CDX-38 Mod
Monateric CDX-38M
Monawet Mo-70E
Monomid 150-LWA
Myvacet 9-45K distilled acetylated monglycerides
Nalco 2811 oxygen
Natrosol 250 Hr
Natrosol 250 exr

Natrosol 250 GR
Natrosol hydroxyethyl cellulose
Ninal Lmp
Nitrene L-90
organosilicone fluid Y-12354
Paramul SaS
Peg 400 monolaurate
Pegosperse 400 Dot
Pegosperse DL
Pegosperse 600 Dot
Petro 22 powder
Petro 22 solution
Plurafac B-25-5
Plurafac* A-38 Prill
Pluronic L62
Pluronic L64
Polystep B-25
Protamide CME-H
Protomide L-80-M
PVP K-30
Q2-8220 conditioning additive
Sag 1010
Sag 2001 silicone antifoam emulsion
Sanwet IM-1000
Schercomid LME-75
Schercoquat IAS
Schercoquat SOAS
Sequestrene Na 3
Shd organosilicone fluid
Silwet surfactant
Silwet surfactant L-7001
Silwet surfactant L-720
Silwet surfactant L-7200
Silwet surfactant L-7210
Silwet surfactant L-7230
Silwet surfactant L-7500
Silwet surfactant L-7600
Silwet surfactant L-7602
Silwet surfactant L-7604
Silwet surfactant L-7605
Silwet surfactant L-7607
Silwet surfactant L-7614

Silwet surfactant L-77
Sokalan CP5 Powder
Sokalan CP9
Sokalan HP22
solar salt
Solulan 98
Standamax caw
Standamax Lao-30
Standapol A
Standapol AEI
Standapol CDC
Standapol Ea-1
Standapol Es-3
Standapol Ha Blend
Standapol SH124-3
Standapol Wag-LC
Stepan C-68
Stepan Tab-2
Stepanol Am
stepanol Am-V
Stepanol Wa-Extra
Surfactant 193
Surfactant Blend RF
Tauranal M1
Tauranal Ws. Conc.
TDET-012
TDET C40 470
Tergitol nonionic surfactant 15-S-12
Tergitol nonionic surfactant 15-S-15
Tergitol nonionic surfactant 15-S-20
Tergitol nonionic surfactant 15-S-3
Tergitol nonionic surfactant 15-S-30
Tergitol nonionic surfactant 15-S-40
Tergitol nonionic surfactant 15-S-5
Tergitol nonionic surfactant 15-S-7
Tergitol nonionic surfactant 15-S-9
Tergitol nonionic surfactant XL-80N
triethanolamine 85%
triethanolamine 99
Triton X-102
Triton X-114
Triton X-L80N surfactant

Trycal 5882 Poe (4) lauryl alcohol
Tween 20
Tween 80
Varamide A7
Varamide ML-1
Velvetex BA-35
Velvetex BK-35
Velvetex CDC
Sylloid 244FP
Hydronyethyl cellulose

3. Pet Food

avicel microcrystalline cellulose
corn starch
corn syrup
dextrose
dried yeast - natural flavor
maltrin M365
natural dog flavor blend
natural grape U.S. F113975
Neutrical K80V Konjac flour
Neutrical KC56 Konjac flour
pet food palatability enhancers
phosphatase acid from wheat germ
sorbitol (70%)
soybean oil
spinach powder
Super Pro 5A
vitamin -A-palmitate
vitamin A_1, D_3, E in wheat germ

vitamin-E-acetate
AC-87
ferrow gluconate
Tenox BHA
Tenox GT-1
Tenox PG
Tenox S-1
Tenox TBHQ
Tenox #6

aureomycin
indomethacin
BHT
Oxyban A
Dowicil 200
Dowicil 75
Emeressence 1160
Santoquin Mix #6
beta-carotene-4,4'-dione
Solatene
brown lake blend "R" 9078
carotenol solution #73
cosmetic red oxide
D&C Violet MX293 A pylam
D&C #33 red powder
Euperean PK 771
FD&C Blue #1
FD&C Lakolene #5 yellow
FD&C #40 Red lake
Lustra pearled gold
Mapico Iron Oxide Red 387
Nylosan Blue 2aL
Pylacert Mx-193
Pylan Bright Blue LX 6258
Spectra-pearl BKW series
Spectra-pearl GNW & GNG
Verde green, certified
Verde green, Hercules
Belmay Fragrance 1-7500
Belmay Fragrance 2-7455
Belmay Fragrance 20-7513
Belmay Fragrance 3-7497
Belmay Fragrance 3-7502
Belmay Fragrance 5-7452
Belmay Fragrance 5-7498
Fragrance B-18
phenyl acetic acid
terphenyl acetate item #3
Tinopal CBS-X
Abscents
tannic acid
blandol

Draheal #9 (light mineral oil)
Gloria white mineral oil
mineral oil gloria
Kessco 653
light tablet brown B338
Steal 4N
Steal Ca-130
Steal Ca-330
steric acid
steric acid triple press
zinc gluconate

4. Pesticides

coal tar solution topical
acriflavine neytral
alcare
allethrin in methyl chloride
ASANA
BIO Pal NR-20
BTC-2125M-P40
BTC 2125 M
Busan 1024
cat flea powder
Cosmocil CQ
D-trans allethrin 90% tech.
Dantogard
DDVP, Vapona insecticide
DEET
Dimilin 4F
Dimilin 25WP
dog flea powder
Dow Corning 5700 antimicrobial agent
Dowicide 1
Dursban
fenvalerate
Germaben II
Glydant
Glydant Plus
Glydant XL-1000

Hetoxal L-2
Hetoxal OL10H
Kathon CG/ICP
Kathon CG/ICP II
Mark 1600
Methoprene
MGK 264
MGK 5192 pyrenol
MGK 5792 pyrocide interm
Nylar
Oxaben A
Oxone
paraformaldehyde
permethrin
phenothrin
phosmet
piperazine adipate
prentox pyronyl
Pro Lan V
Propox Ur
rabon technical
Sectrol insecticide
Skatole item #42
Ucarcide 250
G-4 technical
sumethrin
Vapona
diflubenzuron 90%

5. Polymers

hot melt adhesive
hactol DiDa
Ap-77 butyl rubber sealant
Q3-1733 sealant (clear)
AC43 varnish
citroflex 1
citroflex A-2
citroflex A-4
citroflex A-6
citroflex B-6

dibutyl sebecate
dioctyl adipate
dioctyl azelate
dioctyl phthalate
T.G. liquid caustic 50%
cabosil M-5
neocryl A-550
polyvinyl chloride resin
rigid polyvinyl chloride
SMA Resin 1440
SMA Resin 17352A
Vectra (R) A 410 VF 3001
Vectra (R) A 430 VF 3001

6. Solvents

acetone
aerothene MM
aerothene TT
alfol 12
arcosolve DPM solvent
arcosolve PM solvent
cetyl 95 alcohol
chloroform
diacetone alcohol
ethyl alcohol
ethyl alcohol 190
exxate 1300 solvent
exxate 700 solvent
formaldehyde 37%
heptane
hexane
isopar H
isopar K
isopar L
isopar M
isopropanol 99%
ligroene Br 35-50
methyl carbitol solvent
methyl ethyl ketone
methyl nonyl ketone

odorless mineral
perchlor
T200X Thinner
Varonic MT65 (V-0348)
Varonic DM 55
witanol 14
wickenol 159

7. Other

Apg 400
Apg 600
Apg 625
QAI
Sipix SB-82085
A-108
A-17
A-31
A-46
dimethyl ether
Dymel
Genetron 11
Genetron 12
propane
Artemol 30
Arxtemol CM
HR self-cleaning
Steralchal
thermoregulator
Varsule S-1333
Versatyl 42
zeolite