

- (1) Coal combustion waste toxicity to fish.....trace element selenium (Se).....potent poison  
Leaches out of coal combustion waste at wet and dry disposal sites > enters waterways > bioaccumulates in food chain > dietary uptake in fish > Se passed to young in eggs > teratogenic deformities and internal poisoning > death of young > reproductive failure.
  - (2) First massive environmental disaster.....Belews Lake, NC, 1975.....19 species eliminated  
Lesson learned??.....Toxic potential of coal combustion waste to fish.....how NOT to dispose CCW.....did regulatory/industry heed lessons and respond appropriately??  
Today, 35 years later, NC's hazardous coal waste sites have increased from 1 (Belews) to 12, and encompass both wet and dry disposal (ex. Asheville and Riverbend dry sites).
  - (3) Selenium is a persistent poison.....cycles and recycles in sediment/food chain.....impacts last for years/decades even though water inputs are stopped.....ex.Belews legacy sediment.
  - (4) The NC scenario of expanding numbers of hazardous coal combustion waste sites, both wet and dry, has played out across the nation.....today there are literally hundreds of these.....most are not even being monitored or biologically assessed, but for those that are, toxic levels of selenium are present at VIRTUALLY EVERY ONE.
- EPRI/Coal Industry Fallacies.....i.e., making statements that misrepresent the facts.
- (5) Fallacy of disposal type....."it's only a problem with wet disposal".....In fact, dry disposal can be just as deadly as wet disposal unless composite liners, caps, and leachate collection/treatment systems are used.....the states do not require this level of control and thus numerous "dry" sites are producing highly hazardous selenium-laden leachate (see Figure 6). Moreover, there are no limits on metals from discharges at ash impoundments.
  - (6) Fallacy of age....."it's only a problem at old sites".....In fact, new and proposed coal plant/combustion disposal complexes pose unacceptable risks to the environment. For example, the USFWS recently issued a biological assessment for the proposed Desert Rock Energy Project, NM. It points out that with the proposed dry waste disposal, off-site migration of selenium would pollute the San Juan River and poison two federally listed endangered fish.....the Colorado pikeminnow and razorback sucker. This pollution will happen because of a failure of the states to require adequate containment measures for coal combustion waste....i.e., composite liners, caps, leachate collection/treatment.
  - (7) Fallacy of location....."it's only a problem on-site".....In fact, there are numerous documented and suspected cases of significant off-site migration of pollution and impacts to fish and wildlife. For example, the Gibson Coal Plant, IN.....polluted a wildlife refuge...USFWS is now involved in that cleanup.....costs are in the millions. Duke Energy to switch from wet disposal to dry w/o liners.....will merely move the problem. Colstrip Plant, MT, selenium-laden CCW contaminated off-site groundwater in addition to surface water....this will perpetuate the toxic threat to fish because once groundwater is polluted, it creates a seepage plume that can move Se into surface water for decades.
  - (8) Fallacy of the EPA criterion..... "our discharges meet EPA guidelines" .....In fact, the EPA criterion (5 ug Se/L) is badly outdated and obsolete.....as little as 2 ug/L can be toxic (see Figure 6).....expert workshop in 2002 recommended that EPA use tissue-based criterion.....EPA is moving to do that. So, if EPRI/Industry say they are meeting EPA's

criterion, they are just “legally” poisoning fish. An excellent example of this is the recent Kingston TN ash spill.....levels in the Emory River are well below 5 ug/L, yet fish contain toxic concentrations of selenium in their tissues. Remarkably, and despite the documented hazard at this site, there are no selenium limits in the NPDES permit just issued for the ash disposal cell that discharges into the Emory River next to the one that collapsed and filled the river with coal ash.

- (9) Fallacy of no effects.....”we have no evidence of effects”.....EPRI often uses this as a way to “confirm” there is no problem. This form of word trickery is used to persuade the uninformed that there is no problem by turning the Absence Of Data into a “finding” when, in fact, EPRI/Industry haven’t even looked to see if there is a problem. No evidence of effects is totally different than evidence of no effects.

Compare these “findings”.....only the latter is scientifically correct.

No monitoring/assessment = no evidence of effects = no problem

Proper monitoring/assessment = evidence of no effects = no problem

This is called the Null Fallacy.....it produces a false “no effect” finding.

- (10) Fallacy of cost.....”the cost of C designation would be too expensive”.....In fact, the cost of the “unregulation” that exists now is out of control and even more expensive.....case after case show that costs are millions (Gibson) to billions (TVA-Kingston) per site..... this doesn’t include the perpetual maintenance costs of toxic leachate from landfills.....which is produced by all landfills without composite liners and leachate collection (at least 75% of existing landfills don’t have these according to EPA). Landfill hazards are an inevitable and increasing liability in terms of cost.

**CONCLUSION:** Fish and wildlife are being poisoned by coal combustion waste as we speak.....the more we look, the more cases we find. Consequently, ecological liability and associated costs are on the rise. So-called “improvements” in disposal and management touted by EPRI/Industry are based on a series of fallacies that can easily be disproved empirically. The future is grim unless fundamental, far reaching changes take place in the way coal combustion waste is regulated and controlled. Designating “wet” disposal as hazardous while exempting “dry” is not the answer because dry disposal merely moves the pollution problem from one place to another, but does not lessen the threat unless true state-of-the-art liners and leachate collection/treatment systems are used. The facts speak for themselves. Some of the most destructive and pressing environmental problems with coal waste are not “in the distant past” but are taking place as we speak.....states are not requiring adequate pollution abatement measures. Threats and impacts are not being addressed by industry and they will not go away.....they will be a recurring, escalating problem unless adequate regulatory controls are in place. All coal combustion waste must be given a hazardous waste “C” designation if it is to be regulated in a manner that will afford adequate protection to fish, wildlife, and the environment.