WORKING DRAFT AUGUST 2012

SMELTER IN THE CITY:
USING THE HISTORY OF AN INDUSTRY AS A CASE STUDY TO EXAMINE THE SITUATIONAL COMPLEXITIES IN ENVIRONMENTAL EDUCATION

ASARCO IN EL PASO, TEXAS

Photo provided by Jim Wark, www.airphotona.com.

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I. **Understanding the Content in the Case Study**

Examples of large industries affecting the environment of the communities where they are located are abundant across the world. Educators may decide to create a similar educational module that addresses specific issues in their own communities. The content of this study is specific to the region around El Paso, Texas, and Ciudad Juárez, Chihuahua, Mexico. The case study is intended as an educational resource and lesson set for high school students but may be modified for middle school and possibly elementary school students.

For individuals living in the community, the story of ASARCO is not only fascinating, but often highly emotional. After reading the material, scores of young people consistently comment on the stories their parents and grandparents tell about working at ASARCO, living in Smeltertown, or experiencing the thick polluted air – a common experience for decades as the smelter operated in the middle of urban El Paso. The story of ASARCO remains an important part of the fabric of El Paso.

Although we don't often start our inquiry educational activities by reading about the topic, in this instance, the story is so compelling that we recommend that the students read the information. Here are ideas that the teachers in the project have used to introduce the ASARCO story in a comfortable and effective manner. The history is divided into 9 sections so the teacher can decide how to order the sections for reading.

- One successful option is for teachers to divide their classes into groups and each group read about two sections of the ASARCO story. Then, each of these groups creates a poster OF PICTURES ONLY – NO WORDS. Using this poster, the students in the group tell the rest of the class the information that they had learned as they read their sections of the ASARCO story.
- Another option is to have students read sections of the story and participate in a Cooperative Learning Jigsaw activity to share their section expertise with a group of students – one from each expert group.
- Educators might decide to use guided reading. In this, the teacher asks a key question about each section and the students read silently. After reading the section, students discuss the guiding question. For example, the guiding question might be, "Read this section to find out how ASARCO was created. When you find that answer, raise your hand." After 5 or 6 raise their hands and you have provided time for most of the students to finish reading, select one or more students to tell what they found out in the reading.
- Purposeful Reading is also effective. Create a large chart with four columns: Benefits to the area, Costs to the area, Other Interesting Facts, Questions. Students read silently and come to the chart to fill in the information as they find it in the article.
- After students have read (or listened to) the ASARCO story, teacher provides a set of sentence starters for them to use to elaborate their understanding.

II. Gathering the Local Histories

The ASARCO smelter was functioning in this urban area from the late 1800s through the late 1990s. Many citizens have their own memories of experiencing the polluted air, or they have heard stories from their parents and grandparents who lived near the smelter or worked in the smelter. A simple way to gather those stories is to create a Facebook page, Asarco Stories. Through the postings, citizens share their memories, and teachers share the work that their students create.

III. Expanding the Learning

Following are some of the activities that the teachers have created to explore the environmental education concepts related to the study of ASARCO.

- Students take samples of the soil at their homes or at relevant locations. They post the results on a map. Soil test kits are available through science supply companies. The high school chemistry teachers instructed the students to use acidic, nitric, and sulfuric acid washes and then observe the soil samples after the washes to determine the presence or absence of lead. Once you have tested with each acid in order, the precipitant will form. Milky white liquid if it has a small quantity. White solid particles if there is a large quantity. More information on the chemical analysis used in this activity and safety procedures is available at _____.
- Give students pieces of copper ore and refined copper to identify physical properties such as density, magnetic qualities, weight in comparison to iron, etc. Provide a short information piece on the transportation of copper and its use in electronics industry.
- Have students make a YouTube clip about the industry.
- One teacher wrote a song about ASARCO, sung to the tune of “Out in the West Texas Town of El Paso” by Marty Robbins.
- Students dress like and act out events relevant to the key players in the history of ASARCO creating a short play or character monologues --a living history.
- The smelter is in the process of demolition and the soil will be cleaned to industry standards. Then, the owners plan to allow light industry development on the old site. Students examine the issues surrounding the development on the reclaimed site. They present arguments that represent various points of view about the new development.
- Students create a children’s book about the smelter and read the book to younger children.
- Students make a slide presentation and present it to citizens at a senior center or other community group.
- Students create questions they would like to ask the smelter engineers, a local respiratory doctor, an air quality specialist, or a land developer. They organize the

questions into categories such as open-ended and closed-ended questions and conduct the interviews.
- Students extend the research to global look at copper/lead mining and smelting. Where is it happening now? How? Why?

IV. Assessing the Learning

A good assessment is a good learning experience, and we believe that assessment should identify what the student knows instead of what s/he does not know. Therefore, the assessment will be more open and inclusive. We recommend these kinds of activities for assessment.

- What do you know about ASARCO? Students work together in groups to write everything they can think of that they learned about the smelter on a sheet of poster paper. They have ten minutes to create this list. Then the group counts the items they have listed. The group with the most items written on the paper goes first. They read all of the things they learned to the rest of the class. As they read, the other groups will check off any items that are duplicated on their lists. Then, the remaining groups announce to the class any items that were on their poster papers that were not covered by the first group's presentation.
- Now, you can ask every student to list ten to twenty things they learned about ASARCO. This is an individual assessment within an allotted time frame (10 – 20 minutes). They are graded on content rather than spelling and grammar. Later they can make grammar and spelling corrections.
- Students and the teacher discuss a rating of Weak, Average, Strong for the following:
    - You created an information-sharing project and presented it in a public venue.
    - You learned from and with your classmates about ASARCO.
    - The information you presented was accurate and relevant.
    - You used proper academic language (English and/or Spanish) in your project.
    - You worked hard on the project.

ASARCO IN EL PASO
Case Study

Most of the information below is direct quotation from Their Mines, Our Stories, www.theirminesourstories.org/?cat=18 . The authors (Anne Fischel and Lin Nelson) have granted permission for Buen Ambiente, Buena Salud to use the information in the Air Quality Curriculum Project.

I. HISTORY

From, ASARCO Timeline in El Paso
acdrupal.evergreen.edu/envirohealth/.../**ASARCO+Timeline+El+Paso**,+TX.doc

1894: ASARCO operates a small hospital for employees and residents of Smeltertown… The hospital was founded by Dr. Michael P. Schuster of Kansas City…. The hospital operated for 66 years, closing in 1960.

1911: ASARCO workers had a front row seat in the Mexican Revolution. One revolutionary leader, Pascual Orozco set up camp across the Rio Grande from ASARCO, just a stone's throw from the smelter. El Pasoans came up from town and showed their support for those participating in the insurrection by throwing dollars and cookies across the river to the Orozco army.

1920 – 1930: Refugees from the Mexican Revolution – poor and without many resources, are able to find employment at the ASARCO plant. They are able to join the working/middle class with these jobs.

1933: The rev. Lourdes Costa, a Spaniard and pastor of San Jose Catholic church in Smeltertown, persuades members of the congregation to erect a huge cross at the peak of nearby Cerro de Mulerso.

1940: The 42 foot monument to Christ the King is completed and dedicated. "A monument to the dedication and commitment of the ASARCO workers who built it."

1967: ASARCO built the 823 foot smokestack which was, at the time, the largest in the world.

The railroads transformed mining in Mexico. Before 1880 copper was processed through a centuries-old small-scale patio method for deriving precious metals from ore. With the development of ASARCO's rail system, small-scale mining operations became huge labor and technology-intensive industries whose ownership was concentrated in U.S. corporate hands and whose profits flowed to the United States. By 1912 the value of mining operations in Mexico was estimated at $323,600,000. Of this wealth, Mexicans owned approximately $15,000,000, or less than 5%. U.S. companies, with ASARCO prominent among them, held over

60%. Understood in this way, ASARCO was one of the first transnational corporations, and its extraordinary growth depended on the complex relationships that bound Mexico to the United States.

In 1910 the El Paso smelter was expanded to process copper as well as lead. The ores produced at ASARCO's Mexican mines were transported to El Paso to be smelted. Mexican workers also crossed the border to work at the smelter, swelling the population of the developing city. In 1890 the population of El Paso was approximately 10,000; by 1910 it had reached 39,279; by 1925 its numbers had virtually doubled to 77,560. The population was, and continues to be, primarily Hispanic.

The ASARCO smelter was central to El Paso's economy. By 1927 The El Paso Herald reported that the smelter employed 800 workers and commanded a "million dollar payroll". In 1929 the El Paso Evening Post described the smelter as "the largest and practically the only customs smelter of its type in the world." "During an average year," the Post wrote, "the El Paso smelter…receives more than 310,000 tons of copper, 30,000 tons of lead, 61,000 ounces of gold and 5,000,000 ounces of silver." The wealth produced from this vast quantity of metal was estimated at $22,000,000 for the preceding year. In 1948 the plant was again expanded to incorporate a zinc smelting facility.

Even as other businesses settled in El Paso, the smelter continued to dominate the city's industrial landscape. In 1952 Ben Roberts, the smelter's manager, addressing the Rotary Club at Hotel Paso del Norte, discussed the strategic importance of the railroads, claiming that 25% of industrial shipments arriving in El Paso were destined for ASARCO.

2. POLLUTION BECOMES EVIDENT

Joe Piñon, an El Paso pharmacist, remembers that in the 1950's ASARCO's emissions had a serious effect on the city's air quality. He asked the city to seek funds for testing in order to determine the types and quantities of toxics from ASARCO's emissions.

As a pharmacist, Piñon was well aware of the dangers of lead, arsenic, cadmium and other byproducts of smelting. Piñon had observed physical problems in El Paso neighborhoods and among ASARCO workers. He thought the problems he had observed could be related to smelter emissions. It was common knowledge that ASARCO's emissions traveled across the border into Mexico, as well as into neighboring New Mexico, and that ASARCO often waited until the winds blew towards Mexico to increase its production. Piñon was especially concerned about the people who lived south of the Rio Grande River, in Juarez. For many years Piñon was virtually the lone voice calling for investigation of ASARCO's emissions. Piñon stated,

The media was pretty taken in by a group of people who called themselves the Industrial Betterment Council. This council was composed of leaders…within the various polluting industries of El Paso…its job was to report on the various improvements that the industries of El Paso were bringing about to change the pollution problems.

[One news writer] became the spokesperson for the polluting industries in El Paso…actually lauding the industry because of all the money that was being spent at the time on behalf of the city of El Paso. But to me, it was just a…fabrication.

In **1970**, following passage of the Clean Air Act, the City of El Paso sued ASARCO over its sulfur dioxide emissions. During the process of discovery ASARCO submitted documentation of its emissions to the city for the first time, Between 1969 and 1971 ASARCO's reports showed that it had **emitted 1012 metric tons of lead, 508 metric tons of zinc, 11 metric tons of cadmium and one metric ton of arsenic** (Landrigan, et al). On the basis of these documented emissions Bernard Rosenblum, Director of the El Paso City-County Health Department, estimated that 2700 persons between the ages of one and 19 would have blood lead levels at or above 40 micrograms per 100 milliliters—the safety standard for lead in blood at the time—and that residents within a four-mile radius of the smelter were likely to be affected. Alarmed, Dr. Rosenblum contacted the Communicable Disease Center (now the Centers for Disease Control) in Atlanta, Georgia, which sent Dr. Philip Landrigan and a team of researchers to investigate.

From NPR Report, **A Toxic Century: Mining Giant ASARCO Must Clean Up Mess**

Mayor John Cook and other longtime El Pasoans remember when the wind would shift to the south, the smelter would crank up production, and the smokestack would gush dirty yellow smoke directly into Juárez. "They could basically pollute as much as they wanted, because it was going into another country that had no ability to stop us," Cook said. As a result, sulfur dioxide and heavy metals fell on the colonias and schools and playgrounds of El Paso's sister city, where federal and state regulators had no jurisdiction.

"It is very clear that a majority of what came out of that flue and was deposited over 100 years landed in Mexico, " says Texas state Sen. Elliot Shapleigh, one of those who led the fight to close down ASARCO.

The tall smokestack emitted tons of lead, cadmium, and arsenic. High concentrations of these metals were found in the soil in El Paso, Ciudad Juárez and Anapra, New Mexico. The ASARCO El Paso Smelter: A Source of Local Contamination of Soils by Michael E. Ketter, 2006. Available at www.sierraclub.org/ed/downloads/ASARCO_study_13106.pdf

3. DR. LANDRIGAN'S FAMOUS STUDY

It was well-known that certain smelters emitted lead, that it might be a problem for livestock living near smelters, but that people didn't have to worry, that lead from smelters had never been shown to be a health hazard. So that was the context that surrounded our initial trip to El Paso. Quoted from Dr. Landrigan.

The El Paso City/County Health Department had sampled air, soil and dust in a variety of locations. Dr. Landrigan's team plotted the results in geographical relationship to the smelter.

That first study established that the smelter was responsible for lead contamination in air, soil and dust. Based on these initial results, the CDC research team conducted a pilot study of blood lead levels in children attending a nursery school in Kern Place, a prosperous neighborhood located approximately a mile from ASARCO's smokestacks.

The blood lead standard at that time was 40 micrograms per deciliter. In other words, a level below 40 was thought be OK. A level above 40 was cause for concern. What we found in our pilot test of these children from the preschool nursery was that about 3/4 of them had blood lead levels above 40 micrograms per deciliter. That immediately set off alarms, because even in the worst inner city neighborhoods…we had never seen 3/4 of the children with blood lead levels above 40.

Dr. Landrigan and his associates set up a plan to sample blood lead levels in children within approximately four miles of the smelter. They drew concentric circles around the smelter and divided them into zones: Zone One was set at a radius of approximately one mile from the smelter, and included the small Mexican-American community of Smeltertown, located immediately next to ASARCO and almost directly under the smokestacks. Zone Two was set at a radius of about 2.5 miles, and Zone Three was set at approximately four miles. Dr. Landrigan recalls that in Zone One the team "knocked on every door…Zone Two was every second door, and ZoneThree…was every third or fourth door." At each household blood samples were taken; soil, dust and paint samples were also taken; and if pottery was used in cooking, the pottery was tested for lead content.

When the results were released ASARCO argued that the lead did not come from the smelter, but from gasoline emissions along Interstate 10. But tests disproved this argument; the studies done by Dr. Landrigan's team demonstrated that ASARCO was responsible for the lead pollution found in Zones One, Two and Three. However, the researchers confronted another problem—the lack of studies demonstrating that the lead levels they had found could cause harm to children. The National Academy of Sciences study had asserted that lead from smelters was not harmful to human health.

In those days not too much was known about the toxicity of lead in children. Pediatric lead poisoning of course had been known since the early years of the 20th century…But lead poisoning was understood as an all or none disease. Either a child got terribly sick from a high-dose ingestion, or it wasn't an issue. People treated it almost as if it was a common cold; either you're sick or you're not sick, and there was nothing in between.

4. SCIENCE CENTERS AND BUSINESS GROUPS OPPOSE LANDRIGAN'S STUDY

The CDC team was asked by Dr. Rosenblum to design further tests to determine whether children in El Paso were damaged by their exposure to ASARCO's lead emissions. Meanwhile, other interests were converging on the El Paso lead controversy. The El Paso Pediatric Society issued a bulletin stating, "there is no evidence that there is a lead intoxication problem outside of Smeltertown" (quoted in Shapleigh 19). That same year the Lead Surveillance Committee of the El Paso County Medical Society announced, "any further massive blood lead sampling outside the Smeltertown-Old Fort Bliss area is at this time unjustified" (Shapleigh 19).

ASARCO also commissioned its own study which was carried out by Dr. James McNeil, an El Paso pediatrician, and Dr. Potasnick, a psychologist from the El Paso School District. McNeil's study, funded by the International Lead Zinc Research Association, a group connected to the metal industry, concluded that blood lead levels of 40 to 80 micrograms per deciliter were safe, provided a child received good nutrition. McNeil also supported ASARCO's claims that the children's elevated lead levels were based on exposure to lead-based paint, rather than company emissions.

In 1972 a Lead Surveillance Committee of the El Paso County Medical Society was formed. It included Dr. James McNeil, Dr. Bernard Rosenblum and Dr. Jorge Magaña, who would later become head of the City/County Health Department. The Lead Surveillance Committee took the position that further testing was unnecessary. They rejected a $50,000 grant from the CDC for Dr. Landrigan to continue his research. In 1973 they wrote the following letter to Dr. Landrigan: *I regret to inform you that our Board of Health unanimously voted to cancel the remaining portion of your study and in its place accept Dr. McNeil's study from the International Lead Zinc Research Organization.*

The Texas State Government intervened and insisted that Landrigan complete his studies. Dr. Landrigan recalls that the team had prepared a study design and returned to El Paso in the summer of 1973.

The CDC team administered Wexler IQ tests and a finger-tapping test of physical reflexes to children. A group of children with blood lead levels below 40 was also tested, but examiners did not know which group each child belonged to. *We found a significant difference between the two groups of children. The children who had blood lead levels over 40 had an average IQ on the performance scale of the Wexler Test that was about 7 points lower than the children who had*

the lower blood lead levels. This was a very statistically significant detriment in the kids' IQ. We also found they had a much slower reaction time. We had a finger tapping test we had designed that counted how many taps a child could do in 10 seconds. And we found that the children with the elevated blood levels were distinctly slower thaN their peers on this test.

Dr. Landrigan's research, and the results produced by the CDC team, contributed significantly to scientific knowledge about lead. It is now widely accepted that lead is toxic at levels as **low as 5 micrograms** per deciliter. It is particularly damaging to the developing brains of children. Dr. Landrigan refers to this as "subclinical toxicity."

5. THE FATE OF SMELTERTOWN

Smeltertown fell entirely within Zone One of Dr. Landrigan's study. Many of Smeltertown's male residents worked at ASARCO; some families had lived there for generations, since crossing the U.S.-Mexico border. In her study of Smeltertown, Monica Perales argues that ASARCO, through its Mexican subsidiaries and trans-national shipping routes, helped to create a "larger industrial zone" that transformed Mexicans into industrial workers and encouraged Mexico-to-U.S. migration (Perales, 5-6). Some workers and their families followed the shipping routes across the border, settled in Smeltertown, and found work at ASARCO or in nearby industries. The residents of Smeltertown built and owned their homes, but did not own the land on which their homes were located. Sewage and water systems were built by residents. Originally outside city limits, by 1972 Smeltertown had become part of the growing city of El Paso; it was an embarrassment to city officials and the company. According to Daniel Solis, a former resident, "Smeltertown essentially was an eyesore for El Paso."

Smeltertown was a close-knit, vibrant community. Monica Perales maintains that despite their marginal status, Smeltertown residents experienced a strong sense of identity that "resulted from a legacy of habitation…and was rooted in common language, immigration, work experience, socioeconomic conditions, religious traditions and cultural activities. These elements bound them together as a family, and contributed to what was a sense of 'emotional ownership' that Esmeltianos felt for Smeltertown" (Perales, 5).

The residents of Smeltertown experienced the discomforts of living with ASARCO's emissions on a daily basis. Sulfur dioxide, a major byproduct of smelting, creates foul odors and can cause breathing problems and irritation of the eyes, throat and lungs. Daniel Solis, a former resident of Smeltertown, recalls:

In July and August…our folks would bring us into the house, because the smoke, the pollution, the sulfur, would settle into our community for about 2 or 3 hours every day in the mid-day when there was no breeze to take that away. When we would breathe that, we could not be

outside because we were constantly coughing. So nobody can tell me that there was no ill effect on the majority of the folks that lived in Smeltertown.

Mary Romero writes that Smeltertown families tried early on to get the city to respond to problems of pollution. *Residents had organized in the 1950's in an unsuccessful attempt to get the city to pave Smeltertown streets and thus control the dust problem. Several parents had sought medical attention for children born with brain damage and other illnesses; not one case, however, had been diagnosed as lead poisoning. Past attempts to label health problems as pollution-related illnesses had been unsuccessful (Romero 35).*

The residents of Smeltertown were well aware of the discomforts from dust and sulfur dioxide emissions, but they were unaware of the dangers that lead exposure posed to themselves and their children. Initially the families reacted to the disclosures of lead contamination with great concern and cooperated with the research teams and doctors who came to test and treat the children (Romero, 35). Some children were taken out of the community to be tested—Daniel Solis' 4 year-old sister was taken to Chicago although, as, Daniel recounts, "She had never been to the airport, much less on an airplane." Most of the children were treated at local hospitals, using chelation therapy, a drug regimen designed to remove heavy metals from the blood. The treatment is painful, and can be prolonged.

During the trial, Ken Nelson, Director of Environmental Sciences for ASARCO, said that issues of lead contamination in Smeltertown had been "overlooked" by the company (Shapleigh, 15). ASARCO officials said it had "never occurred" to them to include Smeltertown in the company's air pollution monitoring system. A formidable team of trained physicians and researchers testified about the health impacts on children living in Smeltertown. When the defense ended its case, ASARCO chose not to present a defense. Instead, in 1972, the parties agreed to a settlement agreement that included fines, commitments to install new emissions control equipment, and a fund for medical care for children with elevated blood levels.

Perales argues that in the process leading to the legal settlement the needs and desires of many Esmeltianos were ignored. She writes, "While the company and city argued health and environmental policy, Smeltertown residents were concerned with preserving their community…In attending community meetings and telling their stories to the press, the residents continually stated their refusal to move and their desire to maintain a way of life that had existed for generations." Ultimately, ASARCO and the City reached an agreement over the objections of Smeltertown residents, that community members should be evicted and the community destroyed. Because the residents of Smeltertown did not own the land on which their homes were built, they were not eligible for relocation benefits (Romero 31). Some residents were eligible for public housing, and the city arranged for them to have priority access to new public housing projects. Others simply moved away.

Mary Romero points out that the demolition of Smeltertown represented the least expensive solution for the city and ASARCO. She writes, “Decontamination of the area and monitoring the health of Smeltertown residents demanded expensive economic commitments, not only from ASARCO, but from the city as well” (Romero, 31). She points to a statement by ASARCO’s physician that the continuation of Smeltertown would have required a greater commitments of funds and services than either the city or company was willing to provide.

If these families elect to move, it will of course simplify my job in relation to their continued exposure. If they elect to remain and are allowed to remain, then I think our interests for their children and their families should provide more than dust control. It should also provide drainage, it should provide garbage collection; it should provide sewage disposal; all of these factors as far as I am concerned are important to their makeup and their health (quoted in Romero 31-32).

Shortly after the trial concluded, business interests organized to defeat Mayor Bert Williams who had helped to spearhead the suit against ASARCO. In 1978, 5 years after the court settlement in which ASARCO agreed to install new emissions control equipment, Dr. Bernard Rosenblum of the El Paso City-County Health Department wrote that **El Paso continued to have one of the highest levels of lead in air in the United State**s. He warned that air lead concentrations in the city were increasing.

In 1979, after several postponements, ASARCO finally completed the installation of emissions control equipment at the El Paso plant. In 1982 the zinc plant was shut down; in 1985, the lead plant was closed; in 1986 the cadmium plant was demolished. In **1989 ASARCO approved the expansion of copper production** facilities at the El Paso plant.

6. ENVIRONMENTAL ABUSES DISCOVERED IN ASARCO’S PLANTS ACROSS THE NATION

In the 1970’s and 1980’s ASARCO’s plants around the U.S. were receiving heightened scrutiny from local, state and federal officials, workers, and environmental groups. In the early 1970’s high levels of arsenic were discovered in the urine of children living in Ruston, Washington, next to an ASARCO copper smelter, and a University of Washington researcher found that Ruston-area soils had eight times the amount of arsenic as the national average. Members of the United Steelworkers union in Ruston created a newspaper, “The Smelterworker,” whose first issue explored the problem of arsenic exposure. According to Rodger Jones, the newspaper’s first editor, “If they had concerns about the kids in Ruston and their exposure to arsenic, what about people working in the plant? There’s got to be some concern there!” Eventually the entire town of Ruston was declared a Superfund site.

In the early 1980's the National Public Health Service found that cadmium from ASARCO's Globeville, Colorado plant, had severely damaged workers' health and threatened local neighborhoods; the plant was closed **and several housing projects were demolished because of concerns about cadmium contamination**. ASARCO facilities in New Jersey, California, New Mexico and Arizona were also closed.

In 1989 a Steelworkers local in Hayden, Arizona, discovered that ASARCO had been systematically **falsifying the results of lung function tests for its Hispanic workers**, inflating them by 15% in order to conceal damage to their lungs. The union brought in Dr. David Parkinson from the Department of Community and Preventative Medicine, the State University of New York at Stony Brook, to investigate. In a letter to ASARCO's medical director, Charles Hine, Dr. Parkinson listed a number of pressing medical concerns, including the following:

(1) ASARCO's X-ray machine was not adequate to test larger individuals, and the results of the X-rays were not being properly reported to OSHA.

(2) Pulmonary function testing equipment was obsolete and had not been calibrated for at least two years, so that the readings it produced could not be trusted to be accurate.

(3) The medical records did not consistently show blood lead and urine arsenic test results.

(4) Chemistry test results suggested that workers had illnesses like diabetes or liver enzyme abnormalities—but there was no evidence that the workers had been informed.

In an extensive report, entitled "ARSENIC and ASARCO: The right to know, the right to live," Willie Craig, President of the local, wrote, "If a Hispanic employee has a pulmonary function of 85% of capacity, when using the Company's method, this employee is still rated has having 100% of pulmonary function…This practice instills a false sense of security within the employee." And Craig added, "It seems this practice could have a direct effect on the higher than normal lung cancer rate in the Hayden/Winkleman area" (emphasis in the original document).

Craig also raised questions about ASARCO's fugitive emissions and "the new technology of the flash furnace that began operation in 1983" and which "has greatly increased the amounts and concentrations of carcinogenic substances produced by the Hayden Plant." He concluded:

"It is my belief that the investigation performed has shown that ASARCO has willingly misrepresented medical evidence as gathered through the medical surveillance program at the Hayden Plant Clinic…Also ASARCO has conspired…to distort, misrepresent and mislead its employees, the public sector and various state and federal agencies [regarding] important information needed to protect the workforce and surrounding communities from excessive arsenic exposure."

In the mid-1990's the Copper Fist Coalition in Hayden, Arizona organized over 200 people to file a class action lawsuit against ASARCO for serious health impacts, including cancers and birth defects believed to have resulted from ASARCO's emissions. The suit was thrown out in early court hearings, then reinstated. It was eventually settled during ASARCO's bankruptcy. The community was awarded $4.8 million, of which 60% is estimated to have gone to attorneys to pay legal fees.

7. ASARCO IN EL PASO ILLEGALLY BURNS HAZARDOUS WASTE FOR A DECADE

In the early 1990's, with copper prices falling and many plants shuttered, ASARCO contracted with the Department of Defense to accept hazardous waste at its subsidiary, Encycle, in Corpus Christi, Texas. The waste came from DOD facilities at the Rocky Mountain Arsenal and Rocky Flats in Colorado and Tooele, Utah, among others, where napalm, saarin nerve gas, cluster bombs, plutonium and white phosphorous had been produced. The liquid "quench water" waste was shipped to Encycle, where a concentrate was made and shipped it to ASARCO smelters for incineration.

In 1998 the EPA discovered that Encycle/ASARCO, rather than storing the Department of Defense-originated hazardous waste, had been illegally burning it at its East Helena, Montana and El Paso plants. It is likely that the waste was shipped to other smelters as well. Under the Resource Conservation and Recovery Act (RCRA) some industrial activities can be regulated as recycling rather than waste management. Encycle and ASARCO insisted that the materials they received from the Department of Defense had significant amounts of copper and therefore qualified as replacement for copper ore. EPA concluded, however, that ASARCO had engaged in "sham recycling"—incinerating materials with no discernable copper content. The EPA report clearly documented this charge, demonstrating that for almost a decade at least 247 shipments, totaling approximately 5,079 tons of hazardous waste "that had virtually no metals value" had been received at Encycle and "incorporated into Ecycle alleged 'products.' The EPA wrote, "This activity, plain and simple, was illegal treatment and disposal of hazardous waste, since the wastes could not have contributed in any significant way to the production of the metals concentrates."

In 1998 the EPA and ASARCO signed two consent decrees, designed to resolve concerns about ASARCO's operations and ensure compliance with federal regulations. The first dealt with general operations, safety procedures and training at all ASARCO's remaining plants. The second specifically addressed the illegal incineration of hazardous waste. Under the terms of the two agreements ASARCO was to submit to regular inspections, produce periodic reports, strengthen its employee safety procedures, and pay over $50 million in fines. In El Paso the company made a commitment to the City of El Paso to spend $370,000 a year to pave city roads.

Under the terms of agreement ASARCO did not acknowledge any culpability for hazardous waste incineration. (In 2006 Tom Aldrich, Vice President for Environmental Affairs at ASARCO, restated the company's official position: that the materials received from Encycle "contained recyclable quantities of copper" and were "not particularly dangerous to human health or the environment.")

The settlement agreement reached by ASARCO and EPA did not include any provisions for testing workers, soil, air, water or community members for exposure to potential contaminants in the Department of Defense wastes. The El Paso community also was not informed about the illegal incineration of hazardous waste. It would be 8 years before the people of the El Paso border region began to discover the truth.

8. EL PASO, NEW MEXICO AND CIUDAD JUÁREZ FIGHT ASARCO'S PERMIT RENEWAL

In 1999, one year following the EPA consent decrees, ASARCO closed the El Paso plant, citing the falling price of copper as the reason for the closure. The company's official position was that the closure was temporary, but indefinite. The announcement shocked the community. ASARCO workers remember the day the closure was announced, and the bewildering rush of emotions they felt. Many went back to school to learn new skills; others sought new jobs .

In 1999 ASARCO was purchased by its Mexican subsidiary, Grupo Mexico, making Grupo the third-largest copper producer in the world. In 2002 Grupo purchased ASARCO's lucrative Peruvian mining affiliate, Southern Peru Copper Corporation, for what the U.S. courts later determined to be a below-market price. As ASARCO's assets were transferred across the border to Grupo's books, the Justice Department warned that ASARCO might be contemplating bankruptcy. An ASARCO bankruptcy would have jeopardized cleanups that had previously been negotiated at ASARCO sites throughout the country. As a condition for allowing the sale of Southern Peru Copper, **the DOJ required ASARCO to establish a $100 million trust fund to support its clean-up a**ctivities.

In 2002 ASARCO applied to the Texas Commission on Environmental Quality to renew the air permit which allowed the company to operate. But by this time conditions in the community had changed. El Paso had been relatively free of sulfur dioxide emissions for three years. Former workers had begun to focus on unexplained medical problems that began while working at the smelter. Linkages were developing between the working class communities and environmental groups in El Paso, Juarez and nearby Sunland Park, New Mexico, and people had begun to educate themselves about the dangers of ASARCO's emissions. The University of Texas at El Paso was found to have significant levels of lead contamination in its soils. Sunland Park, which had received significant amounts of ASARCO's emissions because of the prevailing winds, was identified as one of the most lead-polluted communities in the nation.

ASARCO request for Air Quality Permit No. 20345 Pollutants (TONS per year) Allowed
Lead 2.59
Oxides of Nitrogen 230.04
Carbon Monoxide 287.68
Volatile Organic Compounds 7.66
Sulfur Dioxide 6,673.15
Particulate Matter 352.60
Particulate matter <10 349.63
Sulfuric Acid 16.21

Activists have also become concerned about impacts on ground water and aquifers connected to the Rio Grande River, a source of drinking water and irrigation for both El Paso and Mexico. The Texas Commission on Environmental Quality documented levels of arsenic that are significantly above federal standards for drinking water. Other contaminants of concern that exceed federal standards are lead, cadmium, chromium, copper and selenium (ii).

A coalition formed, fueled by concerned residents, students, environmental activists, former ASARCO employees, and public officials. Several groups joined in, including Get the Lead Out (El Paso), the Sunland Park Grassroots Environmental Group, ACORN and the Environmental Center of Juarez. Together they focused their energies on educating their communities about the dangers of ASARCO's emissions and opposing the renewal of ASARCO's air permit. At the University of Texas, El Paso (UTEP), students organized their own movement to oppose ASARCO's air permit, Students Against ASARCO.

In **2005 ASARCO entered into Chapter 11 Bankruptcy**, citing its environmental liabilities as the primary cause. Operations at its Arizona mines and last functioning smelter in Hayden, Arizona continued. As part of the court process of corporate reorganization ASARCO was removed from Grupo Mexico's control and placed under the control of a board of creditors, which included the company's main union, the United Steelworkers. During this process ASARCO continued to press its case to renew its air permit in El Paso.

In October 2005 an Administrative Court issued a nonbinding ruling that ASARCO had failed to prove it would change its pollution practices if granted a new air permit. The court recommended that the Texas Commission on Environmental Quality (TCEQ) reject ASARCO's air permit application.

In January 2006 the Sierra Club released a study linking ASARCO's emissions to soil contamination on both sides of the U.S. Mexico border. The study, conducted by Michael Ketterer, Professor of Chemistry at Northern Arizona University, took 97 soil samples in El Paso, Anapra, New Mexico and Ciudad Juarez, and concluded that the lead in the soil had the same

"fingerprint"" (lead isotope ratio) as the lead in ore received from ASARCO's Santa Eulalia mine (http://lonestar.sierraclub.org/press/newsreleases/20060131.asp) In May 2007, as the campaign to keep ASARCO closed gained momentum, the El Paso City Council voted unanimously to oppose the reopening of ASARCO. In June 2007 public officials from El Paso, Sunland Park and Ciudad Juarez met at Monument One, the international area next to the Rio Grande River, and signed a resolution opposing the renewal of ASARCO's air permit.

In 2006 researcher and teacher Heather McMurray obtained a copy of the EPA confidential memo about ASARCO's "sham recycling." For the first time the community had hard evidence that ASARCO had illegally incinerated hazardous waste its El Paso and East Helena, Montana smelters. In an interview Ms. McMurray explained:

We know that ASARCO had a subsidiary, Encycle, in Corpus Christi. Encycle processed hazardous waste. It was a recycling center. They were supposed to pull out metals from the product or send the materials to our smelter here or in East Helena that had metals in them that could be smelted out. Instead of doing that they sent us stuff that had no metals value in it. There was no reason, it was not legal for them to send that here without permitting us as a hazardous waste incinerator. But they did it, and finally the EPA caught them. When [the EPA] caught them they kept it secret, they didn't want to let anyone know. We don't know why they wanted to keep it secret, but ASARCO smelted the stuff for almost a decade illegally, and then covered it up through the government for another seven-eight years.

In fall 2006 the New York Times published a story based on Heather McMurray's findings: "A bankrupt copper giant facing billions of dollars in pollution claims…pretended for years to recycle metals while illegally burning hazardous waste in a notorious El Paso smelter" (iii). Since that time members of the border coalition have continued to uncover information relating to Encycle/El Paso's illegal shipments of hazardous waste to smelters, and the incineration of the waste in ASARCO's stacks.

Despite 6 years of hard work by environmental activists, former ASARCO employees, public officials, university students, and residents of El Paso, Juarez and Anapra, **the TCEQ*, at a final hearing in Austin, Texas, in February 2008, agreed to grant ASARCO a renewed air permit**, provided that the company could demonstrate that the shuttered plant was still operable and could meet the guidelines set for state emissions.

In April 2008 three years into ASARCO's bankruptcy process, the Arizona Republic reported, "an unprecedented rise in copper prices, bankruptcy and dedicated managers have helped transform…ASARCO LLC from a financial train wreck into a solid business with $1 billion in cash, no operating debt and a promising future" (April 16, 2008).

In February 2009 the EPA told Texas officials that under federal law the smelter did not qualify for the permit renewal granted by the TCEQ.

On the same day ASARCO announced it was dropping its plan to reopen the ASARCO smelter. The company attributed its decision to “a dramatic downturn of the world economy” (Dallas Morning News, February 4, 2009).

* TCEQ is the Texas environmental regulating agency. In many areas, it sets industry standards that are out of compliance with the national regulations from EPA. All of the members of the board are appointed by the governor of the state, and during Governor Perry’s administration, the board consistently supported his position to reduce environmental regulations to benefit the growth of industry.

9. EARLY SCHOOLS IN SMELTERTOWN

The following information is from *Smeltertown: Making and Remembering a Southwest Border Community* by Monica Perales, The University of North Carolina Press, 2010.

In the early years, the El Paso schools did not allow Children who did not speak English to enter their schools. Children in Smeltertown often learned basics in private religious preparatory schools meeting in homes and the parish halls. Although these schools existed primarily to prepare children to make their first communion, students also learned math, reading and writing in Spanish and enough English to enter county schools.

For many years, students of Smeltertown attended Courschesne Elementary, about a mile from Smeltertown. If they could afford to continue their education beyond seventh grade, they attended El Paso High School. In the 1930s, E. B. Jones Elementary School, named after an administrator with ASARCO, was opened. Children in grades one through four attended E.B. Jones and those in grade five through seven attended Courschesne.

During this time of immigration, various state, private, and religious organizations began educational programs with the purpose of assimilating the Mexican immigrants into U.S. American culture and society. One of these efforts was the Smelter Vocational School directed by Miguel Carrasco, Sr., and opened in 1923. Girls studied home economics and other skills that prepared them to be domestic servants in El Paso homes, and boys learned various industrial trades, thereby producing a skilled work force. The school, moreover, offered opportunities for Smeltertown's young people to socialize.

Although the vocational schools served as a social binding force for the Smeltertown community, the intention of these schools was to benefit the smelter by providing trained employees and free labor. The vocational schools also benefited the school system by providing an alternative for some of their student, as well as providing labor to help build schools and equipment for the El Paso County School System. The boys in the Vocational School built the forms and poured the cement for the still existing Zach White Elementary School.