

## **Addendum to the Soil Safety Program Design May 2010**

### **Introduction**

In the five years since the legislation (Chapter 70.140 RCW) that started the Soil Safety Program, Ecology has addressed the vast majority of schools and childcares within the program service area. In late 2009, the state received a \$94 million settlement from Asarco for the future costs of Tacoma Smelter Plume contamination. Ecology is now drafting an Interim Action Plan that phases and prioritizes actions funded with the Asarco Cleanup Settlement Account. The agency is prioritizing sampling and cleanup of child use areas, continuing with new schools and childcares as they are identified. The Interim Action Plan will add as additional priorities sampling and cleanup for public parks, camps and multifamily public housing play areas. Recently, the Legislature appropriated money to begin sampling and cleaning up these additional areas beginning July 1, 2010.

### **Definition of Play Areas Covered by this Addendum**

**Parks:** Play areas at public parks (includes play structures, fields, and other areas Ecology determines to be high use).

**Camps:** Play areas at public and private camps (including high use gathering areas).

**Multifamily public housing:** Play areas at multifamily housing facilities owned by a public housing authority. Ecology may address subsidized housing in highly contaminated areas on a case-by-case basis.

### **Soil Safety Program Service Area**

The original Soil Safety Program service area was approximately 315 sq miles and extended north to West Seattle and south to Thurston County (Figure 1.) After three years of sampling schools and childcares, the data was evaluated and mapped. The service area has been made smaller in order to better focus the program on facilities with a higher likelihood of having Tacoma Smelter Plume contamination. The light blue line on Figure 1 shows the new boundary of the Soil Safety Program Service Area which covers approximately 253 sq miles.

Thurston County has been removed from the focused service area, since no childcares or schools have been found with elevations of arsenic or lead.

Pierce County has the greatest number of impacted schools and childcares and as a result Ecology did sample outside of the service area, to the south and east around Lakewood. Childcares with results above criteria were found in that area, thus the service area has been expanded in this one section. No elevations were seen on Anderson Island or Fox Island so these areas have also been removed from the focused service area to the Pierce County mainland border.

King County's service area boundary has also been made smaller to the north and east. The few childcares that were found with elevations in these areas had either lead only contamination, most likely not from the Tacoma Smelter Plume; or they had low levels of arsenic with an average below 23 parts per million (ppm) or a maximum below 40 ppm. This

shrinking allows the program to better focus in on facilities with a higher likelihood of having Tacoma Smelter Plume contamination.

The new service area boundary has not eliminated the original boundary but has focused our main sampling within the new border. The original boundary lines still exist and, if needed, facilities may still be sampled or have contamination addressed within the original boundary lines.

The new Soil Safety Program Service Area has also been broken into three zones, see Figure 3. Zones 1 and 2 together make up the new boundary, while zone 3 extends from the new boundary to the original boundary lines. Zone 1 was identified by Ecology as a high zone within the Tacoma Smelter Plume based on where arsenic concentrations are estimated to exceed 100 ppm average arsenic. Contamination tends to follow wind patterns and decrease with distance, so Ecology analyzed existing arsenic data by their distance from the former smelter and direction. The analysis reflects relatively conservative estimates of potential arsenic concentrations. Actual concentrations will vary greatly. Estimation was necessary due to the large size of the site and the variability that can occur on individual properties. Zone 2 is the area outside of this estimated high zone where arsenic concentrations are likely to exceed an average of 20 ppm or a maximum of 40 ppm. Zone 3 covers the area from the new border to the original border lines. Facilities will be evaluated by Ecology before sampling.

### **Identification of Parks, Camps, and Multifamily Public Housing**

Ecology has identified public parks, camps and multifamily public housing in the Soil Safety Program Service Area (Figure 1). Most of the parks and camps within the service area have already been sampled during previous child use area studies. A search of city, county and state parks found several additional parks that had not been previously sampled. Four camps with potentially impacted play areas have been identified, although there may be additional facilities that qualify for the Soil Safety Program. Tacoma, Pierce County, King County, and Seattle Housing Authorities have several facilities within the service area, as well. Ecology will also contact city, county and state parks, and the housing authorities to determine if all facilities in the area have been located.

### **Sequencing of Outreach, Assessment and Sampling**

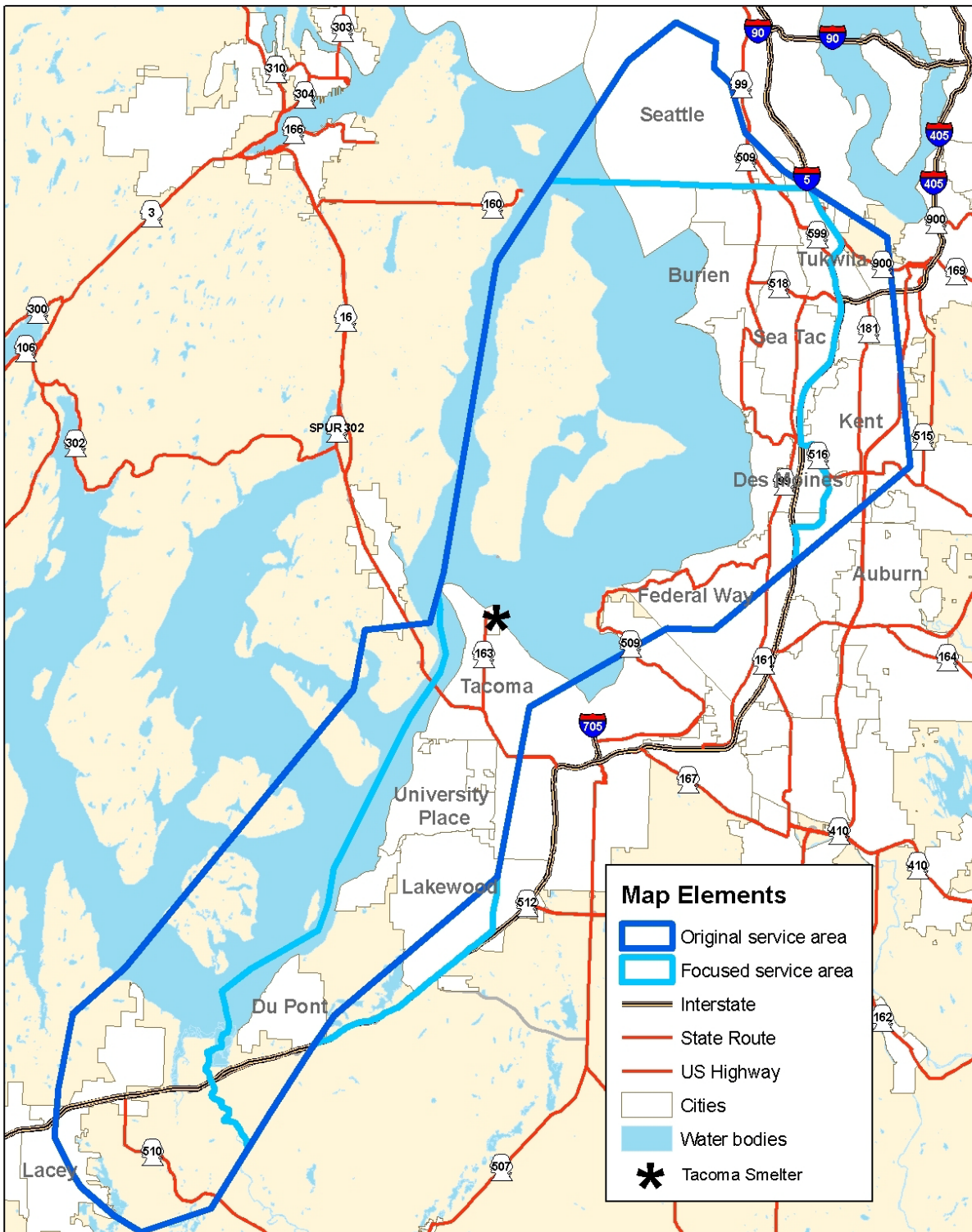
Ecology has identified a zone within the Tacoma Smelter Plume where estimated average arsenic concentrations are most likely to exceed 100 ppm. The draft Interim Action Plan prioritizes work within this zone—described as the Phase 1 area (Figure 2). Likewise, the Soil Safety Program will prioritize public park, camp, and multifamily public housing play areas within the Phase 1 area. For this program, Ecology has mapped out three zones (Figure 3) and prioritized work within these zones as follows:

- Zone 1 – most likely to have elevated soil arsenic
  - Previously sampled public parks and camps with elevated sample results
  - Newly identified public parks, camps and multifamily public housing
  - Previously sampled public parks and camps with low results will be evaluated to ensure that the original sampling was sufficient
  
- Zone 2 – likely to have elevated soil arsenic
  - Previously sampled public parks and camps with elevated sample results
  - Newly identified public parks, camps and multifamily public housing

- Previously sampled public parks and camps with low results will be evaluated to ensure that the original sampling was sufficient
- Zone 3 – may have elevated soil arsenic depending on property location and history
  - Previously sampled public parks and camps with elevated sample results

Figure 1 Soil Safety Program Service Area

## 2010 Soil Safety Program (SSP) Service Area



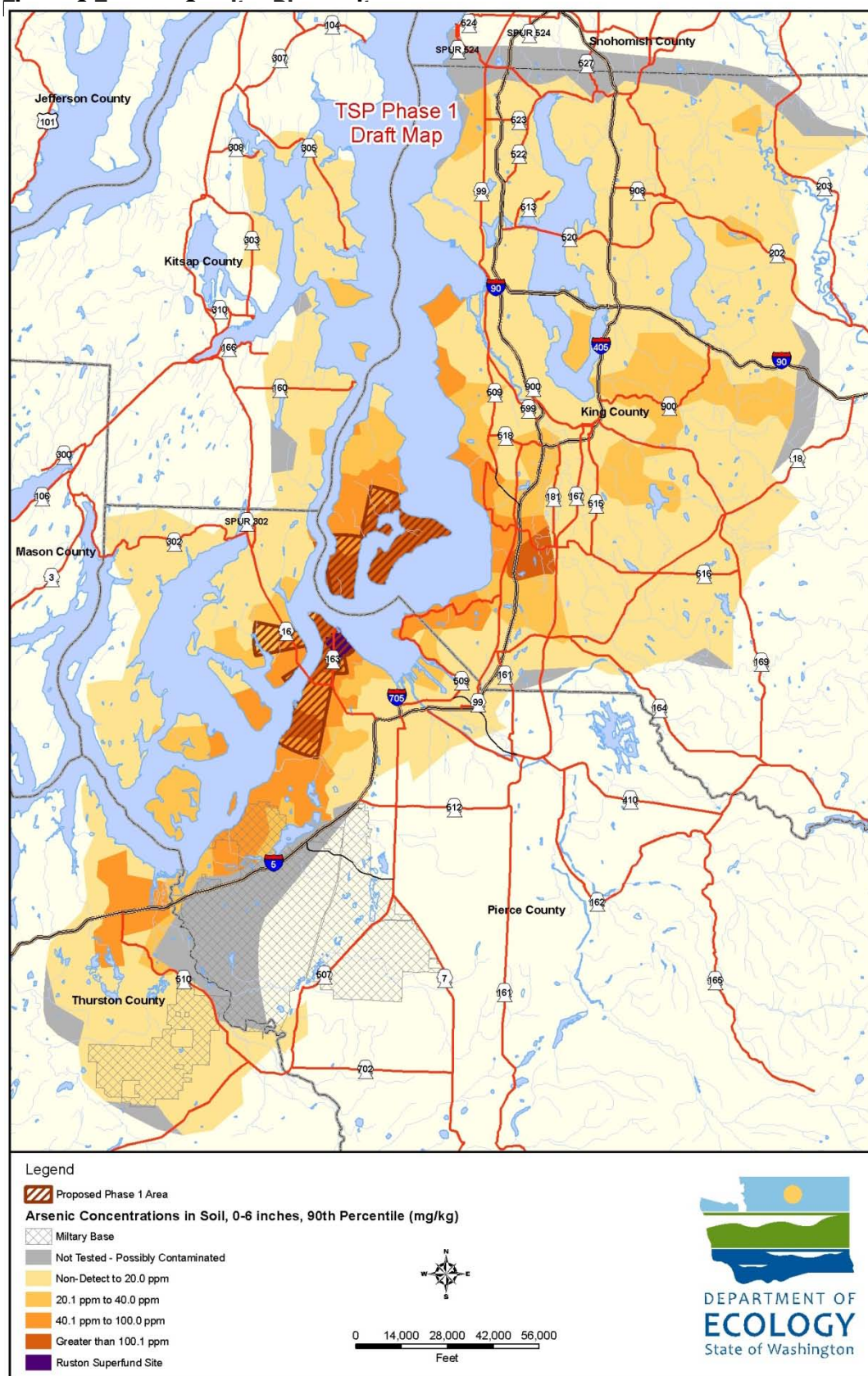
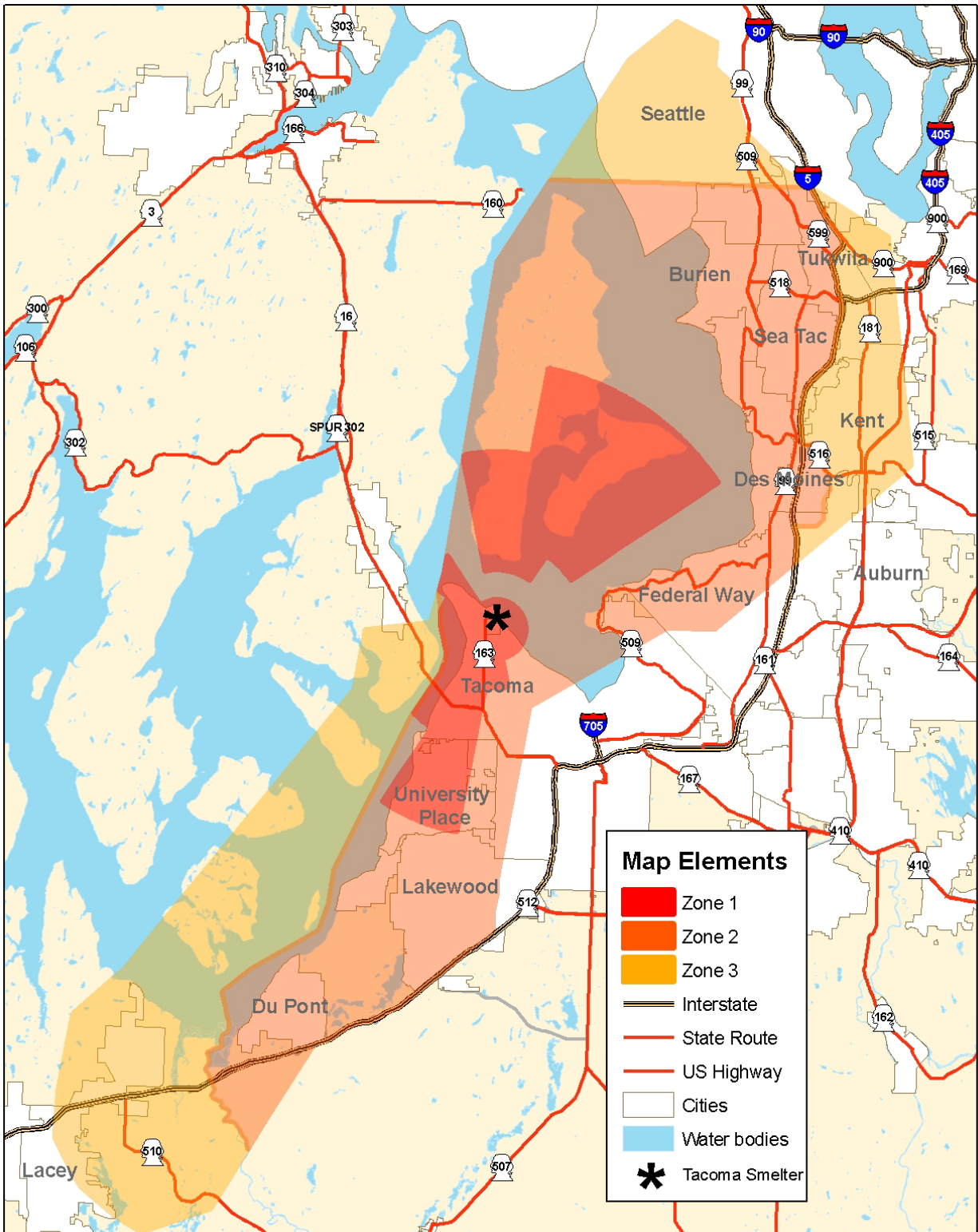


Figure 3 Soil Safety Program Prioritization Zones



## **Outreach Messages and Tools**

Many of the same outreach strategies and tools will continue to be used as the program expands to include public parks, camps and multifamily public housing play areas. The tools located in Appendix C will continue to help the program stay on message and further outreach. Some additional activities and tools for the program expansion include:

- Presentations to park districts, camps, and housing authorities.
- Fact sheets for stakeholders and local communities.
- News releases announcing Ecology's plans and the start of sampling and cleanup.

Ecology's messages focus on protecting children's health by cleaning up areas where the greatest numbers of children are at greatest risk—play areas in parts of the Tacoma Smelter Plume with the highest estimated arsenic levels. The agency hopes to encourage participation in the Soil Safety Program by eliminating the cost to park districts, camps, and public housing authorities, using Asarco settlement funds to cover sampling and cleanup.

## **Property Access**

The approach for gaining access will be similar to that used for gaining access to schools. Ecology will contact each park district, camp and the local housing authority to set up a meeting with Ecology and the health department. The park districts, camps, and housing authorities will determine if representatives of the facilities requiring assessment should be involved in the meeting. The agencies will:

- Present information about the Soil Safety Program;
- Request access to assess and sample the facility play areas; and
- Begin discussions on implementing a Soil Safety Action Plan or more sampling at those parks and camps previously sampled that have arsenic or lead above criteria.

Each park district, camp and housing authority will be provided with an information packet that explains the program and includes a formal property access agreement form (Appendix A). No soil sampling will take place before a property access has been granted.

## **Qualitative Assessment**

For public parks and camps with previous sampling, the qualitative assessment will start with questions about construction activities and changes that have occurred since the initial sampling. The previous sampling data from Ecology and the U.S. Environmental Protection Agency, if available, will be evaluated at this time. Qualitative assessments will then follow the assessment guidelines as described in section 2.2.6 of the Soil Safety Program Design.

## **Soil Sampling**

If the qualitative assessment indicates that initial or additional sampling is necessary, the local health department or Ecology's contractor will schedule sampling in cooperation with the facility manager. The sampler may also schedule soil sampling at the same time as the qualitative assessment.

Soil samples will be collected from all play areas within each property that require additional sampling. Samples will be collected from surface soil between 0 and 6 inches below ground surface and between 6 and 12 inches below the ground surface. One quarter of the 6 to 12 inch samples will be analyzed with the 0 to 6 inch samples. The remaining 6 to 12 inch samples will be archived until the initial results are determined by the laboratory. If the initial samples have an average arsenic above 20 ppm or a maximum arsenic above 40 ppm or an average lead above 250 ppm or a maximum lead above 500 ppm then the remaining samples will be analyzed.

The number of samples taken at a park, camp or multifamily public housing play area will be determined using the size of the play area and whether it is located in Zone 1 where arsenic may be found greater than 100 ppm or in Zones 2 and 3 where arsenic levels are predicted to be between 20 and 100 ppm (see Table 1 below and Figure 3 for map zones).

Table 1: Number of sample locations per play area for characterization.

Sampling area size	Residential, parks, commercial	
	Samples needed	
Acres	Zone 1 arsenic >100 ppm	Zones -2 and 3 arsenic < 100 ppm
0.25*	10	8
1	20	16
5	40	32
10	60	48
20	80	64
100	120	90
>100	120 + 1 per 5 acres	90 + 1 per 5 acres

\*0.25 acres ~ 11,000 square feet

Parks and camps with previous sampling data will have old boring locations and new boring locations placed on the same aerial photograph so that all data points can be evaluated together.

### Evaluation of Results

Sample results will be reported by the laboratories directly to the local health department or Ecology’s contractor. Results will be tracked by the local health department or Ecology’s contractor and once compiled uploaded into EIM. The local health department or Ecology’s contractor will evaluate the results for each play area, calculating an average and maximum concentration of arsenic and lead. As described in Section 2.2.8 of the program design, the criteria for determining whether a play area requires soil safety actions are:

- Average arsenic >20ppm or maximum arsenic >40ppm; or
- Average lead >250ppm or maximum lead >500ppm.

### Property Owner/Operator Notification

The notification of results will follow the same procedures outlined in Section 2.2.9 of the Soil Safety Program Design.



## **Soil Safety Action Plan**

Facilities with play areas with sampling results above criteria (see Evaluation of Results) will be encouraged to implement a Soil Safety Action Plan. Ecology and the local health department will work with the facility's management to identify an appropriate Soil Safety Action Plan. Ecology will assist with the implementation of the action plan, including financial assistance. If contamination is found in the play areas, signs will be provided, for the surrounding areas, to the parks departments or camps to raise public awareness of the existing contamination and safety measures that can be followed.

## **Funding Strategy**

Ecology will fund Soil Safety Action Plans requiring construction. This may include direct funding through an interagency agreement with park departments or housing authorities, or public works contracts to implement Soil Safety Action plans at public parks, camps or multifamily public housing residences. Funding for the construction will come from the Asarco Settlement Account.

## **Soil Safety Action Plan Certification**

Upon request, Ecology will provide park districts, camps, and public housing authorities with a certificate of participation showing that Soil Safety Actions were completed. They will all receive documentation of the work that Ecology completed and recommendations for maintaining any cap materials such as wood chips. Also upon request, Ecology will provide signs for parks with areas that are not sampled or remediated (outside of play areas). Signage will warn park users of the possibility of contamination and describe healthy actions to reduce potential for exposure to arsenic and lead.

## **Data Tracking**

Data tracking will follow the same schema as outlined in section 2.2.11 of the Soil Safety Program Design.

Ecology will add public parks, camps and multifamily public housing to the Soil Safety Tracking Database (SSTS). This will enable the program to track sampling progress, results and soil safety actions. Once the parks have been added to the SSTS, the old data from the previous park sampling events will be uploaded to the database. New data will be uploaded to EIM by the local health departments or Ecology's contractor and then imported in the SSTS. Uploads to EIM will occur quarterly. The SSTS is on an automated system to update data from EIM once a week.

As specified in section 2.2.11, parks or camps will have four digit numbers from 8001 to 9999. The multifamily public housing will also have a four digit number from 8001 to 9999.

In the Sample ID, the only change will be the addition of the depth interval where 2 = 6 - 12" and 3 = 12 - 18".

## **Reports to the Legislature**

Health departments will submit progress reports to Ecology by June 30 of each year that the Asarco Settlement Account is used for funding. Ecology will compile the information and submit progress reports to the Governor's Office and Legislature by October 31 of each year. Reports will include information on the use of the Asarco Settlement Account.

## Appendix A: Sample Property Access Agreement Form



### Soil Safety Program Property Access Agreement

Public Agency Name: \_\_\_\_\_  
Contact Person: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
E-mail Address: \_\_\_\_\_  
Phone Number: \_\_\_\_\_

Parks selected for sampling:

We would like a copy of the results from samples collected on the property(s).

The above-named agency is the authorized jurisdiction to oversee the property(s) identified herein, and hereby gives permission for representatives of the Washington State Department of Ecology to enter the property(s). The purpose of entry is only to take multiple soil samples for analyzing the soil to determine whether it contains deposits of arsenic and lead. The undersigned realizes that the data collected from the above property(s) are subject to requests for public disclosure.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
*Tacoma Smelter Plume Project*



## **Property Access Form for Soil Safety Action Plans**

Ecology may use something similar to the access agreement for the soil safety action plan shown in Appendix D of the Soil Safety Program Design Document. This agreement is a model and may change as needed to fit the needs of Ecology, public park district, camp or public housing authority. An interagency agreement may be used instead of the access agreement form in the case of a park district performing the work themselves.

## Additional Changes to the Design Document

### Appendix B – Quality Assurance Project Plan (QAPP)

<b>Page</b>	<b>Section Changed</b>
B-1	1.0 Introduction
B-2	2.0 Project Organization and Schedule
B-3	3.0 Sampling Procedures
B-3	3.1 Sample Numbering Scheme
B-4	3.2 Sample Containers
B-4	3.3 Locational Data
B-5	4.0 Analytical Procedures
B-6	5.0 Quality Objectives and Quality Control Procedures
B-11	5.4 Comparability
B-13	6.4 Laboratory Reporting
B-14	7.1 Sample Management
B-15	7.2 Management of Hard Copy Data
B-15	7.3 Electronic Data Management System
B-18	9.1 Project Staff Data Review
B-21	10.0 Corrective Action
Table 1	Quality Control Elements – Arsenic and Lead in Soils by SW846 Method 6010 or 6020
Attachment 1 King County QAPP Ecology's Implementation Plan	Laboratory Data Package Deliverables Added to Appendix B