

Beyond Pesticides • Citizens Against Chemicals Pollution • ETC Group • Food and Water Watch • Friends of the Earth • Institute for Agriculture and Trade Policy • Madison Environmental Justice Organization • Nanotechnology Citizen Engagement Organization • The Edmonds Institute • The International Center for Technology Assessment • The Loka Institute • Renanosoma

May 20, 2010

The Honorable Lisa Jackson  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460

Dear Administrator Jackson:

It has come to our attention that Green Earth Technologies (GET), Inc. is seeking approval from the EPA to disperse a large quantity of manufactured nanoparticles in the Gulf of Mexico, stating that the dispersal would remedy the oil spill recently suffered by the region. The for-profit company claiming to sell “totally green” products created from nanotechnology, wishes to scatter on land and in water its G-Marine Fuel Spill Clean-UP! (NANO Emulsion Technology) Oil Dispersant in areas affected by the BP rig collapse in the Gulf of Mexico.<sup>1</sup>

The undersigned public-interest organizations respectfully urge the EPA to deny approval of this and similar projects that seek to release nanoscale chemicals or chemicals measuring less than 300 nanometers into the environment. In this case the company claims their product is composed of particles measuring 1-4nm. Manufactured nanoparticles have been shown to be toxic to humans, mammals, and aquatic life.

We understand the enormous technical and regulatory challenges posed by the oil spill. However, two wrongs do not make a right. Exacerbating this grave situation by allowing GET to add pollutants to contaminated land and water should not be allowed, especially considering that the GET nanoparticles could be impossible to recover once introduced into the environment. We fully oppose this irresponsible, unscientific, and dangerous experiment.

We are not aware at this time of the exact nanoscale particles used in this ‘nano emulsion technology’ because this information is considered a trade secret by the company. Yet, we do know that most chemicals manufactured at the nanoscale hold unique and potentially toxic properties. While some new properties from the nanoscale may seem desirable, materials at this scale can also pose new toxicological risks. Nanoparticles have a very large surface area which typically results in greater chemical reactivity, biological activity and catalytic behavior compared to larger particles of the same chemical composition.<sup>2</sup> Unfortunately, the greater chemical reactivity and bioavailability of nanomaterials may also result in greater toxicity of nanoparticles compared to the same unit of mass of larger particles.<sup>3</sup> Other properties of manufactured nanomaterials that influence toxicity include:

chemical composition, shape, surface structure, surface charge, catalytic behavior, extent of particle aggregation or disaggregation, and the presence or absence of other groups of chemicals attached to the nanomaterials.<sup>4</sup>

There is also clear scientific evidence showing that manufactured nanoparticles can travel up the food chain from smaller to larger organisms, thus allowing the toxic properties of manufactured nanoparticles to take hold in the animal food chain.<sup>5</sup> Further, studies show that manufactured nanoparticles could damage important microbes in the environment, which could impact microbes that are helpful to ecosystems and sewage treatment plants.<sup>6</sup> Evidence of nanoparticle harm to fish and invertebrates at low concentrations has also been reported in scientific literature,<sup>7</sup> as have exotoxic effects on microbes and plants.<sup>8</sup>

Specifically, manufactured nanoparticles have been shown to be toxic to aquatic life such as zebrafish,<sup>9</sup> daphnia,<sup>10</sup> algae,<sup>11</sup> invertebrates,<sup>12</sup> and rainbow trout.<sup>13</sup> Some have shown to be toxic to earthworms<sup>14</sup> and important food crops.<sup>15</sup> Some nanoparticles have even been found to damage DNA and cause mutations.<sup>16</sup>

When potential problems of such consequence have been reported in scientific literature, a precautionary approach to the widespread dispersal of these manufactured particles would seem to be the natural response.

We trust EPA will oppose this project and will seek instead truly environmentally safe methods for oil clean-up in the Gulf.

Respectfully submitted,

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<sup>1</sup> See Green Earth Technologies, G.E.T. RESPONSE - Gulf Oil Spill:

<http://www.getg.com/docs/G.E.T.%20RESPONSE%20GULF%20OIL%20SPILL.pdf>.

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<sup>7</sup> Handy R.D., et al. (2008). "Ecotoxicology of nanoparticles and nanomaterials: current status, knowledge gaps, challenges, and future needs." *Ecotoxicology* 17(4): 315-325;

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