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Utility Solid Waste Activities Group

Member Company PCB Reduction Efforts

2006 Update



Since the last update in 2004, electric and gas utility member companies of the **Utility Solid Waste Activities Group (USWAG)** have continued with a wide range of voluntary PCB reduction efforts, both within the Great Lakes Basin and in other regions

of the country. At the last USWAG PCB Committee meeting in Columbus, Ohio in April 2006, attendees reaffirmed that most USWAG companies have procedures in place to ensure that virtually all equipment containing PCBs in concentrations ≥ 50 ppm identified during repair/servicing, are disposed and/or retrofilled and not returned to service as PCB-regulated equipment. These reduction efforts, combined with voluntary retrofit/reclassification programs, are resulting in the continued reduction of PCB-containing equipment from utility inventories across the country. The achievements of USWAG members are significant because they help demonstrate that the United States is fulfilling its obligations under the Stockholm Convention on Persistent Organic Pollutants to “make determined efforts” to identify and remove PCB equipment (≥ 500 ppm PCBs) from use by 2025, and to “endeavor to” identify and remove PCB-contaminated equipment (≥ 50 but < 500 ppm PCBs) from use by 2025.

In addition to the systematic retirement of PCB-containing equipment identified during repair/servicing, USWAG member companies also undertake, where practical, dedicated efforts to identify and remove PCB-containing equipment from service.

For example, **Ameren**, which serves 2.4 million customers in Missouri and Illinois, has voluntarily removed all large PCB capacitors from its system. Large oil filled in-service electrical equipment (*i.e.*, substation, network transformers and generating station equipment) have been tested for PCB concentration and either replaced or reclassified to at least below 499 ppm PCBs and in most cases below 49 ppm PCBs. Large equipment in-storage for reuse has been reclassified to below 49 ppm PCBs. Large spare bushings have been tested for PCB content, if possible. The majority of the spare bushings with a

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PCB content over 49 ppm PCBs (tested and assumed) were sent for disposal.

Distribution electrical equipment removed from service is not placed back into service or in-storage for reuse unless it has a manufacturer certified non-PCB label. Only verified non-PCB distribution equipment is sent for repair.

American Electric Power (AEP), with more than 5 million customers and celebrating its 100th anniversary in 2006, continues to achieve excellent PCB use reductions in its 11-state service territory of Arkansas, Indiana, Kentucky, Louisiana, Michigan, Ohio, Oklahoma, Tennessee, Texas, Virginia, and West Virginia. Within the Great Lakes Basin, AEP has no known PCB Transformers or PCB large capacitors. In calendar years 2005-2006, AEP removed from its service territories in EPA Regions 3 through 5 the following items: 207 PCB large capacitors, 544 PCB items containing ≥ 500 ppm PCBs (211 being PCB Transformers), 3,046 PCB-contaminated articles (between 50 and 499 ppm PCBs), 25,001 non-PCB items and 896 non-PCB large capacitors (between 2 and 49 ppm PCBs). In its EPA Region 6 territory AEP removed 586 PCB large capacitors and 132 PCB items containing ≥ 500 ppm PCBs, 618 PCB-contaminated articles, 738 non-PCB large capacitors and 22,011 non-PCB articles of electric equipment.

Arizona Public Service ("APS") is Arizona's largest and longest-serving electric utility, serving more than one million customers in 11 of the State's 15 counties. APS owns, operates and maintains more than 40,000 miles of transmission and distribution lines throughout Arizona. Over the past seven years, APS has been successful in reducing the use of PCBs in electrical equipment by targeting suspected equipment based on manufacturer name and serial numbers. From 2000 through 2004, APS removed 3,212 pieces of PCB (\geq

500 ppm) or PCB-contaminated (≥ 50 to 499 ppm) equipment from service, resulting in the disposal of 425,336 kg. of PCB material. During 2005 and 2006 APS has removed an additional 6,615 pieces of PCB-containing equipment from our transmission and distribution system representing 583,484 kg. of disposed material, including the following: 5,983 large PCB capacitors (317,458 kg), 287 PCB-contaminated and PCB bushings (29,965 kg), and 345 PCB-contaminated and PCB Transformers (236,061 kg).

Central Maine Power Company (CMP) has continued with its voluntary multi-year effort to remove PCB-containing equipment from its system. CMP has removed all of its known PCB Transformers and sources of PCB oil ≥ 500 ppm, as well as transformers suspected of being PCB-contaminated (50-499 ppm PCBs) near schools and waterways. CMP continues to actively seek out and remove transformers it believes are most likely to be PCB-contaminated. Since 1999, CMP has removed over 11,000 targeted transformers (up from the 7,700 originally planned), of which approximately half were actually PCB-contaminated.

These PCB reduction efforts are not limited to USWAG members in the Great Lakes Basin. For example, in 2005, New York-based **Consolidated Edison (ConEd)**, as part of ongoing maintenance and repair, removed 10,556 lb. of equipment containing ≥ 500 ppm PCBs and 217,054 lb. of equipment containing 50 to 499 ppm PCBs. Through the third quarter of 2006, ConEd completed its 5-year phase-down project for rectifiers in Manhattan that formerly contained over 500 ppm PCBs. This final stage removed and disposed of 49,168 lb. of equipment. Additionally, during 2006, as part of ongoing maintenance and repair, ConEd removed 8,325 lb. of equipment containing ≥ 500 ppm PCBs and 53,874 lb.

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of equipment containing 50 to 499 ppm PCBs.

Another USWAG member in the Great Lakes Basin, **Consumers Energy**, has made dramatic progress in voluntarily phasing out PCB-containing equipment. In 1994, Consumers Energy entered into an agreement with EPA Region 5 to phase-out known, large PCB capacitors and large PCB Transformers (*i.e.*, substation equipment) by 2005. Consumers Energy achieved this commitment in 2000. During the last twelve years, Consumers Energy has removed from service, detoxified, and reused approximately 347,000 gallons of PCB oil, including approximately 30,900 gallons in 2005. Consumers Energy achieved additional phase-out successes in 2005, including removing 89 distribution transformers, approximately 2,000 gallons of oil containing less than 500 ppm PCBs, 327 ballasts, 336 distribution capacitors, and 33 bushings from service.

Detroit Edison, a subsidiary of DTE Energy, serves more than 2.1 million customers in Southeastern Michigan. In 2005, during maintenance calls, storm response or reliability improvement, Detroit Edison removed and disposed 82 newly identified PCB Transformers and 459 pieces of PCB-contaminated equipment from distribution and/or generation facilities. In 2006, Detroit Edison continues to remove and dispose newly identified equipment through these programs. Through the third quarter of 2006, 48 pieces of PCB equipment and 353 pieces of PCB-contaminated equipment have already been disposed. Detroit Edison also continues to pursue PCB reduction activities through retrofitting and reclassification of identified PCB-containing equipment.

Duke Energy, which serves 3.8 million electric customers in North Carolina, South Carolina, Ohio, Kentucky and

Indiana, has implemented a voluntary PCB phase-down program. Duke Energy has tested all large electrical equipment in its substations, power plants and vaults. Any equipment containing ≥ 50 ppm PCB oil that was identified in these areas have been removed and replaced with units containing no PCBs, or have been retrofilled to bring the PCB level to < 50 ppm PCBs, or have been upgraded with spill prevention controls to prevent any release to the environment. Because of these efforts, Duke Energy currently has only a few known PCB Transformers (≥ 500 ppm) in its system, and no PCB large capacitors. As a matter of general policy, when Duke Energy identifies any distribution type equipment containing ≥ 50 ppm PCBs, the Company either replaces the equipment or retrofills the equipment to bring the PCB level to < 50 ppm PCBs as soon as feasible. Further, in Indiana, Duke has tested all transformers on school properties (K through 12th grade), and any transformers containing ≥ 50 ppm found in these areas have been voluntarily removed and replaced with transformers containing no PCBs.

USWAG member **Entergy** also has invested substantial resources in implementing a successful PCB phase-out program. In 1998, Entergy dedicated approximately \$2 million for the removal of PCB Transformers from its Fossil Generating Plants. From 1999-2001, Entergy voluntarily opted to phase out all PCB Transformers from its Fossil fleet. During that span, approximately 105 PCB Transformers were removed from service as well as a number of PCB large capacitors. Of Entergy's Fossil Operations in EPA Regions 4 and 6, only 17 PCB large capacitors remain in service. Fossil Operations continues to phase out PCB electrical equipment when possible. Based on analyses of PCB electrical equipment managed for repair or recycle in 2004,

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approximately 99% of this equipment was shown to be non-PCB.

Further, Entergy's Transmission and Distribution system has adopted the policy of many other USWAG members; specifically, no oil-filled electrical equipment brought in for service is returned to operation if it is found to be PCB-contaminated. Entergy's Transmission and Distribution system also has an aggressive program for phasing out PCB large capacitors in its substations. Over the past 10 years, Entergy has replaced all large PCB capacitors in its Arkansas, Texas and Mississippi substations, and has significantly reduced the number in Louisiana. Entergy's Transmission and Distribution system has replaced or taken out of service all of its known PCB Transformers (i.e., containing ≥ 500 PCBs), with the exception of two units in Arkansas. During 2005, Entergy has taken out of service and disposed of 163,011 kilograms of PCB electrical equipment containing ≥ 50 ppm PCBs.

Exelon Energy Delivery (EED), through its subsidiaries ComEd and PECO, operates in Northern Illinois and Southeastern Pennsylvania respectively. EED's phase-out plan for equipment containing PCBs, instituted more than a decade ago, has moved the company from among the largest users of such equipment to a position of operating only a few pieces. As of November 1, 2006, EED accelerated the PCB phase-out process, and removed 880 PCB large capacitors and 59 pieces of PCB/PCB contaminated equipment from its system. In addition, EED is undergoing a voluntary multi-million dollar project to retire a substation containing PCB equipment. The project was initiated to remove 10 askarel-filled transformers and regulators in the City of Chicago. This equipment contains approximately 4,350 gallons of askarel. Through these voluntary efforts,



EED has removed or replaced almost all PCB and PCB-contaminated sources, including all known PCB Transformers in commercial buildings, all known PCB distribution equipment outside of substations, 71 percent of all PCB capacitors in PECO substations, and 96 percent of all PCB large capacitors in ComEd substations. A limited number of PCB Transformers remain in service at several of Exelon's nuclear plants. This equipment is monitored and most equipment is scheduled to be replaced or retrofilled over the next five years.

When **GRE** was formed in 1999, with the consolidation of Cooperative Power Association and United Power Association, much of the PCB (≥ 500 ppm) and PCB-contaminated (≥ 50 to ≤ 499) equipment in the system had already been removed or retrofilled. Since its formation, GRE has continued to evaluate and remove or retrofill PCB and PCB-contaminated equipment in its generation and transmission systems. At this time, GRE has evaluated more than 99 percent of its testable in-service equipment. As of 2005, most of the known PCB and PCB-contaminated equipment in the

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Minnesota system has been removed or retrofilled. The only remaining PCB and PCB-contaminated equipment on GRE's Minnesota system are 3,099 large capacitors at GRE's DC substation. These capacitors will be removed according to a phase-out plan that is scheduled to begin in 2009 and be completed in 2011.

Kansas City Power and Light (KCP&L) has eliminated all known PCB equipment (\geq 500 ppm) from their plants and transmission and distribution systems. Based on experience from its field work, KCP&L estimates that 5% of its distribution equipment may be PCB-contaminated (50 to $<$ 500 ppm PCBs). When these devices are found, they are removed from service and disposed. KCP&L has been working to eliminate PCB equipment since 1980 and most recently pushed to remove the few remaining PCB-containing devices from service and inventory. All equipment not designated non-PCB is tested when taken out of service to determine its reuse or disposal status.

National Grid continues with its ongoing efforts to reduce the number of PCB articles in its service territories in Massachusetts, New York, Rhode Island, and New Hampshire. As a result of these efforts, National Grid, whose service territory in New York includes portions of the Great Lakes Basin, has retrofilled or removed from service all known PCB (\geq 500 ppm PCBs) Transformers. Additionally, during calendar year 2005, National Grid systematically retired or decommissioned approximately 750 pieces of PCB-contaminated or PCB electrical equipment (\geq 500 ppm) for a PCB reduction totaling over 162,556 kg. National Grid also removed and disposed of approximately 315,088 kg. of bulk PCB-contaminated transformer oil.

Northern Indiana Public Service Company (NIPSCO), a subsidiary of

NiSource, serves 400,000 customers in Indiana. NIPSCO has continued to implement a voluntary PCB phase-down program that began in 1994. Since the program's inception, NIPSCO has removed over 4,579 pieces of equipment that were suspected to contain PCBs, including 56 distribution transformers since 2004. Additionally, NIPSCO has removed from service over 99.9% of the PCB quantity present in its electrical system. NIPSCO continues to address the small number of transformers and capacitors in its system that are known or suspected to have PCB concentrations \geq 50 ppm. In addition to removal and disposal, NIPSCO enhances its PCB reduction efforts by retrofilling and reclassifying large PCB or PCB-contaminated transformers to non-PCB status.

PNM Resources (PNMR), which serves more than 680,000 customers in our service territory of EPA Region 6 through its subsidiaries Public Service Company of New Mexico and Texas/New Mexico Power has implemented a voluntary PCB phase-down program since the early 1990s. Since 2000, PNMR has removed the following items from service: three PCB large capacitors, 52 PCB Transformers and 28 other PCB articles (\geq 500 ppm PCBs); 435 PCB-contaminated articles (\geq 50 and $<$ 500 ppm PCBs); and an additional 1530 non-regulated PCB-containing equipment ($>$ 2 and $<$ 50 ppm PCBs).

In particular, during 2004, PNMR removed four PCB Transformers (\geq 500 ppm PCBs); 38 PCB-contaminated articles (\geq 50 and $<$ 500 ppm PCBs); and an additional 245 non-regulated PCB-containing equipment ($>$ 2 and $<$ 50 ppm PCBs). During 2005, PNMR removed 11 PCB Transformers and one other PCB article (\geq 500 ppm PCBs); 99 PCB-contaminated articles (\geq 50 and $<$ 500 ppm PCBs); and an additional 191 non-regulated PCB-containing equipment ($>$ 2

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and < 50 ppm PCBs). During 2006, PNMR removed five PCB Transformers and one other PCB article (≥ 500 ppm PCBs); 91 PCB-contaminated articles (≥ 50 and < 500 ppm PCBs); and an additional 268 non-regulated PCB-containing equipment (> 2 and < 50 ppm PCBs).

Potomac Electric Power Company

(Pepco) is engaged in the transmission and distribution of electricity in Washington, D.C. and major portions of two counties in suburban Maryland. Pepco's service territory covers approximately 640 square miles and has a population of approximately 2 million. As of December 31, 2005, Pepco delivered electricity to approximately 747,000 customers. Pepco has approximately 3,300 network transformers in high-density residential areas and approximately 4,000 pad mount transformers located in urban settings. Pepco continues to phase down PCBs by removing PCB-containing equipment, such as distribution and transmission transformers, oil circuit breakers, bushings, and PCB large capacitors from its substations. Pepco implemented a voluntary program to remove PCB large capacitors from substations and replace them with non-PCB capacitors. Since 1990, Pepco has replaced PCB large capacitors with non-PCB capacitors. There are less than 600 PCB large capacitors at substations, down from approximately 3,600 in 1990. Pepco retrofills and reclassifies PCB and PCB-contaminated Transformers to non-PCB status. Pepco has also installed station service transformers containing Envirotemp FR3 Fluid, a non-hazardous seed-based oil.

In South Carolina, **South Carolina Electric & Gas** (SCE&G) has an ongoing, voluntary PCB reduction effort to remove PCBs from electrical equipment. SCE&G provides electric service to 620,000 retail and wholesale customers throughout South



Carolina. Through the early 1990's all large power transformers and regulators were retrofilled and reclassified as non-PCB (<50 ppm) or replaced with non-PCB transformers. All known PCB distribution transformers (≥ 500 ppm PCBs) have been removed from service for disposal. In addition, all large PCB capacitors in SCE&G's transmission and distribution system have been replaced with non-PCB capacitors. SCE&G also has a long-standing policy to remove from service for disposal all in-stock distribution transformers (small pole and pad mount units) that are identified through testing as PCB-contaminated (≥ 50 to 499 ppm PCBs) and replace the equipment with units containing no PCBs. As a result of SCE&G's commitment to the phase-down policy, through time, SCE&G's inventory of more than 236,822 distribution transformers will contain fewer and fewer "unknown" assumed to be PCB-contaminated units. In the late 1990's SCE&G had over 70,000 "unknown" transformers in service or in-stock. In 2006, fewer than 53,444 "unknowns" remain in SCE&G's inventory. SCE&G's ongoing efforts to remove PCBs when identified resulted in the disposal of 64 transformers, 54 oil-filled bushings, 60

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tar-filled bushings, 12 tar-filled potential transformers and 3 oil circuit breakers in 2005. In addition, SCE&G manages all leaking and non-leaking “unknown” small capacitors and lamp ballasts as PCB wastes.

USWAG member **TXU** has, since the early 1990s, aggressively pursued removal of PCBs from its system and, since 1993, has retired 3,457 pieces of PCB equipment (≥ 500 ppm). With the exception of a small quantity of specialized equipment, TXU has a policy of retiring all distribution equipment identified for repair or service with PCB concentrations > 1 ppm. During 2005, TXU retired 149 pieces of electrical equipment containing ≥ 500 ppm PCBs, 713 pieces of electrical equipment that were PCB-contaminated (50- 499 ppm PCBs), and 3,717 pieces of equipment containing 1 to 49 ppm PCBs.

Vectren Corporation (parent of Southern Indiana Gas and Electric Company), which provides electric service to customers in SW Indiana, has been phasing PCBs out of its system for over two decades. The majority of substation transformers were retrofilled or replaced between the mid-1980’s to the early 1990’s. As of November 1, 2006, only three pieces of oil filled substation equipment (circuit breakers, regulators, capacitors, or transformers) are known to be PCB-contaminated and they are scheduled to have the oil replaced in early 2007. On the distribution side, steps were taken in the past five years to remove 42 known submersible transformers from the system that typically contained oil in the range of 50-500 ppm PCBs. Two units remain in service due to the property owner’s reluctance to allow for the removal but efforts to gain access are on-going. It is also the company’s practice to not attempt repair on any unit that was manufactured prior to 1980. Any unit that is damaged or otherwise taken out of service and is pre-

1980, is tested to determine the appropriate disposal option.

We Energies, serving more than 1.1 million electric customers in Wisconsin and Michigan, has conducted a voluntary PCB phase-down program for more than a decade. Due to the successful implementation of this program, the company has just eight known PCB Transformers in service in EPA Region 5, all of which are in service at its nuclear plant. This equipment is monitored and periodically reviewed for reclassification or replacement. No other known PCB (≥ 500 ppm) equipment is in service in the We Energies system. Since January 1999, We Energies has removed from service more than 1,300 transformers, large capacitors and bushings containing ≥ 500 ppm PCBs. It is We Energies’ general practice that equipment identified as containing ≥ 50 ppm PCBs is either replaced or is reclassified as non-PCB prior to return to service.

USWAG member **Xcel Energy** (Xcel), which serves customers in the northern Midwest, including Michigan, Minnesota, North Dakota, Wisconsin, and South Dakota, also has undertaken voluntary PCB phase-out efforts. During 2006, Xcel removed four known PCB Transformers from service. In addition, Xcel removed 39,008 kg of PCB articles, containers, oil and equipment containing ≥ 500 ppm PCBs and 295,785 kg of equipment containing 50 to 499 ppm of PCBs from service.

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USWAG was formed in 1978 and is an association primarily dedicated to assisting members in the management of wastes and the beneficial use of materials associated with the generation, transmission, and sale of electricity and natural gas. **USWAG** is comprised of approximately 80 individual utilities, energy companies, and energy trade associations. Together, **USWAG** members represent more than 85% of the total electric generating capacity of the U.S., and service more than 95% of the nation's consumers of electricity and over 93% of the nation's consumers of natural gas.

For more information on USWAG's PCB reduction efforts, please contact USWAG Executive Director Jim Roewer at 202/508-5645 or jim.roewer@uswag.org.

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