

# ASARCO

Thomas L. Aldrich  
Site Manager  
Tacoma Plant

April 17, 1992

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1200 Sixth Avenue, HW-113  
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Re: Comments on Ruston/North Tacoma Risk Assessment,  
Decision Memorandum, Remedial Investigation and  
Feasibility Study.

Dear Ms. Voytilla:

ASARCO Incorporated ("Asarco") submits these comments in response to the following documents prepared by EPA and its contractors for the "Asarco Off-Property - Operable Unit 04" of the Commencement Bay Nearshore/Tideflats Superfund Site ("the study area"): the Baseline Risk Assessment; Preliminary Remedial Action Objectives Decision Memorandum; Remedial Investigation Report; and Feasibility Study Report. (This group of documents are referred to in these comments as the "EPA RI/RA/FS").

This letter and the enclosed accompanying exhibits are for inclusion in the administrative record for this operable unit. Asarco intends to rely on this response and on any other relevant materials in the administrative record for the Commencement Bay Superfund Site in support of its position in any action concerning remedial action in the study area. Asarco believes that the comments and accompanying exhibits it submitted on May 27, 1988 with regard to the Ruston Expedited Response Action are equally relevant to the EPA RI/RA/FS, and requests the agency to consider them specifically in connection with further actions at this operable unit.

1. General Comments

In general, the data and related analysis contained in the EPA RI/RA/FS do not support widespread remedial action throughout the study area, and in particular do not justify the use of engineering technologies. Taken as a whole, the data show that existing conditions present fewer risks to the community than those that would be created by extensive excavation and removal of residential soils.

The Baseline Risk Assessment is overly conservative and greatly overestimates risks to public health and the environment as a result of the combination of multiple conservative assumptions which were used. These overly conservative theoretical risks are then used by the agency to discount the numerous epidemiological studies conducted at this site so that remedial action can be justified using insupportably low action levels.

The Remedial Investigation Report presents data from the field work in a manner that overstates the impacts that were actually found. None of the engineering alternatives presented in the Feasibility Study meet the requirements for remedial action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or the Washington Model Toxics Control Act (MTCA). Extensive excavation and removal alternatives do not meet CERCLA's requirements for cost effective action that is acceptable to the community. These same alternatives do not meet MTCA's mandate for "practicable" cleanup actions because the incremental costs of the engineering alternatives are substantial and disproportionate to the incremental increase in degree of protection to the Ruston/North Tacoma communities.

In summary, the record compiled by EPA shows that the site does not currently present an unacceptable risk to human health or the environment. Although a community education program may be useful for residents to achieve closure on these issues, extensive remedial action is not warranted or supported by statutory authority.

2. Specific Comments

a. Baseline Risk Assessment/Decision Memorandum

Further remedial action in the Ruston/North Tacoma study area is not necessary to prevent, minimize or mitigate threats to the public health or welfare. None of the studies, reports and documents relied upon by EPA demonstrate that conditions in the



study area exert an adverse effect, or present a threat, to public health or welfare. The documents attached to this comment letter further indicate that no threat is presented. That no threat exists is also documented by the uncontroverted fact that none of the numerous public health studies conducted at this site have found adverse public health effects from the smelter, even when the smelter was in operation.

The Tacoma smelter operated from 1890 until 1985. During much of this time some arsenic was emitted from the smelter. From as early as 1904, however, the installation of various pollution control devices minimized the amount of arsenic actually emitted from the facility. As the Baseline Risk Assessment notes, closure of the smelter further resulted in a rapid and substantial<sup>1</sup> decrease in remaining ambient air concentrations of arsenic. In addition, after closure of the smelter Asarco completed remediation of selected properties judged by EPA to be of high priority in the Ruston Expedited Response Action, reducing community exposure even further.

There is no evidence of any adverse health effects in Ruston or North Tacoma which arose during the many years the smelter was operating and arsenic was emitted. Every epidemiological study which has examined the potential effects of the Tacoma smelter on the community has concluded that there is no evidence of adverse health effects. Dr. Sam Milham, then Head of the Epidemiology Section of the Washington State Department of Social and Health Services, who studied the Ruston/North Tacoma population for over a decade, concluded when the smelter was still in operation that there was a failure "to delineate any adverse health effects due to arsenic in the community around the ASARCO Tacoma smelter . . ." and that "there is no evidence that residential exposure near arsenic emitters causes either lung cancer or other significant morbidity in the exposed populations." See Appendix to ASARCO Incorporated's Response to Special Notice Regarding EPA's Proposed Ruston expedited Response Action document no. 12

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<sup>1</sup> Ambient arsenic concentrations declined 80 - 90% at the time of smelter closure, and continued to decline until 1989. The most recent values are about 60% lower than those used in the 1988 Endangerment Assessment. Baseline Risk Assessment, p. B-14. The Risk Assessment contains no current air data from the study area, but notes that current average arsenic concentrations on the smelter property itself are "only" about 3 to 6 times the assumed, conservative, background value. Baseline Risk Assessment, p. 4-17. It is anticipated that remediation of the smelter site will virtually eliminate the remaining source of arsenic to the area ambient air.

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at p. 3 and document no. 13 at p. 6. Since that time, numerous other health studies have been conducted around the country which support the finding of no adverse health effects. See discussions in Environmental Toxicology International ("ETI"), Comparative Evaluation of Health Risks and Cleanup Levels for the Ruston/North Tacoma Study Area (November 1991), Exhibit A.

The Baseline Risk Assessment and Decision Memorandum go to great lengths to eliminate these studies from further consideration. EPA attempts to reason that the consistently negative results in the epidemiological studies of the study area are not valid in evaluating risk to the public because of the relatively small size of the population in the study area. This is an approach that is not scientifically justified. Regardless of how large an epidemiological study is, there will always be a range of small excess risks which cannot be ruled out as unlikely. See April 1, 1991 [sic] letter from Frost to Tsuji, Exhibit B. However, Superfund is concerned about the higher range of risk estimates, and well designed epidemiological studies are useful in evaluating high-end risks. In this case, the substantial data available make it clear that the range of risks presented by the Baseline Risk Assessment are conservative to an unacceptable extreme. See letter dated April 15, 1992 from Tsuji to Aldrich, Exhibit C.

In order to take action under CERCLA and the National Contingency Plan, EPA must find an unacceptable threat to human health and the environment. Based on the proper application of its own guidelines for assessing risk, the agency cannot make such a finding for this site. ETI performed a risk assessment for the study area following EPA guidelines, and concluded that no further remediation is necessary for protection of public health. See ETI, comparative Evaluation of Health Risks and Cleanup Levels for the Ruston/North Tacoma Study Area (November 1991), Exhibit A.

EPA, on the other hand, combined multiple conservative assumptions in the Baseline Risk Assessment so that the document impermissibly overstates the theoretical risks to the community. The analysis of risks from exposure to slag in the document is unrealistic. As documented in the Comparative Risk Assessment prepared by ETI (Exhibit A), the risks resulting from slag exposure are likely to be minimal under the present environmental conditions in the community.

Similarly, arsenic risks estimated in the EPA study are only possible for a resident who lives at the 95th percentile soil concentration from birth to age 30, rarely leaves the area, and ingests soil and dust year-round regardless of season at the



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upper-bound soil ingestion rate throughout their life. This person also has an upper-bound absorption rate of arsenic and is among the minority of people that are unable to detoxify arsenic readily. See letter dated April 15, 1992 from Tsuji to Aldrich, Exhibit C. This person simply does not exist.

EPA then applies the already conservative assumptions in the Baseline Risk Assessment in a very conservative fashion in order to arrive at its "action level." The action level is used as the maximum concentration that is allowed to remain after remediation, an approach that is inconsistent with EPA guidelines. See letter dated April 15, 1992 from Tsuji to Aldrich, Exhibit D. In short, EPA has ignored real world public health data in favor of theoretical risks applied in a manner that preordains the "necessity" for remedial action.

At the same time, EPA has not analyzed the health risks posed by the remedial alternatives, especially those alternatives involving engineering technologies. Such an analysis by EPA is critical for the community and decisionmakers, and is required by CERCLA. Section 121(b)(1)(G) directs EPA, in assessing alternative remedial actions, to consider "the potential threat to human health and the environment associated with excavation, transportation, and redisposal, or containment." EPA has failed to perform and consider such an analysis for this site. Such an analysis should consider health impacts due to movement of soil and slag during remediation, along with risks to workers and transportation risks.

Health experts from the Fred Hutchinson Cancer Research Center, the Lovelace Medical Foundation, and the Washington State Department of Health compared the risk of injury and death resulting from removal of contaminated soil to the continuing risk of disease due to area soils if left in place. Mar, Frost & Tollestrup, "Injury from Hazardous Waste Remediation: ASARCO Copper Smelter, Ruston, Washington", Exhibit E. In the words of Dr. Floyd Frost, one of the reviewers, these experts concluded:

An issue not included in the risk assessment document is the health risk from intervention itself. These become especially important when the primary health concerns from the environmental contamination have a high degree of uncertainty and, in the case of skin cancer, a small effect on the health and welfare of the exposed population. We have done some calculations on the risks associated with transporting large amounts of contaminated soil to the hazardous waste

facility in Arlington. Depending on the amount of soil transported, the risk of a transportation related injury or death is significant. Unlike the skin cancer risk estimates in the range of cases per million population exposed for at least 30 years, the high range transportation risks can be expected to result in numerous disabling injuries and possibly a death.

Letter dated April 1, 1991 [sic] from Frost to Tsuji, Exhibit B. Given the ongoing debate at this site about the need for remedial action, it is imperative that an objective, detailed analysis of the relative risks of remediation be prepared and presented to decisionmakers and the public. Such an analysis would allow EPA to conclude, while complying fully with its statutory mandate, that no further action should be taken at this site.

Finally, EPA has failed to consider community opinion adequately. Community support for a remedial action is to be considered by the agency in selecting an alternative. CERCLA Section 121(b)(2). In this case, the Decision Memorandum states at page 17 that "on balance the affected community does not support establishing a remediation goal at the more stringent end of the acceptable risk range." In fact, a majority of residents in the community have long been opposed to any remediation involving excavation of residential properties. For example, in a telephone poll of area residents conducted by Elway Research on February 27-29, 1992, 68% of the residents were opposed to any remediation of their yards involving excavation. See April 14, 1992 Memorandum from Maxwell-Muir and Jarman to Aldrich, Exhibit F. As a modifying criteria, public opposition to excavation allows EPA to select a less intrusive alternative, particularly when, as in this situation, the excavation alternatives are not cost-effective under CERCLA or practicable under MTCA. Similarly, the degree to which community concerns are addressed by a cleanup action is to be considered in remedy selection under MTCA. WAC 173-304-360(5)(d)(vii).

b. Remedial Investigation Report

The presentation of the results of the remedial investigation in the Remedial Investigation Report ("RI") is misleading in two significant respects: First, it suggests more severe impacts due to arsenic than were actually found. Second, it suggests that all elevated lead levels in soils within the study are the result of smelter emissions rather than other urban sources.



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The Executive Summary is particularly misleading and should be rewritten to present objectively the results of the investigation. For example, the following crucial statement is found on page E-2:

Levels of arsenic and lead in Ruston and northern Tacoma were found to be much greater than background levels: maximum measured concentrations from the combined RI and FIR data sets in study area soils were up to 3,000 mg/kg for arsenic and up to 2,700 mg/kg for lead as compared with local and urban background levels of 20 mg/kg and 250 mg/kg, respectively.

This statement suggests more significant impacts to the Ruston and Tacoma communities than were actually measured. The average arsenic and lead concentrations were considerably lower than the highest values cited in the Executive Summary. The geometric means for both arsenic and lead concentrations in the study area soils are below the action levels (230 mg/kg and 500 mg/kg, respectively) proposed by the RI. Although higher values were measured, typical arsenic and lead concentrations are considerably lower than implied by the Executive Summary. Based on results presented in the RI, about 25 percent of the study area had arsenic concentrations above 230 mg/kg; about 710 acres of the 950 acre study area were below this proposed arsenic concentration action level. See Hydrometrics Comments, Exhibit G.

The remedial investigation report identifies areas with lead concentrations over 500 ppm, and concludes that such concentrations are a result of smelter operations. In fact, it is very possible that some, if not most, of these elevated values are the result of other urban sources. Elevated lead concentrations in urban areas can be caused by other sources such as leaded gasoline and lead-based paint. The RI cites significant correlations between lead and arsenic concentrations, but these values do not correlate with the arsenic data. Consequently, it is far from clear that the isolated lead concentration values found within the study area are a result of smelter operations. See Hydrometrics Comments, Exhibit G. This issue is particularly important in the approximately 41 acres targeted for remediation with soil lead concentrations greater than 500 ppm but with arsenic concentrations less than 230 ppm. These areas are not proper targets for remediation efforts aimed at rectifying smelter impacts.

Detailed comments on the RI are set forth in Hydrometrics Comments, Exhibit G, and Kennedy/Jenks Consultants Comments, Exhibit H.

c. Feasibility Study Report

The Feasibility Study Report ("FS") considers an acceptable range of alternatives for remediation, but does not evaluate those alternatives in a manner that is consistent with the National Contingency Plan. In particular, the FS improperly fails to include enough detail for an alternative relying exclusively on institutional controls (Alternative 2), thus making it virtually impossible for a decisionmaker to consider such an alternative seriously. In addition, the FS does not provide the comparative analyses required by CERCLA and MTCA so that decisionmakers have adequate information before them in selecting a remedy. The analysis which is lacking includes quantification of residual risks, the health risks posed by excavation and transportation of soil and slag, and consideration of whether the incremental costs of Alternatives 3, 4, 5, and 6 are substantial and disproportionate to the incremental degree of protection they would achieve.

As discussed above, this is not a site where epidemiological studies combined with risk assessment make a compelling case for remedial action. Instead, the case for remedial action is marginal at best, making the comparative analysis and evaluation of alternatives called for by the National Contingency Plan especially significant. The FS is deficient in several critical respects in its analysis of alternatives.

The FS does not compare the short term risks associated with the excavation alternatives (Alternatives 3, 4, 5, and 6). These risks should be quantified and compared to the benefits of the excavation alternatives, as required by section 121 of CERCLA. The National Contingency Plan calls for such an assessment to include (1) short term risks to the community; (2) potential impacts on workers during implementation; (3) potential environmental impacts during implementation; and (4) time until protection is achieved. 40 C.F.R § 300.430(e)(9)(iii)(E). To adequately evaluate the alternatives, an estimate of the risks should have been quantified so that a comparison could be made with the long-term risks associated with Alternatives 1 and 2. It is conceivable if not probable that the short term risks of the excavation alternatives outweigh the risk posed by site contamination, given the transportation elements involved, the large amounts of soil to be handled, and the lengthy time for completion. See Kennedy/Jenks Consultants Comments, Exhibit H;



of protection it would achieve over a lower preference cleanup action. When selecting from among two or more cleanup action alternatives which have an equivalent level of preference. . . , preference may be given to the least cost alternative.

Such an analysis must be presented in the FS, and considered by EPA as part of its analysis of compliance with ARARs.

Table 4.2 in the FS should be clarified to reflect MTCA's directives concerning remedial actions. Contrary to Table 4.2, there is no MTCA requirement which specifically dictates that engineering controls are required for soil arsenic concentrations greater than 230 ppm and lead concentrations greater than 500 ppm. The actual degree of cleanup at a site may vary from the numbers provided in WAC 173-340-740, depending on the cleanup alternative. The alternative must include engineering controls "to the maximum extent practical"; however, MTCA does not identify particular levels at which engineering controls must be used.

Additional detailed comments on the FS are set forth in Kennedy/Jenks Consultants Comments, Exhibit H, and Hydrometrics Comments, Exhibit G.

### 3. Further Development of Remedial Alternatives

Based on the factors set forth above, EPA should reconsider the six remedial alternatives presented in the FS. This re-examination should include the development of new alternatives that more appropriately address site conditions and are more practicable.

Alternative 3 should be refined to reflect more realistic assumptions for the study area. For example, the FS assumes that all residences required a new sod cap to reduce exposure to lead and arsenic in surface soil. However, most residences already have a well-established sod cover, making an assumption that only 10% of the residences require sodding more realistic. The FS also assumes that 50% of the area has soil conditions too poor to support sod. This is not consistent with actual conditions, which do not indicate widespread areas with poor soils.

There should not be long-term operation and maintenance costs for sod caps; rather, these costs should be the responsibility of the property owner and in fact will be taken care of as part of normal residential activities. Finally, unpaved parking lots and alleys should be capped with gravel

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letter dated April 1, 1991 [sic] from Frost to Tsuji, Exhibit B; and Mar, Frost and Tollestrup, Exhibit E.

Residual risks associated with the implementation of each alternative should be quantified as required by the National Contingency Plan. See 40 C.F.R. § 300.430(e)(9)(iii)(A) and (C)(1). The FS assumes that Alternatives 2 and 3 are less protective than Alternatives 4, 5, and 6; however, the level of protection offered by Alternatives 2 and 3 may be sufficient to address the site. See Kennedy/Jenks Consultants Comments, Exhibit H. In addition, the time frames for Alternatives 3, 4, 5 and 6 are extremely lengthy (7 to 12 years), and do not comply with MTCA's requirements<sup>2</sup> for a reasonable remedial remediation time frame. WAC 173-304-360(3)(b).

The FS does not provide the type of cost/benefit analysis required by both CERCLA and MTCA for use in remedy selection. The National Contingency Plan states at 40 C.F.R. § 300.430(e)(7)(iii):

Costs that are grossly excessive compared to the overall effectiveness of alternatives may be considered as one of several factors used to eliminate alternatives. Alternatives providing effectiveness and implementability similar to that of another alternative by employing a similar method of treatment or engineering control, but at a greater cost, may be eliminated.

As the comments prepared by Kennedy/Jenks Consultants demonstrate, the FS underestimates the already substantial incremental costs of the excavation alternatives. Consequently, these alternatives should be re-evaluated and considered for elimination.

MCTA is identified as an ARAR in the FS. However, the FS does not properly consider the factors listed in WAC 173-340-360 for selection of cleanup actions. This regulation outlines the criteria to be used in determining whether a cleanup action is "practicable", and specifically directs an inquiry into relative costs and benefits of alternatives. WAC 173-304-360(5)(d)(vi) states:

Cleanup costs. A cleanup action shall not be considered practicable if the incremental cost of the cleanup action is substantial and disproportionate to the incremental degree

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<sup>2</sup> In this case, the length of time to remediation also plays an important part in community acceptance.



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instead of asphalt as proposed by EPA, and should be maintained by the local government.

Alternative 4 should similarly be re-evaluated. An alternative should be developed that consists of six inch soil removal in areas with surface arsenic and lead concentrations exceeding action levels and 6 inch soil arsenic and lead concentrations under action levels. Areas with both surface and 6 inch soil concentrations in excess of action levels would be excavated. Slag would not be removed except as incidental to soil removal. However, the 41 acre area identified in the RI/FS with soil lead concentrations greater than 500 ppm but with arsenic concentrations less than 230 ppm would not be excavated. Lead and arsenic concentrations do not correlate in this area and lead concentrations are well within the range of the background data set.

These modifications to Alternatives 3 and 4 would be as protective as human health as the alternatives in the FS but would be more likely to satisfy CERCLA and MTCA requirements for cost-effective and practicable remedial actions.

#### 4. Conclusion

Thank you for this opportunity to comment on the EPA RI/RA/FS. Asarco urges EPA to consider carefully the relative risks posed by the current situation in the study area and those posed by remediation using engineering technologies. Such an analysis will demonstrate that further engineering actions at this operable unit are not needed.

Very truly yours,

*Thomas L. Aldrich*  
*by [signature]*

Thomas L. Aldrich  
Site Manager

Enc.

cc: GW Anderson  
WO Hart  
C Dungey  
MR Thorp  
LR Larson