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Attn: Docket ID Number EPA-HQ-OPP-2003-0250(CCA), 2004-0402 (PCP), 2003-0248 (Creosote)
Revised Risk Assessment for Chromated Copper Arsenate (CCA), Pentachlorophenol (PCP), and Creosote

Thank you the opportunity to comment on the revised risk assessments for pentachlorophenol (PCP), creosote, and chromated copper arsenate (CCA). The following comments are being submitted on behalf of Beyond Pesticides, [list of groups here]. There are separate risk assessments for each chemical, but because there are thematic science, exposure and regulatory issues that pertain to the three wood preservatives under consideration, we have combined our comments into one document that addresses all three.

Introduction:
Although the most recent risk assessments for these three wood preservatives provide some background on their historical uses, they do not discuss the historical regulatory actions and prior EPA stances on PCP, creosote and CCA. As background for any discussion of these pesticides, and to avoid institutional amnesia, it is necessary to understand the original rationale upon which wood preservatives registration was founded. With this understanding, it becomes clear that without explanation the original rationale is no longer being applied to the current situation, raising the question as to whether these wood preservatives have any basis for continued registration at all. Therefore, we have included a brief historical perspective on wood preservatives and EPA's regulation prior to a discussion of the most recent risk assessments.

Wood preservatives, according to EPA's 2000 pesticide sales and usage statistics, account for 34% of all pesticide use, excluding chlorine and hypochlorite products, or 809 million pounds. We use almost as much wood preservatives in the U.S. as all other "conventional" pesticides (insecticides, herbicides, fungicides, etc.) combined, which account for 39%, or 926 million pounds, of all pesticide use (excluding chlorine products). The remaining 27%, or 661 million pounds, are categorized by EPA as "other" and "specialty biocides." Chlorine and chorine hypochlorites account for an additional 2.5 billion pounds of pesticide use.[1] Given this huge volume of use, it is especially important that EPA does not at any point in its risk assessment minimize, ignore, discount, dismiss or further postpone exposure or potential exposure assessments relating to people or the environment. In fact, our comments will show that EPA has neglected to assess fully the adverse impact of wood preservatives on people and the environment by failing to consider real world exposure and contamination. Given that this huge volume of chemical wood preservatives can be replaced economically with safer alternatives, the EPA analysis, dismissive of reality and science, only serves to prop up old polluting technology, causing serious yet unnecessary harm.

In 1978, EPA began its review of the three wood preservatives, recognizing that each one posed various health risks, exceeding acceptable standards for oncogenicity, mutagenicity, teratogenicity, and fetotoxicity. However, in 1981, the agency released its position that, "Due to the non-substitutability of the wood preservative compounds and the lack of acceptable non-wood or other chemical alternatives for many use situations, the economic impact which would result from an across-the-board cancellation would be immense."[2] The agency's determination to allow continued use was based on the non-availability (or "non-substitutability) of alternatives, despite excessive health and environmental hazards.

The agency acknowledged in the early stages of the reregistration process that there are risks associated with using these three wood preservatives including, but not limited to, their cancer-causing potential. However, in the cost-benefit analysis, it concluded that the benefits (purely economic) outweighed the costs (human health problems and the environmental contamination). Given this logic, we have every reason to believe that if suitable alternatives were available for the end-use products treated with these wood preservatives, the agency would cancel the registration of these products because of the environmental and health risks they pose.

Currently, alternatives for utility poles and railroad ties (the primary uses for these preservatives) are available, and therefore the original premise for allowing registration is no longer applicable. Countries around the world have embraced alternatives to PCP, CCA, and creosote treated utility poles and railroad ties that include concrete, steel, and recycled composites. EPA needs to follow their example and eliminate all possible sources of these toxic chemicals in our environment according to its mission to "protect human health and the environment."

With that historical perspective as a backdrop, what follows are comments on the current risk assessments.

Occupational Exposure and Risk

The occupational cancer risks for all three wood preservatives are generally well above the EPA's target of $1x10^{-06}$, with some risk levels as high as $2.8x10^{-02}$ for the treatment operator using CCA. For CCA, the lifetime dermal cancer risks were generally in the $1x10^{-03}$ range, which is an unacceptably high risk according to the agency's own standards. The statement, "The agency will seek ways to mitigate the risks, to the extent that it is practical and economically feasible, to lower the risks to1 x 10^{-06} (E-6) or less," leaves a vast amount of room for interpretation as to what is "practical and economically feasible," which allows for the continuation of these unacceptably high risks. EPA has had decades to effect a lower exposure hazard and it is time to protect workers by stopping exposure in the absence of a credible, legitimate plan, which this language is not.

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[1]U.S. Environmental Protection Agency. 2000-2001 Pesticide Market Estimates: Usage. http://www.epa.gov/oppbead1/pestsales/01pestsales/usage2001.htm#3_3 Accessed June 10, 2008.

[2]U.S. Environmental Protection Agency. 1981. Wood Preservative Position Document 2/3, Executive Summary: 3.

In the years since the initial consideration of the three wood preservatives for reregistration, the agency has allowed flawed industry science to provide it with exposure data that potentially and significantly underestimates exposure and therefore risks. In the case of pentachlorophenol, the 2004 preliminary risk assessment and the 2008 revised risk assessment both rely on a study supplied by the Pentachlorophenol Task Force for worker exposure. The shortcomings of the study are myriad and even acknowledged by the agency, but the Revised Human Exposure Risk Assessment reports, "[D]espite the key non-compliance and data gaps in this report, the decision of the EPA is that the data are of sufficient scientific quality to be used in the RED document." The document goes on to say that prior to the acceptance of this data, EPA had produced its own estimates in 1984 that "a typical 87 kg. wood treatment worker would be expected to adsorb [sic] between 112 and 293 μg PCP/kg body weight/day by all routes. This range of PCP exposure was much higher than the highest total absorption of 15.3 μg PCP/kg body weight/day reported in this study. The discrepancy was not explained in the study report." The agency does not explain why this science was deemed acceptable despite the key non-compliance issues and questionable methodology, especially when prior data brought into question these exposure estimates.

In the case of creosote, the agency accepted data from the Creosote Council that significantly reduced the previously assessed dermal absorption data, despite uncertainties in the Creosote Council's study. During the discussions of these studies on how to use/interpret them, EPA received the Creosote Council's presentation of its interpretation of the data to the agency without the benefit of an outside independent assessment. Because the Creosote Council has a vested interest in maintaining the registration of creosote, it is to its benefit to downplay occupational exposure. If the agency is interested in external input regarding the interpretation of scientific studies, it should open this discussion to all members of the scientific community with expertise in this area, and not limit its consultation to scientists employed by the Creosote Council.

The agency's willingness to accept sub-standard scientific reports from industry sources for regulatory purposes is in stark contrast to its hesitance to accept the results of epidemiological studies documenting the occupational hazards of working with or around these three wood preservatives. In some cases, the agency does not even recognize significant, peer-reviewed studies in the literature review in the Incident Reports. For instance, the Incident Report document for PCP fails to mention a 2006 study[3] (although this study is mentioned briefly in the Revised Toxicological Endpoint chapter) that analyzed workers exposed to PCP and found strong associations between the risk of non-Hodgkin's lymphoma, multiple myeloma, and kidney cancer and level of dermal exposure to pentachlorophenol.

For creosote, despite a body of literature on its health effects, the agency maintains in its response to comments that "considering the information presently available, conclusions regarding chronic health effects from exposure to creosote alone should be considered tentative." The very nature of epidemiological studies is that causality, even in the face of strong correlations, is indeed difficult to prove, but when combined with animal studies indicating carcinogenicity and other effects, the body of evidence supporting these health effects is far from tentative, and we urge the agency again to reconsider this claim and recognize the magnitude of worker effects associated with occupational exposure to these toxic chemicals.

[3] Demers, Paul et al. 2006. Cancer and Occupational Exposure to Pentachlorophenol and Tetrachlorophenol (Canada) *Cancer, Causes, and Control* 17(6):749-758.

Residential Exposure and Risk

The agency maintains its unsubstantiated view that residential exposure to these wood preservatives either does not "normally" occur, or is "episodic" in nature and therefore it is unnecessary to assess residential risk. Not only is this stance untenable because of the many common human interactions with utility poles and railroad ties, it represents an arbitrary change in position by the EPA that is unexplained in the documents provided. For instance, in 1999, the agency reported that PCP-treated utility poles poses an unacceptable cancer risk to children ($2.2x10^{-4}$)[4]. However, in the 2004 and 2008 REDs, this risk disappeared with the statement that "the opportunity for residential consumer contact is limited since PCP wood is not sold to the general public…Where utility poles are installed on home/school or other residential sites, child contact via the dermal or oral routes is not anticipated since play activities with or around these pole structures would not normally occur."[5]

Once again, we would like to remind the agency that utility poles are frequently installed in people's yards, school yards, and along streets in cities where children play, thus creating exposure patterns that should not be, but have been, ignored. According to the Qualitative Impact Assessment for these three wood preservatives, there are approximately 130-135 million utility poles in service in the United States, 90% of which are pressure treated with these chemicals (this number is the most recent number provided by the agency, though the majority of the risk assessment utilizes a much smaller number of 60 million poles, which underestimates the total volume of utility poles and therefore contamination). The agency has repeatedly pointed to the withdrawal from the market of so-called "residential uses" of wood treated with these chemicals and mistakenly equates that action with the elimination of residential exposure. This lack of attention to widespread exposure, especially in light of the high volume of chemical use in residential areas undermines EPA's scientific process, analysis and conclusions.

Children use treated utility poles as home base, as basketball posts, and in their eyes they represent just another play structure. They sit in the middle of playgrounds, backyards, front yards and next to bus stops. Adults lean up against these poles at bus stops, post signs on them, and even put gardens in the soil around them. The agency says: "Previously, it was considered that residential exposures to pentachlorophenol from treated utility poles could occur for children. However, since wood treated with PCP is not available for sale to the general public, and play activities in children around utility poles is not likely to occur, residential risk analysis is not necessary for PCP and a FQPA analysis is not needed."[6] What is the rationale for saying that play activities are not likely to occur? A change in position so drastic as this requires a sufficient explanation. Because of the ubiquity of utility poles in highly populated areas and likelihood for residential contact, the issue of residential exposure and risk needs to be revisited.

Human Exposure—Additive and Synergistic Effects

Chemicals act in conjunction with one another, and these risk assessments ignore the issue of synergistic effects. In the case of PCP, we are pleased that the agency has recognized the major contaminants of concern, hexachlorobenzene (HCB) and chlorinated dibenzo-p-dioxins and dibenzofurans (CDD/CDFs). However, having three separate risk assessments for these three different chemicals downplays their toxicity when humans or wildlife are exposed to all three at once, which is the reality of exposure. For example, the mechanism by which dioxins cause cancer is known to be one that promotes growth of cells

[4]U.S. Environmental Protection Agency. 1999. Science Chapter for the Reregistration Eligibility Decision Document for Penta (PC Code 063001, Reregistration Case Number 2505).

[5] U.S. Environmental Protection Agency. 2008. Revised PCP Human Exposure RED Chapter. PC Code 063001: 3.

[6] U.S. Environmental Protection Agency. 2008. Pentachlorophenol-Revised Toxicology Endpoint Report. PC Code 063001:12.

containing a mutation.[7] Therefore, it is most potent when in combination with a material that causes mutations. Among such materials are PCP and its metabolites.[8]

In addition to these chemicals' synergistic effects, chemicals also change in the environment, sometimes creating more potent forms. For example, the agency says in the Environmental Fate and Transport of CDDs/CDFs chapter that, "Many researchers demonstrated in laboratory conditions that biochemical formation of CDD/CDFs from chlorophenol precursors is possible… this finding implies that potentially the PCP that is volatilized or leached from the utility poles might convert to CDD/CDFs in the environment, thereby providing additional CDD/CDF inputs into the environment." Not all of the ways that chemicals in wood preservatives act synergistically among themselves or with other chemicals in the environment is known or may ever be known, but the fact that wood preservatives are all complex mixtures of various highly toxic components should give the agency reason enough to look into the possible synergistic effects rather than simply the potential effects of each chemical on its own.

On top of a failure to address the synergistic effects, the agency does not address the additive effects of chemicals and their contaminants. For example, having three separate risk assessments for PCP, HCB, and CDDs/CDFs does not adequately address the risk when all three of these chemicals are in one product, as they always are in PCP formulations.

Common Unregistered Uses, More Residential Exposure

The in-service residential exposure to utility poles, railroad ties and cross-ties is only a portion of the total residential exposure to wood that has been treated with these wood preservatives. Once the utility poles or railroad ties are retired, they are frequently reused in residential settings. The agency differs in its response to this issue for the different chemicals. For pentachlorophenol, the agency makes two contradicting statements. One says, "[I]nformation on the disposal practices for used utility poles in the United States has not been documented."[9] Another states, "In the past, retired poles were generally re-used, given away for use in landscaping or disposed of in landfills."

To elucidate the issue of pole disposal for the agency, Beyond Pesticides provided EPA with a report in 1999, *Pole Pollution,* which outlined the results of a survey of utility companies regarding their disposal practices of retired utility poles.[10] Although interference from the American Wood Preservers Institute (AWPI) seems to have decreased the number of responses, 39 utility companies responded, and the results were summarized in *Pole Pollution*. The findings indicate that the vast majority of poles are given away or resold without the inclusion of safety information regarding the legal use and dangers of treated wood. The resale and giving away of these poles presents an opportunity for residential as well as livestock exposure as they are used as fence posts, in gardens, and other residential uses. We have attached photos to this document showing the use of retired utility poles as fence posts to illuminate the matter. In these

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[7] Johnson, Barry L. 1992. Public Health Service Testimony before the Subcommittee on Human Resources and Intergovernmental Relations. *House Committee on Government Operations,* June 10, 1992. http://www.atsdr.cdc.gov/testimony/testimony-1992-06-10.html (June 11, 2008).

[8] U.S. Environmental Protection Agency. 1987. Pentachlorophenol health advisory. *Office of Drinking Water:* 33; Agriculture Canada. 1987. Pentachlorophenol discussion document. Ottawa, Ontario: Pesticides Directorate; Witte, I.et al. 1985. DNA Damaging properties and cytotoxicity in human fibroblasts of tetrachlorohydroquinone, a pentachlorophenol metabolite. *Mutation Research* 145:71-75.

[9] U.S. Environmental Protection Agency. 2008. Environmental Fate and Transport Risk Assessment of CDDs/CDFs for the PCP Reregistration Eligibility Decision (RED) Process:5.

[10] Feldman, Jay, and Gregory Kidd.Beyond. 1999. Pole Pollution: New Utility Pole Chemical Risks Identified by EPA While Survey Shows Widespread Contamination. Beyond Pesticides. http://www.beyondpesticides.org/wood/pubs/pole_pollution/index.html accessed June 10, 2008.

contexts, not only is there the opportunity for dermal contact, but there is the potential for dietary contamination if the poles (treated with any of the three chemicals) are used for landscaping in an edible garden.

For creosote-treated railroad ties, the practice of landscaping with them is undeniably common. Rather than deny this contact happens, the agency writes in its response to comments, "The landscaping use of creosote-treated lumber is considered to be a misuse of the product. The agency does not typically estimate risks based on misuse of pesticides." However, the people who are finding and using, perhaps even purchasing these railroad ties, are often unaware that they are impregnated with a pesticide at all. Without regulations on the disposal of creosote-treated wood, it will continue to end up in residential settings. The EPA is therefore obligated either to put restrictions on the disposal of creosote-treated wood, or to address this area of residential exposure in its risk assessment.

In the last round of comments, Beyond Pesticides suggested that the agency perform a SHEDS-type assessment for creosote similar to the assessment of CCA for play structures. The agency responded, "Compared to play sets EPA expects there would be considerably less contact and less frequent contact by children with landscape ties and on wood not used for specific children's play structures. Based on this type of comparison, the fact that creosote used in residential settings is a misuse of the product, and creosote is less potent of a carcinogen than arsenic, EPA does not believe a SHEDS-type of an assessment for creosote treated ties used as landscape timbers is warranted at this time."[11] The entire discussion of limited residential risk for all three wood preservatives is based on speculation, not on any scientific studies. The agency says, "The potential dermal and incidental oral exposures to outdoor landscape timbers are expected to be episodic in nature."[12] Both of these statements are based on nothing more than "expectations." Where people have gardens utilizing creosote-treated railroad ties, they often come into contact with the soil around this wood, sit on the wood, and even eat herbs or vegetables that have been grown in the contained garden.

Children's contact with creosote-treated wood products, although the agency expects them to be less than those with play structures, requires special consideration because of children's susceptibility to creosote. According to the agency, the Hazard Identification Assessment Review Committee "expressed concern for potential infants and children's susceptibility of creosote, based on the severity of offspring vs. maternal effects observed with testing of creosote in the P1/P13 blend developmental toxicity study in rats."[13] Because of this, the fact that the agency has dismissed the possibility of residential exposure as essentially inconsequential appears incongruous with its duty to protect human health.

Disposal—In Addition to Unregistered Uses

In addition to the unregistered uses of utility poles and railroad ties after they have been taken out of service, the other methods of disposal of these products create more ways for the chemicals and their contaminants to get into water and soil, thereby adding to the risk to the public and the environment. Currently, utility poles and railroad ties treated with PCP, creosote and CCA are permitted under EPA regulations to be disposed of in municipal landfills. For CCA-treated wood, this allowance is illegal under the hazardous waste regulations. Wood treated with CCA, even wood that has been weathered over a period of years, has consistently failed the Toxic Characteristic Leaching Procedure (TCLP) test, resulting

[11] U.S. Environmental Protection Agency. 2008. Creosote: Occupational and Residential Exposure and Risk Assessment for the Reregistration Eligibility Decision (RED). PC Codes 022003, 025003, and 025004:20.

[12] U.S. Environmental Protection Agency. 2008. Creosote: Preliminary Risk Assessment for the Reregistration Eligibility Decision Document (RED). PC Codes 022003, 025003, and 025004 :10.

[13] Ibid: 20

in higher than allowable arsenic leaching levels.[14] Given that arsenic is a known human carcinogen even at very low levels, and that arsenic is found in many public water sources throughout the country, any additional exposure to arsenic must be vigorously limited. This is the intent behind the hazardous waste rules, and the exemption provided for CCA is therefore inexplicable.

CCA-treated wood has also been documented up in mulch made from construction and demolition (C&D) debris. In one study, the levels of arsenic leaching from samples of mulch far exceeded allowable limits of arsenic. The authors determined that "less than 0.1% CCA-treated wood would cause a mulch to exceed Florida's residential clean soil guideline for arsenic (0.8 mg/kg)."[15] This is a tiny percentage, and demonstrates the toxicity of CCA-treated wood, and the need for regulations regarding its disposal. It is recognized that much of the CCA-treated wood ending up in this mulch is from residential areas installed prior to the cancellation of residential uses for CCA. In light of the fact that disposal of residentially used CCA-treated wood is anticipated to continue for the next 30 years[16], and that there is promising technology for the recognition of CCA-treated wood when mixed in C&D debris,[17] regulations requiring the disposal of all CCA-treated wood as hazardous waste are feasible and necessary to protect human health and the environment.

According to the standards for assessing the toxicity characteristics of hazardous waste, CCA-treated wood is by all accounts hazardous waste. PCP-treated wood and creosote-treated wood has not historically been treated as hazardous waste because it has not failed the TCLP test for leaching. However, this test only considers the concentration of toxic chemicals, not the total volume. PCP, its contaminants HCB and dioxins/furans, and the polycyclic aromatic hydrocarbons (PAHs) in creosote have all been recognized in the EPA's National Waste Minimization Program. According to the agency's own site, "The National Waste Minimization Program focuses efforts on reducing 31 Priority Chemicals (PCs) found in our nation's products and wastes by finding ways to eliminate or substantially reduce their use in production. If these chemicals cannot easily be eliminated or reduced at the source, we focus on recovering or recycling them." The agency goes on to say:

> The organic chemicals included in the list of Priority Chemicals were selected following an Agency-wide expert review of scientific information available on them. EPA experts reviewed scientific information made available to the public in 1998 and scientific information received from commenters in response to the 1998 Notice of Availability. Based on its review, EPA concluded that 27 organic chemicals are persistent, bioaccumulative, and toxic (PBT). They are currently being generated in industrial waste and are found in soil, sediment, ground water, surface water, air, and plant, animal, and human tissue as a result of past and present releases. Even when released in very small amounts, they accumulate and can cause environmental problems. Many of these organics are difficult to clean up once they get into the environment, resulting in costly clean up efforts.[18]

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[14] Townsend, Timothy et al. 2005. Preservative leaching from weathered CCA-treated wood. *Journal of Environmental Management* 75:105–113

[15] Townsend, Timothy et al. 2003. Impact of Chromated Copper Arsenate (CCA) in Wood Mulch. *The Science of the Total Environment* 309(1-3):173-185.

[16] Florida Center for Solid and Hazardous Waste. 2005. Guidance for the Management and Disposal of CCA-treated wood: 3 http://www.ccaresearch.org/CCA%20BMP%20cor.pdf accessed June 2, 2008.

[17] Solo-Gabriele, Helena M. et al. 2004. Evaluation of XRF and LIBS Technology for on-line sorting of CCA-treated wood waste. *Waste Management* 24(4): 413-424.

[18] U.S. Environmental Protection Agency. 2008. Waste Management: Priority Chemicals and Chemical Fact Sheets. http://www.epa.gov/epaoswer/hazwaste/minimize/chemlist.htm accessed June 13, 2008.

The fact that a huge volume of PCP and creosote-treated wood each year is legally disposed of in municipal landfills where leaching can occur is in direct conflict with this goal of the agency itself to reduce what have been recognized as persistent, bioaccumulative and toxic chemicals. The amount of chemicals contained in the wood at the end of its lifetime is great. For the dioxins and furans in PCP-treated poles, the agency estimates that 93-96% the CDDs/CDFs remain in a pole at the end of its lifetime. For creosote-treated wood, it is estimated in the Preliminary Risk Assessment that ~85% of the polycyclic aromatic hydrocarbons (PAHs) remain in the wood at the end of its lifetime. Of course, the denial of reregistration for these products would constitute an elimination at the source of the problem. At the very least, new regulations regarding the disposal of wood products containing these chemicals is necessary to prevent further contamination.

Storage

According to the FIFRA guidelines, once a pesticide has been impregnated into the wood, it is no longer characterized as a pesticide, and therefore does not have the same storage, transportation, and disposal regulations that a pure pesticide has. Treated poles represent an enormous quantity of pesticide that, because it is not classified as such, is exempt from safe storage practices. A typical PCP-treated utility pole contains 40 lbs. of PCP.[19] Beyond Pesticides reported in *Pole Pollution* that one utility responding to a survey revealed that they store as many as 7,200 poles at a time in their facility. This is 144 tons of PCP in one location that could leach into the soil and groundwater, since there are no storage requirements.

In this same publication, Beyond Pesticides also reported on a study conducted by Bell Canada in 1988 to determine whether soil and groundwater in storage yards were contaminated by PCP and/or CCA. The majority of sites had contamination levels that exceeded the provincial clean up requirements, some by factors as high as 100.[20] The lack of storage requirements for this treated wood is a loophole in the regulations designed primarily for agricultural pesticides, which, after use, are not generally found in such high concentrations. Once soil is contaminated, cleanup is costly and the community is at risk.

Water Contamination/Food Contamination

All three of these wood treatments have the potential to contaminate water sources, threatening both human health and aquatic life. Unfortunately, arsenic, chromium, HCB, dioxin, and PAHs all have multiple sources. This means that while contamination is detected in waterways, definitively identifying the source(s) is difficult. However, citing an inability to detect the source of these contaminants in the environment does not constitute a valid justification for inaction in reducing the known sources, which include PCP, CCA, and creosote. Quite the contrary. The agency, given the exposure pattern, must establish that the risk is not unreasonable. It cannot simply (or legally) assume that exposure does not exist when it has been made aware of scientific studies that document exposure. And if the agency cannot find, after all these years of review, that the pesticide contribution to overall exposure is reasonable after a review, then it cannot allow the use pattern to occur. The agency here, as elsewhere in its analysis, in dismissing exposure outright, is abdicating it responsibility.

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[19] U.S. Environmental Protection Agency. 1999. Science Chapter for the Reregistration Eligibility Decision Document (RED) for Pentachlorophenol (PC Code: 063001, Registration Case Number 2505):39

[20] Racicot, Marie-Helen. Bell Canada's Solutions to Pole Storage Yards Contamination (Abstract of presentation), Bell Canada, Environmental Services, 1993-1994 data.

CCA:

There is evidence that chronic toxicological effects of arsenic can occur at doses as low as 0.15 mg daily. Many health impacts clinically linked to arsenic exposure, such as cancer[21], high blood pressure, irregular heartbeat, premature hardening of the arteries, and anemia, are common throughout the population and may not be easily linked to long-term low-level exposure to arsenic.[22] Arsenic is found in many public water sources throughout the country, and these exposures are a major public health threat. Its ubiquity is all the more reason to reduce any more possible contamination, not a reason to ignore the addition of more arsenic into the environment.

The agency's statement on groundwater contamination avoids the subject without providing sufficient explanation: "Considering absence of comprehensive ground water monitoring relative to the leaching of metals from CCA into soils and water, it appears no significant possibility exists for ground water contamination in areas where utility poles have been placed..."[23] An absence of groundwater monitoring does not equate with an absence of groundwater contamination. This statement is also based on assumptions of average concentrations, ignoring the existence of locations, such as storage and disposal sites, where much greater quantities of CCA exist. Given that CCA-treated wood, even after a period of weathering equal to the lifetime of a utility pole, consistently fails the agency's TCLP test for arsenic leachate and therefore is characterized as hazardous waste, making this statement akin to saying that it is reasonable for people to bury hazardous waste in their backyards and they should not worry about groundwater contamination.

The ecological effects of CCA-treated wood have been the focus of Judith Weis's work at Rutgers University. In the last round of comments, she submitted a list of 16 of her studies for the EPA's consideration, a discussion of which the agency included in its ecological risk assessment for CCA. Also in the last round of comments for CCA, the U.S. Fish and Wildlife Service informed the EPA that there were 95 mollusks and 116 fish that are federally listed as endangered or threatened. Section 7 of the *Endangered Species Act*, 16 U.S.C. Section 1536(a)(2), requires all federal agencies to consult with the National Marine Fisheries Service (NMFS) for marine and anadromous listed species, or the United States Fish and Wildlife Services (FWS) for listed wildlife and freshwater organisms, if they are proposing an "action" that may affect listed species or their designated habitat.[24] Given the body of evidence that indicates CCA-treated wood has adverse effects on aquatic organisms, the number of endangered or threatened aquatic organisms, and the legal requirement to assess the potential effects actions might have on these organisms, it is imperative that the EPA look at the potential effects on listed species. The agency says, "[A]n endangered species determination will not be made at this time."[25] When will an endangered species determination be made for any of these three wood preservatives? This issue legally must be addressed.

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[21] U.S. Environmental Protection Agency. 1999. Integrated Risk Information System (IRIS) on Arsenic. National Center for Environmental Assessment, Office of Research and Development, Washington DC. http://www.epa.gov/iris/subst/0278.htm accessed June 15, 2008.

[22] Morton, E., Dunnette, D. 1994. Health Effects of Environmental Arsenic. *Arsenic in the Environment, Part II: Human Health and Ecosystem Effects* Jerome Nriagu, editor. John Wiley & Sons, Inc.

[23] U.S. Environmental Protection Agency. 2008.Ecological Hazard and Environmental Risk Assessment RED Chapter for Inorganic Arsenical Wood Preservatives (CCA). PC Codes 006802, 021101, and 042401: 25

[24] U.S. Environmental Protection Agency. 2008. Ecological Hazard and Environmental Risk Assessment RED Chapter for Inorganic Arsenical Wood Preservatives (CCA)PC codes 006802, 021101, and 042401:33

[25] Ibid:34

Creosote:
Approximately 15% of all the creosote used in 2004, according to the agency, is used for aquatic installations. This means over 13 million gallons each year are placed in aquatic ecosystems. In the Response to Comments, the agency cites an inability to determine just how much of the PAH contamination in aquatic systems comes from creosote because, "PAHs and other components in the waterways are present from so many sources that it is not possible to conduct and unambiguous environmental fate assessment." As mentioned above, this does not constitute a valid justification for allowing the continuation of 13 million gallons/year of creosote to enter the aquatic environment. Once in the ecosystem, PAHs are highly persistent and bioaccumulative. They have been found in the tissue of deep-sea organisms, showing that they also travel far from the point of use.[26]

For creosote alone, there are 19 outstanding aquatic data gaps in the risk assessment. The data that does exist for creosote indicates that is has severe effects on aquatic wildlife. The level of concern is exceeded for acute risk to listed freshwater and saltwater fish, aquatic invertebrates and non-listed saltwater invertebrates. Evidence exists that creosote-treated pilings, even after 40 years, continue to have adverse effects on hatching and development of herring eggs.[27] Despite the compelling evidence that creosote has adverse impacts on aquatic life, and the fact that there is a significant number of aquatic organisms legally protected, the agency says that no endangered species determination for creosote will be made at this time. Instead, it recommends that "a site evaluation is essential prior to installation of new structures." The weight of evidence that PAHs both travel in the aquatic environment and are persistent and bioaccumulative indicates that rather than site evaluations prior to using creosote-treated wood, we should eliminate all additions of creosote into the environment in order to avoid toxic build-up. An endangered species determination is legally required for creosote as well as CCA.

PCP:
Problems exist with the agency's modeling of the fate and transport of PCP and its contaminants. The assumptions used about the density of poles and their placement in soil does not take into account the broad range of pole densities, particularly in urban environments. In these urban environments, the contaminants from rainwater on the poles does not go into soil, but rather straight into the surface water.

HCB was detected in 8% of the fish samples taken by the FDA and reported in the EPA documents. This number is far from trivial and because of the persistence and bioaccumulation of HCB, it is necessary to consider all possible sources of water contamination of HCB and eliminate them as much as possible. This contamination is not only an ecological threat, it constitutes a dietary risk to people who rely on seafood in their diets. Despite this factor, the EPA has determined that no dietary risk assessment is necessary (for any of these three wood preservatives), which ignores the connection between water contamination and food source contamination.

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[26] National Oceanic and Atmospheric Administration. 2008. Persistent Man-Made Chemicals Found in Deep-sea Octopods and Squids. http://www.nefsc.noaa.gov/press_release/2008/SciSpot/ss0810/ accessed June, 12, 2008.
[27] U.S. Environmental Protection Agency. 2008. Updated Ecological Risk Assessment for Creosote. PC Codes 022003, 025003, and 025004: 2

The agency says in the revised risk assessment that an endangered species determination for PCP will not be made at this time.[28] Despite significant data gaps, the agency speculates that exposure will not be significant. An endangered species determination is legally required.

International Harmonization

One of the most important indicators of the fact that a world without PCP, creosote or CCA is possible is the fact that other countries have already banned these substances and are utilizing alternatives for their utility and railroad needs. Of the 77 countries surveyed in a United Nations Environment Program (UNEP) report, 12 have banned PCP completely, citing, in the case of Switzerland, bioaccumulation, highly toxic impurities, and formation of highly toxic substances in thermolysis.[29] This number excludes other countries that have banned PCP, but were not included in this survey, and does not indicate that many countries have started to use alternatives to PCP-treated wood even where it has not been banned. The agency notes that Japan's utility pole market is dominated by concrete.[30] European countries are focusing their efforts on concrete and composite railroad ties. The United States needs to recognize that that not only are these pesticides toxic and obsolete, there is a significant market in alternatives to pressure-treated wood for utility poles and railroad ties.

Alternatives

In the U.S., EPA states that 27% of all new rail lines utilized concrete ties in 2003. If, as the EPA suggests, concrete is cost-prohibitive for railroads, then it is surprising that so many railroads would choose concrete over wood when building new rail lines. This demonstrates that concrete has significant benefits as perceived by the railroads themselves.

The technology for producing composite and steel-reinforced recycled ties exists and these types of ties are being manufactured, albeit at a rate currently unable to meet the demand for approximately 16 million new railroad-ties every year. With increased demand, supplies will follow, as they have in other market realignments after chemical phase-outs. Part of the reason for this is because of the embeddedness of wood ties in the market, and the inability to get capital to start more manufacturing plants. Were creosote to be banned, interest in these alternatives would spike, and with the input of money new manufacturing plants could be on line shortly. The raw materials for these ties are primarily recycled and regionally available. For example, many ties utilize recycled automobile tires. Not only are these ties as strong or stronger than wood, they have a longer life, do not leach toxic chemicals, take a waste product and turn it into something useful, and are themselves recyclable after they are retired.[31]

Utility poles, like railroad ties, do not have to be made of wood. One of the arguments used against alternatives to wood is that it will require a retraining of utility linemen and thus pose an occupational danger to them since they are not used to working with them. It is true that job-training will be required of any switch to non-wood utility poles, but the agency has also acknowledged in its discussion of alternatives to PCP that "as utilities adopt new materials there will be corresponding innovation to repair,

[28] U.S. Environmental Protection Agency. 2008. Ecological Hazard and Environmental Risk Assessment RED Chapter for Pentachlorophenol. PC code 63001: 4.

[29] United Nations. 2005. *Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted, or Not Approved by Governments: Eleventh Issue:*270-272. http://www.un.org/esa/coordination/CL11.pdf accessed June 13, 2008.

[30] U.S. Environmental Protection Agency. 2008. A Qualitative Economic Impact Analysis of Alternatives to Pentachlorophenol as a Wood Preservative: 5.

[31] conversation with Cal Nichols June 2,2008, NPG Innovation http://www.npginnovations.com/

install, and maintain these poles." The risk posed to linemen by working with poles treated with toxic chemicals far outweighs the risk of switching to a new product and requiring re-training.

The primary argument used against alternatives to both utility poles and railroad ties is that their cost is prohibitive. However, these arguments often fail to take into account differences in the lifespan of treated wood versus concrete or recycled composite/steel poles, and the fact that with some alternatives, such as steel and concrete, fewer poles or ties/mile are needed than for treated wood ones. The economic analysis also assumes disposal of treated wood poles/ties as is currently the practice. It is imperative that while such a great number of wood utility poles exists in the U.S., and they are highly toxic, the disposal practices for these products be regulated. This would require that companies invest a significant amount more in proper disposal as hazardous waste. Therefore, an economic analysis that assumes current disposal practices will continue does nothing to address the real risks posed by treated wood.

Conclusions:
Beyond Pesticides has been calling on EPA to take regulatory action against the use of pentachlorophenol, creosote, and CCA since the 1980s. In this time period, this represents literally billions of pounds of wood preservatives that have been released into our environment. EPA could have been assisting the transition to alternatives, which would ease the economic burden placed on the wood-preserving industry as well as the manufacturing burden placed on the alternative industries. However, as a result of inaction, no such transition away from these products was started to the degree that it is required to protection health and the environment. The (mis)perceived burdens of transitioning do not provide justification for continued inaction. Switching from these toxic, obsolete chemicals is overdue, and the original premise for their continued registration no longer applies. Alternatives to treated wood for utility poles and railroad ties exist and are economically viable. The production will meet the demand if regulatory action is taken by the EPA.

Thank you for your consideration of our comments. We appreciate your attention to the concerns and issues raised in these comments as we seek to reduce the planet's toxic load of persistent bioaccumulative toxic chemicals and chemicals with other long-term toxic effects of health and the environment, of which wood preservatives are a major and unnecessary contributor.

Sincerely,

Jay Feldman
Beyond Pesticides