



October 13, 2004

Ms. Victoria Sutton
Hazardous Waste Compliance Inspector
Department of Ecology
Northwest Regional Office
3190 160th Avenue Southeast
Bellevue, Washington 98008

Proposed Supplemental Waste
Characterization Sampling
Maralco Restoration Project
Kent, Washington
URS Job No. 33757294

Dear Ms. Sutton:

INTRODUCTION AND BACKGROUND

As we discussed during our meeting on October 6, 2004, approximately 20,000 cubic yards of black dross and 1,000 cubic yards of aluminum oxides are stockpiled on the former Maralco site (site) located in Kent, Washington. The black dross is a byproduct of the former aluminum smelting process that operated on the property and the aluminum oxides are a residual material resulting from onsite treatment of a small portion of the black dross stockpile. The dross was book-designated by the Washington State Department of Ecology (Ecology) in accordance with WAC 173-303-100 as a toxic dangerous waste based on the elevated concentrations of salt (sodium and potassium chloride) in the dross.

URS performed waste characterization sampling at the site in August 2000 (URS, 2000). A copy of the URS report that includes the results of this sampling and analysis was provided to you during our recent meeting. The dross samples were collected using a hand auger and were collected from depths of five feet or less with the exception of one sample collected from a depth of 9.5 feet. A part of this investigation, four composite samples (each made up of three discrete samples) and one discrete sample (the sample from a depth of 9.5 feet) were analyzed for leachable metals using the toxicity characteristics leaching procedure (TCLP) and for toxicity using a fish bioassay. None of the five samples analyzed exceeded the dangerous waste threshold based on TCLP testing and there was no mortality in any of the fish bioassays. These results indicate that the portions of the dross pile sampled should not be designated as a toxic dangerous waste.



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Based on our meeting with Ecology personnel on October 6, 2004, URS proposes the following methodology to perform supplemental sampling and analysis of the black dross and aluminum oxide materials to characterize the material for offsite disposal.

SAMPLING AND ANALYSES

The black dross and aluminum oxides are stockpiled at the site in a pile that is up to approximately 25 feet in thickness. The aluminum oxides are located at the north end of the pile. In order to collect representative samples of the material, URS will mobilize a subcontractor with a track-mounted excavator to excavate test pits throughout the material for observation and sampling. Based on the configuration of the pile and the locations of the previously collected samples, 17 test pits are proposed throughout the pile as shown on Figure 1. URS will collect samples at selected depth intervals throughout the test pits for laboratory analyses. Two samples will be collected at each test pit location. At locations where the stockpile is generally less than 10 feet thick, shallow and deep samples will be collected. In the thickest portion of the stockpile, samples will be collected from the middle and near the bottom of the pile, as previous sampling characterized the shallow materials. The discrete sample locations and approximate depths are summarized on Table 1. During the sampling activities, up to 10 discrete dross samples will be field screened for reactivity by wetting the dross material and monitoring for generation of ammonia using a Draeger tube sampler (or equivalent).

To evaluate the book designation as a Washington State toxic dangerous waste as suggested by Ecology, 34 discrete samples will be analyzed at an Ecology-accredited analytical laboratory for salt content (sodium and potassium by EPA Method 6010, and chloride by EPA Method 300.0). The sodium, potassium, and chloride concentrations will be compared to estimate the relative abundance of chloride salts in the dross and to evaluate the potential presence of other sodium or potassium salts (e.g. hydroxides). If the sum of sodium chloride and potassium chloride salt concentrations exceed 10 percent of the sample weight (100,000 mg/kg) in a sufficient number of samples that the t-value does not meet the 90% confidence limit, then the portions of the pile that are represented by the samples with more the 10 percent salt concentrations would still be a book designated dangerous waste unless the waste passes the additional tests recommended below.

To further evaluate waste characteristics and to fulfill Rabanco's waste acceptance criteria for disposal at the Roosevelt Regional Landfill in Klickitat County, dross and aluminum oxide samples from similar pile locations and depths will be composited and tested for hazardous waste characteristics (reactive cyanide and reactive sulfide, pH, flashpoint, TCLP metals, and toxicity by bioassay). The composite sample groupings and identifications are summarized on Table 2. URS has confirmed with Rabanco personnel that this analytical program (1 composite sample for approximately every 5,000 tons of



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waste for the above listed parameters) is sufficient for waste that has previously been book designated as a toxic dangerous waste.

The results of these analyses, in addition to those from a previous sampling event (URS, 2000), will be assessed in accordance with Washington State Dangerous Waste Regulations (WAC 173-303) and statistical guidance provided by Ecology to determine the proper designation of the waste.

Following completion of the sampling proposed above combined with the samples already collected and analyzed by URS in 2000, a total of 47 discrete samples will have been collected from the dross pile. This number of samples is approximately equivalent to the number of samples recommended by Ecology for a 21,000 cubic yard soil stockpile in *Guidance for Remediation of Petroleum Contaminated Soils*. Although the dross is not petroleum contaminated soil, we understand that this guidance is considered by Ecology to be applicable to the dross pile. We are not proposing to analyze the samples discretely, with the exception of the chloride, potassium and sodium analyses, because it is our opinion that a representative sample can be obtained by compositing. Specifically, WAC 173-303-040 defines a representative sample as "a sample which can be expected to exhibit the average properties of the samples source". Furthermore, according to EPA (1995), "composite samples reflect an 'average' concentration within the composite area, flow, or interval. Compositing is appropriate when determining the general characteristics or representativeness of certain sources (e.g., a waste pile or impoundment) when considering methods of treatment or disposal".



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Please let us know if this proposed sampling approach and analytical program is sufficient to characterize the dross pile. We would like to initiate the sampling next week. Please feel free to contact URS at (206) 438-2700 if you have any questions or comments.

Sincerely,
URS CORPORATION

Vance Atkins, L.H.G.
Project Hydrogeologist

James H. Flynn, L.H.G.
Senior Hydrogeologist

References:

URS, 2000. Black Dross Pile Characterization, Maralco Aluminum Site, Kent, Washington. August 31.

Ecology, 1995. Guidance for Remediation of Petroleum Contaminated Soils. Publication No. 91-30. November.

U.S. Environmental Protection Agency, 1995. Superfund Program Representative Sampling Guidance Volume 4: Waste. OSWER Directive 9360.4-14. EPA 540/R-95/141. December.

Attachments:

Figure 1 – Site Plan

Table 1- Supplemental Waste Characterization Sampling Locations

Table 2 - Supplemental Waste Characterization Composite Samples

Cc: Chuck Hinds, Ecology
Norm Peck, Ecology
Dale Frank, Dale Frank and Associates

Table 1
Supplemental Waste Characterization Discreet Sampling Locations
Maralco Restoration Project
Kent, Washington

Sample Location	Sample Designation	Approximate sample depth feet below surface)	Remarks
TP-1	TP-1-S	1-3'	Characterization of Aluminum Oxide pile
	TP-1-D	7-10'	
TP-2	TP-2-S	1-3'	Characterization of Aluminum Oxide pile
	TP-2-D	7-10'	
TP-3	TP-3-M	10-12'	Shallow depth characterized by HA-1
	TP-3-D	20-25'	
TP-4	TP-4-M	10-12'	Shallow depth characterized by HA-3
	TP-4-D	20-25'	
TP-5	TP-5-M	10-12'	
	TP-5-D	20-25'	
TP-6	TP-6-M	10-12'	Shallow depth characterized by HA-5
	TP-6-D	20-25'	
TP-7	TP-7-M	10-12'	Shallow depth characterized by HA-4
	TP-7-D	20-25'	
TP-8	TP-8-M	10-12'	
	TP-8-D	20-25'	
TP-9	TP-9-M	10-12'	
	TP-9-D	20-25'	
TP-10	TP-10-M	10-12'	Shallow depth characterized by HA-8
	TP-10-D	20-25'	
TP-11	TP-11-M	10-12'	Shallow depth characterized by HA-7
	TP-11-D	20-25'	
TP-12	TP-12-M	10-12'	
	TP-12-D	20-25'	
TP-13	TP-13-S	1-3'	Southwest pile characterization
	TP-13-D	6-8'	
TP-14	TP-14-S	1-3'	Southwest pile characterization
	TP-14-D	6-8'	
TP-15	TP-15-S	1-3'	Southwest pile characterization
	TP-15-D	6-8'	
TP-16	TP-16-S	1-3'	Southwest pile characterization
	TP-16-D	6-8'	
TP-17	TP-17-S	1-3'	Southwest pile characterization
	TP-17-D	6-8'	

Table 2
Supplemental Waste Characterization Composite Samples
Maralco Restoration Project
Kent, Washington

Composite Sample Designation	Composited Discrete Samples	Remarks
COMP-1	TP-1-S	Characterization of aluminum oxide pile
	TP-2-S	
	TP-1-D	
	TP-2-D	
COMP-2	TP-3-M	
	TP-4-M	
	TP-5-M	
	TP-6-M	
COMP-3	TP-7-M	
	TP-3-D	
	TP-4-D	
	TP-5-D	
COMP-4	TP-6-D	
	TP-7-D	
	TP-8-M	
	TP-9-M	
COMP-5	TP-10-M	
	TP-11-M	
	TP-12-M	
	TP-8-D	
COMP-6	TP-9-D	
	TP-10-D	
	TP-11-D	
	TP-12-D	
COMP-7	TP-13-S	Southwest pile characterization
	TP-14-S	
	TP-15-S	
	TP-16-S	
COMP-7	TP-17-S	
	TP-13-D	Southwest pile characterization
	TP-14-D	
	TP-15-D	
COMP-7	TP-16-D	
	TP-17-D	

Analyses notes:
All discrete samples will be analyzed for sodium, potassium, and chloride
Composite samples will be analyzed for dangerous waste characterization analyses
(pH, flash point, total cyanide and sulfide, TCLP metals, and toxicity)

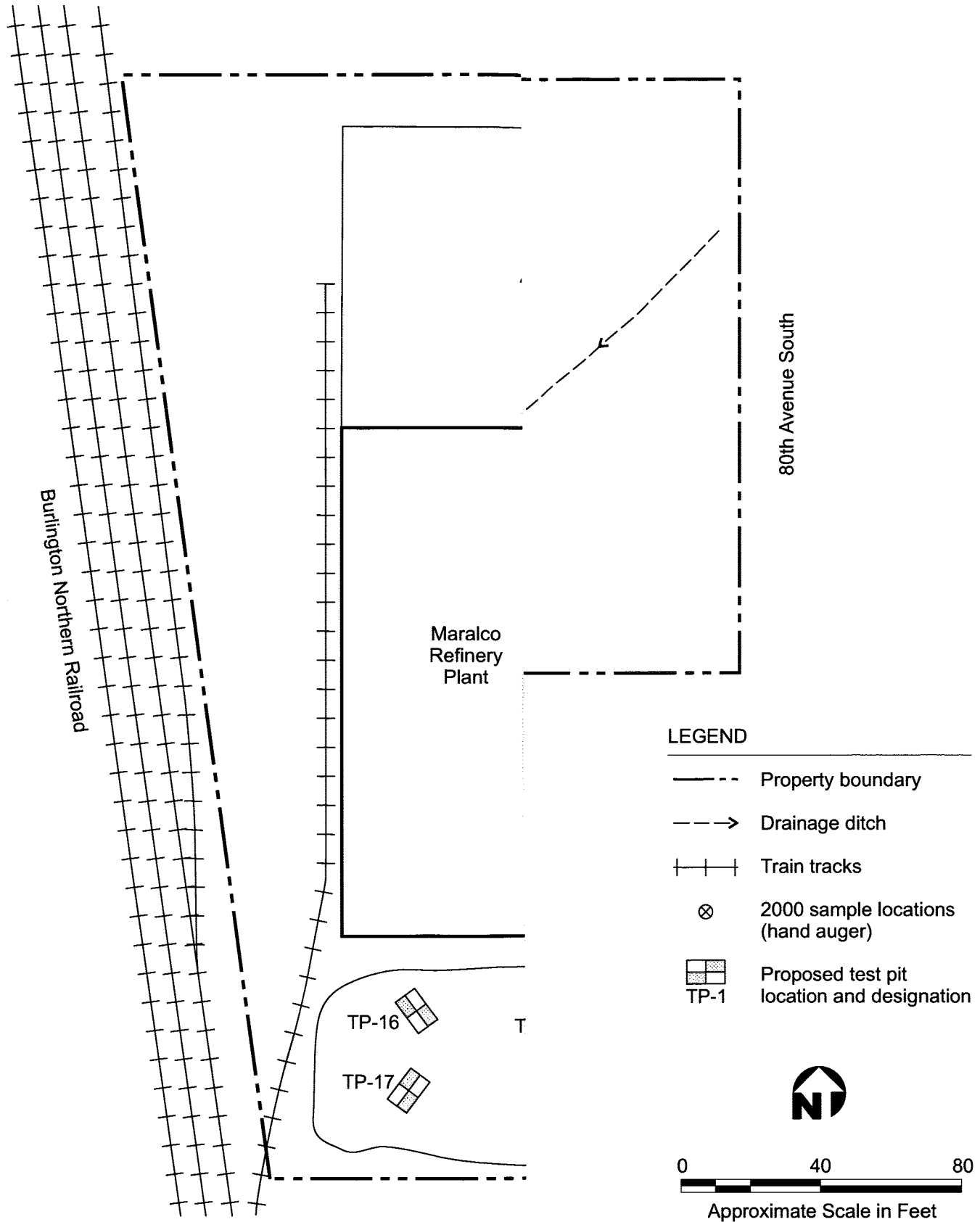


Figure 1
Site Plan