

**Kenny, Ann**

---

**From:** Fitzpatrick, Kevin  
**Sent:** Tuesday, July 10, 2001 3:22 PM  
**To:** Kenny, Ann; Drabek, John  
**Subject:** FW: Acceptable Fill Criteria Language for Draft 401 Certification

-----Original Message-----

**From:** Yee, Chung K.  
**Sent:** Wednesday, June 27, 2001 4:32 PM  
**To:** Kmet, Peter; Fitzpatrick, Kevin  
**Cc:** Thompson, Craig E.  
**Subject:** RE: Acceptable Fill Criteria Language for Draft 401 Certification

Actually I have completed the draft just a few minutes ago. Please take a look at it first.

Since I have actually reviewed many of the borrow sit ESA reports, I think the entire Table 749-3 listing may not be applicable. Many of these sites are virgin borrow pits. Knowing that, if you all think it is appropriate to incorporate the entire list, than it will be done. As to the upper six feet, I have incorporated the ecological standards. By the way, what is "clean natural soil". Repeating above, many of these sites are virgin sites.

Craig, I put a hard copy of the latest (6/27) in your in-box.



Clean Fill Criteria  
for 401 Ce...

-----Original Message-----

**From:** Kmet, Peter  
**Sent:** Wednesday, June 27, 2001 4:01 PM  
**To:** Fitzpatrick, Kevin  
**Cc:** Yee, Chung K.  
**Subject:** RE: Acceptable Fill Criteria Language for Draft 401 Certification

**DELIBERATIVE DOCUMENT CURRENTLY EXEMPT FROM PUBLIC DISCLOSURE**

If we are not going to restrict fill material to naturally occurring uncontaminated soils, I recommend you use the following language to address potential impacts on plants and animals. The intent of this language is to ensure the fill material used would be "clean enough," that it would not be expected to cause adverse impacts on plants and animals that come in contact with it.

Note that this does not address potential human health exposure pathways or protection of aquatic organisms, which will need to be addressed with other language.

There are several elements to this recommendation:

First, is the list of chemicals of concern. I am recommending we use the list in Table 749-3. While lengthy, this list represents the more commonly occurring contaminants that have information on potential terrestrial ecological impacts. Only those suspected of being present at the site would have to be tested beyond those you are already specifying they test for.

Second, I am recommending we require the fill material to meet the most stringent value in Table 749-3 unless bioassay testing is conducted that demonstrates the fill is not toxic to plants and animals. The table 749-3 values are considered screening values for ecologically sensitive sites.

Third, as a further safeguard, I am recommending that the uppermost 6 feet of fill placed be required to be clean natural soil. This is the zone where most soil biological activity occurs and will provide a buffer zone that prevents most plant and animal contact with any deeper contaminated fill material. It should also minimize the potential for worker contact during routine construction and maintenance activities at the airport.

Fourth, because there can be considerable variability in soil concentrations and it is not possible to test every cubic inch of soil, I am recommending that the statistical test methods specified for soils in WAC 173-340-740 be used to analyze any test data and demonstrate compliance with these requirements.

Here is my suggested language:

The uppermost 6 feet of fill material shall consist of clean naturally occurring soil with no detectable manmade organic compounds and no metals above natural background concentrations as defined in Ecology publication #94-115 entitled "Natural Background Soil Metals Concentrations in Washington State". All other fill material not consisting of such clean naturally occurring soil shall be subject to the following requirements.

All fill material not from clean natural soil borrow sources shall be tested for at a minimum [insert your list] plus [any contaminants in Table 749-3] (I recommend you make one list and attach it as an appendix to the permit so there is not confusion as to what is to be tested for). This fill material shall contain concentrations below the most stringent concentration in this table (again, I recommend you make a list of concentrations and attach it to the permit, to avoid possible confusion. Again, NOTE that this does not address human health concerns or potential aquatic impacts. You will need to integrate those issues into this language). As an alternative to meeting the concentration in Table 749-3, the Port may demonstrate that the soil from the borrow source does not pose a threat to plants and animals by using both bioassays specified in 173-340-7493(3)(b)(i).

The methods specified in WAC 173-340-740(7) shall be used to determine compliance with these concentrations when evaluating soil testing data.

I know this wording needs some work, but it gives you a starting place.

PS, I am on leave until July 11th.

-----Original Message-----

**From:** Fitzpatrick, Kevin  
**Sent:** Wednesday, June 13, 2001 8:57 AM  
**To:** Yee, Chung K.  
**Cc:** Thompson, Craig E.; Dahlgren, Curtis A.; Nord, Tim; Kmet, Peter; Kenny, Ann; Hellwig, Raymond; Wang, Ching-Pi  
**Subject:** RE: Acceptable Fill Criteria Language for Draft 401 Certification

Chung Yee: Will Pete provide recommended language for a "terrestrial ecological evaluation" that could be used as a condition in the 401 Certification, as well as a list of additional contaminants that would need to be tested in the fill material brought in for Master Plan improvements at Sea-Tac Airport? Kevin

-----Original Message-----

**From:** Yee, Chung K.  
**Sent:** Wednesday, June 13, 2001 8:42 AM  
**To:** Fitzpatrick, Kevin

**Cc:** Thompson, Craig E.; Dahlgren, Curtis A.; Nord, Tim  
**Subject:** Acceptable Fill Criteria Language for Draft 401 Certification

**DELIBERATIVE DOCUMENT CURRENTLY EXEMPT FROM PUBLIC DISCLOSURE**

On Monday June 11, Mr. Craig Thompson had a limited discussion with Mr. Pete Kmet of the HQ/TCP on this project. Mr. Kmet recommended MTCA should not be used for the establishment of clean-fill criteria for the Seattle-Tacoma International Airport Third Runway project. However, if MTCA is to be used for this purpose, Mr. Kmet further recommended all other requirements of the MTCA should be applied for the establishment of the clean fill criteria.

I have interpreted his MTCA requirements at minimum as requiring: 1) a larger listing of potential contaminants for testing, 2) ground water monitoring for compliance with the ground water and/or surface water criteria, and 2) terrestrial ecological evaluation. There may be other requirements that will need to be identified prior to finalizing the "Acceptable Fill Criteria Language."

Since his recommendations are considered as the department policy with respect to this project, therefore it would be inappropriate for me to comment on his recommendations.

Please advise as to my scope-of-work. In the interim, I will proceed to review the biological opinion by US Fish and Wildlife Service on the Master Plan Update Improvements. From your previous emails, I understand you/NWRO will be meeting with the US Fish and Wildlife Service to finalize an acceptable set of fill criteria. Per agreement, I will start my review of the Clean Fill Criteria based on the most recent draft language, i.e., post US Fish and Wildlife Service meeting.

One final note, I do not know how to implement many of the MTCA requirements, e.g., terrestrial ecological evaluation, in the context of the Third Runway fill project. For these additional MTCA requirements, please consult with the NWRO/TCP staff for implementation assistance.

# **Draft** (June 27, 2001)

## **E6. Borrow Sites**

The use of imported fill for the proposed Third Runway embankment may result in impacts to wetlands or other waters of the state. To ensure compliance with measures designed to minimize potential impacts, the Port of Seattle shall submit borrow site clean fill certification documentation described in the following sections to the Department of Ecology for review and approval prior to fill placement.

## **E7. Fill Source/Documentation/Fill Criteria**

The Port of Seattle shall adhere to the following conditions to ensure that the fill placed for the proposed Third Runway embankment does not contain toxic materials in toxic amounts.

### **E7a. Fill Sources**

Fill materials for the proposed Third Runway embankment shall be limited to the following three sources:

- State-certified borrow pits
- Contractor-certified construction sites
- Port of Seattle-owned properties.

### **E7b. Documentation**

No later than two (2) business days prior to the acceptance of fill materials for the proposed Third Runway embankment, the Port of Seattle shall submit to the Department of Ecology's Northwest Regional Office, Water Quality Program, for review and approval clean fill certification documentation for the proposed fill source. The documentation shall contain an environmental assessment of the fill source and shall verify excavated soil from the proposed fill source complies with the fill criteria. The environmental assessment shall be conducted by an environmental professional in general conformance with the American Society for Testing and Materials Standard (ASTM) E 1527-00 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, and E 1903-97 Standard Guide for Environmental Site Assessments: Phase II Environmental Site Assessment Process. At minimum, the document shall contain the followings:

1. **Fill Source Description:** Provide a description/location of the fill source, general characteristics of the fill source and vicinity, current use, and a site plan identifying

the extent of the excavation, project schedule and the estimated quantity of fill to be transported to the proposed Third Runway embankment.

2. Records Review: Obtain and review environmental records of the proposed fill source site and adjoining properties. In addition to the standard federal and local environmental record sources, the following Department of Ecology environmental databases shall be reviewed:
  - Confirmed & Suspected Contaminated Site Report
  - No Further Action Site List
  - Underground Storage Tank List
  - Leaking Underground Storage Tank List
  - Site Register.

Records review shall also contain historical use information of the fill source and the surrounding area to help identify the likelihood of environmental contamination.

3. Site Reconnaissance: Conduct a site visit to identify current site use and site conditions to help identify the likelihood of environmental contamination and/or the potential migration of hazardous substances onto the site from adjoining properties.

**Basis: ASTM E 1527-00 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.**

4. Fill Source Sampling: Collect and analyze fill materials for the potential contaminant(s) identified in the Phase I Environmental Site Assessment. At a minimum, fill materials from each fill source shall be analyzed for the following hazardous substances:
  - Total Antimony
  - Total Arsenic
  - Total Beryllium
  - Total Cadmium
  - Total Chromium<sup>1</sup>
  - Total Copper
  - Total Lead
  - Total Mercury
  - Total Nickel
  - Total Selenium
  - Total Silver
  - Total Thallium
  - Total Zinc
  - NWTPH-HCID

**Basis: The listing of metals proposed for the fill criteria is based on 40 CFR Part 22 Appendix D Table III, Other Toxic Pollutants (Metals and Cyanide) and Toxic Phenols. These metals are required monitoring parameters for the Seattle-Tacoma**

International Airport's NPDES permit. The proposed minimum sampling program also incorporates a screening requirement for total petroleum hydrocarbons in keeping with the Port's NPDES permit requirements and also because petroleum contaminants are often found in current/former industrial areas (waiting for permit information from Ms. Tricia Miller, NWRO/WQP, to confirm the stated basis).

<sup>1</sup> Chromium (VI) shall be analyzed if the results of the Phase I Environmental Site Assessment show a likelihood of Chromium (VI) contamination.

**Basis: The chromium (VI) sampling requirement is in accordance with Mr. Charles San Juan's (Ecology TCP) recommendation.**

For fill source characterization, the following table presents the minimum sampling schedule for fill sources with no likelihood of environmental contamination.

Cubic Yards of Soil	Minimum Number of Samples
<1,000	2
1,000 – 10,000	3
10,000 – 50,000	4
50,000 – 100,000	5
>100,000	6

**Basis: The fill source sampling schedule is as proposed by the NWRO/WQP. The Toxics Cleanup Program has provided guidance for the sampling of petroleum-contaminated soil stockpiles (Publication Number 91-30). The guidance recommended a much higher sampling schedule than as proposed in the fill criteria. For example, for a 200,000-cubic yard stockpile, the Toxics Cleanup Program guidance recommended a minimum number of 226 samples as compared to six samples as proposed above. In the absence of Ecology guidance for the sampling of borrow sites, the fill source sampling schedule will be as proposed by the NWRO/WQP.**

Samples shall be collected at locations that are representative of the fill destined for the proposed Third Roadway embankment.

For fill sources with suspected contamination identified by the Phase I Environmental Site Assessment or with complex site conditions, please consult with the Department of Ecology Northwest Regional Office, Water Quality Program, for the appropriate sampling requirements.

#### **E7b. Fill Criteria**

The results of the Phase II Environmental Site Assessment sampling and testing shall be compared to the fill criteria to determine the suitability of the fill source for the proposed Third Runway embankment. Presented in the following table is the fill criteria established for hazardous substances specified in Section E7b.4.

Hazardous Substances	Fill Criteria mg/kg <sup>2</sup>
Antimony	16
Arsenic	20
Beryllium	0.6
Cadmium	2
Chromium <sup>3</sup>	42/2000
Copper	36
Lead <sup>4</sup>	220/250
Mercury	2
Nickel <sup>5</sup>	100/110
Selenium	5
Silver	5
Thallium	2
Zinc	85
Gasoline	30
Diesel <sup>6</sup>	460/2000
Heavy Oils	2000

<sup>2</sup> mg/kg = milligrams per kilogram

<sup>3</sup> Fill with total chromium concentrations greater than 42 mg/kg and less than 2000 mg/kg may be placed to within six feet of the ground surface. No fill with total chromium concentrations greater than 42 mg/kg may be placed within the first six feet of the embankment. No fill with chromium (VI) concentrations greater than 19 mg/kg may be placed within the embankment.

**Basis: The six feet limitation is based on WAC 173-340-7492 (2)(c)(ii).**

<sup>4</sup> Fill with total lead concentrations greater than 220 mg/kg and less than 250 mg/kg may be placed to within six feet of the ground surface. No fill with total lead concentrations greater than 220 mg/kg may be placed within the first six feet of the embankment.

<sup>5</sup> Fill with total nickel concentrations greater than 100 mg/kg and less than 110 mg/kg may be placed to within six feet of the ground surface. No fill with total nickel concentrations greater than 100 mg/kg may be placed within the first six feet of the embankment.

<sup>6</sup> Fill with diesel range organics concentrations greater than 460 mg/kg and less than 2000 mg/kg may be placed to within six feet of the ground surface. No fill with diesel range organics concentrations greater than 460 mg/kg may be placed within the first six feet of the embankment.

**Basis:**

**Antimony – 16 mg/kg:** The calculated Method B soil cleanup level for ground water protection is 6 mg/kg. The calculated Method B soil cleanup level for surface water protection is 1450 mg/kg. There is no terrestrial ecological evaluation soil concentration for this metal. The proposed fill criterion is based on the practical quantitation limit of 16 mg/kg. The use of practical quantitation limit as the criterion is based on WAC 173-340-700 (6)(d).

**Arsenic – 20 mg/kg:** This is the Method A soil cleanup level for unrestricted land uses (Table 740-1).

**Beryllium – 0.6 mg/kg:** The calculated Method B soil cleanup level for ground water protection is 0.01 mg/kg. This is higher than the natural background concentration in Puget Sound soil. The proposed fill criterion is based on the natural background concentration of 0.6 mg/kg in Puget Sound soil. The use of natural background as the criterion is based on WAC 173-340-700 (6)(d).

**Cadmium – 2 mg/kg:** This is the Method A soil cleanup level for unrestricted land uses (Table 740-1).

**Chromium (Total) – 42 mg/kg:** This is the terrestrial ecological evaluation soil concentration (Table 749-2). This criterion applies to the first six feet of the Third Runway embankment. The terrestrial ecological evaluation soil concentration requirement is based on WAC 173-340-7492.

**Chromium (VI) – 19 mg/kg:** This is the Method A soil cleanup level for unrestricted land uses. This criterion applies throughout the embankment.

**Chromium (III) – 2000 mg/kg:** This is the Method A soil cleanup level for unrestricted land uses. This criterion applies for the embankment to within six feet of the ground surface.

**Copper – 36 mg/kg:** The calculated Method B soil cleanup level for surface water protection is 3 mg/kg. The proposed fill criterion is based on the natural background concentration of 36 mg/kg in Puget Sound soil. The use of natural background as the criterion is based on WAC 173-340-700 (6)(d).

**Lead – 220/250 mg/kg:** The terrestrial ecological evaluation soil concentration is 220 mg/kg (Table 749-2). This criterion applies to the first six feet of the Third Runway embankment. The 250 mg/kg criterion is the Method A soil cleanup level for



unrestricted land uses (Table 740-1). This criterion applies for the embankment to within six feet of the ground surface.

**Mercury – 2 mg/kg:** This proposed fill criterion is the Method A soil cleanup level for unrestricted land uses (Table 740-1). This value is less than the terrestrial ecological evaluation soil concentration of 9 mg/kg (Table 749-2).

**Nickel – 100/110 mg/kg:** The terrestrial ecological evaluation soil concentration is 100 mg/kg (Table 749-2). This criterion applies to the first six feet of the Third Runway embankment. The 110 mg/kg criterion is the calculated Method B soil cleanup level for surface water protection. This criterion applies for the embankment to within six feet of the ground surface.

**Selenium – 5 mg/kg:** The calculated Method B soil cleanup level for surface water protection is 0.5 mg/kg. The terrestrial ecological evaluation soil concentration is 0.8 mg/kg (Table 749-2). These levels are less than the practical quantitation limit of 5 mg/kg. The proposed criterion is based on the practical quantitation limit. The use of practical quantitation limit as the criterion is based on WAC 173-340-700 (6)(d).

**Silver – 5 mg/kg:** The calculated Method B soil cleanup level for surface water protection is 0.3 mg/kg. This is less than the practical quantitation limit of 5 mg/kg. The proposed criterion is based on the practical quantitation limit. The use of practical quantitation limit as the criterion is based on WAC 173-340-700 (6)(d).

**Thallium – 2 mg/kg:** This is the calculated Method B soil cleanup level for ground water protection.

**Zinc – 85 mg/kg:** The calculated Method B soil cleanup level for surface water protection is 70 mg/kg. This is less than the natural background level. The proposed criterion is based on the natural background concentration of 85 mg/kg in Puget Sound soil. The use of natural background as the criterion is based on WAC 173-340-700 (6)(d).

**Gasoline – 30 mg/kg:** This is the Method A soil cleanup level for “all other gasoline mixtures”.

**Diesel – 460/2000 mg/kg:** The terrestrial ecological evaluation soil concentration is 460 mg/kg. This criterion applies to the first six feet of the Third Runway embankment. The 2000 mg/kg criterion is the Method A soil cleanup level for unrestricted land uses. This criterion applies for the embankment to within six feet of the ground surface.

**Heavy Oils – 2000 mg/kg:** This is the Method A soil cleanup level for unrestricted land uses (Table 740-1).

For hazardous substances other than those identified in the above fill criteria table that have been identified in the Phase II Environmental Site Assessment, please consult with the Department of Ecology Northwest Regional Office, Water Quality Program, for the applicable fill criteria.

#### **E8. As-Built Documentation**

The Port of Seattle shall provide to the Department of Ecology for review quarterly summaries of:

- Names and locations of fill sources placed for the previous quarter
- Quantities of fill materials from these fill sources
- Locations and elevations of fill source materials placed within the embankment.

The Department of Ecology may require additional compliance conditions and/or corrective actions upon Ecology's review of the as-built documents.

#### **E9. Post Construction Monitoring**

In order to minimize the potential for migration of hazardous substances, the Department of Ecology expects the Port of Seattle to take appropriate measures to minimize precipitation and subsequent runoff coming into contact with the fill materials. Furthermore, the Department of Ecology expects that runoff and seepage from the fill area shall be monitored for compliance with applicable Washington State surface water criteria. Ground water down-gradient from the fill area shall be monitored for compliance with applicable ground water criteria.

Within 180 days after the issuance of the 401 Water Quality Certification for the Master Plan Update Improvements for the Seattle-Tacoma International Airport, the Port of Seattle shall submit to the Department of Ecology for review and approval a surface water and ground water monitoring plan. The monitoring plan shall be designed to detect impacts of the fill embankment to the receiving water and to the ground water during fill placement and post fill placement. In the event monitoring detected adverse impacts to the receiving water/ground water, the Department of Ecology may revise the fill criteria and/or institute corrective actions to address these impacts.

**Basis: The proposed ground water monitoring program is based on WAC 173-340-720 (9). The proposed surface water monitoring program is based on WAC 173-340-730 (7).**

To: Ann Kenny

Cc: Ray Hellwig  
Roger Nye  
John Wietfeld  
Steve Alexander

From: Ching-Pi Wang (CPW)

Date: June 22, 2001

Subject: TCP Recommendations for 401 certification

1. The Port of Seattle will develop a plan to monitor potential contaminant transport to soil and ground water via subsurface utility lines at the airport by September 14<sup>th</sup>, 2001. The plan is subject to approval by the Toxics Cleanup Program, Northwest Regional Office.
2. The Port will administer and update periodically the contaminant database and contaminant maps and figures for the airport. The database will be updated as new information is received. The maps and figures will be updated annually and delivered to the Toxics Cleanup Program in a report of findings for review. Examples of maps and figures are shown in attached technical memorandum dated June 21, 2001 and entitled "Analysis of Preferential Ground Water Flow Paths Relative to Proposed Third Runway."
3. The Port will collect all new environmental data generated by construction activities, cleanup actions, or any other environmental investigations of soil and groundwater throughout the airport. The information will be used to update the contaminant database. The Port, airport tenants, and other entities conducting environmental investigations will continue to provide reports of ongoing cleanup actions and any new contamination discovered to Ecology as required by MTCA.