

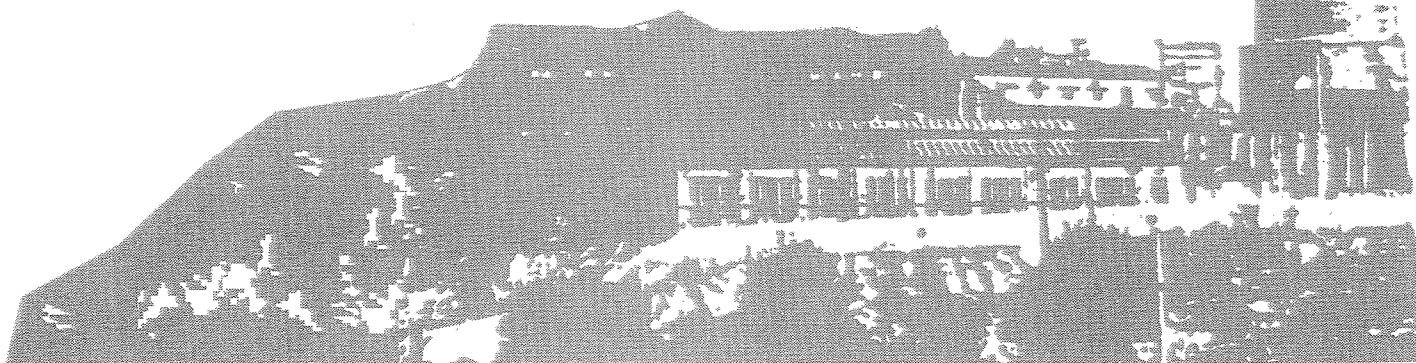
ARSENIC AND AN OLD SMELTER

Asarco Site
Cleanup Study



City Club of Tacoma

AUGUST 1990





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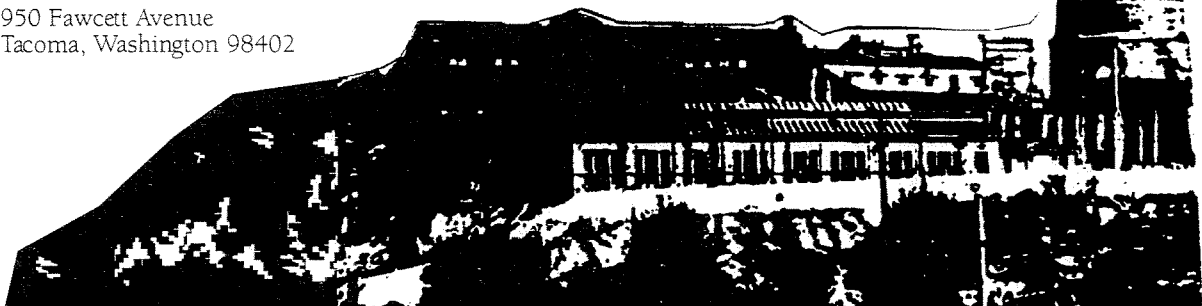
One of a series of
City Club of Tacoma research
reports on important
community issues

AUGUST, 1990



City Club of Tacoma

Room 201
950 Fawcett Avenue
Tacoma, Washington 98402



Committee Transmittal

It is our privilege to transmit to the membership of the City Club of Tacoma the final report of our Asarco site cleanup study.

For more than a year, the seven of us studied the Asarco site, interviewing involved officials and concerned citizens and examining the many official documents that have accumulated since the cleanup of the Asarco site became an issue.

We were gratified by the membership response to the "discussion paper" which we presented at a dinner meeting on December 6, 1989 (Appendix B). The membership also was able to hear from representatives of Asarco and the Environmental Protection Agency. Until that date, Asarco had been reluctant to discuss publicly the issues being examined. Attention to the issues since has served to stimulate and widen public discussion.

Our original charge was to come up with crystal-ball suggestions for future development of the Asarco site between Ruston Way and Point Defiance. Uncontaminated, that property would rate as a superb location for public and private development. We determined, however, that planning for this site would depend on resolution of the severe arsenic contamination problem, a product of the 100-year history of the smelter (Appendices A and C). Hence, the main thrust of our report is on the cleanup question.

We have come up with two scenarios—one of *minimum cleanup* of the site's toxic contaminants, a solution which we do not favor because it would effectively block any realistic constructive use of the area, and one of *optimum cleanup*, which we favor because it would open the way to imaginative uses of this remarkable property. We note that Asarco, which has primary cleanup responsibility, does not accept either alternative (Appendix D).

We supported *optimum cleanup* in the draft discussion paper. With the benefit of public discussion at the December meeting and since, we affirm that conclusion in this final report. It is clear that the public strongly favors a cleanup process to make possible creative use of the Asarco site (Appendix E). Recognizing that the cleanup proposed will be costly, we offer a financing concept to share these still-undetermined costs. We also call for a solution to the liability problem which otherwise could greatly complicate any cleanup plan.

We hope this report will serve to stimulate and inform the continuing public discussion about the cleanup question and the future of the site. Such further discussion is essential if this community is to achieve an appropriate successful resolution of this complex matter.

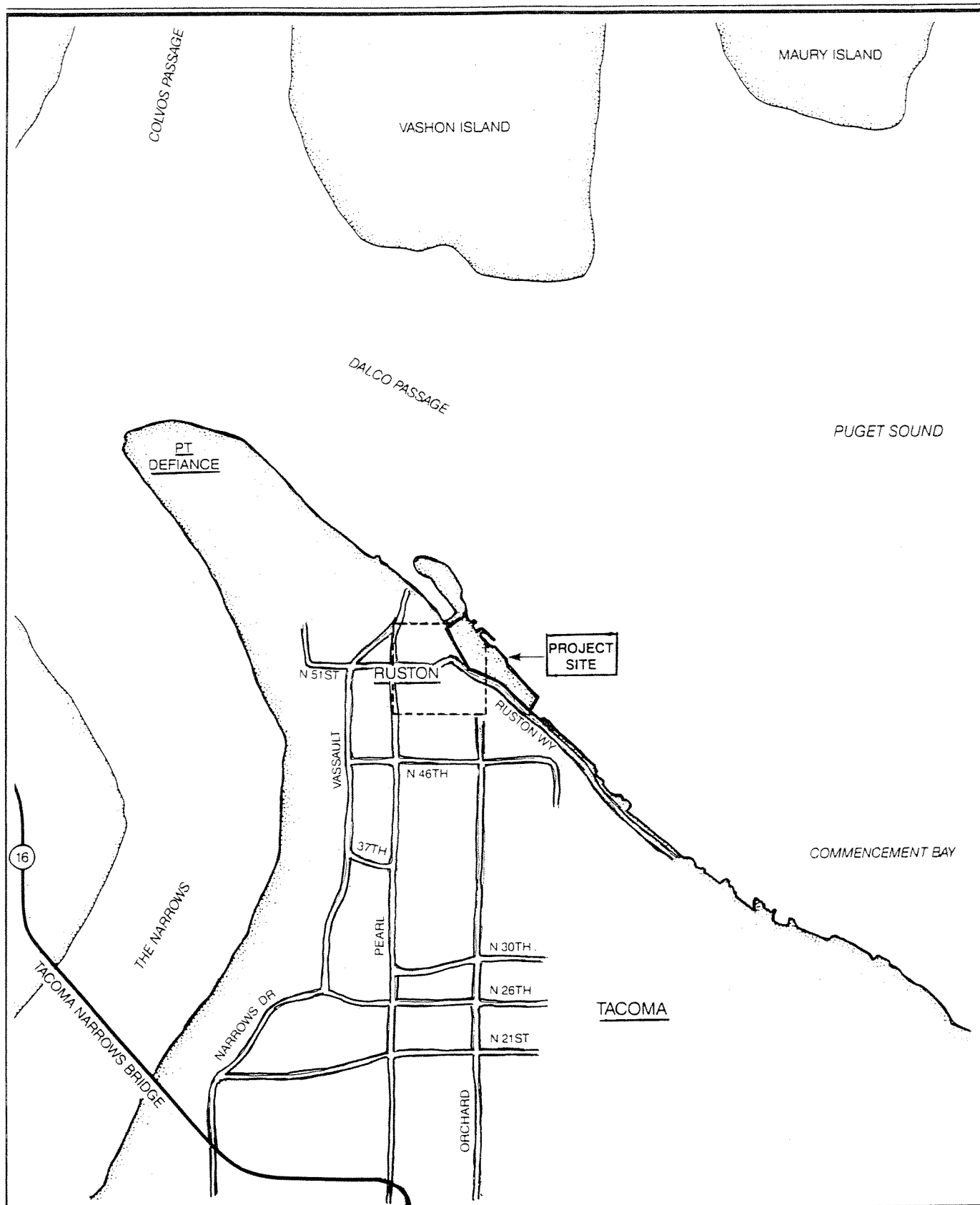
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I. Two Scenarios

The extent of cleanup required by the Environmental Protection Agency (EPA) at the 100 year old Asarco site will determine what uses will be made at this unusual location. This is extremely important to tens of thousands of residents of Pierce County. The site lies partly in the Town of Ruston and partly in the City of Tacoma on the shoreline of Puget Sound in close proximity to The Narrows and Commencement Bay (see map, page iv). Ruston's economic condition and the environment, beauty, and economic development potential of the entire Commencement Bay area directly relate to the future of this site.

The reputation and image of Tacoma and Pierce County may depend on what happens to the Asarco site. The potential for tourism, recreation, and outdoor enjoyment along the waterfront is at stake. Moreover, the health and welfare of future generations in this area will significantly be affected by federal decisions about cleanup.

This report presents two scenarios for what could happen to the site, a "minimum cleanup," which the study committee does not recommend, and the committee's preferred "optimum cleanup." We hope the report moves members of City Club of Tacoma to become involved in the public discussion. Public interest and concern, we believe, can influence the outcome.

Minimum Cleanup

Bare, oily earth sits surrounded by a high chain-link fence. The smokestack is gone, but storage facilities remain to house contaminated soils moved from other parts of the site. Bricks from the stack, along with other contaminants, fill natural and man-made depressions in the surface. A gigantic piece of plastic covers the spot where the collection pond was.

Outside the fence are a profusion of horsetails, scrub brush, litter, and household junk. The most hazardous areas are fenced, and the gate is locked. Surrounding houses are falling down, and no commercial or industrial buildings exist; who wants to live or work near a national hazardous waste storage site?

To the east lie the linear park along Ruston Way and the City of Tacoma. On the west is Point Defiance Park. To the north are the waters of Commencement Bay, and to the south are residential areas of the Town of Ruston and the City of Tacoma. Toxic wastes sit permanently in the middle of the second-largest metropolitan area in the state. Despite high population density and constant use of adjacent land, the site remains a highly visible malignant mole on the face of an otherwise beautiful area. The toxicity is permanent; it will never go away.

High costs meant minimum cleanup. Rather, the Asarco site provides permanent storage for arsenic, heavy metals, and other contaminated wastes generated by the smelter. In this scenario the site can never again safely be used. This was the easiest "solution;" it limited liability and uncertainty and gave Asarco as much control as possible. The company which in the past did a great deal for the economic well-being of the area will forever be the community's villain.

Optimum Cleanup

Grass and trees frame pedestrian and bike paths from Ruston Way to Point Defiance. The site contains well-paved and well-maintained parking lots, a trolley terminal, attractive buildings containing light, clean industries and shops which generate jobs for area residents and taxes for Ruston and Tacoma, a new boat ramp with lots of parking for boat trailers, and new single and multiple-family dwellings along the upper reaches of the site. A good road—without a dangerous tunnel—connects downtown and Point Defiance. Surrounding neighborhoods no longer have views of ugly, decaying industrial buildings.

No, the site isn't totally clean. That probably isn't possible. However, Asarco, the EPA, the City of Tacoma and the Town of Ruston have worked together to see that the site was cleaned, with all toxic materials treated and taken to a nonpopulous area. Site development took remaining hazards into account. Parking lots were situated on the most hazardous locations, with toxic soil areas capped and paved.

This was a more difficult solution, but it was carefully executed to mitigate liability and uncertainty for Asarco. The company is a good neighbor now. In this scenario, the site can be used safely and productively.

The Asarco Site Study Committee favors “optimum cleanup.” Advocates of a “minimum cleanup” may prevail, however, without a strong expression of community sentiment against it. Only a cooperative effort like the one which achieved the Puyallup land claims settlement can assure optimal use of the site. We urge local citizens to get involved to make that happen.

II. Health Concerns

Lead smelting operations began on the Asarco site in 1890 under Tacoma Smelter Company ownership. Asarco, Inc., purchased the site in 1905, shortly after copper production had begun, and discontinued lead smelting in 1911. Asarco continued to operate the facility as a copper smelter until March 24, 1985, when operations permanently ceased.¹ Smelting operations resulted in numerous by-products, including, but not limited to, arsenic trioxide and other poisonous heavy metals.²

According to an *EPA Administrative Order on Consent*, contamination on and around the Asarco site is evidenced by collected soil samples, groundwater samples from wells at the facility, and air monitoring through an ambient air monitoring system established in 1969. Transmission of contaminants beyond site boundaries may adversely affect human health and surrounding ecosystems.³ Surface water runoff may be transporting contaminants deposited on the ground into Puget Sound. Groundwater percolation may be leaching arsenic and heavy metals from contaminated soils down to the water table for transport to Puget Sound. In addition, contaminants are transported by fugitive dust emissions beyond site boundaries and may be deposited on plants, buildings and soils, and inhaled and ingested by humans and animals.⁴

(For more information on EPA proposed consent orders and related cleanup actions, see Appendix A, Cleanup Proposal Details.)

Other EPA determinations require Asarco to complete remedial investigation/feasibility studies to evaluate alternative ways to clean up both on-site and off-site contamination.⁵ Environmental assessments can generally be separated into five distinct categories, currently viewed by the EPA as (1) off-site publicly accessible properties, (2) off-site private properties, (3) nearshore contamination, (4) building demolition and removal, and (5) on-site remediation. The two off-site categories, (1) and (2), are outside the scope of this study, but the other three categories are extremely relevant.

Nearshore contamination (3) relates to the Ruston/Point Defiance shoreline of the EPA's Commencement Bay Nearshore/Tideflats Superfund Action. This shoreline is ranked as a high priority for remedial work under that Action Plan. Surface sediment contaminant concentrations are high and the time needed for natural recovery is estimated at over 300 years. **The selected remedial action is to dredge contaminated sediments from the shoreline area and dispose of the most toxic materials in a landfill.**⁶ **The proposed placement includes establishing a permanent hazardous waste landfill within the Asarco site lying in both Ruston and Tacoma.** Projected timetable for completion is 1992.⁷

The on-site building demolition and removal plan (4) involves demolition and removal from the property of virtually all remaining facilities and structures, including the tall flue stack. Wood materials generated by the demolition process would either be incinerated on site (a potential hazard) or sent to an approved disposal site. All other materials, including concrete, bricks, steel, and asbestos, will be disposed of off site.⁸

Asarco sent the EPA a draft Remedial Investigation and Feasibility Study for on-site remediation (5) in July of 1989. Public access to and specifics of this study most critical to future use of the site have been unavailable until recently. (See *Morning News Tribune* article of May 23, 1990, on page 12.) Proper and complete remediation of contaminant levels is necessary before property use is possible. The EPA suggests requiring a 30-year monitoring period for air and water quality to insure that remediation measures are adequate to resolve contamination problems.⁹

The most controversial and disturbing proposal is for establishing an on-site permanent hazardous waste disposal dump. Keith Rose, EPA Project Manager for the Asarco site, reported to the City of Tacoma Environmental Commission on 8/28/89 that the on-site disposal dump was part of the Asarco remediation proposal. This proposed containment landfill would be within the boundaries of both the Town of Ruston and the City of Tacoma and would occupy approximately 10% of the Asarco property. It supposedly would be open only to placement of contaminated soils and debris from the Asarco site and off-site remedial work, but may be allowed to become the permanent repository for contaminants from nearshore Superfund cleanup sites as well. This hazardous waste dump site would remain forever inaccessible to the public, never available for development.¹⁰ It could continue the present environmental stigma and bad reputation surrounding the Asarco property and the adjoining municipalities. It would serve as a major deterrent to future development and use of the entire property.

In addition, liability questions surrounding future use of the Asarco property may effectively prevent development following cleanup. Despite deed restrictions on the use of the property which Asarco will agree to as a part of the Consent Orders, even if it sells the property, Asarco will continue to be responsible for monitoring and correcting any damage to the cap, or for any future identified contamination. Asarco can receive an indemnification from a potential purchaser, which would help protect it, but it would not be removed from possible lawsuits or EPA administrative action. Its legal exposure could continue for future health liabilities and for remaining contamination.

Following cleanup, questions regarding liability could be one of the largest remaining stumbling blocks to the use and development of the Asarco site. One view is that Asarco's only alternative may be to deny public access to avoid future liability.¹¹

Recommendations

For the past two decades, citizens have been warned continuously that the Asarco site is hazardous and toxic. After that kind of news media saturation, no amount of talk or evidence will easily change opinions. Assuring the surrounding communities that all of their medically identified health concerns will be resolved before development appears unlikely.

It is imperative that all affected parties, including local, state and national agencies, local municipalities and health organizations, and especially local citizens, become involved immediately in decisions regarding site cleanup. Feasibility plans as submitted, including the proposal for an on-site hazardous waste disposal site, are not yet agreed upon or final. Decisions regarding the extent of cleanup, placement or not of a dump site, and long-term responsibilities for the site, will determine the future possibilities of the Asarco property.

For this property to reach its full potential, all existing environmental concerns must be properly addressed. Overriding fears of health hazards and liability must be removed. There is no point in waiting for new technology. Technology already exists to clean the site well enough to be used as we propose. Careful planning and monitoring of subsequent use—with full understanding of the site's past—will make it safe for all concerned.

III. Public Policy and the Site

The *Pierce County Strategic Economic Development Plan*¹² issued by the Pierce County Office of Economic Development in December 1987 is the most comprehensive and recent public document relevant to our study. Emphasizing that quality of life is what will drive county economic development over the long haul, this study adopted by the Pierce County Council says that the overall aesthetic and natural environment is possibly the county's most important asset.¹³

Preserving quality of life is also endorsed by the Tacoma/Pierce County Economic Development Board¹⁴ and implicitly accepted by the Tacoma-Pierce County Chamber of Commerce.¹⁵ The county has pursued this issue¹⁶ with community encouragement by establishing an Air Quality Task Force. At state, federal, and local levels, concern over water quality is becoming an implicit part of local development programming.

All this suggests that future use of the Asarco site should be non-polluting and development should be in concert with the area's unique environmental aspects. In addition, Shoreline Management regulations strongly limit uses of this site to those compatible with public access, environmental protection, and shoreline enhancement.¹⁷ Water quality regulations will probably further restrict allowable activities.

A major policy document referring directly to the site is the *West End Plan* adopted by the Tacoma City Planning Commission in October, 1985.¹⁸ For the Defiance-Ruston area the plan says (p. 55):

This area's shoreline lies within the "S-6" Shoreline District wherein development is subject to the use regulations and permit procedures set forth in Tacoma's *Master Program for Shoreline Development*. In addition, the *Ruston Way Plan*, an element of the *Land Use Management Plan*, includes specific statements regarding the existing character and potential development on Waterview Street. The *Ruston Way Plan* "reaffirms the low intensity designation and further intends that the Waterview area be residential in character." The plan further states that single-family detached houses will remain predominant; however, duplexes, triplexes, townhouses, condominiums and small, garden court apartments may be possible.

Speaking directly to future use of the Asarco site, the plan says (p. 21): "With the announced closure of the smelting operation in 1985, it is important from a land use and compatibility standpoint that any commercial or industrial reuse of the site be accomplished in such a fashion as to be compatible with the growing residential neighborhoods in the immediate vicinity." The plan also suggests encouraging removal of buildings and that any future industrial use be severely restricted. The city clearly views the West End as residential, with commercial activities only as needed, in saying (p. 27): "It is the intent of this plan to preserve and enhance those amenities and thus maintain the positive image of the area for residential and commercial activities."

Preferred options for Defiance-Ruston area development are (p. 54):

- Strengthen single-family neighborhoods
- Support limited commercial and multiple-family use along Pearl Street
- Develop waterfront parks along Ruston Way
- Improve pedestrian access to Ruston Way.

Recommendations

Based on these documents then, there appears little need or public preference for the smelter site to remain industrial, although the Ruston Town Council has endorsed industrial use. Planning preferences seem to be just the opposite: Keep the Asarco area as low-density residential, open space, integrated park and pedestrian, and limited commercial; use the Port of Tacoma area, Fife, and Frederickson, together with existing industrially zoned and suitable sites, as preferred new industrial sites to meet identified long-range needs.

These objectives are consistent with public policy adopted by the Puget Sound Council of Governments, with the city's *Master Program for Shoreline Development*¹⁹ and its *Shoreline Trails Study*,²⁰ and with the City Club's waterfront report, *Dome to Defiance*.²¹

Establishing a task force as a mechanism for communication among the many government agencies involved in the site would be desirable. The EPA represents the Federal government; the Departments of Health, Ecology, and Transportation all represent the State of Washington, while the State's Shoreline Management Act is implemented through local ordinances. Community and economic development agencies in Tacoma and Pierce County are concerned, as is the Tacoma-Pierce County Health Department. The City of Tacoma and the Town of Ruston have authority to regulate, zone, and tax the portion of the site falling within each of their limits. The Metropolitan Park District is vitally interested in what happens to this property at the edge of its largest and most important facility, Point Defiance Park.

IV. Transportation and the Site

As a recent Chamber of Commerce study noted;²² Ruston Way traffic is already a problem. Ruston Way restaurants complain about inadequate parking, especially on weekends and on good summer days. Additional commercial development along Ruston Way would make this worse even if the Asarco site remains as is. If the site becomes more attractive, traffic using Ruston Way to get to the site, to move along the parklike areas of Ruston Way, or to reach the park or ferry dock, will become worse.

The Metropolitan Park District is already struggling with ways to move vehicular traffic into and out of the Park. Providing better access via Ruston Way would encourage even more automobile traffic destined for the Park. Thus, the current entry from Pearl Street would become more congested. Traffic coming off or going onto the Vashon Island ferry must now use Pearl Street, which clogs the Park entrance.

The existing tunnel on the Asarco property restricts traffic and is a barrier between the Ruston Way waterfront and Point Defiance Park. The present alignment of Ruston Way through the Asarco property is not conducive to a smooth flow of traffic and the awkward west entrance to the tunnel causes accidents. Since pedestrians are not allowed in the tunnel, those on foot must make a long and hilly detour.

For these reasons, at least, it is essential that recommendations for the reuse of the Asarco site suggest ways to accommodate additional traffic and mitigate congestion problems.

Basically, four kinds of traffic are involved with the Asarco site: vehicular, foot and bike, rail, and waterborne. Heavy vehicular traffic, foot and bike traffic, and waterborne traffic, come from the Vashon ferry, North End residents, Point Defiance (especially on weekends), and the parks, paths, piers, and restaurants of the waterfront. Rail traffic to date on the Asarco spur has been only for industrial purposes; the other rail line passing through the site also carries long freight trains and a small number of through passenger trains.

Recommendations

Traffic flow could be improved by using part of the Asarco site for parking, realigning Ruston Way to bypass the tunnel, creating new sites for the Vashon ferry terminus and the boat ramp, creating a trolley service, providing a pedestrian path through the Asarco property to Point Defiance, and—in conjunction with the new parking and trolley service—restricting access to Ruston Way at Old Town and at the Asarco site.

Parking and Trolley Service

We recommend that part of the Asarco site be used for parking. The Asarco site would be an end-point for Ruston Way activity and an entrance way for the Park if it could be integrated along the waterfront. Thus, two groups of users would benefit: those who use the Park and the water-related access of the Park and those who enjoy the pleasures of Ruston Way on foot. We hope that some who now park along Ruston Way would use the parking facilities at the Asarco site. Also, paving the parking area could provide a protective cap for the contaminated materials at the site.

To encourage people to use parking facilities at the Asarco end of Ruston Way, we also suggest providing public transit. A trolley-type service from the Asarco site to North 30th Street or even to downtown would be ideal, possibly using the existing railroad tracks. An alternative would be a tram service modelled on that of Northwest Trek. To encourage trolley/tram use we recommend that the city and the commercial establishments underwrite the cost and that passengers ride free.

This could become a major tourist attraction as well as a service to the public and transportation for public and private facilities along Ruston Way. Such a solution is in keeping with a major thrust of an earlier City Club study.²³

Parking at the Asarco site would also benefit users of Point Defiance Park. Pedestrian access could easily be accommodated from the parking area, perhaps by bridges. This would be especially valuable during special events at the Park. The Park Board could even consider extending the trolley/tram service from the Asarco site to and through the Park, thus providing easy and convenient non-vehicular access to the Park and reducing pressure on the Park entrance.

Tunnel Bypass and Pedestrian Path

Bypassing the tunnel is one of the most important suggestions and the most urgent; it should be decided upon soon so the right-of-way can be acquired while property values are low. A bypass would provide for a smoother flow of vehicular traffic and for extension of the pedestrian path along Ruston Way to Point Defiance, improving on plans in the City of Tacoma *Shoreline Trails Study*. Community support for bypassing the tunnel is widespread, and new paving could create an acceptable cap to contain contaminated material. Further, a new road would open up the Asarco property and allow development of the property bordering the new route. If the existing tunnel were sealed, it could be used as a museum of Asarco smelter operations; if not, we recommend that a museum be created somewhere else on the site.

In considering possible routes for realigning Ruston Way, thought must be given to the amount of material to be excavated, the cost of implementing a plan, feasibility of the selected route, opening up both sides of the route to development, the impact on the businesses along North 51st Street and North Pearl, the impact of traffic at the west end of the route (a water-level route could intersect with the present Vashon ferry discharge lane, while a North 54th Street route could intersect at the Point Defiance Park entrance), a connection with North Baltimore Street, and Asarco's willingness to allow rerouting of Ruston Way.

Ferry Dock and Boat Ramp

Moving the current Vashon Island ferry dock from its present site would be extremely helpful. Shifting the dock toward the center of the city—on the eastern edge of the Asarco site, nearer to North 30th Street, or into the Port area—would help users of the ferry, Ruston Way and the Park. Without the ferry dock and its traffic, the Asarco site, Ruston Way, and Point Defiance Park could easily be integrated into a unified pedestrian-oriented area.

Park access would be along the waterfront through the Asarco site. In effect a continuous park would run from the City Waterway to the west side of Point Defiance. This would open up exciting opportunities for biking, walking, and jogging. Additional boat launching space could be provided by moving the boat ramp to the Asarco site and providing extra parking there for boat trailers. This would also ease congestion at Point Defiance.

Without ferry and boat launching traffic, the existing street serving the dock and yacht club could be closed, leaving access to that area from Ruston Way and North 51st Street. This would allow the Park Board to make use of the land between the east side of the Park and the Asarco site. In addition, it would reduce congestion at the Pearl Street entrance to the Park. Moreover, an additional Park entrance could be created along the waterfront extension of Ruston Way.

V. Parks, Ruston, and Asarco

Metropolitan Park District

Park District officials seem to think the Asarco property should be developed as a “mixed-use area, emphasizing recreation, retail and residential uses.” Industrial use is seen as having a negative effect on the community, further impeding the free flow of traffic, inhibiting public shoreline access, and creating a visual blight, potentially blocking the waterfront view. Favored options fall into four categories [those responding were asked to assume that all development problems could be eliminated]:

- *Marine oriented*, which might include a ferry boat relocation site, public marina, sailing/rowing club, viewing tower/viewpoint, harbor tour boat moorage, public water access, whale center, wooden boat center, fishing pier, marine education center, and boat rentals.
- *General recreational use* may include a tennis center, miniature golf course, snack bars/restaurants, ice and roller skating, concert space, sand and grass volleyball courts, basketball courts, a water playground, and picnic areas, as well as the obvious: parks consisting of a linear extension of Ruston Way and large open spaces and grass.
- *Transportation services*, such as a vehicular and pedestrian link to Point Defiance Park, bikeways, roads and sidewalks, parking, and train or trolley shuttle from downtown to Point Defiance Park.
- *Other ideas*, such as a mariners’ village, farmers’ market, seminar center, offices, hotels, condos, and apartments, incorporate retail and residential uses.

Any master plan should also explore potential development of the “slag pile” area northwest of the Asarco site; this is already owned by the Park District.

Ruston²⁴

Our proposal, including site cleanup and mixed use development, could significantly help the Town of Ruston. The Asarco closing has greatly reduced the town’s tax base. While the town has coped with this loss by reducing services and generating other revenues, in the long run the town would benefit by expanding its tax base.

Our interviews with concerned parties in Ruston indicate that they regard future development of the site as important. Currently it is zoned for industrial use. However, our interviews did not reveal a strong desire for industrial development. Indeed, there was concern that heavy industry or general industrial development would be inappropriate. Most respondents mentioned a mixture of commercial/residential/recreational uses.

Current land-use patterns, as well as preferences expressed in the interviews, suggest that any plan for the site consider the impact on Ruston’s 51st Street. Our proposal addresses this by restructuring the Ruston Way intersection with 51st Street. The proposed configuration of Ruston Way would improve access to 51st and Pearl Street.

Asarco

We believe that our proposal, while costing Asarco more in the short run, will be advantageous for the company in the long run. In the simplest sense, by doing a more extensive and complete cleanup at the site, Asarco will be perceived as—and indeed will be—a good citizen. It will demonstrate responsible behavior, consistent with the favorable attitude that the citizens of the area have shown Asarco over its hundred years of operation.

The proposal does not require or request that Asarco do more than is feasible given current state-of-the-art technology. By doing all that can be done, rather than just the minimum, the company can avoid criticism that it “ran from the problem.” Demonstrating good faith effort and community concern will serve Asarco well in the future and will give it a track record of accomplishments to show other communities.

Minimal site cleanup might make it hard, if not impossible, for the company to find a buyer. Asarco might limit its cash flow loss by doing the least cleanup possible, but would still be asking its shareholders to forego income on funds that could be realized from a sale. Asarco could also be subject to lawsuits if the land remained toxic and idle. On the other hand, we think that Asarco would profit by cleaning up the site as suggested in our proposal. The site’s value would increase and it could then be sold or donated to a public agency or sold to a private sector developer.

Finally, we hope that Asarco, in significantly cleaning up the site, could be relieved of uncertainties about its future liability. Since several government entities are involved, any action by one will have impact on one or more of the others. For this reason it would be desirable to establish a task force of the various affected governmental bodies. Such a task force could work out the future liability problem, possibly by law or some form of indemnification. In either case, this would eliminate a major source of uncertainty.

VI. Conclusions

Financing Concept

Money needs to come from somewhere if the smelter site is to play an appropriate role in relation to adjacent communities, Tacoma and Pierce County. While the rest of the area grew, building houses, streets, and parks, the Asarco site froze in time. We are left with a geographical dinosaur bedded down in our back yard. We know the cleanup will be costly. We propose that the costs should be shared to achieve a positive result.

Getting rid of the dinosaur calls for three decisive actions:

- First, the local communities and the state legislature must establish a vision for the site. This vision must be dovetailed with current planning design for the area and communicated to EPA, the federal agency supervising toxic waste cleanup.
- Second, both Asarco and government at all levels must contribute funds to clean up the site. After the site is restored to full use as recommended in this report, arrangements should be made to release Asarco from future liability. Ownership could then shift to some form of public authority.
- Third, the site should be appropriately divided to meet the public uses suggested in this report—parking, park use, trolley service, etc. The rest of the site should be offered at bid to developers who would do the work to make the parcels marketable. Proceeds from the sale would help offset public costs.

These actions would allow the land to be cleaned and to pass into public hands, to be developed in ways consistent with surrounding areas. Finally, portions would be retained as public properties and the rest would be sold to individuals in smaller units.

The Challenge

Restoration of the Asarco site would be valuable for Ruston, Tacoma, and Pierce County. The site is potentially ideal real estate; just how ideal it can become depends on future development choices which can add to or subtract from life's quality. What those choices are will be determined by the vision of the site's best use or by the level of toxic waste remaining after cleanup.

The image and reputation of the town, city, and county, as well as the environment, beauty, and economic development potential of the entire area, will be greatly shaped by what happens at the Asarco site. Our ability to attract new tourists, to bring new jobs, to increase recreational opportunities, and to enhance outdoor enjoyment along the waterfront depends on the restoration of the site. Moreover, the health and welfare of future generations depends on full and complete cleanup.

This report presents two scenarios, two paths, one of which will be selected and followed in the months ahead. We feel, like poet Robert Frost, that "way leads on to way" and "somewhere ages and ages hence" we'll discover we "took the road less traveled by, and that has made all the difference."

We hope this report moves the City Club membership to greater involvement in the public debate. We hope that participation leads to greater public interest and that powerful concern will lead to positive outcomes. We hope those making the decisions restore the site to a useful and attractive state.

The site has great potential for Ruston, Tacoma, and Pierce County. That potential can be achieved. Much will depend on the responses of Asarco and the many levels of government concerned with the future of the old smelter and its site. That is the challenge to them—and to the community.

Asarco must try again on cleanup plan

EPA says company ignored criticisms, missed deadline

By Sandi Doughton
The News Tribune

The long-delayed cleanup of the Asarco smelter has hit yet another snag, with the Environmental Protection Agency ordering the company back to the drawing board to revise its proposal for cleaning up the arsenic-tainted Superfund site.

By ignoring repeated EPA criticisms, Asarco has violated a legal timetable for completing the cleanup plan and a study of the site, EPA officials say. As a result, the environmental agency won't be able to complete its recommendations and official version of the plan by summer — the latest in a long string of target dates.

Asarco officials counter that their work is on schedule. It's EPA that's slowing things down with its glacial response time and frequent shuffling of personnel, they claim.

But both sides agree it should be possible to complete a demolition plan by June for the towering smokestack and other buildings on the 97-acre site.

If that work remains on track, the stack could topple by early this fall, said Jeff Webb, EPA manager for the project.

EPA also plans to start taking soil samples next month from private lots throughout Ruston and North Tacoma to find out how far arsenic and other heavy metals were flung during the smelter's nearly 100 years of operation.

The agency has done an about-face on its earlier insistence that Asarco's cleanup proposals be kept secret until the final plan is developed. EPA has now opened those documents to public review, and is asking for public comment on them.

In its draft plan, Asarco explores eight options for cleaning up the site, concluding that the best approach is to dig up contaminated soil and store it, along with debris from the torn-down buildings, in a

permanent, on-site hazardous waste dump.

The dump would be covered with grass, and would only take up about 10 percent of the site, said Tom Aldrich, Asarco's new manager for the project. "That leaves 90 percent of the land available for future development," he said.



The News Tribune/1987

Asarco cleanup plan delayed until June.

It would be much riskier, in terms of public exposure to cancer-causing arsenic and other toxins, to ship the contaminated material to an out-of-state hazardous waste dump, Aldrich added.

It would also be much more expensive. Asarco estimates the cost of off-site disposal could range up to \$116 million, while the company's preferred on-site disposal option would cost about \$20 million.

But to some civic leaders, Asarco's proposal is a worst-case scenario.

"Any on-site hazardous waste disposal facility would be a disaster," said University of Puget Sound economist Bruce Mann, who led a study of the Asarco site for the City Club of Tacoma. "The perception would be that this is an area that just lets industry dump."

Asarco earned billions of dollars from the smelter, added Tacoma City Councilman Paul Miller, who

also served on the City Club task force. "I can't justify them looking for the cheap solution," he said. "It has to be the right solution for the long term."

Asarco officials say city leaders need to be realistic about the site's future, and point out that any cleanup will require long-term monitoring and some limitations on land-use.

They're also unhappy EPA is blaming them for the slow rate of progress, and deny the company has violated its agreement with the environmental agency.

The company submitted its final "feasibility study," or cleanup plan, in January, but didn't get any response from the agency until a letter this month spelling out the violations, said Asarco attorney Linda Larson.

"We were really surprised," she said. "We met with them 12 times in the past year, and not once did they suggest we were not in compliance with the order."

EPA has been chronically slow in responding to Asarco's proposals, and has changed program managers four times during the course of the project, Asarco Vice President George Anderson said in a letter to the agency.

But EPA officials say they have made the same comments over and over, yet Asarco has failed to incorporate them into the company's

cleanup plan.

Specifically, the two parties are at odds over the need for additional groundwater monitoring and soil studies to better characterize the extent of contamination, and the ways toxic metals and organic chemicals from the smelter seep into aquifers and Commencement Bay, Webb said.

"We really can't decide how to clean up the groundwater there until we have this information."

While the parties are wrangling over the cleanup plan, both are optimistic the one- to two-year demolition project can be wrapped up. Asarco estimates the pricetag at about \$12 million, and is eager to start, Aldrich said.

And once the buildings are torn down, the company can better analyze the soil under them, which will help answer some of the questions EPA is asking, he added.

Those interested in examining or commenting upon Asarco's cleanup plans can contact the EPA's Clayton Johnson at 759-1321.

The Morning News Tribune,
Wednesday, May 23, 1990

Appendix A—Cleanup Proposal Details

Below are details of proposed cleanup actions summarized in the main report, *Section II—Health Concerns and Cleanup*.

Human Concerns

As detailed in the EPA's Order on Consent, human exposure to this contamination can result from inhalation of arsenic in the air, ingestion of food or water containing arsenic, ingestion of soil or dust particles containing arsenic as well as skin absorption through direct contact. Exposure to arsenic has been linked to increased incidence of human lung and skin cancer. Other health effects on humans of arsenic exposure may include lesions of the skin, damage to the nervous system, gastrointestinal and cardiovascular reactions, effects on the cardiovascular system, and neoplasms.²⁵

A "Final Endangerment Assessment" was prepared in 1988 for the State of Washington Department of Ecology by Black and Veatch. The primary sources of environmental data used in that study were the University of Washington Exposure Pathways Study completed in 1987 (which showed elevated arsenic urine levels in children living near the smelter) and the ambient air monitoring records from Asarco and the Puget Sound Air Pollution Control Agency, together with field investigations. In that report the Asarco Tacoma Smelter, while under operation, was identified as the largest source of airborne arsenic emissions in the nation.

A listing was developed of over 20 potential airborne contaminants resulting from the smelter operation, with elevated levels of arsenic, cadmium and lead of primary interest. Estimated exposures in the 0–1/2 mile radius surrounding the smelter site were calculated at 15 times greater than urban background values for inhalation and 19 times greater for ingestion. Calculated risks for arsenic lung and skin cancer morbidity from the exposure estimates were $3.5 \times 10(-4)$ for lung cancer and $1.1 \times 10(-3)$ for skin cancer. These relative risks are about 15 to 19 times higher than for urban background exposures.²⁶

The Black and Veatch Endangerment Assessment was concerned primarily with the potential public health effects of arsenic contamination in soil, house dust, and air surrounding the Asarco site. Potential environmental effects to Commencement Bay or uplands areas were not addressed. Ingestion of contaminated fish and shellfish was addressed separately as part of the Commencement Bay Nearshore/Tideflats investigations. Also, separate studies are being performed related to conditions on the Asarco property and the potential for contaminants to be transported from the property to the surrounding areas.²⁷

This Endangerment Assessment concluded that three environmental compartments with elevated arsenic concentrations contribute to the potential long-term community exposures. These are soil, ambient air, and house dusts. Soils will remain long-term reservoirs for arsenic, representing the past accumulation of fallout from airborne smelter emissions. Individual soil arsenic concentrations are up to 150 times the urban background values and mean soil concentrations within 1/2 mile of the smelter are about 14 times urban background levels for residential and 26 times urban background levels for high use areas. Soil arsenic concentrations are expected to diminish only very slowly by natural processes.²⁸

Recent ambient air monitoring data show that arsenic concentrations in the air near the smelter decreased by approximately 90% after smelter shutdown. The current ambient air concentrations still appear to be about 15 times higher than expected urban background values. Long-term off-site ambient air arsenic concentrations are expected to continue to reflect resuspension of local contaminated soils and consequently remain elevated with respect to urban background air values.²⁹

As long as both contaminated surface soils and airborne particulates remain elevated in arsenic, house dusts are expected to show elevated arsenic concentrations. The accumulated soil arsenic reservoir will be the only significant long-term source for continued community exposures near the smelter, according to Black and Veatch.³⁰

Expedited Response Actions

The EPA has separated out the publicly accessible off-site properties for remediation under an Expedited Response Action. Asarco has completed its study of contamination levels on off-site publicly accessible properties and submitted these to the EPA. Public comment was accepted in the Fall of 1988 and a final decision was reached by the EPA concerning the remedial work required under the Consent Order. This work covers 11 sites in Ruston, including two playgrounds and nine vacant lots to which the public—particularly children—have access. Three additional vacant sites owned by Asarco were found to have elevated arsenic levels; however Asarco has fenced these areas and therefore they are not covered under the current scope of work.³¹

The EPA-selected action to reduce arsenic contamination on the 11 sites requires removal of the top three inches of contaminated soils and replacement with a 9- to 12-inch cap of clean soil. The contaminated soils which are to be removed will be stored temporarily on the Asarco site, with permanent disposition to be decided later.³² Concern has been raised over the adequacy of the remedial action and what liability exists if the soil is disturbed during future development of each property. The Town of Ruston has requested ongoing liability on the part of Asarco for any future disposal or cleanup which may be required. The EPA has offered, in a recent letter to the Town of Ruston, to advance any costs, determined necessary at a later date, for testing or removal of soil due to future development. The EPA would then look to Asarco for reimbursement. The Town of Ruston has accepted these assurances and remediation work is now proceeding.³³

In July of 1989 the EPA issued a draft Consent Order to Asarco requesting that it conduct investigation into the extent of arsenic contamination on private properties in the Ruston/North Tacoma area. This Remedial Investigation/Feasibility Study covering off-site private properties will include evaluation of alternatives to remedy any contamination problems. Public involvement in establishing the terms of the Consent Order should occur in 1990. Remedial action under this Consent Order will not be determined until the study is complete.³⁴ Asarco has, to date, denied the need for such a study and has proposed that, rather than initiating a study to determine the level of contamination and health risks on private property, a Trust Fund be established to take care of any future problems that may become evident.³⁵ The EPA has rejected this stance and has indicated that it will proceed with the study and hold Asarco responsible.³⁶

Superfund Action

Under the EPA's Commencement Bay Nearshore/Tideflats Superfund Action, approximately 1,170,000 cubic yards of sediments exceed levels established in the study. The selected remedial action is to dredge approximately 575,000 cubic yards of contaminated sediments from the shoreline area and dispose of the most toxic materials in a proper landfill. Less toxic materials would be disposed of in deeper waters of Commencement Bay and covered with clean material from the Puyallup River. Source control through sealing the outer edges of the slag pile is considered.³⁷

Asarco Attachment to Consent Order

In January of 1989, Asarco submitted a Phase II attachment to its original Consent Order for Site Stabilization which detailed its proposed actions for demolition and removal of the remaining facilities and structures at the Tacoma Asarco site. The EPA has determined that the proposed converter incinerator does not meet the standard of Best Available Control Technology for incinerators and therefore should not be used. The EPA did, however, leave the door open for Asarco to prove that on-site incineration can attain this performance standard. Strong concerns have been raised over the plan to remove the stack through explosive demolition and the potential contaminant release that may occur. Asarco has proposed to suppress fugitive dust emissions through the use of sprinklers and a surface water containment system.³⁸

Asarco Remediation Draft

A Remedial Investigation/Feasibility Study covering the On-site Remediation was received in draft form by the EPA from Asarco in July of 1989. This study details the measures proposed by Asarco to alleviate the contamination levels of the smelter site. Public access to this study was not available until May 1990. Possible remediation will involve soil removal, soil capping or asphalt capping. Possible treatment by chemical leaching or soil bonding is being considered. Groundwater treatment and surface water capturing are also to be addressed. In addition to contaminated soils, other concerns such as arsenic leaching, shoreline sloughing and future development exist.³⁹

On-Site Dump Data

Additions to the on-site permanent hazardous waste dump could amount to over 50,000 cubic yards of uplands contaminated soils and construction debris, and another 100,000 to 200,000 cubic yards of contaminated marine sediments.⁴⁰

Appendix B—Report Meeting Transcript

Reprinted below is an edited transcript of the Question and Answer portion of the City Club meeting of December 6, 1989. Representatives of Asarco and the Environmental Protection Agency in the audience participated in that portion of the program. Bruce Mann, study group chair, edited the transcript for readability and context. Responding to members' questions were:

Michael R. Thorp of the law firm, Heller, Ehrman, White and McAuliffe, Attorneys for Asarco

Bruce Mann, Professor of Economics at the University of Puget Sound, and Chair of the City Club Asarco Study Committee

Keith Rose, Asarco Site Manager for the U.S. Environmental Protection Agency

Michelle Pirzadeh, Asarco Site Community Relations Coordinator for the U.S. Environmental Protection Agency

QUESTION: Why doesn't Asarco just clean the site up, spend whatever it takes?

MICHAEL THORP (Asarco): Because we don't know what those options are right now. We're still going through the process. There is a mandatory Superfund process that we go through, the EPA tells us exactly the steps we have to face. Those steps include presenting the range of options. We don't select it. We give the range of options to the Environmental Protection Agency, they select what they call a record of decision, what is going to be done at the site, and then we enter into negotiations with them as whether Asarco will do it or EPA will do it and then sue the company. But we're not free. We could not lawfully go out there right now and start work. We're not free to do anything on that site without EPA permission.

QUESTION: Could EPA require Asarco to do something Asarco does not feel is feasible, or is unwilling to do? Can EPA clean up the site?

THORP: They could do it, if they picked an option that the company didn't like. No, the company hasn't made any decisions. We haven't seen what the options look like yet because the feasibility study is not done. It's a long process. I think it's normal for a site this complex that if we go through a remedial investigation and feasibility study anywhere from two to three years. In fact, we're on schedule.

QUESTION: Is it valid to say that we could end up with a cleaned but closed site based on Asarco comments?

THORP: No, I don't think so. Right now, we're entertaining things more along the lines of some water related type of industry, perhaps a site where ships would unload cargo and would put it on rail, as an example. Asarco thinks some sort of water related activity is very important, and in our offshore feasibility study we're making every effort to do a type of cleanup that would not only leave the possibility of bringing in deep draft ships but enhance that, because right now the area off shore of the smelter is fairly shallow. In fact, they used to have some real difficulty getting ore-bearing ships into that dock. But it's really preliminary, I mean, we don't have even a list of alternatives for use of the site. But what I'm trying to say is restaurants and residential use, in my view, at this point is relatively slight given the residual liabilities that are possible. There's a real cost there.

BRUCE MANN (Asarco Study Committee): Just to add one comment, the study group certainly recognized that. I think we went to great lengths to acknowledge the liability issue. We think one of the great challenges is to put together a program that would allow Asarco, in a reasonable fashion, to be released from liability, whether it's through government action or legislation. We recognize that as being terribly important and without that development of the site from your point of view certainly has to be a question. It's going to be a big issue.

QUESTION: Is it really realistic for an on-site toxic waste dump or would it just be for materials that weren't toxic? Are they going to bring in other toxic materials?

MANN: We don't say that in our report. We don't represent that certainly, and I don't think that's what Asarco has in mind.

THORP: Well, I want make sure that we don't have any misunderstandings. Generally, no. But the one exception being contemplated is that some of the soil currently being taken off playgrounds, for example, in Ruston might be also put into that landfill. So with the exception of soil from areas in Ruston, topsoil, nothing else would go there. That would be it.

MANN: We had a big discussion in the Committee about exactly this. Should we say something? We decided not to since our work dealt only with the site. But there was a strong minority on the Committee that worried that once you have a registered or an acceptable toxic waste dump on a site the temptation to bring in toxic waste from other places in five or ten or twenty years is just going to be too great. That would present additional issues, but that's just speculation on our part.

QUESTION: Once the feasibility study is issued, what's the timetable, how can the public become involved, and what will happen?

KEITH ROSE (Superfund Site Manager for Asarco Project): I knew this question would come up at some point so I thought I would just recap or summarize what the process is that we're going through. Asarco started a feasibility study early this year in the spring. After they completed the remedial investigation, we gave them guidance to evaluate all of the available technology which could be used to clean up the site and to develop a range of alternatives for cleaning up the site. They submitted a draft feasibility study in September. We gave them substantial comments on that study. Asarco is now revising the feasibility study. It is due to us within a couple of weeks. We will then evaluate the feasibility study and develop what we call a proposed plan. This is a brief analysis of each of the alternatives, and then it proposes what's called preferred plan or preferred option for cleaning up the site. That proposed plan will go out with the remedial investigation report, the feasibility study, and the demolition plan.

All this information will go out in about a month, we project sometime in early January. That will start the 60-day public comment period. Normally we have a 30-day public comment period but because of the request of the Tacoma City Environmental Commission, we granted the 60-day, or 30-day extension, to a 60-day period. During that period for public comment we will hold a forum where we will address the public and discuss the feasibility study and the options involved, and respond to questions. At the end of the public comment period we will evaluate all the comments we received in writing and verbally and respond to them. After we've done that we will take all these comments into consideration.

If there's an overwhelming concern on the option or the alternative we've selected we could essentially change or pick another alternative. So this is a very important period for the public to get involved and to give us feedback as to what you would like to see done with that site. Then the final thing that happens after the public comment period is a document called a record of decision which embodies the decision by the Environmental Protection Agency signed off by the regional administrator, that's the decision document. After that we sit down and negotiate with Asarco. We negotiate what's called a consent decree which covers the remedial design and remedial action phase of the work which then implements whatever decision was decided in the record of decision.

QUESTION: Assuming that there is a series of options in the feasibility study, what criteria will EPA use in making a determination of the preferred alternative?

ROSE: There are actually nine criteria (I can't remember them all at this point) that include things like short-term effectiveness, long-term effectiveness, permanency of the remedial action, state acceptance, local acceptance, technical feasibility. There are about nine of them altogether.

QUESTION: Will the railroad tracks that go to the Asarco site stay where they are?

MANN: We assumed the BN set will remain. The other set, the one that goes to Asarco, is different. We don't know. Our transportation proposal in terms of a trolley assumes that those tracks would remain and that would present an opportunity for us to use those although we didn't query whether in fact they were going to stay or not.

THORP: No, I don't know either. It is projected that it will take two years to demolish all of the structures at the smelter site. During that two-year period, of course, when we have gone through the negotiations with EPA we'll know what the cleanup is going to look like at that point. During that period we should know what the development possibilities really are. If they don't involve some sort of rail then I would imagine they would be taken out.

QUESTION: As Asarco and EPA discuss what will happen to the site at what point, if at all, do other parties, governmental and local jurisdictions, become involved or will they become involved?

ROSE: We've been working very closely with the Department of Ecology, Tacoma-Pierce County Health Department and Puget Sound Air Pollution Control Agency on the review of the plans and the feasibility study. We are tied into the local agencies. In terms of the community acceptance I mentioned this public comment period coming up, one of the criteria which we're going to have to consider is community acceptance. We'll receive, evaluate, and respond to all the comments we receive. That is the process where the agency considers outside, or let's say the community's responses or individual responses to the proposed plan. There's one other criterion that came to mind that I didn't mention which is very important among the nine and that is the ability of the alternative or alternatives to meet all the state and federal cleanup criteria which are pretty extensive. That's very important and can eliminate many alternatives which don't meet those very stringent criteria.

QUESTION: Was the quote in the paper by EPA that the site could be cleaned up for normal use accurate?

ROSE: I don't remember making that quote, that comment. I don't know what normal means. The agency has refrained from making any comments on future use of the site at this point. But we are open to comments from the public and community.

QUESTION: Will EPA require the site be made accessible to human beings so they can actually go there?

ROSE: One of the evaluations or studies that is performed in the feasibility study or remedial investigation is a risk assessment. It evaluates all hazardous waste compounds on the site, their toxicity, and their effect on human beings. We will specify cleanup levels based on that risk assessment. Actually there are two tiers normally of cleanup levels. One is for the use of a site under an industrial exposure scenario, another one is called a residential exposure scenario. Usually under a residential exposure scenario the action levels are approximately an order of magnitude lower. We have not yet established those levels, but they will be identified in this proposed plan which will be coming out next month.

QUESTION: Is there a precedent for releasing Asarco of residual liability or would it require special legislation?

ROSE: I'm not an attorney but from what I know in my understanding of the Superfund law as long as contamination remains on the site the responsible party, Asarco in this case, is responsible for any future releases, potential future releases of that contamination. I'm not saying that there will be any, but we cannot resolve any future liability if there is some contamination remaining on the site. As Mr. Thorp has said, some of the alternatives will contain a cap over the site. In some of the alternatives there may be some residual contamination, albeit low level, on the site. We'll be able to resolve that.

MANN: The study committee asked about that as well, and we didn't get very clear answers. It seems like Asarco has a difficult time under current rules of getting out of residual liability and that is why we call for a way to release them from that so that development can take place. We hope that can be done.

QUESTION: Have there been any lawsuits against Asarco in the past hundred years?

THORP: Yes, of course there have been. I don't think you could have an industrial site without having some. There were two lawsuits filed several years ago with regard to offsite contamination, one was dismissed, the other went to jury with a verdict for Asarco. There's never been a verdict against Asarco for any of those claims.

QUESTION: Then why is Asarco worried now?

THORP: Because taking one of those cases to trial alone would cost several hundred thousand dollars and the company just doesn't want to get itself into that type of situation. We're having real bad luck in other situations just like this where we thought it was cleaned up and yet somebody contracts some disease and they feel it came from Asarco and they bring a lawsuit.

QUESTION: If you decide Asarco can't ever get out of long term liability then you might as well have a dump site, isn't that then a circular argument as opposed to say let's clean it up and then see what happens? Is that unfair?

THORP: The problem is that there isn't an alternative which means that it's back to pristine conditions out there. That isn't technically doable. The smelter site itself sits largely upon millions and millions of tons of slag. There isn't any proposal to dig all of that up and get it out of here. The cost, even if it were possible, would certainly have to run into hundreds and hundreds and millions if not billions of dollars to do that and it just isn't being contemplated. So there is going to be some residual level of contamination left on that site under the best of conditions. Even if it's all under EPA's health risk assessment level where they do a health risk assessment, then say if you dig everything up to this level in our view it's ok. But what I'm saying is even if we do that, it's not good enough for Asarco in terms of future liability. Because if we allow residential development and children play on it and we get a lawsuit later, it just isn't worth the cost of what we face compared to the value we'll get by selling that property off on residential lots. It just isn't worth it to the company to incur that kind of potential headache in the future. Instead they would prefer to look at it as some sort of light industrial site where they feel they have less risk.

QUESTION: Are there other alternatives to just industrial use?

THORP: The company feels more comfortable with some sort of light industrial commercial setting as opposed to residential or park or something like that.

QUESTION: If cleanup requires depositing or leaving some materials on site, could it be covered so the site is usable for non-industrial purposes?

THORP: Right. Yeah, that won't preclude that in any way. We could put that under a parking lot.

QUESTION: First, to go backwards, the comment was the people ought to take a look at Lake Washington development to see what's possible as a model. The question was whether we considered vertical parking and offground transportation modes and such.

MANN: Very early on we did give some thought to site design. That was our initial charge from City Club, look at alternative designs. But we decided that was inappropriate for us as we continued. We really didn't investigate design features of how the site would be done, which is to say we don't endorse, recommend, or oppose it, but we feel the important issue was to see the site in fact becomes developed. The one issue we did take a reasonable look at and suggested in the report was that industrial use, light or heavy, is inappropriate for that site given the development that's occurred in the proximity of the site and the nature of the site and what it has to offer for the quality of life issue in Pierce County. So even if the Town of Ruston leaves their portion of the site zoned industrial, I don't believe the City of Tacoma's current zoning will allow industrial use. And we don't endorse that. We call for commercial, mixed commercial-residential.

QUESTION: When you made contact with people interested in the issue of the site, was there more than the recommendation that you came up with for residential?

MANN: The answer is (I hope the rest of the committee who did the surveys would join in) yes. At least one developer came to us through that person's attorney, they're not willing to be identified yet, and said under reasonable conditions they would be interested in the site and presented to us information that they had done this with other sites that had hazardous problems. They think if EPA requires the right amount of remedial action that they would be willing to take the site and gamble on it. We also talked to the port people about the possibility for their interest as a commercial venture as part of the port and there was as I recall not much interest in that due to the site limitation. The port needs 40 acres for containers and railroad service problems.

MANN: Related to the deep water and the port facility there might be something. Yes, we did talk to a lot of people involved in commercial and industrial activity when we did our interviews. We feel that industrial, certainly heavy industrial, would be inappropriate on the site.

QUESTION: The question started by heaping well deserved praise on the committee, for which we all thank you, and then took issue with the minimal cleanup proposal.

MANN: I want to be clear on this. We do not in the report, nor do mean to imply, that's what Asarco represents they would like to do. We take that minimum cleanup as a stark contrast to development and that becomes, at least in our mind, the best way to see the issue. We're not saying Asarco proposed that, we know they didn't propose leaving a mess. We don't represent that in the discussion paper, but that's a contrast to our preferred alternative.

QUESTION: Then the question was whether there is a benefit in encapsulating nontoxic materials on site as opposed to some sort of permanent asphalt capping versus doing nothing. Is there, in fact, a success story?

ROSE: I'm not sure I understand the question. Let me make an attempt at an answer. If Asarco were allowed to construct an on-site disposal facility it would have to meet very stringent state and federal requirements, called RICA requirements, which would include an impervious cap on top of the material. It would require double liners underneath the material, in each a collection system, and a groundwater monitoring system, very stringent requirements. So there are many cases where this has been done. If it were to meet those requirements, there would be no further spread of any contamination inside the landfill.

The other part of the question, I think, was is there some way to encapsulate contamination other than just a landfill, placing it in landfill. The answer is yes. There are methods of stabilizing metals in soil as we have at Asarco using various cement and pazalon materials, essentially encapsulating it in cement. That has been done at other sites and it has proven successful. I think the Asarco site is a candidate for that technology because the contamination is only metals and there aren't organics, or just very low levels of organics, that might interfere with that process. That's one of the technologies that Asarco has evaluated and will be presented in detail in the feasibility study. If the soil were stabilized in concrete it could be buried in the ground and a cap could be put over that. It wouldn't essentially be a landfill. Once you stabilized it in concrete it is no longer hazardous material, then you can just cap over it and it wouldn't be a landfill.

JEAN McCORD (Study Committee): The Committee does not suggest putting the residential use on the most toxic part of the site. Rather it could be placed on the upland part near existing residential uses, where cleanup would be easy. The Committee does accept capping where appropriate.

MANN: Jean points out that while we didn't do a site study on the detailed land use plan, our vision was that residential areas would go where appropriate, probably on the upside near existing residential areas where cleanup would be possible. As we indicated before, capping would occur where it would make sense. Commercial areas would go where allowable after cleanup occurs. So we're not asking Asarco, in our proposal anyway, to do something which is impossible or not feasible.

QUESTION: Is Asarco holding Ruston, Tacoma and Pierce County hostage by proposing the industrial use knowing that would be probably unacceptable in the hopes that they would then get something in return in terms of liability release that they may not perhaps be entitled to. Rather shouldn't EPA hold them liable to clean the site up appropriately and then let the use follow from that?

THORP: I don't know of a single Superfund site in the United States that's been cleaned up to the point that it was used for heavy public use. Maybe Keith knows of one. I would say that I know a lot more federal Superfund sites that have been cleaned up that have no use now, they are now the nice little asphalt-capped sites with two or three hundred groundwater wells pumping water and they're treating it. I can understand your feelings on this but the plain fact of the matter is that there are huge contingent liabilities on a situation like this. A company like Asarco just isn't going to get into the real estate development business or some business that it's not familiar with facing liabilities like that. I'm sorry you take it as a threat. Just from a corporate responsibility standpoint they can't see it. I wanted to tell you that I just don't think that it's realistic here. The company hasn't made any decisions on any of this. But I just don't want to get people's hopes up here. I view this as the same thing with greenbelts, you'd really like to tell people don't develop your land because we want them to be a greenbelt. But, the response from that landowner is if you want my land to be a greenbelt you purchase it or you pay for the loss of my development rights. I don't think this is much different from that. This is a smelting and refining and mining company; they're not into boutique malls and stuff like that. It's just not something that they plan branching out into in the near future. When they look at using a piece of property, they look at it from what they're familiar with which is some type of industrial plan use that they would be familiar and comfortable with.

PAUL MILLER (Study Committee): The site will be a toxic dump site whether or not outside materials are brought in. It will carry the stigma of a toxic dump site into the future and impact development. The Committee felt the issue of on-site toxic wastes was important for both development and health reasons. Secondly, the Committee recognizes that the liability issue is an integral part of the development question. We called for a joint effort to work for resolution. Asarco has been unwilling to include others in the study process. They should allow the discussion to be more inclusive. EPA has completely excluded the public so far.

They will not be part of the discussion until we reach the "agree/disagree" stage. The public should be brought into the process before that time, before the 60-day public comment period. The public should have more than just a yes-no option.

MICHELLE PIRZADEH (EPA): I'm with EPA and I'm the community relations coordinator for several different projects here in Tacoma. One thing that I wanted to clarify is that EPA will come out with a proposed plan for what we think the technical best alternative is. To clarify what was just said, we will be asking for public comment on all of the alternatives that Asarco evaluated. We will not be just asking you to say, yes we think your preferred option is good or we think it's bad. We will be asking for comments on a whole range of alternatives. There is room to change that preferred plan at that time, it's not necessarily just a concurrence type of process. That's why the feasibility study goes out and it will contain the range of alternatives that have been talked about from capping to total removal, so there is room for that kind of change. If there is a significant change to the preferred option, whatever it may be, when the proposed plan comes out and EPA decides that based on public comments we need to make some changes to our preferred option, we would redo our proposed plan and go out for public comment again. There is room to comment, although I understand what you're saying, it hasn't been during the whole time that this feasibility study is being developed. You still have room to talk about any of those options and what you think may be good or bad about them. We aren't just accepting comments on the preferred alternative.

ROSE: I just wanted to add a comment to that. I may have previously said that back in September I believe I addressed the Tacoma Environmental Commission. At that point I may have said that Asarco had ruled out off-site disposal, but that was based on a draft preliminary feasibility study. Since then, EPA has requested Asarco to include an alternative which includes an off-site disposal at the Arlington River facility. That will be, I understand, in the feasibility study. So that is still an open issue.

QUESTION: What really happens during the public comment period?

PIRZADEH: In terms of a forum for this kind of discussion, typically what EPA does, at other Superfund sites what we've done, is we've held a public meeting. Those kinds of things can be formal which sounds like it is kind of what your concern is in terms of getting up and making a comment for the record. Typically what we like to do is provide for a question and answer kind of forum where people can come and ask questions in order to make better comments. That's what we would be looking at doing here. In light of the 60-day public comment period, if there is a whole lot of public interest, we could hold some more informational forums as opposed to the one formal public meeting. We're certainly open to trying to provide forums that people are interested in. If you have those kinds of interests I'd like to hear about them. We can try and plan some of those kinds of things in addition to our public meeting. We do have a mailing list and if you'd like to be added to the mailing list you give me your name and address and I'd be more than happy to add you to that and you would receive a copy of the proposed plan in the mail.

Appendix C—Historical Notes

The thin gray stack towers over the town. To some a grim reminder of flames lifting smoke and dust high to spill out against the wind, against the sky, against the gray and white houses where the families of the men and women from central Europe lived. To others a virile symbol of progress, of jobs, of economic expansion, and ultimately of people shouldering a load and reaching out hands to grab the American Dream.

At the brick tower's base, the furnace is out. The rail tracks are empty and the long, winding, ore-laden freight cars are gone. Buildings stand dark and silent. The only workers who wander company streets or stop to rest at the canteen are there to tear down the site.

In the silence, one imagines rocks grinding on rocks and working people shouting, but just as the sounds become real enough and one listens, all grows silent. Silent, yes, but not the terminal silence of the grave. This once-noisy place won't remain silent for long. A new American Dream may be beginning.

Native Americans developed the site first. They gathered there for food and ceremonies where the green forested point led gently out into the deep sparkling waters of the Sound. There are 10 of them standing around a beach fire right now. Their voices lift softly as they watch the dancer's movements. The dancer's arms tremble from right to left. As the others murmur, "I am going," the dancer's arms stretch out to one side. At the words, "All around the world," he swings them around in a wide circle. "I," his shoulders move forward and backward alternately; "eating everywhere," he stretches his right hand far out as if taking food. Then he brings the food back to his mouth with his left hand he makes a wide circle indicating "everywhere."

John Swan built a cabin on that point where the 10 Nisquallys gathered that day for the eating song. When the first smelter was built there the area was called Swansea. Although Swan gave it his name, he wasn't the first developer. As early as 1854, ships loaded pilings at Swansea to be carried to other northwest coastal ports.

Development of the site awaited the coming of the railroad. When the Northern Pacific Railroad chose Tacoma as its terminus, modern development began. The railroad encouraged capital projects related to the transportation of raw materials and the shipment of manufactured products.

Soon after the completed railroad project, Dennis Ryan, a St. Paul developer, promised to build the smelter if proper financial support could be arranged. Ryan got enough investors interested to start the company.

The founders capitalized the smelter on May 24, 1887. Subscribers had three years to come up with half the cash, then an additional month to complete the investment. Who were the early investors? Rumor said the Weyerhaeuser brothers were involved, but their names never surfaced. Several familiar names appeared. President of the Northern Pacific Railroad Henry Villard bought 2,000 shares. He wasn't popular around Tacoma at the time but his lack of popularity didn't discourage him from putting up \$100,000. Charles B. Wright, of Wright Park fame signed on for 1,000 shares. The St. Paul capitalists continued a central role as R.B. Galusha bought the most shares, 2,700. A name unknown to most Tacomans of the day appeared on the investors' roll; W.R. Rust promised to buy 600 shares.

With cash commitments and support for the enterprise under way, Dennis Ryan built the 400-ton smelter in 1888 on six lots he purchased from General John M. Sprague. General Sprague, Superintendent of the Northern Pacific Railroad, sold the new company 25 acres.

Years after his original buy, Ryan asked the company to assume a \$3,500 debt for the land where the roasting furnace stood. Since he never had been reimbursed for the initial six-lot purchase, he wanted the company to assume this more recent debt. The meeting record showed postponement of Ryan's request. What finally happened never appeared.

By 1890 several investors had dropped out. New trustees were elected. At their first May meeting, the stockholders appointed W.R. Rust Manager, directing him to sign a deed of conveyance with General Sprague.

How did they do that first operational year? Not bad! Rust reported a small profit. This was the last profitable report for a long time. American business activity slumped as the smelter business got under way. Midway through its second year of operation, business activity fell, made a sharp recovery, and then the bottom dropped out during the Panic of 1893. After five years of operation, Rust reported losses of \$4,309.57 in 1895. At the 1895 April meeting, the stockholders issued Galusha and Ryan stock in the company as payment for constructing the smelter and buying the land. To continue operations, the trustees borrowed \$50,000.

After a brief recovery, general business activity again slumped and stayed low until 1899. During the preceding three years, operational costs continued to outstrip profits. In 1896 stockholders had been notified the company needed at least \$250,000 more to operate the smelter successfully.

By 1897, things were coming to a head. The company needed a special shipping rate from the Northern Pacific Railroad to survive. Stockholders were warned that without that special rate the company would liquidate.

There was a continuing need for working capital, and now they faced increased competition, but worst of all the price of silver continued to fall. By this time the company had added the smelting of silver.

To investors, the word was, "we don't have the means to make a profit." The low price for silver, the high shipping rates, and the continuing need for capital improvements dogged the company's footsteps. It looked as if the end was near.

W.R. Rust then came in with a reorganization plan. He proposed to lease the land, the equipment, and the raw materials from the current shareholders for a sub-group. The sub-group had money and offered a \$5,000 rental fee, market value for all furnace products and supplies on hand at transfer, to pay all taxes, to insure for \$20,000 and to provide \$30,000 for immediate capital improvements. After a long and bitter stockholders' meeting, the original investment group took the 10-year lease offer.

The next five operating years differed from the first eight. The economy had recovered and the smelter began to make money. So much money in fact that within six years the sub-group sold out to the Guggenheim brothers for \$5.5 million. They wanted the smelter as a place to smelt copper ore from Alaska.

Rust handled the sale discussions but he didn't much care for the Guggenheim brother who handled the other side. Negotiations for the sale got so hot that Rust packed his bags and threatened to leave New York. Since the Guggenheims didn't want to lose the opportunity, they asked Bernard Baruch for help. He got a hold of Rust. It wasn't long before Rust got his price of \$5.5 million, plus a five-year employment guarantee as manager of the smelter.

After the sale was concluded, Baruch sent a bill for \$1 million to the Guggenheims. One of the brothers wasn't happy and asked the other if they should pay. The other replied, "Listen, if Bernie says it's worth a million, it's worth it, so pay him." Baruch split the fee into three equal shares. Rust got one-third of the money, which he used to pay for his new mansion at 1001 North I. Bernie got a third and an accountant got the rest.

So the small locally owned smelter assumed its new place in the national network of the Guggenheims and became a major economic force in both Ruston and Tacoma. With good economic times, as many as 1,500 received weekly pay checks to buy goods and services in Pierce County. When times were bad, the number employed dropped to zero.

A national firm might sneeze, and when that happened the local community caught the flu.

Perhaps because Ruston was a creation of the company, it suffered more deeply than Tacoma. The mill was Ruston's tax base. Ruston was created two years after the Guggenheim purchase.

Rapid industrialization at the turn of the century created problems, and Asarco did not escape. It had trouble with employees organizing. One time the Asarco management team increased the work day from nine hours to 10 without raising the daily wage of \$2.25. The company action led to a strike by yard workers in 1914.

Many of the striking men had been recruited by Asarco from Central Europe. One of them, a young immigrant from Croatia, was shot and killed by Asarco deputies. The newspaper described it as an exchange of gunfire. Many Ruston homes above the smelter still carry battle scars of that violence from 75 years ago.

Labor wasn't the only problem. Health and safety issues surfaced early. One poignant news story described the drowning of a young worker. The slag train he rode capsized into the Bay. Molten slag was dumped into the Bay at the end of an ever-extending peninsula. It's still there. The young worker lost his life when the end slag piece broke off, dropping him and his train into Commencement Bay.

Asarco's most visible symbol, the stack, went up in 1916. Everything written about the company begins with the stack. Reports on its height varied. Sometimes it was said to be 560 feet, other times 570 feet, and once 572 feet. Seattle thought the stack a good enough idea to borrow for the World's Fair. Eliminating the furnace and calling it a Space Needle allowed the city to get the taxpayers to build a pollution-free stack with a restaurant on top.

Even now people talk of preservation. Recent newspaper articles suggest keeping it up, but structural engineers say no. The stack is on its way down and the skyline then will change for all of us.

Of course the news about the smelter wasn't always light. During the early '30s business was grim. The company closed the plant in April of 1933. Operations resumed in July with a work force of 400.

By the end of the decade, news improved. Now copper was king and the smelter was fired up. It shipped 75,000 tons to foreign ports in 1939. The biggest importers were Japan, Germany, and Italy. Those three countries took all but 900 tons of the 75,000-ton total. Asarco helped friend and foe alike prepare for war.

Americans had mixed feelings about the coming struggle. Two articles appearing side by side in the TNT showed this ambivalence. In one column, the War Department reported on plans to push the smelter to production limits so America would be ready to fight. In the other, the American Lutheran Church of Tacoma adopted a resolution urging the President to adhere to a pledge to avoid war.

Once hostilities began, the plant really produced. The smelter delivered 132,000 tons through 1941, even with production down 10%. Employment stood at 1,400. Early in the fighting there was a shortage of ships. This resulted in lower supply levels which led to production dips. By April of 1942, the output of copper was down 20%. Asarco began to lose employees to the war effort, and total employment fell to 1,250. Employment problems were to persist throughout the war. For a time early in 1942 new workers at the mill couldn't find beds or places to sleep. They were housed briefly in the basement of the Rhodes American Legion Post. This shortage of people became so acute the company offered jobs to people willing to work on days off from their regular jobs.

There was a foreshadowing of the environmental problem. No one gave much thought about allowing the company to continue its practice of dumping slag into the Bay. But the Tacoma Garden Club complained in a letter to smelter officials about "how the mill fumes were killing Victory Gardens." Smelter officials didn't reply. This early silence hardened into a calculated strategy. It worked for the short term but not over the long haul.

Pressure built until a parley on smelter fumes was called. Of course the company denied that its fumes seriously affected health or vegetation. It did promise to develop a means of disposing of the sulphur. Smelter officials said they were eager to remedy individual complaints or problems.

Asarco's response to complaints, generally speaking, was: Talk with individuals to help foster the impression of concern but stonewall the general public. One smelter manager replied to a complainant: "The smelter was there first, so people knew what they were getting into when they bought in the area." Such thinking wasn't designed to build long-term support.

Charges swirled about Asarco for many years. Like the arsenic collecting in the dirt, resentment was piling up. Advancing environmental information gave clear direction and focus to people's concerns.

It took a very long time before Asarco took much note of community concerns. It took until 1972 when Armand Labbe had a garden planted on Asarco grounds to prove the fumes had no effect on vegetation. By then, events had moved beyond his power to add or subtract.

Appendix D—Response by Asarco's Attorneys

The following communication from Attorney Michael R. Thorp on behalf of Asarco, Inc., was received by the City Club.

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December 20, 1989

Bruce D. Mann, Chair
Asarco Study Committee
City Club of Tacoma
Room 201
950 Fawcett Avenue
Tacoma, Washington 98402

Re: Asarco Site Discussion Paper

Dear Mr. Mann:

Thank you for the opportunity to comment on the draft Asarco Site Discussion Paper. Asarco also appreciated being allowed to respond to the paper at the dinner meeting on December 6, and would like to set out in a more organized fashion our comments on the draft paper.

First, Asarco has not ruled out any possibilities for development of the smelter site, either by itself or others. The City Club report contains some intriguing ideas for possible public and private use of the site. Asarco would be pleased to work with local governments and concerned citizens on ideas such as those discussed in the report when everyone has enough information about the cleanup to make meaningful plans. At this point it is too early in the Superfund process to know what the cleanup of the site will be, and how that remedy, which will be selected by the Environmental Protection Agency (EPA), not Asarco, will affect future development. The company hopes that City Club members will learn all they can about EPA's Superfund process and participate in the public hearings that EPA will be holding in 1990 on the smelter site cleanup.

The draft discussion paper is a good vehicle for stimulating discussion about the future of the smelter site. However, the draft paper contains some factual errors. The following is a response to some of those misunderstandings.

Page 1

The "Minimum Cleanup" scenario is simply not an option for the smelter site. While the description provides a dramatic introduction to the topic, it is counterproductive and harmful to informed debate to suggest that the "Minimum Cleanup" is a realistic scenario. The cleanup alternatives analyzed in the Feasibility Study (FS) do not include such an option, for the very good reason that neither the state nor federal government would allow such a situation to exist.

Before any final cleanup begins, Asarco will demolish all of the structures now on the site, including the stack. None of the buildings will be left "to house contaminated soils moved from other parts of the site" as suggested in the "Minimum Cleanup" scenario. Storage of hazardous waste in the site buildings would be against state and federal law and is not even a remotely realistic possibility.

Asarco urges City Club to remove the "Minimum Cleanup" description from the final report. The smelter site cleanup involves enough complex issues without introducing false scenarios.

Page 2

The "Optimum Cleanup" described in the draft report is also not one of the alternatives set forth in the FS for the smelter site. The purpose of the FS is not to analyze or suggest land use decisions. Instead, the content of the FS is dictated by federal law. The FS analyzes cleanup options in terms of short- and long-term effectiveness, implementability, cost, ability to meet cleanup standards for pollutants, and other factors.

The FS will be released to the public in early 1990. At this point EPA has made no decision on what the cleanup will be, and will not make such a decision until some time in 1990 after a series of public hearings.

Page 3

The draft report correctly describes the components that EPA has set up to deal with the smelter site: 1) off-site publicly accessible properties in Ruston; 2) off-site private properties in Ruston; 3) offshore areas; 4) building demolition and site stabilization; and 5) on-site remediation. No final decisions have been made by EPA or Asarco on any of these components, except for the interim emergency measures for 11 publicly accessible sites in Ruston. Construction on those sites will be completed this spring. All of the remaining cleanup components will go through EPA's public hearing process before any decisions are made.

Page 3, Note C

No decisions have been made about the cleanup of the area offshore from the smelter site. The third full paragraph on page 3 and Note C of the report are incorrect in their description of the supposed cleanup of the offshore area.

Asarco is still gathering data to attempt to determine the extent of the contaminated sediments off of the smelter site. The initial data collected during the smelter remedial investigation showed that there has been much less damage to marine life off of the smelter site than everyone had feared. See pages 26-27, EPA, Commencement Bay Nearshore/Tideflats Record of Decision (Sept. 1989). Asarco will be working with EPA and its contractor to refine the area that will need remediation.

Asarco is now writing a draft study which examines cleanup options for the offshore area. All of the alternatives would include stabilizing the shoreline so that slag will not erode into Commencement Bay. None of the alternatives involve putting dredged material on the smelter site. Upland disposal at any site has been eliminated because of the difficulties of dewatering the dredged materials, and extreme unlikelihood that a suitable disposal site could be found.

Page 3, Note E

Asarco is now revising the draft feasibility study on the smelter site. The study has undergone intense review by EPA and the Washington State Department of Ecology, and the alternatives for cleanup scenarios have changed several times. The report as it is currently written analyzes nine alternatives. The "Minimum Cleanup" and the "Optimum Cleanup" described in the City Club report are not among the alternatives under consideration.

Asarco encourages City Club members to read the final feasibility study when it is issued. We think it will give you an idea of the complexity of the problems at the site, and that it will stimulate informed discussions about the future of the site.

Page 4, Note F

Some of the alternatives now in the feasibility study do include the use of an on-site containment facility to deal with contaminated soils from the smelter site, the Ruston emergency removal, and some demolition debris from smelter structures. The OCF would not be able to accept wastes from other sites or companies. It would not have a permit to do so, nor would it have the physical capacity to hold other wastes. It would not include any dredged materials from the offshore area.

Most importantly, the area containing the OCF would not be permanently removed from development. Under federal regulations, the OCF would have to undergo a 30 year "post-closure" monitoring period. But even within that period, EPA could allow development on the OCF site if it determines that public health and the environment would not be endangered by the development. Consequently, it is not true, as stated in the City Club report, that "[t]his hazardous waste dump site would remain forever inaccessible on the public, never available for development."

Pages 5-6

Asarco recognizes that if the smelter site were not contaminated, it would be a very attractive area for residential development. The City Club report should acknowledge, however, that it is highly probable that any cleanup will include deed restrictions prohibiting residential use of the site. Asarco has agreed to implement such measures if they are part of the cleanup remedies selected by EPA. The restriction on residential use is necessary to minimize human contact with the hazardous substances that may remain over time in the groundwater and soil at the site.

Any future use of the site will be carefully scrutinized by EPA to make sure that the development does not jeopardize the elements of the cleanup. Compatibility of any future uses of the site with existing uses in the area would be a factor considered in any land use review by Tacoma or Ruston, and in any environmental review under the State Environmental Policy Act (SEPA).

Given the present uncertainties about the elements that will go into the site cleanup, Asarco cannot comment on the development scenarios recommended in the report. Asarco's first priority is to implement a cleanup that will meet applicable environmental standards. The company is working with EPA to develop alternatives in the FS that will achieve that goal. We hope that the final City Club report will acknowledge the complexity of the cleanup decisions at the Asarco site, and that it will inform your members of the opportunities for public participation in the Superfund process.

Please feel free to call me if I can provide you with any more information about the smelter site remediation.

Very truly yours,

HELLER, EHRMAN, WHITE & MCAULIFFE



Michael R. Thorp
Attorneys for ASARCO Incorporated

Appendix E—Responses and Interviews

The City Club study committee asked 14 Ruston contacts to respond to a questionnaire about the future of the Asarco site. The questionnaire was administered by Committee Member Jean McCord and Ruston Town Council Member Karen Pickett. In addition, eight key figures were interviewed on the record by Committee Member Franklyn Hruza. The various responses and written responses to the discussion paper from three City Club members are abstracted below.

Ruston Community Responses to Committee Questionnaire

WHAT WAS? (History, insight, pertinent anecdotes, etc.)

- Used to be stores on every corner, laundries, boarding houses, etc. There were houses over where the railroad tunnel is; they were moved.
- There was a bad smell, and traffic was bad at shift change time. The respondent remembers one night when the smelter “mistakenly” fumed in too heavy a concentration of something bad. When he woke up he found his car had green stripes. Asarco very readily agreed to pay for a new paint job, transportation to the body shop, etc.
- There was a more cohesive sense in the town, unity, when everyone centered around life at the factory. You didn’t need a watch; the whistle blowing was the only timepiece you needed. Asarco was the central foundation for everyone; everyone worked there at one time or another.
- The fire department was activated by the whistle on the smokestack. The snow was often removed with Asarco equipment. When the plant was in full operation, it provided about 1/2 the town’s revenue (in real estate and B&O taxes, about \$5 to \$6 thousand per month).
- Asarco was a bustling, formidable industry. Once employed 11,000 people; largest employer in the area. It kept working even through the depression. It was a benefit for Ruston and Pierce County as well. Respondent misses the whistle, residents got up by it, sent their kids to school by it; it was used for fire call-outs, too.
- No bad smell; St. Regis is worse than Asarco ever was. Minor traffic congestion at shift change. On rare occasions they would wake up to purple streaks on the house from the smokestack, but it would usually hose off. Asarco would always replace damage if needed. Most of the burning was done late at night. Her husband’s boss (older man) went to school in North Tacoma and says they used to open the window at lunch to breathe deeply of the Asarco smell because they believed it was good for them.
- Has lived in town about 7 or 8 years, about one block from the smokestack. Recalls good times when the smelter was operating. Most problems with the smokestack emitting “problem” things (i.e., chemicals that would strip paint) would bypass his place and hit the next few blocks.
- Asarco was and still is a very visible part of the Town of Ruston. In fact, for the majority of the people, Asarco was thought to be Ruston. Because of Asarco, Ruston was able to provide many services to its citizens. The tax base Asarco provided enabled the Town to pave almost all of the streets and alleys within its boundaries. There used to be free garbage pickup twice a week at no cost to the citizens. The Town was able to purchase the necessary equipment to provide first-class fire protection and to maintain the Town infrastructure. Asarco also provided assistance to the Town when asked. Asarco was good to the Town and I am sure the Town was good for Asarco.

- Close to 1,700 people employed at Asarco from all over—Puyallup, Federal Way, etc. It was also a regular melting pot of nationalities: Austrians, Scandinavians, Scots, etc., etc. People made a good living; they stayed a long time. Asarco promoted from within. Since it had no mine, it was always a custom smelter. Industry made Ruston and Tacoma. Arsenic is nature's way of getting rid of bugs, not a carcinogen.

WHAT IS? (Physical characteristics, clearance and cleanup, needs of Ruston and Tacoma, etc.)

- Extremely acid soil, needs lime. Horsetail is "Ruston town flower." Question wisdom of capping soil—lose characteristic landscaping—can't dig down even to plant a rosebush, certainly not trees. Needs beautification. Would have to sweeten soil to make parklike. Soil needs analyzing, modifying. Cadmium, copper, lead, etc., as well as arsenic. Horticulturally, hard to say what, if anything, should be saved.
- The tunnel belongs to Ruston, but the property above it belongs to Asarco. The yacht club is all on slag, but too many politicians will keep the yacht club from having to do anything. Ruston has 300 feet of waterfront and a beat-up dock on the Point Defiance end of the Asarco property, before the yacht club. However, Asarco owns the land behind it.
- The EPA soon will be signing the cleanup agreement with Asarco. Cleanup is to begin this spring and it is my belief that the smelter smokestack should come down prior to the cleanup of other Asarco property because of its visibility and constant reminder that there was a smelter there.
- The sooner the better for cleanup; it's an eyesore right now. Need that property usable again for Ruston.
- The character of the town is changing now, and will continue to do so. It seems that Tacoma needs to extend its roadway to Point Defiance, while Ruston's primary need is to preserve its economic base at the Asarco site.
- The site is built mostly on slag (the existing buildings), as is the Tacoma Yacht Club. There is no way to remove it all.
- Stack is a major landmark. Most of Rust Way, Tacoma Yacht Club, is built on slag. Cleanup is necessary. Tacoma and Ruston both need a viable industry there.
- Ruston needs to broaden its tax base and increase litter and yard cleanup. Would like to see the cleanup process speeded up, but realize that is unrealistic. Should eliminate tunnel with better road, but maintain railroad.
- Wants to see site cleaned up soon. Feels EPA is dragging its feet and slowing the process (job security). He wants to see what buildings have to be removed.
- The Asarco site makes up over 30% of the property within Town boundaries. Much of the site is covered with buildings of one sort or another. The waterfront is made up of slag. There is some open land above the stack. Currently the Asarco site is providing no tax revenue to Ruston. Ruston Way and the main north/south rail line pass through the site.
- The site is the finest port around, with three good docks—the ore dock, the copper dock, and a small dock. The port was mostly made by slag fill-in, as was the yacht club, which was moved from its formerly unprotected site. The EPA made a tremendous mistake in closing Asarco, but the EPA has to justify its existence.

WHAT IF? (Freewheeling brainstorming on possible uses, keeping within the bounds of possibility but not necessarily probability.)

- Tie the waterfront in with the park, draw people to the waterfront—joggers, bikes, traffic. A marina for transient boats—could bring tourists to the park, shoppers to local stores within walking distance. Set up barbecue stands, on-shore picnic facilities. Boat storage. Mix of retail shops and various-priced restaurants. Put a KOA at Point Defiance where the amusement used to be, with secure restrooms; now there is no campground this side of the Narrows bridge. Open up the tunnel, redo it or straighten out 51st. Now no signs at the intersection to Point Defiance. Bypassing 51st would kill the little neighborhood grocery and the stores at 51st and Pearl; ferry traffic provides a good portion of their trade. A transit center, park-and-ride, trolley.
- Commercial—shopping complex, well-designed offices. Dry boat storage. If well designed and appropriate, a 30-story building. Continue the waterfront road to the boathouse. Hotel, using the railroad tracks for public transit. Not industry. Industry doesn't fit in a residential-park-tourist-oriented area.
- It is my belief after much discussion with the Clerk-Treasurer of the Town of Ruston that the best use of the Asarco property, if Asarco has not already made their own plans, is to change the zoning from heavy industry to commercial and encourage the development of a well-planned business park. It would be necessary for the developer to install the necessary streets, sewer, water and electrical needs for the business park, as Ruston could not defray these costs.
- Could zone it light commercial (trade-free zone). A small assembly plant with park area. Could build good road that Ys at 51st; with one leg going up 51st and the other going around to the ferry. Not zoned for recreational only. Could fill stack with concrete and encase the outside with concrete and put a restaurant on top; it would save time and money and the restaurant would have a great view.
- Light industry is still possible. Commercial, perhaps a marina, is probable.
- Would like to see primarily park usage, amusement park perhaps, something to draw in families, tourists.
- Need a better road to extend Ruston Way. Need some commercial use consistent with a waterfront focus. Some want a park, but who will pay for it? Need something there that will produce revenue for Ruston. Probably will never be able to build high-rise buildings, as the whole site will probably be paved. [The Port of Tacoma has gathered a *lot* (room full) of information on Asarco because of its lawsuit. We could perhaps look through it. Jim Mason, Port of Tacoma Attorney, City of Ruston Attorney.]
- Possible uses now limited by EPA requirements. No deep foundations allowed, so only warehousing, storage; about only uses left. Recreational uses also.
- Ferry terminal at site is one idea. Restaurant on top of stack (reinforce it and preserve it as a landmark). Light industrial mixed with retail with water view and access, i.e., marina. Perhaps Asarco could donate office buildings for new town hall. Would not want to see housing; not as great a tax base and because it would be higher-income housing; residents there would change the character of the town and would lose the small-town atmosphere.
- Port uses possible; there was a chance for a boatbuilding company to take over the site about the time Asarco shut down, but EPA stopped it. He sees that as a possible type of port use. Site does have rail access, but not good road access, which limits its industrial use. He had spent some time with Ryan Petty, Chair of the Tacoma/Pierce County EDB, in the past. They discussed using the upper lot especially for office buildings, with good access to downtown. Some type of small manufacturing for use of part of site. Does not favor residential use because not enough tax base. It has only been suggested by others, not by Asarco or locals.

- The U of W's Tacoma branch campus were built on the Asarco site?
 - The stack were encased in concrete to preserve it?
 - A restaurant were built atop the stack?
 - The site were developed into a business park?
 - A boat launch were developed on the site?
 - The tunnel could be eliminated by rerouting Ruston Way?
 - A waste site were developed there?
- Industry—smelter or some other type—but the EPA would probably hound it. Besides, as long as the EPA says the site is contaminated, no industry would want to locate there. The Town of Ruston wants industry, has to have industry to have a town. Put a roadway from the waterfront up 51st; the yacht club wouldn't want the road put through along the waterfront. Eliminate the stack and its hillside to do the roadway.

WHAT BEST? (Given your knowledge, what use or uses do you think would be best? Why?)

- Need to move away from historical aspect of Ruston, smelter site, "rich history" of smelter, etc. Has bad effect on Ruston. Away from dirt, chemicals, smokestack. Waterfront site could make it waterfront community. Tie in to Point Defiance. Change name of town to Point Defiance. Keep town and its quaintness, but with a new, clean, image. Antique shops, flower baskets on poles, etc. Get rapid transit through this and on to Lakewood. Multiple uses—deep water port, light industrial, shopping, exporting and importing, extension of park, Ruston Way, quiet amusement, restaurants, use the beautiful waterfront. Better, more stable, tax base. Not heavy industry, which pollutes, brings down whatever is near it.
- Raze buildings & make property available for industrial use to produce revenue for the town. Not services. Deep water, rail, etc., make it ideal for industry. Use entire site for various industries. Labor-intensive industries. Perhaps some commercial.
- An attractive good mix of uses primarily to benefit the tourist industry.
- A business park would be an attractive addition to the shoreline and hopefully bring in enough revenue to compensate the town for the additional services they would be called upon to provide. The tunnel should be eliminated and a road put across Asarco property, starting at the point where N. 51st street joins Gallagher Way, map enclosed.
- No industry. It should be all residences, preferably single-family. This is one of the most beautiful spots for residences. The waterfront should include short-term moorage for tourists. It is not well protected from the winds and is not good for long-term moorage. Not more restaurants, but novelty shops.
- Marina with a large restaurant. A marina is suggested most in talk around Ruston.
- Disneyland-type park for kids.
- Hard to say as yet. Ideal would be a business park, educational center (UW branch?), mini shopping center, and water-related activities, i.e., marina—all incorporated at present site (as no high-rise buildings are needed for these uses).
- Commercial use; gives \$ the town needs, even though it can survive without them.
- Mixed use, manufacturing or warehouse use with office building. He has some info from the planning commission's meeting when they addressed future use possibilities at a meeting when writing the comprehensive plan. Although it is not final, we could probably get a copy.

- The rehabilitation of the property so as to allow the development of an aesthetically pleasing area that will generate tax revenues for the Town of Ruston.
- The smelter should continue; it could be rebuilt. Ruston and Tacoma are now going on momentum but can't keep on like that. One in seven needs to be employed in industry to make a town. Parks and recreation aren't needed if there is no industry. Mass transit is a good idea.

On-Record Interviews

1. **John J. Terpstra, Executive Director, Port of Tacoma (6/8/89).** The Port has not pursued any ideas of development of the site. When Asarco was closing down in 1985, the Longshoreman's Union asked the Port to consider if there was any possibility of utilizing the site for marine-oriented activities; the Port indicated no interest in the site.

The dock is exposed to north winds which can interfere with operations. The site has very little land back-up; a container operation would not work since each ship requires 40 acres for storage adjacent to the dock. There is a concern for contamination, but Terpstra doubts it is serious. He believes some kind of development should occur involving maritime commercial or light industry. The site and dock should be adequate to berth small ships or barges.

2. **Robert J. DeWald, Director Port Development, Port of Tacoma (6/9/89).** Smokestack and heavy industries are waning in Tacoma, so we need to utilize our deep water port and Commencement Bay. We are sending the wrong message with the way complaints are being handled from homeowners above the Sperry Dock. We are saying to the steam ship industry that we like your money, but we don't want your ships along the waterfront.

In response to my question, DeWald said the Asarco site is not adequate for a grain terminal and the Port does not need another one. The site could be used as a transfer point for the vast quantities of ores which are deposited in Alaska and other parts of the world. Alaska has a major transshipping need: e.g., Chehalis is running out of coal for its power generating facility and Alaska has abundant coal reserves. The railroad access adjacent to the dock would work out well for transloading minerals. It has back-land for hopper cars (ore containers). It could create a first class maritime industry for Tacoma. We should replace our smelly industries with maritime activities. Simpson and Asarco have probably cost Tacoma more investments and jobs than either of them ever created.

3. **Curtis Dungey, Manager, Asarco Site Cleanup (6/9/89).** We are under a Consent Order of the EPA Superfund to clean up the property and remove certain smelter structures. We feel the stack is a liability. A 1986 stack study revealed that the top portion is severely deteriorated; also, the inner liner is deteriorating and bricks are sloughing off. With repair, the stack probably could remain another 70 years. Asarco has submitted a proposal to EPA for its demolition.

The community thinks there's a lot of contaminants in the stack, but our studies made in 1986 and recently show that the contaminated dust in the stack has been washed away by the rains. The stack (which is 562 feet high) will be imploded and fall within an area 180 feet long by 50 feet wide. (The base of the stack is five feet thick.)

Asarco's main objective is to remediate the site, capping over any contamination if necessary, in order to make it acceptable so the property can be restored to the tax rolls.

Under the Superfund Law, Asarco can't "sell away" its liability. Under the EPA risk assessment requirements, which are driving the cleanup, the property is ours for at least three to five years (i.e., it will take at least that long to finish). We are still learning how to move ahead under the EPA Superfund requirements. The risk assessment done by EPA assumes that people are standing in a particular area and ingesting (eating or breathing in) the soil.

4. **Charlene Hagen, Councilwoman, Ruston Town Council (6/9/89).** There has been no discussion by the Town Council about any possible removal of the stack; i.e., no one has said "for" or "against." The Town Council has just adopted a comprehensive plan for the Asarco property which proposes continued industrial use. The Town Council is having a meeting with EPA and Asarco on June 20th and possibly there will be more information then.

5. **Peter Katich, Shoreline Management (Permit Planner), City of Tacoma Planning Department (6/23/89).** The City of Tacoma has identified the portion of the Asarco property within the city limits (in its *West End Plan*, adopted October 1985) as a "high intensity" development area. He read from the plan, page 55 ff:

- a. Any potential industrial redevelopment of the site must be reviewed in light of the substantial low density residential character of the surrounding area. While the site offers much in the way of accommodating another heavy industrial use, i.e., deep-water exposure, nearby rail lines, level land, etc., only those uses which are relatively nuisance-free and can meet strict standards of operation and performance should be considered for reuse of the site.
- b. Unusable buildings and those determined to be dangerous should be dismantled and/or removed after closure in a safe and timely manner so as to immediately improve the appearance of the site and assist in reuse of the site consistent with the above.
- c. Investigate the possible extension of the Ruston Way roadway through the Asarco site with the Town of Ruston to connect with the Ferry Landing Road in Point Defiance Park and to provide an improved connection to North 51st Street.

On February 3, 1987, the Tacoma City Council adopted ordinance #23778 designating the Ruston Way area, including the Asarco property, as S-6 Shoreline District, under the Shoreline Management Plan. The ordinance reads as follows:

"S-6" Shoreline District is the urban environment designation in the City of Tacoma's Shoreline Management Plan which applies to the area along Ruston Way bounded by a line lying two hundred feet landward and generally parallel to the ordinary high water mark of Commencement Bay. The intent of the "S-6" Shoreline District is to encourage development of a coordinated plan of mixed public and private water-dependent and water-related use activities including commercial, recreational and open space development. It recognizes the continued operation of pre-existing uses, but prohibits development of new residential and industrial uses.

Katich said once the land is available for redevelopment, the City was looking at something of a less intense land use nature than Asarco's activities, in the area of port and water related industry. He did not rule out the possibility that some land uses proposed for the property in the future might be more intense than the City's plan proposes, but that any request would be considered under the Shoreline Management Substantial Development permit procedure.

6. **Charlene Hagen, Councilwoman, Town of Ruston (6/23/89).** The Town Council met with Keith Rose (EPA) and Curtis Dungey (Asarco) in a study session on Tuesday, June 20. Rose was not happy that the meeting was open to the public. The Town's comprehensive plan proposes industrial use for the Asarco land.

The Town is trying to get an on-the-job-training volunteer building inspector from the State of Washington program to assist in developing a list of appropriate land use categories which would be incorporated into an Industrial zoning classification. Hagen said there is no real hurry since everything is in limbo until Asarco completes the environmental restoration work on 11 properties in Ruston and North Tacoma required by the Administrative Order on Consent with EPA, and all of the cleanup activities on the Asarco site (which Asarco estimates will not be finished before the mid-1990s). The main concern of the Ruston Town Council is that it not be held responsible for handling hazardous waste removed from the 11 lots and stored by Asarco on the smelter site. (Several of the 11 cleanup sites are owned by Ruston.)

It is Hagen's opinion that the Town Council should do its own health study on the effects of arsenic on the town's residents from airborne dust. The "Pathways Exposure Study" done by the University of Washington several years ago identified arsenic in urine and hair but didn't determine the point of origin for the arsenic. EPA says there aren't enough people in Ruston to justify such a study, so Hagen is exploring other ways it might be accomplished. It is Hagen's opinion that Asarco will never sell the property because of the contamination liability. She was puzzling about other land uses to which Asarco might put the property in the future.

7. Curtis Dungey, Manager, Asarco Site Cleanup (6/23/89). About the indemnity (or liability) question and whether Asarco might use the site for some other activity, he said the company had never expressed an opinion about what it might do with the property. In the past, Asarco has sold property elsewhere and then had to go back in under EPA Superfund requirements and clean it up. He said that "we" (the Asarco employees on the smelter site) had come up with the notion that the company should hire a consultant with property development expertise, but that the offices in New York were not convinced.

The way things have gone in the cleanup of the site, Dungey estimates it will take at least five years (on the outside of EPA's estimate) to clean up the site to EPA's satisfaction. (Asarco had the choice of letting EPA do the cleanup or doing it "ourselves," and it decided that the best thing for Asarco was to do it themselves.) In response to my question, he said he wasn't sure how the proposed road through the site to the ferry dock at Point Defiance would fit into their remediation efforts.

8. Doug Pierce, Waste Management Section Manager, Tacoma-Pierce County Health Department (6/26/89). In response to my question of what future uses he thought might be appropriate for the Asarco site, he said he had to qualify his remarks: given that what he is saying is speculative, given it wouldn't be his role to propose redevelopment alternatives, and given that he possibly could offer some intelligent guesses since he's been involved with the property since 1981, he said it would be a benefit to Asarco to get the site "fixed," to get it back on the tax roll, and do something with it. Also, it would be a benefit to both the Town of Ruston and the City of Tacoma to have the site usable for redevelopment.

Pierce believes it is almost automatic that there would be some kind of blend in new development with the existing Ruston Way shoreline character—probably a light-industrial maritime activity with a people-place corridor. But it will take at least five to eight years. He doesn't expect either the EPA or the Tacoma-Pierce County Health Department to be able to say that the site is clean until 1993 to 1995 at the earliest, probably longer.

Why so long, I asked. He said it's taken two years to study what to do to clean up the site. Extensive dredging of the offshore area is required; there is 'nothing' living in the water. There are 10,000 ppm of fine arsenic metals rolling around on the bottom. This will have to be dredged and then covered. Also, the outer perimeter of the slag will have to be encased since it continues to leach arsenic. Asarco has three years to present a dredging plan. It will probably take two years in preparation, and then a 6- to 9-month public comment period. This is in addition to the abatement of the land contamination. If all of this is accomplished by 1995 and the site is declared reusable, then it will require at least another two years to develop plans, then approval hearings, financing and, just maybe, construction.

Abstracts of Letters in Response to Discussion Paper

Karl Anderson—An excellent report. Much of the Ruston Way traffic problem could be solved by building an elevated roadway over the railroad tracks. This could begin at Schuster Parkway and go all the way to Ruston—could include parking. The amount of money Asarco has budgeted to remove the smokestack is enough to permanently seal and reinforce it to remain as a community landmark. What effort has been made to consider this?

Sally Flint—My property is at 5411 Court Street The yard has five mature fruit trees and grass. EPA's original plan was to bulldoze off the top soil and hydroseed. EPA was not able to explain how this could be done without disturbing the roots of the fruit trees and possibly killing them. If the hazard is in the dust, surely bulldozing up all that soil would pose more of a hazard than leaving it where it is, nicely held in place by grass What about damage to the streets of Ruston by all those heavy trucks? Since arsenic is not readily water soluble, is the concern about leaching it into the Bay really valid? Far better not to have such an elaborate cleanup, but get the playground taken care of.

Ben Gilbert—No doubt they (Asarco) will make a case for less than a satisfactory cleanup, perhaps something more than "minimal," but undoubtedly less than "optimal." The danger is that EPA, Tacoma, and Ruston will let the firm off with a half-baked solution. Ultimately, there may have to be a significant public contribution The discussion draft correctly urges a public-private partnership For relief from further cleanup costs, Asarco might want to donate the site to a public-private corporation commissioned to develop it in the public interest. The liability question is a related matter An Asarco offer to donate the site could become a vehicle to resolve that question for a use in the public interest. We cannot allow the site to be locked up, even if we have to spend public money to keep it available.

Appendix F—Notes and Sources

Notes

- ¹Environmental Protection Agency (EPA), EPA Docket No. 1086-04-23-106, Administrative Order on Consent, January 1989, p. 3.
- ²*Ibid.*, p. 4.
- ³*Ibid.*
- ⁴*Ibid.*, p. 5.
- ⁵*Ibid.*, p. 8.
- ⁶Department of Ecology, Proposed Plan for Commencement Bay Nearshore/Tideflats Superfund Site, February 1989.
- ⁷EPA Presentation by Keith Rose and Janet O'Hara to City of Tacoma Environmental Commission, August 28, 1989.
- ⁸EPA Administrative Order on Consent, Attachment "A," Site Stabilization Plan, Phase II, January 1989, pp. vii–x.
- ⁹EPA Presentation, loc. cit.
- ¹⁰*Ibid.*
- ¹¹*Ibid.*, and statement by Allen Bakalian, EPA staff attorney, telephone conversation, 1989.
- ¹²Pierce County Department of Economic Development, The Strategic Planning Task Force, *Pierce County Strategic Economic Development Plan*, prepared for the County Executive and County Council, December 8, 1987.
- ¹³Of the three broad goals identified by the Task Force, two relate to quality-of-life issues: 1) Improve the Quality of Life (four specific strategies) and 2) Expand Educational and Personal Development Opportunities (three specific strategies).
- ¹⁴See, for example, Bruce D. Mann and Ernest F. Combs, *An Economic Assessment of Pierce County*, Tacoma-Pierce County Economic Development Board, August 1983.
- ¹⁵See, for example, Tacoma-Pierce County Chamber of Commerce, Waterfront Task Force, "The Tacoma Urban Waterfront," September 1988.
- ¹⁶A sampling of local (countywide) studies that dealt with the importance of environmental and quality-of-life issues would include: U.S. Department of Defense, Office of Economic Adjustment, *Economic Adjustment Plan for the Tacoma Area of Washington* (September 1976); Pierce County Subregional Council of Governments, Economic Development Technical Advisory Committee, *A Report on Economic Development in Pierce County* (April 1981); the Fantus Company, *Targeted Industry Analysis*, prepared for Tacoma-Pierce County Economic Development Board (August 1983); Puget Sound Council of Governments, *Pierce County Industrial Site Atlas* (August 1984); Richard Carlson, SRI International, *Strategies for Tacoma's Economic Development*, Phase II (April 1984); Suzanne Brainard, *A View of Washington's Business Climate as Seen by High Technology Executives*, WHTCB Report Series #12, Washington High Technology Coordination Board (December 1985).
- ¹⁷City of Tacoma, Ordinance No. 23778, Shorelines District Designations, S-6 Shoreline District designations for Ruston Way including Asarco property, February 3, 1987, paragraphs 13.10.030 and 13.10.090.
- ¹⁸City of Tacoma, City Planning Department, *West End Plan* (An element of the City's long-range comprehensive Land Use Management Plan), October 1985.

- ¹⁹City of Tacoma, City Planning Department, *Master Program for Shoreline Development*, December 1976.
- ²⁰City of Tacoma, City Planning Department and Metropolitan Park District, *Shoreline Trails Plan*, December 1989.
- ²¹City Club of Tacoma, Research Report, *Dome to Defiance; Tacoma's Urban Waterfront*, May, 1988.
- ²²Tacoma-Pierce County Chamber of Commerce, loc. cit.
- ²³City Club of Tacoma, op. cit.
- ²⁴See Bruce Lund, "Results of Ruston Needs Assessment Survey," Pierce County Department of Community and Economic Development, February 6, 1988.
- ²⁵EPA Order on Consent, op. cit., pp. 5-6.
- ²⁶Black and Veatch, Final Endangerment Assessment, Ruston/ Vashon Island Area, prepared for State of Washington Department of Ecology, September 1988, p. 1-3.
- ²⁷*Ibid.*, p. 1-1.
- ²⁸*Ibid.*, p. 10-1.
- ²⁹*Ibid.*
- ³⁰*Ibid.*, p. 10-2.
- ³¹EPA Off-Site Remediation Consent Order, March 8, 1989.
- ³²*Ibid.*
- ³³EPA Presentation, loc. cit.
- ³⁴EPA Superfund Fact Sheet, July 14, 1989.
- ³⁵Letter from George W. Anderson, Executive Vice President of Asarco, to Robie Russell of EPA, August 18, 1989.
- ³⁶Letter from Charles E. Findley, Director, Hazardous Waste Division of EPA, to George W. Anderson, Executive Vice President of Asarco, August 30, 1989.
- ³⁷PTI Environmental Services, Commencement Bay Nearshore Tidelands Integrated Action Plan for Washington Department of Ecology, December 1988, and Department of Ecology, op. cit., pp. 76-77.
- ³⁸EPA Attachment "A," op. cit., and letter from Keith Rose of EPA to Curtis Dungey of Asarco, July 17, 1989.
- ³⁹EPA Presentation, loc. cit.
- ⁴⁰*Ibid.*

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