The National Tribal Toxics Council

Addressing Risks to Tribal Resources and People from the Toxics that are Released from Consumer Products
NTTC Members

- Russell Hepfer
  Lower Elwha Klallam Tribe
  EPA Region 10

- Doug Stevens (Ex-O)
  Salish Kootenai College
  EPA Region 8

- Jolene Keplin
  Turtle Mountain Band of Chippewa Indians
  EPA Region 8

- Fred Coree
  Aroostook Band of Micmacs
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- Rebecca Stevens
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  Shoshone Bannock Tribes
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- Sharni Vennie
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  EPA Region 1

- Diann Barton
  Columbia River Inter-Tribal Fish Commission
  EPA Region 10

- Clifford Banko
  Elko Band Council
  EPA Region 9

- Rick DaBois
  Seneca-Cayuga Nation
  EPA Region 6

- BJ Howerton (Ex-O)
  BIA Central Office
  EPA Region 3

- Gary Hay
  Chickaloon Village Traditional Council
  EPA Region 10

- Laurie Suter
  Tohono O'odham Nation
  EPA Region 9

- Shavonnee Smith
  Shinnecock Indian Nation
  EPA Region 2

- Zender and Kristin K'ert
  Zender Environmental Health and Research Group
What is the NTTC?

• An EPA Tribal Partnership Group (TPG) started in 2012 with Office of Pollution Prevention and Toxics (OPPT).

• Provides tribes greater input on issues related to pollution prevention and toxic chemicals from commerce & manufacturing.

• Advises EPA on chemical management & pollution prevention programs that affect Tribes.
What does the NTTC Do?

• Advocate for Tribal risk scenarios in EPA risk assessments
• Encourage tribes to voice their concerns with toxics and pollution
• Enhance consultation and collaboration
• Serve as technical resource
• Network, collaborate and provide outreach
Why does this NTTC work matter?

• Because of our lifeways, Tribes are more impacted by environmental toxics than any other group in the U.S.

• Because it affirms Tribal sovereignty and treaty rights.
Understanding Tribal Exposure to Toxics

- Delivered to EPA Administrator McCarthy in June 2015 and Administrator Pruitt in June 2018
- Requests that EPA institutionalize a process to consider tribal exposure in risk assessments
- First step to identifying the state of toxics affecting tribes

www.tribaltoxics.org
What are the drivers?

- Two key laws that regulate the chemicals in products we buy
  - Pollution Prevention Act and
  - Toxic Substances and Control Act (TSCA)
- EPA’s Office of Pollution Prevention and Toxics (OPPT) manages programs for these two laws and funds the NTTC’s work
Pesticides
~2000 Chemicals of Active Ingredients Regulated by EPA, Works with Tribal Pesticide Program Council

Drugs, Cosmetics, Food Additives
~2,000 Active Ingredients Food & Drug Administration Requires experimental data

U.S. Chemical Universe

Toxic Substances Control Act (TSCA) regulates Chemicals
In Consumer Products
~82,000 Chemicals Allowed in U.S. commerce

95%
TSCA of 1976, Amended in 2016

• **This is not our parents or grandparents trash!**
• **Chemicals in the products that we buy:**
  – Cleaning agents, fabrics, plastics, paint thinners, etc.
  – Laundry detergent
  – Flame Retardants in: fabric & foam in furniture
  – Children’s toys & pajamas
  – Lead-based paint
  – Computers, tablets
  – Household cleaners
  – Motor oil, degreasers
  – Aircraft
  – Silicone, caulk
  – Asbestos
New TSCA - amended June 22, 2016

• Risk evaluation is required to focus on potential risk to human health and the environment including susceptible subpopulations, such as tribes.
• Significant preemption of state authority to restrict the use of high-priority chemicals.

• States would be able to implement regulations that cover a different scope related to the use or affected populations of a studied chemical.
What is a PBT?

**Persistent** chemicals don’t break down easily or quickly in the environment.

- PCBs, POPs, DDT
Current TSCA Actions on PBTs

• Risk Evaluations of the first ten high priority chemicals by December 2019
  – Comment on problem formulation by August 16
  – NTTC is circulating petitions for signature

• Expedited Regulatory Action without risk evaluation on 5 Persistent, Bioaccumulative Toxic chemicals (PBTs)
  – Tribal Consultation August 30 and September 6
  – NTTC submitted comments to Agency peer review on July 23
Risk Evaluations for Existing Chemicals

- June 1, 2018 – EPA released problem formulation documents for the initial 10 chemicals – asbestos, TCE, DCM, PERC and...
Cyclic Aliphatic Bromide Cluster (HBCD)

• Primary use (95%) of HBCD is as a flame retardant in rigid foam insulation boards. Past uses include textiles, electronics, refrigerator linings, and adhesives.

• Listed as a persistent organic pollutant under the Stockholm Convention in 2013.

In 2014, EPA published a DfE report on a butadiene styrene brominated copolymer alternative for building insulation foam.
Table A-8. Concentrations measured in biota (continued)

<table>
<thead>
<tr>
<th>Location; year</th>
<th>Organism</th>
<th>Concentration (ng/g lipid)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern U.S.; 1993–2004</td>
<td>Dolphin (Lagenorhynchus taylori)</td>
<td>3.9–2.98</td>
</tr>
<tr>
<td>Eastern U.S.; coast of Maine; 2006</td>
<td>Atlantic herring (Clupea harengus)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Alewife (Alosa pseudoharengus)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Atlantic Mackerel (Scomber scombrus)</td>
<td></td>
</tr>
<tr>
<td>Chesapeake Bay, USA; 2003</td>
<td>American eel (Anguilla rostrata)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bluegill (Lepomis macrochirus)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brown bullhead (Ictalurus nebulosus)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brown trout (Salmo trutta)</td>
<td></td>
</tr>
</tbody>
</table>

Table A-6. Modelled bioaccumulation data for HBCD

<table>
<thead>
<tr>
<th>Test organism</th>
<th>Endpoint</th>
<th>Value (L/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>BAF</td>
<td>$k_M = 5.89 \times 10^{-3} \text{ d}^{-1}$; $1.819 \times 10^1; 158.489^2$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$k_M = 0 \text{ d}^{-1}$; $6.456 \times 10^1; 275.423^2$</td>
</tr>
</tbody>
</table>

Table A-7. Concentrations measured in the ambient environment and waste treatment products (continued)

<table>
<thead>
<tr>
<th>Medium</th>
<th>Location; year</th>
<th>Concentration</th>
<th>Samples</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sediment</td>
<td>Sweden; 1996–1999</td>
<td>0.2–2.1 ng/g dw</td>
<td>9</td>
<td>Remberger et al. 2004</td>
</tr>
<tr>
<td>Sediment</td>
<td>Sweden; 2000</td>
<td>&lt; 0.1–25 ng/g dw</td>
<td>6</td>
<td>Remberger et al. 2004</td>
</tr>
<tr>
<td>Sediment</td>
<td>Norway; 2003</td>
<td>$\alpha$-HBCD: &lt; 0.03–10.15 ng/g dw</td>
<td>$\beta$-HBCD: &lt; 0.08–7.91 ng/g dw</td>
<td>26</td>
</tr>
</tbody>
</table>
A do-it-yourselfer’s review (not getting any safety info from manufacturer or the seller) “After doing much research, I purchased about 25 sheets of this sheathing to insulate my basement… Tip: use a very sharp knife to cut it.” [No! Don’t cut it! Without a mask or respirator!]

Tip: use a very sharp knife to cut it.
Example of One Manufacturer Marketing to Tribes Specifically

Without health and safety advisories.
HBCD-containing insulation panels are lower cost.
Expedited Action on the 5 PBTs

• EPA is required under new TSCA to take action on PBT chemicals from the 2014 Work Plan without conducting a risk evaluation.

• Congress recognized that PBTs pose uniquely serious threats and requires only a “reasonable basis to conclude” that a chemical that is persistent and bioaccumulative is also “toxic” and that exposure is “likely” under conditions of use.

• Restrictions must achieve the greatest feasible reduction in exposure and environmental release.
5 PBTs in Commerce

• DecaBDE – an additive flame retardant in flexible ductwork, foam mattresses, roofing membrane, pipe insulation, reflective insulation, fiber glass insulation, .......

• PCTP – makes rubber more pliable: used in rubber materials, tires, golf balls

• HCBD – solvent found in hydraulic fluid vehicles, heavy equipment and airplane, and in drywall
5 PBTs in Commerce

• Phenol – flame retardant in consumer products and as a lubricant, found in adhesives, aviation fluids, Firestop™, epoxy resin, fire-resistant hydraulic fluid

• 2,4,6 Tris Phenol – an antioxidant found in fuel injector cleaners, fuel stabilizers, engine oil additives, gasoline, fuel fit, fuel system cleaners, gasoline storage stabilizer
Tribes and Amended TSCA

For environmental exposures, tribes may represent risk susceptible subpopulation

“(3) REVIEW AND DETERMINATION.—Within the applicable review period, subject to section 18, the Administrator shall review such notice and determine—

“(A) that the relevant chemical substance or significant new use presents an unreasonable risk of injury to health or the environment, without consideration of costs or other nonrisk factors, including an unreasonable risk to a potentially exposed or susceptible subpopulation identified as relevant by the Administrator under the conditions of use, in which case the Administrator shall take the actions required under subsection (f);
Toxic Chemicals in Tribal Resources

Contaminant detections

- Measured 58 compounds (PBDEs and other endocrine disruptors)
- Detected:
  - 2 DDT metabolites
  - 6 other organochlorine pesticides
  - 12 PCB congeners
  - 4 PBDE congeners
  - 2 current use pesticide/herbicides (chlorpyrifos and oxyfluorfen)
  - 1 personal care product (triclosan)

PBDE Passive Sampling Results (June-Oct ’11)

Atmospheric Research

Organophosphate Esters in Great Lakes Air

- Used mostly as flame retardants and plasticizers but have many other uses
- Priority compounds are very high for indoor air (100s ng/m³) and dust (1000s ng/g)
- Being phased out in North America and has been banned in EU

Mussel Watch Pilot Expansion 2012/2013: a study of toxic contaminants in blue mussels (Mytilus trossulus) from Puget Sound Washington, USA

Field Sample Summary and Progress Report
February 19, 2013

Jennifer A. Lanksbury, Andrea J. Carey, Laurie A. Niewolny and James E. West
Indian Country & Existing Health Disparities

**American Indian & Alaska Native Health Disparities: Children**

Compared to non-Hispanic white children, American Indian and Alaska Native children are more likely to suffer from the following:

- **Infant mortality**: 55% more likely to die as an infant
- **SIDS**: 2x more likely to die of SIDS
- **Obesity**: 90% more likely to be obese as a preschooler
- **Depression**: 2x more likely to attempt suicide as a high-schooler
- **Heart Disease**: 15% more likely to have heart disease
- **Diabetes**: 2x more likely to be diabetic
- **Obesity**: 45% more likely to be obese
- **HIV**: 30% more likely to be diagnosed with HIV
- **End-stage Renal Disease**: 60% more likely to have end-stage renal disease
- **HIV**: 90% more likely to die from diabetes

How do we reduce racial and ethnic health disparities? We must work together to improve our health care system to make it high-quality, comprehensive, affordable, and accessible for everyone.
Surveys Document Higher than Average Consumption of Fish by Tribal People

“The rates of tribal members consumption across gender, age groups, persons who live on versus off-reservation, fish consumers only, seasons, nursing mothers, fishers, and non-fishers range from 6 to 11 times higher than the national estimate used by USEPA.”

(quote from CRITFC, 1994)
Solid Waste Disposal Issues

All the chemicals in the smoke!

Burning Waste at Class III Landfills

Old Burn Unit

constructed out of local materials. Important design aspects that need the ease of emptying the ash and size of unit based on population its should include spark arrestors, provide good air flow, and keep bed during the burn. Locally-constructed burn units are generally commercially made units; however, they have a much lower life

Table 9
Emissions from barrel burning of household waste (mg/kg material burned)

<table>
<thead>
<tr>
<th>Class</th>
<th>Compound</th>
<th>Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOCs (1)</td>
<td>1,3-Butadiene</td>
<td>141.25</td>
</tr>
<tr>
<td></td>
<td>2-Butanone</td>
<td>38.75</td>
</tr>
<tr>
<td></td>
<td>Benzene</td>
<td>979.75</td>
</tr>
<tr>
<td></td>
<td>Chloroform</td>
<td>163.25</td>
</tr>
<tr>
<td></td>
<td>Ethylbenzene</td>
<td>181.75</td>
</tr>
<tr>
<td></td>
<td>m,p-Xylene</td>
<td>21.75</td>
</tr>
<tr>
<td></td>
<td>Methylenechloride</td>
<td>17.00</td>
</tr>
<tr>
<td></td>
<td>o-Xylene</td>
<td>16.25</td>
</tr>
<tr>
<td></td>
<td>Styrene</td>
<td>527.50</td>
</tr>
<tr>
<td></td>
<td>Toluene</td>
<td>372.00</td>
</tr>
<tr>
<td>SVOCs (1)</td>
<td>2,4,6-Trichlorophenol</td>
<td>0.19</td>
</tr>
<tr>
<td></td>
<td>2,4-Dichlorophenol</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>2,4-Dimethylphenol</td>
<td>17.58</td>
</tr>
<tr>
<td></td>
<td>2,6-Dichlorophenol</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>2-Chlorophenol</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>2-Methylnaphthalene</td>
<td>8.53</td>
</tr>
<tr>
<td></td>
<td>2-Cresol</td>
<td>24.59</td>
</tr>
</tbody>
</table>

Table 9 (continued)

<table>
<thead>
<tr>
<th>Class</th>
<th>Compound</th>
<th>Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Phenanthrene</td>
<td>5.33</td>
</tr>
<tr>
<td></td>
<td>Pyrene</td>
<td>3.18</td>
</tr>
<tr>
<td>Carboxyls (1)</td>
<td>Acetaldehyde</td>
<td>428.40</td>
</tr>
<tr>
<td></td>
<td>Acetone</td>
<td>253.75</td>
</tr>
<tr>
<td></td>
<td>Acrolein</td>
<td>26.65</td>
</tr>
<tr>
<td></td>
<td>Benzaldehyde</td>
<td>152.03</td>
</tr>
<tr>
<td></td>
<td>Butyraldehyde</td>
<td>1.80</td>
</tr>
<tr>
<td></td>
<td>Crotonaldehyde</td>
<td>33.53</td>
</tr>
<tr>
<td></td>
<td>Formaldehyde</td>
<td>443.65</td>
</tr>
<tr>
<td></td>
<td>Isovaleraldehyde</td>
<td>10.20</td>
</tr>
<tr>
<td></td>
<td>p-Toluic acid</td>
<td>8.85</td>
</tr>
<tr>
<td></td>
<td>Propionaldehyde</td>
<td>112.60</td>
</tr>
</tbody>
</table>

PCDDs/Fs and PCBs (2)

<table>
<thead>
<tr>
<th>Total PCDDs/Fs</th>
<th>TEQ PCDDs/Fs</th>
<th>Total PCBs</th>
<th>TEQ PCBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.80 × 10^-3</td>
<td>7.68 × 10^-3</td>
<td>1.26 × 10^-2</td>
<td>1.34 × 10^-2</td>
</tr>
</tbody>
</table>

Source: (1) Ref. [34]. (2) Ref. [37].
* Compound of interest not on HAP list.
Factors used by EPA 2010 in PBDE exposure assessment

Tribal Tendency

- Fish in the wild were found to have substantially higher tissue levels than farm-raised or store-bought fish
  - 45 – 148 ng/g Great Lakes
  - 35 ng/g (mean) to 1059 ng/g (max) Washington State
  - 8 – 88 ng/g marine off FL

- Fish consumption rate
  - 175 g/day – Oregon State
  - 389 g/day – Umatilla
  - 865 g/day – Spokane Tribe

vs. Central Tendency Used

- Representative food profiles including fish were taken from a retail market place in Texas
  - .32ng/g - finfish
  - 5.7 ng/g – shellfish

- Fish consumption rate
  - 11.6 g/day finfish
  - 3.8 g/day shellfish

- Doses via food/water ingestion were considered “reasonably certain”
High-End of General Population Exposure is not Protective of a Sensitive Subpopulation

- 2010 Exposure Assessment of PBDE
  - “unusually high exposures at the high end of the general population” – susceptible sub-population
  - 95th percentile 291 ng/g versus mean 31 ng/g in adults – “even the highest dust concentrations might not be able to explain”
  - “suggests the possibility that there are other exposures not identified in this assessment”

Tribal lifestyles are not just the extreme tail of a general population exposure range
RESOURCES VARIED AND NOT LINKED TO HOME ADDRESS

CULTURAL ACTIVITIES MAY INCREASE BOTH DIRECT AND INDIRECT EXPOSURES

- MONTANE RESOURCES
- FOREST RESOURCES
- RIPARIAN RESOURCES
- RIVERINE RESOURCES
- WETLANDS RESOURCES
- DESERT RESOURCES
- MARINE RESOURCES

AIR AND DUST INHALATION

- GAME
- GAME MEAT
- SWEAT LODGE & CEREMONIES
- PROCESSING
- GARDEN PRODUCE
- DIRECT SOIL EXPOSURE
- IRRIGATION
- SMOKE INHALATION

DIRECT SOIL EXPOSURE

- WEAVING, BASKETRY HARVESTING & PROCESSING
- HARVESTING & PROCESSING
- SURFACE WATER USE
- AQUATIC FOODS- reptiles, fish and shellfish HARVESTING & PROCESSING
- MARINE RESOURCES HARVESTING, PROCESSING, AND FOODS- shellfish, fish, & marine mammals
- SEDIMENT EXPOSURE

GATHERED FOODS

POTTERY

SMOKE INHALATION

NON-STANDARD HOUSING, SEASONAL CAMPING SPRINGS & GROUND WATER

Harper & Harris 2006 (with modifications by NTTC 2018)
“Legacy” products remain in use.

Groundwater not considered.

Do consumption rates reflect recreation or subsistence?

Central Tendency or Sensitive Population?

Burning of construction waste is not considered.

Figure 2-4a. HBCD Conceptual Model for Environmental Releases and Wastes: General Population Exposures and Hazards
The conceptual model presents the exposure pathways, exposure routes and hazards to human receptors from releases and wastes from industrial and commercial uses of HBCD.

- Industrial wastewater or liquid wastes may be treated on-site and then released to surface water (direct discharge), or pre-treated and released to POTW (indirect discharge). For consumer uses, such wastes may be released directly to POTW (i.e., down the drain). Drinking water will undergo further treatment in drinking water treatment plant. Ground water may also be a source of drinking water.
- Receptors include potentially exposed or susceptible subpopulations (see Section 2.3.5.4).
Possible Tribal Exposures Conceptual Model

TRIBAL LIFEWAYS

PERSONAL EXPOSURES
- Home Products
- Building Supplies
- Transportation specific to the region (ATVs, snow machines, small airplanes, boats, open air vehicles, railroad)
- Boat docks
- Children’s products & toys

COMMUNITY EXPOSURES
- Disposal methods:
  - Unlined landfills and sewage lagoons
  - Untreated wastewater
  - Open burning
  - Recycling
  - Reusing
  - Bystander

COMMERCIALLY AVAILABLE FOODS (FDA-regulated)

TRIBAL LIFEWAYS

EXPOSURE SCENARIOS

EXPOSURE SOURCES

EXPOSURE MEDIA PATHWAYS

EXPOSURE ROUTES

EFFECTS

AIR:
- Air
- Vapor
- Particulate Matter

DUST
- Deposited Particulate Matter

WATER:
- Drinking Water
- Surface Water
- Ground Water including untreated water

LOCALLY OBTAINED:
- Food
- Animal Fats
- Ceremonial Plants
- Water Sources
- Soil

SEDIMENT

RISKS:
- Chronic
- Acute
- Cumulative

GENETIC SUSCEPTIBILITY

GREATER

EXPOSURE

MEDIA

PATHWAYS

EXPOSURE

ROUTES

PERSONAL EXPOSURES

- Dermal: Absorption/Adsorption
- Ingestion

COMMERCIALLY AVAILABLE FOODS (FDA-regulated)

COMMUNAL ExPOSURES

- Injection

COMMUNITY ExPOSURES

- Mouthing

COMMERCIAL ExPOSURES

ExPOSURE ScENARiOS

- Dermal Absorption/Adsorption
- Ingestion

COMMERCIAL ExPOSURES

- Injection

COMMUNAL ExPOSURES

- Mouthing

COMMERCIAL ExPOSURES

- Injection

COMMUNAL ExPOSURES

- Mouthing

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COMMERCIAL ExPO
Opportunity for Tribal Input

• EPA must propose a rule to **address risks and reduce exposures** to these PBT chemicals

• PBT Expedited Process - Comment Letters and Tribal Consultation!
  - August 30 and September 6
  - **Numbers Count on these calls!** Join the call to include your tribe in the list of participating nations!
Cultural Practices

• Example statements on consultations:
  – My tribe does sweatlodges
  – My tribe does steambaths
  – My tribe digs in sediment for clams, reeds, roots.
  – My tribe harvests beach grass, seaweed, and gumboots
  – My tribe uses untreated drinking water
  – My tribe burns trash
  – My tribe have wild land fire fighters
  – My tribe has dumps with construction trash, or abandoned junk cars
Mark Your Calendar & Call In

Thursday, August 30, 2018, Tribal Consultation 1 from 1:00-3:00 pm (EDT)
Call-in Number: 1-866-706-9614  Conference ID number: 6659186
http://epawebconferencing.acms.com/pbt/

Thursday, September 6, 2018, Tribal Consultation 2 from 1:00-3:00 pm (EDT)
Call-in Number: 1-866-706-9614  Conference ID number: 9488696
http://epawebconferencing.acms.com/pbt/

Type in PBT and click Go For the consultation letter and a Fact Sheet.
What else can **YOU** do?

Visit our website!  
www.tribaltoxics.org

- SIGN THE PETITION circulating now that we’ll submit today!
- Share cultural practices that indicate unique exposures to environmental media
- Generate tribal resolutions that demand tribal representation in risk assessments
- Request funding for local tribal data collection to inform national databases
Cultural Practices

- NTTC is encouraging participation from tribes that have conducted exposure assessments on cultural practices
  - What are YOUR Tribal Trust Resources?
  - What do YOU do that exposes your members to toxics in the environment?
  - What other cultural practices do YOUR TRIBAL members participate in?
  - Seasonal? Gender-specific? Age-specific?
Growing up S’Klallam
Continued Close Relationship to the Environment

• Harvesting Wapato, Acorns, Clams, Nettles

Coeur d'Alene Tribe

Yurok Tribe
Cultural Practices for Harvesting Food Resources
• Cedar Bark Harvesting is a multi-generational cultural practice

• Cedar Bark Weaving
• Weaving and Maple Bark Workshops
• Sand-bar Willow Harvesting
• Net Pulling
• Fish Processing
• Tule Harvesting

• Roots and Berries
• Salmon and Eel Harvesting
• River Blessing
Mark Your Calendar & Call In

Thursday, August 30, 2018, Tribal Consultation 1 from 1:00-3:00 pm (EDT)
Call-in Number: 1-866-706-9614  Conference ID number: 6659186
http://epawebconferencing.acms.com/pbt/

Thursday, September 6, 2018, Tribal Consultation 2 from 1:00-3:00 pm (EDT)
Call-in Number: 1-866-706-9614  Conference ID number: 9488696
http://epawebconferencing.acms.com/pbt/

Type in PBT and click Go
For the consultation letter and a Fact Sheet.