



Professor Tom Chou  
Dept. of Biomathematics  
Dept. of Mathematics  
David Geffen School of Medicine  
University of California  
Los Angeles, CA 90095-1766  
Tel. (310) 206-2787  
Fax. (310) 825-8685

Direzione Affari della Presidenza Politiche Legislative e Comunitarie,  
Programmazione, Parchi, Territorio, Valorizzazione del paesaggio,  
Valutazioni Ambientali  
UFFICIO Valutazione Impatto Ambientale  
Via Leonardo da Vinci (Palazzo Silone) 67100 L'Aquila (AQ)

Assessorato Politiche Agricole e di Sviluppo Rurale, Forestale, Caccia e Pesca  
Via Catullo 17 65100 Pescara

e per conoscenza: ARTA Abruzzo, Comune di Pineto,  
Comune di Roseto degli Abruzzi, Provincia di Teramo

Dear Representatives of the region of Abruzzo:

I am a professor with a Ph.D. in physics and I teach in the medical school at the University of California. I am writing you to express my concern about the proposed seismic exploration and subsequent drilling for the Villa Carbone, Villa Mazzarosa, Cipressi and Santa Venere leases in the provinces of Teramo and Pescara.

Last year's Deepwater Horizon disaster focused international attention on offshore blowouts. Indeed, they happen more often onshore, with dangerous effects: releases of flammable and toxic gases, spills of oil and drilling fluid, and plumes of groundwater pollution. Most onshore blowouts occur at gas wells, for example, the Texas Railroad Commission lists nearly 100 blowouts in that state since 2006, while Louisiana has had 96 onshore blowouts since 1987.

In November 2009, a gas well blowout killed one worker, injured another and prompted the evacuation of two dozen homes 20 miles south of Shreveport, La. In June, a well spewed gas for 16 hours following a blowout in rural central Pennsylvania. In August, a 200-foot plume of oil, gas and brine erupted for more than two weeks from an exploratory well 60 miles west of New Orleans.

Blowouts can result from the failure of blowout preventers, designed to seal off the well bore and block a surge of gas or pressurized oil from underground. Gaseous muds, gas condensates, and crude oil, may bubble up around the rig accompanied by sulfurous smells wafting through the air causing problems to people's skin, respiratory, circulatory and neurological systems.

Also, under normal operating conditions, one must take into account the large amount of waste associated with onshore oil and gas production such as drilling-waste fluids or muds, drilling-waste solids, produced water, and volatile organic compounds.

The drilling-waste muds may be freshwater gel, salt water (potassium chloride or sodium chloride), or oil invert-based systems. The oil invert mud systems may contain up to 50%, by volume, of diesel oil. Drilling wastes may contain drilling muds (bentonite), borehole cuttings, additives (polymers, oxygen scavengers, biocides, and surfactants), lubricants, diesel oil, emulsifying agents, and various other wastes that are specifically related to the drilling activities. Drilling-waste solids, which are made up of the bottom layer of drilling-mud sump materials, may contain drill cuttings, flocculated bentonite, and weighting materials and other additives. Additional wastes from the drilling process include used oils, cementing chemicals, and toxic organic compounds. Field processing of crude oil generates several waste streams, including contaminated wastewater, tank bottoms that may contain lead, emulsions, and heavy hydrocarbon residues, which may contain polynuclear aromatic hydrocarbons (PAHs). Cooling tower blowdown, boiler water, scrubber liquids, and steam production wastes are also generated, as well as contaminated soil, used oil, and spent solvents. Wastewaters typically contain suspended solids. To control the growth of microorganisms in sour water, a biocide or hydrogen sulfide scavenger (for example, sodium hypochlorite) is generally used prior to reinjection or disposal of the water. Crude pipelines are routinely cleaned by pigging operations, which can lead to spills and to the generation of sludge containing heavy metals. Solid wastes that do not contain toxic material are used as backfill material. Among the main sources of air emissions are fired equipment, vents, flares (including those from compressor stations), and fugitive emissions. The emissions may contain volatile organic compounds (VOCs), sulfur oxides (SO<sub>x</sub>), hydrogen sulfide, and nitrogen oxides (NO<sub>x</sub>).

Finally, from what I understand the petroleum in Abruzzo is of low quality (requiring an inefficient and polluting refinement process) and the reserves constitute a miniscule part of Italy's oil consumption. It would be irresponsible to sacrifice the environment by permitting oil exploration and extraction in Abruzzo and allow the few in corporations to make a quick profit at the expense of the natural environment that is clearly better suited for tourism, residences, or agriculture.

Sincerely,

Tom Chou  
Professor of Biomathematics and Mathematics  
David Geffen School of Medicine  
University of California, Los Angeles  
Los Angeles, CA 90095-1766