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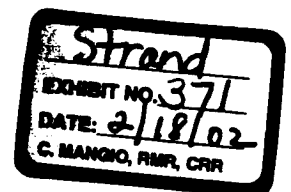
Charles E. Findley  
Acting Regional Administrator  
U.S. Environmental Protection Agency  
Region X  
1200 Sixth Avenue  
Seattle, Washington 98101

Subj: Your Letter to Christopher Gower of October 20, 2000, Regarding Third Runway Contaminated Fill Complaint.

Dear Mr. Findley:

I am a scientist (*Curriculum Vitae* attached) retained by the Airport Communities Coalition (cities of Burien, Des Moines, Federal Way, Normandy Park, Tukwila and by the Highline School District) to assess environmental issues related to the Port of Seattle's proposed third runway project. I have more than 25 years experience (post Ph.D.) in such matters and specialize in studies to assess ecological and human health risks from discharge of contaminants to surface and groundwater. In the course of my assessment, data came to my attention suggesting that the Port of Seattle (POS) was accepting contaminated fill for use in the runway project. After analyzing what was known, I prepared a comment letter dated August 31, 2000, which was sent to agencies with responsibility for such matters. At the same time, Mr. Chris Gower, a local resident concerned with protection of Miller Creek apparently submitted a complaint letter to your office concerning the fill. I understand that you responded to that letter on October 20, 2000.

Mr. Gower kindly forwarded to me a copy of your letter that provided some initial reactions to Mr. Gower's concerns. In doing so, your letter also addressed matters on which I commented in my letter to agencies dated August 31, 2000. In particular, your letter addressed the POS Soil Fill Acceptance Criteria and its use of the Model Toxics Control Act (MTCA) Method A Soil Cleanup Levels as the appropriate standard to screen candidate fill materials for placement at Seattle-Tacoma International Airport (STIA). In light of the initial reactions reflected in your letter, I feel obligated to respond and ask that the U.S. Environmental Protection Agency (USEPA) reflect on these issues in greater depth.



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As you may already know, I have identified serious environmental concerns with how the POS has approached the task of obtaining clean (uncontaminated) fill material for the proposed Third Runway at STIA. I also have a different scientific opinion than that of the POS as to the ecological implications of contamination found by the U.S. Army Corps of Engineers (USACOE) in the sediments dredged from Hamm Creek and placed at STIA.

The concerns center on the fact that chemical contaminants associated with fill materials at the fill placement site have the potential (if not the probability) to percolate through the fill pile to groundwater, ultimately contaminating wetlands and surface water that may be connected to the groundwater stream. Chemicals in the fill would also have the potential to directly contaminate wetlands and surface waters through runoff following seasonal rains. More details for these opinions and their bases are presented in the discussion below:

**MTCA Method A Soil Cleanup Levels are not Soil Fill Standards.**

The October 20, 2000, letter reflects some misunderstanding as to the purpose of MTCA and the MTCA Method A Soil Cleanup Levels. That letter (paragraph two) states "EPA does not have authority to "audit" the MTCA program and oversee implementation of MTCA rules, including MTCA Method A fill standards, which are applicable in this instance." While MTCA is not within the USEPA's jurisdiction, filling of federal jurisdictional wetlands is a joint concern of USEPA and other federal agencies. It is on this basis that USEPA should be concerned. In any event, the reference to MTCA Method A fill standards is very misguided: it suggests that the USEPA thinks that MTCA Method A is about fill standards. I assure you it is not.

The fundamental purpose of MTCA and the MTCA Method A Soil Cleanup Levels is to clean up existing contaminated or hazardous waste sites. The law sets reasonable standards for the amount of toxic material that can be left in a contaminated site. This standard also recognizes that there is a certain level below which it is not practical or feasible to clean. These standards are not, nor have they ever been, meant to contaminate clean property up to some predetermined level. To the best of my knowledge, the STIA property where the fill is being placed was free of contamination prior to any fill placement. MTCA does not apply and should not be used for the purpose of screening soils or sediments for use on the STIA Third Runway Fill Project.

The third paragraph of the October 20, 2000-letter states that "there are no existing federal or state standards for upland soil placement." To some extent, this begs the question that even so-called uplands soil placement may result in contamination of federally protected waters and wetlands. Further, the absence of a particular standard does not excuse adopting one that is very likely to cause environmental harm. Assuming the goal is to avoid environmental degradation, the selection by the POS of MTCA Method A to screen candidate fill materials makes no sense, especially when proven

approaches such as USEPA's Ecological Risk Assessment Framework (USEPA 1996) are available.

For example, the October 20, 2000-letter states "that the presence of contamination does not automatically translate into risk to the surrounding environment because the contaminant may be of very low concentration and/or bonded to the soil particles and therefore not expected to be mobile." It also states, "other factors such as oxygen concentration and pH also affect the release of materials." I would agree that these are all key factors to assess when determining if chemicals in soil or fill are mobile, can be bioaccumulated, and eventually pose risk for ecological receptors in the surrounding environment. Unfortunately, no such studies were done to address the above informational needs with regard to, for example, fill from the Hamm Creek Restoration Project site. There was a minimum of testing (chemical analyses), as I explain in the next section of my letter. There also is no evidence presented that any independent scientist ever attempted an assessment of chemical transport and fate, even when chemicals were found in the candidate fill materials, such as the Hamm Creek dredge spoils. Clearly, a risk assessment approach should have been adopted for the admittedly controversial Hamm Creek fill materials.

**The POS Airfield Project Soil Fill Acceptance Criteria do not Assure Fill Quality.**

Among a number of requirements, the POS Soil Fill Acceptance Criteria, to which your October 20, 2000-letter refers, are supposed to preclude chemical contamination. However, they are fundamentally flawed in their lack of a consistent and statistically meaningful approach to determine the location and extent of any contamination contained in candidate fill materials. Statistically rigorous sampling approaches exist, e.g., systematic grid system (Gilbert 1982), over sampling and compositing (Skalski and Thomas 1984) and are used routinely to survey sites for buried waste, yet no such approach is recommended in the POS Soil Fill Acceptance Criteria. While such an approach need not be undertaken at State-certified barrow pits, they should be required at all sites like the First Avenue Bridge and Hamm Creek where contamination is known to occur. In light of not providing consistent and statistically meaningful guidance to the POS consultants (and other factors), there is no basis for the October 20, 2000-letter's assessment of the POS Soil Fill Acceptance Criteria document (see the next to the last paragraph of the letter) to the effect that "this (document) was developed to insure a level of quality control on soil delivered on site."

Reviewing the various sediment characterization reports or phase I or II environmental assessments for lands from which soils were already accepted by the POS indicates the significance of this problem. As an example, let's look at the 85,000 CY of soil from the First Avenue Bridge accepted by the POS from the Washington Department of Transportation (WDOT) in the Second Quarter 2000 (see letter from Paul Agid, POS, to Chung Yee, WDOE, dated July 27, 2000). It turns out that initially only five samples were analyzed for petroleum contamination and potentially toxic metals (see letter from Tom Madden, WDOT, to Beth Clark, POS Environmental Section, dated Nov.29, 1999).

Significantly, one of those samples revealed total petroleum hydrocarbons (TPH) exceeding the Method A Soil Cleanup Level of 200 mg/Kg (actual value was 870 mg/Kg). The consultant then collected only three additional samples to delineate the apparent hotspot. These samples also contained TPH in excess of the Method A Standard but no other samples were collected. Even though the hot spot was not fully delineated, the vast majority of the soil was accepted and transferred to the POS. Some (an unspecified amount) was set aside for future testing. Eighty-five thousand cubic yards (85,000 CY), then, were accepted on the basis of only four samples. In this case, the consultants are remiss for not fully delineating the hotspot found in the initial round of sampling. Because they did not follow a systematic sampling approach and collected so few samples, they also could not guarantee that other hotspots didn't exist and go undetected.

The POS also accepted 80,000 CY of sediments removed from Hamm Creek on the basis of only two samples (see letter from Elizabeth Clark, POS, to Roger Nye, WDOE, dated Feb. 4, 2000). Four samples were actually collected but composited down to two samples prior to chemical analyses. In a Memorandum to Paul Agid, POS, from Beth Doan, USACOE, dated March 24, 1999, a caveat is included that "indicates the samples were composited over large areas and depths, and that there is a potential for hotspots to go undetected." Although the POS's Mr. Agid has since written to the WDOE downplaying contamination concerns, this communication from USACOE, "purveyor" of the Hamm Creek fill warning of "hotspots", raises the question of how quality control (environmental safety) of the soil delivered on site can be assured if scientifically representative samples were not tested? In the case of the Hamm Creek dredge spoils from a known contaminated site, how can anyone assure the quality of 80,000 CY on the basis of only two composited, four total, samples?

#### **Some Stockpiled Fill is Chemically Contaminated**

The claim on the second page of the October 20, 2000-letter (paragraph one) that even though "some of the fill (Hamm Creek sediments) was found to exceed Puget Sound Dredged Disposal Analysis (PSDDA) screening levels for things such as PCBs and DDT, this is not relevant" is scientifically unsupported. To the contrary, demonstrating that PCBs and DDT occurred in Hamm Creek sediments at 160 and 14 ug/Kg, respectively, is, indeed, relevant to assessing the potential ecological risks associated with the use of Hamm Creek sediments at STIA. These results are particularly relevant since there is considerable uncertainty as to the actual quantities of PCBs, DDT, and other chemicals contained in the Hamm Creek sediments. So very little of the candidate dredged material for placement at STIA was analyzed (only four samples were analyzed by the USACOE from 80,000 CY dredged from Hamm Creek), and no follow-up study was undertaken to determine the mobility and bioavailability of PCBs and DDT known to contaminate these materials. An additional 10,000 CY of candidate fill material from Hamm Creek were not even analyzed by the USACOE. Presumably, these sediments were included in the 80,000 CY transferred to the POS from the USACOE in 1999.

In the Doan Memorandum, which I referred to earlier, it is not probative of anything that Boeing (1990) also tested the Hamm Creek sediments but didn't detect either PCBs or DDT. It seems that, in spite of the fact that the two sets of analyses produced significantly different results, the POS still accepted these materials for use in their third runway embankment. At minimum, the disparity in results should have triggered additional sampling to determine which results were correct.

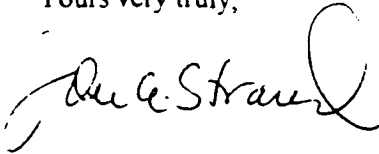
While the POS states that they used the results of both the Boeing and USACOE studies to certify the Hamm Creek sediments (see letter from Paul Agid, POS, to Ray Hellwig, WDOE, dated Sept. 15, 2000), the POS appears to have relied more on the Boeing data. This despite the Boeing study being completed in 1990, and being undertaken for a purpose other than screening candidate fill materials for the Third Runway at STIA. The Boeing study was designed and conducted as a Phase II Environmental Assessment in anticipation of a property transfer. In my opinion, the Boeing study is significantly out of date and only increases the uncertainty with which the chemical content of the Hamm Creek fill materials can be viewed. Concentrations of chemicals in wetland sediments at the Hamm Creek Restoration Project site could have increased appreciably in 10 years, attributable to transport and deposition by both tidal currents and annual flooding of the Duwamish River. Concentrations of chemicals in upland deposited (dredged) sediments at the Hamm Creek Restoration Project site also could have increased over this time period due to unauthorized dumping and runoff from West Marginal Way.

There are other problems in using the results of the Boeing study to certify the Hamm Creek sediments. The locations sampled by Boeing in their 1990 survey are not the same as the locations sampled by the USACOE in 1997. The detection limits for most chemicals analyzed by Boeing's chemists in 1990 were also higher than the detection limits for the chemicals analyzed by the USACOE chemists in 1997 (see letter from Paul Agid to Ray Hellwig, WDOE, dated Sept. 15, 2000). As well, the method of compositing sediment samples employed in the Boeing study could have diluted contaminated sediments with clean sediment, so that concentrations of chemicals in composited samples, those chemically analyzed, fell below applicable chemical detection limits. Any one, two, or all three explanations, might account for Boeing's failure to detect PCBs and DDT in Hamm Creek sediments, which is the key difference between the Boeing and USACOE studies, and which increases the uncertainty associated with the Boeing results.

In my opinion, the two studies do not complement each other, and beg the question, why wasn't a third, independent, sediment survey undertaken. Neither study is competent to determine the quantities of chemical residues in Hamm Creek sediments. And for the above reasons, if we were to rely on only one study, it should not be the Boeing study.

Thank you for the opportunity to comment on this important issue. Because the USEPA's October 20, 2000-letter will undoubtedly be cited by some as indicating that the POS's acceptance of fill has a "clean bill of health" it is important that the USEPA take the time to consider the matter in greater depth. Therefore, I would appreciate the opportunity to meet with you and your staff to discuss the issue further.

Yours very truly,



John A. strand, Ph.D.  
Principal Biologist

Attachment: *Curriculum Vitae*

cc: Nancy Brennan-Dubbs  
Peter Eglick  
Jonathan Freedman  
Ralph Graves  
Ray Hellwig  
Gary Jackson  
Anne Kenny  
DeeAnn Kirkpatrick  
Kimberly Lockhard  
Kitty Nelson  
Tom Sibley  
Gail Terzi  
Gordon White  
Greg Wingard  
files

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