SOAH DOCKET NO. 582-05-0593
TCEQ DOCKET NO. 2004-0049-AIR

APPLICATION OF ASARCO, INCORPORATED TO RENEW AIR QUALITY PERMIT NO. 20345	**§ § § § §**	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

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PROPOSAL FOR DECISION

I. INTRODUCTION

ASARCO, Incorporated (Applicant or ASARCO) has applied to the Texas Commission on Environmental Quality (TCEQ or Commission) to renew its Air Quality Permit No. 20345 (Permit, Current Permit, Renewal Permit, or Permit 20345). The requested renewal would allow Applicant to resume its copper smelting operations in El Paso, Texas, which it ceased in 1999.

On April 28, 2004, during its open meeting and public comment period, the Commission received a request for hearing on the renewal issue. On May 14, 2004, the Commission exercised its plenary authority to hold a hearing in the public interest and issued an interim order referring two issues to the State Office of Administrative Hearings (SOAH) for contested case hearing. The referred issues are:

> 1. Whether the operation of the El Paso Copper Smelter under the terms of the proposed permit will cause or contribute to a condition of air pollution; and
>
> 2. Whether the Applicant' s compliance history for the last five years of operation of the El Paso Primary Copper Smelter warrant the renewal of Air Quality Permit No. 20345.[1]

[1] Texas Comm'n on Envtl. Quality, *An Interim Order Concerning the Application by ASARCO Incorporated to Renew Air Quality Permit No. 20345*, TCEQ Docket No. 2004-0049-AIR (May 14, 2004).

The Commission also assigned the burden of proof on these issues to ASARCO. ASARCO and the Executive Director (ED) argue that ASARCO has met its burden of proof on both issues. The remaining parties contend that it has not.

The Administrative Law Judges (ALJs) find that ASARCO has not proven that its emissions will not cause or contribute to air pollution, although it has proven that some of its emissions would not violate some specific air-pollution standards. The ALJs also find that ASARCO has not proven that its compliance history during the last five years of operation warrants renewal of its permit.

II. PROCEDURAL HISTORY AND PARTIES

On January 27, 2005, ALJs William G. Newchurch and Veronica S. Najera held a preliminary hearing in this matter at the University of Texas at El Paso. Those same ALJs continued to preside over the entire case and prepared this proposal for decision (PFD). At the preliminary hearing, the ALJs concluded that the Commission had jurisdiction to consider and act on Applicant's permit renewal application, that SOAH had jurisdiction to conduct a hearing and to prepare a PFD in this matter,[2] and that notice was properly provided in this case.[3] Parties were also admitted and aligned as follows:

ADMITTED PARTIES	REPRESENTATIVE
ASARCO	Mr. Eric Groten and Mr. Patrick Lee
City of El Paso (El Paso)	Mr. Erich M. Birch

[2] TEX. GOV'T CODE ANN. (Government Code) § 2003.047 (West 2005).

[3] Notice was provided pursuant to 30 TEX. ADMIN. CODE ANN. (TAC) § 39.601, *et seq.* (2005) and Gov't Code §§ 2001.051 and 2001.052.

Executive Director (ED)	Mr. Daniel Long and Mr. Brian MacLeod
Office of Public Interest Counsel (PIC)	Ms. Anne Rowland[4]
Sierra Club, *et al.* (Sierra Club) • Quality of Life El Paso • El Paso County Medical Society[5] • Get the Lead Out Coalition • Senator Eliot Shapleigh, individually • UTEP Students Against ASARCO • UTEP Students Government Association • El Paso High Neighborhood Association[6] • Matthew F. Carroll, individually[7] • Debra Kelly, individually • Juan Garza, individually[8]	Mr. Richard W. Lowerre and Ms. L. Layla Aflatooni
Sandoval, *et al.* (Sandoval or Anapra Group) • Southside Low Income Housing Development • Linda Sandoval, individually • Michelle Velasco, individually • Olga Arguelles, individually	Mr. Taylor Moore

[4] Office of Public Interest Counsel's Substitution of Counsel filed on October 18, 2005, assigned Ms. Emily A. Collins as attorney in charge for pending case. Ms. Rowland has left the PIC.

[5] On May 31, 2005, the El Paso Medical Society filed a motion to withdraw as a party. Its motion was granted via Order No. 24.

[6] On March 31, 2005, the El Paso High Neighborhood Association filed a motion to withdraw as a party. Its motion was granted via Order No. 9.

[7] On March 31, 2005, Matthew F. Carroll filed a motion to withdraw as a party. His motion was granted via Order No. 9.

[8] On March 7, 2005, Juan Garza filed a motion to withdraw as party. His motion was granted via Order No. 10.

Sunset Heights ACORN, *et al.* (ACORN) • Henry L. Pfafflin, individually • Edward C. Patrykus, individually • Rodolfo Urias, individually • Blanca Vega de Urias, individually • Dr. Fidel Urrutia, individually • Arturo Moreno, individually	Mr. Michael R. Wyatt, Mr. Enrique Valdivia, and Ms. Veronica Carbajal

Subsequent to the preliminary hearing, the ALJs established a docket control order designed to complete the proceeding within the maximum expected duration set by the Commission. In its Interim Order, the Commission set October 27, 2005, as the date by which the PFD would be due. Three prehearing conferences were convened to rule on various discovery and other pending motions. The following are the principal procedural events in the case:

DATE	**PROCEDURAL SCHEDULE**
Jan. 27, 2005	Preliminary hearing at which parties were designated and aligned.
March 14, 2005	Deadline for each party to serve TRCP 194 disclosures. Discovery began.
March 21, 2005	ASARCO pre-filed its direct-case evidence in writing, including all testimony and exhibits.
May 6, 2005	First prehearing conference.
May 6, 2005	All parties, other than ASARCO, El Paso and the Executive Director (ED), pre-filed their direct case evidence in writing, including all testimony and exhibits.
May 13, 2005	Second prehearing conference.
May 18, 2005	El Paso pre-filed its direct-case evidence in writing, including all testimony and exhibits.
May 23, 2005	Deadline to submit written discovery requests.
June 13, 2005	ED pre-filed his direct-case evidence in writing, including all testimony and exhibits.

June 27, 2005	Close of discovery/Final day to take depositions/Deadline to file objections to and motions to strike pre-filed evidence/Deadline for ASARCO to file list of rebuttal witnesses and brief summary of each' s rebuttal testimony/Deadline to file dispositive motions.
July 5, 2005	Deadline to file responses to objections to pre-filed evidence and to dispositive motions.
July 8, 2005	Third Prehearing conference.
July 11- 22, 2005	Hearing on the merits.
August 19, 2005	Deadline to file closing briefs.
August 29, 2005	Deadline to file replies to closing briefs.
October 27, 2005	Deadline to issue PFD.

III. GENERAL BACKGROUND

The ASARCO facility has long been part of (and indeed dominates) the El Paso landscape. ASARCO has operated a smelting and refining operations at its El Paso facility for over one hundred years. The original plant was built in 1887, along the Rio Grande, to process lead ores from mines in Mexico and the Southwest. In 1899, the smelter incorporated into the American Smelting and Refining Company, and it so operated until 1975, when the company officially became ASARCO, Incorporated. Because its operations preceded the enactment of federal and state regulations of air pollution, the El Paso plant operated as a grandfathered copper smelter for many years.

The ASARCO EL Paso Plant is situated at the juncture of two countries and three states: Texas, New Mexico, and the Mexican state of Chihuahua. Its proximity to an international border, and to an intrastate border, cannot be overstated. The ASARCO plant is located immediately north and east of the Rio Grande. It lies in the Rio Grande Canyon between the Franklin Mountains and

the Cerros del Muleros in Mexico. The main facility is bounded immediately by Interstate 10 on the east and by Executive Center Boulevard to the north. The American Canal[9] bounds the facility to the southwest. Paisano Boulevard lies to the west, then a small section of land owned by ASARCO, then the Rio Grande, then Mexico.

The Applicant currently smelts copper in El Paso using a Continuous Top-Feed Oxygen Process (ConTop). Permit No. 20345, which this case concerns, was issued by the Texas Air Control Board (TACB) in 1992 to permit the new ConTop reactors at the ASARCO El Paso Plant. The ConTop reactors replaced ASARCO' s previously grandfathered[10] copper-smelting facilities. ASARCO also holds Permit No. 4151, which authorizes unloading operations, certain conveyance systems, and other operations up to and including the bedding building at the El Paso plant.

ConTop was implemented in March 1993 and has been the exclusive operating process used for the production of copper anodes since then. Since the permit' s 1992 issuance, several permit amendments and alterations have been implemented.[11] Applicant ceased its copper smelting operations in 1999 and the facility remains in an extended condition of inoperation.[12]

Until production was discontinued in 1999, copper smelting was ASARCO' s primary activity at its El Paso plant, resulting in the production of copper anodes that were sent to other ASARCO facilities. Applicant also generated sulfuric acid from gases produced in the copper smelting process.

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[9] The American Canal is a channel maintained by the International Boundary and Water Commission to divert waters from the Rio Grande in the United States for use as drinking water and in irrigation. The El Paso Water Utilities has a water treatment plant intake about one mile downstream of ASARCO. *See* City of El Paso Exhibit No. 19.

[10] Prior to the installation of ConTop, ASARCO had not been required to have an air permit for its smelter because it was "grandfathered," meaning it existed prior to initiation of the regulatory process.

[11] ED Ex. 3.

[12] *See* City of El Paso Exhibit No. 15, which indicates the temporary nature of the shutdown of the referenced facility, as long as the facility submits permit and inspection fees and emissions inventories for the facility.

IV. BURDEN OF PROOF

In a contested case hearing involving an air quality permit application, the burden of proof is on the applicant to demonstrate that it has addressed the issues referred by the Commission to SOAH by a preponderance of the evidence.[13] In its referral to SOAH, the Commission affirmatively placed the burden on the applicant.[14]

The ALJs recognize, however, that ASARCO may not be required to prove the logically impossible–i.e., to prove a negative. Hence, ASARCO is not required to prove that it absolutely will *not* cause or contribute to air pollution. It need only show, given the preponderance of the evidence standard, that it will *not likely* cause or contribute to air pollution.

V. WHETHER THE OPERATION OF THE EL PASO PRIMARY COPPER SMELTER UNDER THE TERMS OF THE PROPOSED PERMIT WILL CAUSE OR CONTRIBUTE TO A CONDITION OF AIR POLLUTION

A. Authorized Emissions

1. Allowed Emissions

ASARCO' s current permit,[15] contains a maximum allowable emission rate table (MAERT) that authorizes ASARCO to emit the following, which the permit specifically refers to as " air

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[13] *See* 30 TAC § 80.17(a).

[14] Texas Comm'n on Envtl. Quality, *An Interim Order Concerning the Application by ASARCO Incorporated to Renew Air Quality Permit No. 20345*, TCEQ Docket No. 2004-0049-AIR (May 14, 2004) [hereinafter Interim Order].

[15] Generally ACORN Ex. 5; Tr. 1758 *et seq*. The Parties agree that ASARCO's current permit contains a typographical error. Special Condition 4.C. should state that the concentration of SO_2 in the flue leading from the flue bed concentrate dryer to the 828-foot main stack annulus should not exceed 10 ppm. Tr. 1824 et seq. Additionally, the ED recommends the deletion of Special Condition 33 (ACORN Ex. 5, p. 18; Tr. 1760) as unnecessary. No party opposes that change. The ALJs recommend that it be deleted if the permit is renewed because it does not accurately total the emissions authorized by other provisions of the permit.

contaminants," at various locations and in various amounts:[16]

- Particulate matter equal to or less than 10 microns in diameter (PM_{10});
- Particulate matter (PM), including PM_{10}, often called total suspended particulate (TSP);
- Oxides of nitrogen (NO_X), which includes nitrogen dioxide (NO_2);
- Volatile organic compounds (VOCs);
- Sulfur dioxide (SO_2);
- Carbon monoxide (CO);
- Sulfuric acid (H_2SO_4); and
- Lead.

Presumably, if emission of each of these is controlled, then each in some concentration or in combination with other contaminants could cause air pollution. At a minimum then, the ALJs must determine whether those authorized emissions would cause or contribute to a condition of air pollution.

Additionally, ASARCO will emit other compounds, which are included in its PM and VOC emissions.[17] In November 1994, an uncontested amendment to Permit No. 20345 was granted by the Commission. The purpose of the amendment was " to adjust heavy metal emission rates from the original representations to actual rates that were measured during required stack sampling."[18] According to that amendment,[19] the following compounds were authorized to be emitted at various locations and in various amounts:

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[16] ACORN Ex. 5, p. 18 *et seq.*

[17] Tr. at 474 *et seq*.

[18] El Paso Ex. 10.

[19] El Paso Ex. 10, p. 5. *See* also El Paso Ex. 9, which is an easy to read table.

- Arsenic
- Chromium
- Chrome VI
- Copper-dust
- Copper-fume
- Lead
- Nickel
- Zinc
- Chromium
- Chrome VI[20].

2. Other Emissions

a. Manganese, Barium, Carbon and Cadmium

Additionally, according to ASARCO witness David Cabe, ASARCO would emit manganese, barium, carbon and cadmium under the renewed permit.[21]

Manganese is not listed in the MAERT or the summary of modeling results table that showed the compounds that ASARCO in its 1991 ConTop application indicated would be emitted.[22] Mr. Cabe explained that ASARCO in its application had listed manganese (specifically manganese oxide, shown by its symbol MNO) as a compound in the incoming concentrate.[23] According to ASARCO, it is the common Commission practice not to list non-criteria pollutants in the MAERT,

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[20] Also known as hexavalent chromium.

[21] Tr. at 474 *et seq*., 484 *et seq*., 489 *et seq*., 493 *et seq*.

[22] El Paso Exs. 9 and 10.

[23] Tr. at 1021 *et seq*. and El Paso Ex. 17, p. 2.

but ASARCO is authorized to emit them since they were identified as constituents of the incoming concentrate. El Paso witness Jennifer Geran, who at one time was an air quality modeler and later assistant director of the Commission's Air Quality Planning Section, agreed that authorized non-criteria emissions are not usually listed in the MAERT.[24]

b. Hydrogen Sulfide

Beyond the above, Ms. Geran contended that hydrogen sulfide (H_2S) may be emitted from the ASARCO El Paso Plant. She had two bases for that view. Ambient air monitoring conducted by the TACB in January and February of 1995 detected H_2S, along with SO_2 during monitoring in the area of the plant.[25] Additionally, EPA document AP42, which explains the copper smelting process, indicates that H_2S is created during smelting and converts to sulfur dioxide.[26] H_2S does not appear in Permit No. 20345, either explicitly or as a subset of another contaminant family.

As ASARCO contends, the TACB found that the ConTop facility would not produce H_2S.[27] Mr. Cabe testified that the ASARCO ConTop facility much more thoroughly oxidizes sulfur in copper ore than does roaster reverberatory furnace smelting, which ASARCO no longer uses. He noted that AP42, to which Ms. Geran referred, suggested that H_2S might be emitted during that roasting process.[28]

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[24] El Paso Ex. 1, p. 2 and 23.

[25] City of El Paso Ex. 1, p. 23 and Attachment JG-7

[26] Tr. at 1225 *et seq*.

[27] ASARCO Ex. 1, p. 4, FOF 20.

[28] Tr. at 2124 *et seq*.

Mr. Cabe admitted that he had no knowledge of the ConTop facility ever being tested for H_2S emissions.[29] The only evidence of a specific H_2S emission from ConTop is the 1995 Staff inspection
documents to which Ms. Geran referred. In each, two different TACB Staff members said that " H_2S concentrations were measured using [a certain device] . . ." But they also noted that " no appreciable levels of H_2S were measured after two days."[30]

The ALJs cannot conclude that the ConTop facility would emit hydrogen sulfide if operated in accordance with the permit. Mr. Cabe' s explanation of how ConTop differs from a roasting smelter was sufficient to disprove the suggestion by AP42 that there would be H_2S emissions. The 1995 Staff monitoring, which sought to find H_2S emissions, ended up showing that there were none.

c. Beryllium

Ms. Geran also testified that beryllium may be emitted. She noted that it has been defined as a Hazardous Air Pollutant (HAP) by EPA and, as such, is regulated by a set of federal regulations referred to as Maximum Achievable Control Technology (MACT) standards. MACT standards have been set for primary copper smelters, and beryllium has been identified as a typical contaminant emitted from these facilities, based on the raw materials used to make copper.[31]

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[29] Tr. at 704.

[30] El Paso Ex. 1, Attach. JG-7.

[31] El Paso Ex. No. 1, p. 24 and Attach. JG-8, p. 1.

However, Larry Castor, ASARCO's witness and manager of its El Paso facility when it operated, testified that ASARCO does not have any beryllium in the process. He stated that ASARCO has sampled for it on various occasions and has never found beryllium, in any of its materials, by-product materials, incoming materials or products.[32] There is no evidence directly showing beryllium in ASARCO's inputs or outputs. The ALJs find Mr. Castor's uncontradicted testimony based on specific inquiry at the ASARCO facility, more convincing than a general statement that beryllium is often emitted from copper facilities. They find that beryllium will not be emitted.

d. Dioxins and Furans

El Paso witness Lucy Fraiser, a Ph.D. toxicologist with extensive experience in air pollution regulation,[33] testified that she was also potentially concerned about dioxins and other furans, which she indicated could be emitted by ASARCO.[34]

While Dr. Fraiser may have been concerned about dioxin and other furans, there is no evidence that she had the expertise to form an opinion as to what ASARCO would emit. She is a toxicologist, not an engineer, metallurgist, or chemist. She would need to rely on either the specific language of the permit or the opinions of experts in other fields to know what would be emitted. No party argues that dioxin or other furans would be emitted, and there is no evidence that they

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[32] Tr. at 2034.

[33] El Paso Ex. No. 4, p. 1 *et seq*. and attach. LF-1.

[34] El Paso Ex. No. 4, p. 21.

would be. There were a few questions about dioxin during the hearing,[35] but no testimony that it would be emitted. The ALJs cannot conclude that dioxin or furans would be emitted.

e. Fluorides

El Paso argues that inorganic fluorides would likely be emitted as well, because they are created during the smelting process. Apparently fluorides were listed in the 1991 ConTop application.[36] However, Mr. Cabe testified that they would not be emitted. He explained that they are very absorbable in water and would be removed in the acid plant.[37] Aside from an entry in the speciation table, which Mr. Cabe indicated was an error, El Paso does not cite to (and the ALJs cannot find) any evidence in the record to support El Paso's claim that fluorides would be emitted. Moreover, when the TACB approved the ConTop permit in 1992, it specifically found that fluoride compounds would not be emitted.[38] The ALJs find that the greater weight of the evidence is that fluoride compounds would not be emitted from the ConTop facility.

3. Summary of Emitted Contaminants

Based on the above, the ALJs conclude that the ASARCO will emit at least the following contaminants if its permit is renewed and it operates under that permit:

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[35] Tr. at 1360 *et seq*. and 1630.

[36] Tr. at 1707 *et seq*. and ASARCO Ex. No. 42. The testimony did not specifically explain where fluorides are indicated in the exhibit.

[37] Tr. at 702 *et seq*.

[38] ASARCO Ex. No. 1, p. 4, FOF 20.

- PM_{10}
- PM or TSP
- NO_X, which includes NO_2
- VOCs
- SO_2
- CO
- H_2SO_4
- Lead
- Arsenic
- Chromium
- Chrome VI
- Copper-dust
- Copper-fume
- Nickel
- Zinc
- Manganese
- Barium
- Carbon
- Cadmium

ASARCO will emit other compounds in trace quantities,[39] but no party contends that any compound not discussed above will cause or contribute to a condition of air pollution. Moreover, there is no evidence that any other trace emission would cause air pollution.

B. What is Air Pollution?

Health and Safety Code[40] § 382.003(3) states:

" Air pollution" means the presence in the atmosphere of one or more air

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[39] El Paso Ex. No. 9; Tr. 493 *et seq*.

[40] TEX. HEALTH & SAFETY CODE ANN. (West 2005).

> contaminants or combination of air contaminants in such concentration and of such duration that:
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> (1) are or may tend to be injurious to or to adversely affect human health or welfare, animal life, vegetation, or property; or
>
> (2) interference with the normal use or enjoyment of animal life, vegetation, or property.[41]

The parties, however, do not entirely agree on the meaning of air pollution.

1. NAAQS

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for lead,[42] NO_2,[43] CO,[44] sulfur oxides–including SO_2,[45] PM_{10},[46] $PM_{2.5}$,[47] and ozone.[48] These substances for which NAAQS have been established are frequently referred to as the "criteria air contaminants"[49] or the "criteria pollutants."[50] The Commission has adopted both the

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[41] TEX. HEALTH & SAFETY CODE ANN. § 382.003(3) (West 2001).

[42] 40 Code of Federal Regulations C.F.R. § 50.12 (2005).

[43] 40 C.F.R. § 50.11.

[44] 40 C.F.R. § 50.8.

[45] 40 C.F.R. §§ 50.4 and 50.5.

[46] 40 C.F.R § 50.6.

[47] 40 C.F.R. § 50.7.

[48] 40 C.F.R. §§ 50.9 and 50.10.

[49] Tr. at 642.

[50] Tr. at 1187 and 1470.

primary and secondary NAAQS by reference[51] and specified that they are to be enforced throughout Texas.[52] Each of the NAAQS is listed below:

NAAQS [micrograms per cubic meter ($\mu g/m^3$) or parts per million (ppm) as indicated]			
Pollutant	**Averaging Time**	**Primary Standard**	**Secondary Standard**
Carbon Monoxide	8-hour	9 ppm 10,000 $\mu g/m^3$	None
	1-hour	35 ppm 40,000 $\mu g/m^3$	None
Lead	Quarterly Average	1.5 $\mu g/m^3$	Same as Primary
Nitrogen Dioxide	Annual (Arithmetic Mean)	0.053 ppm 100 $\mu g/m^3$	Same as Primary
PM_{10}	Annual (Arithmetic Mean)	50 $\mu g/m^3$	Same as Primary
	24-hour	150 $\mu g/m^3$	None
$PM_{2.5}$	Annual (Arithmetic Mean)	15.0 $\mu g/m^3$	Same as Primary
	24-hour	65 $\mu g/m^3$	None
Ozone	8-hour	0.08 ppm	Same as Primary
Sulfur Oxides	Annual (Arithmetic Mean)	0.03 ppm 80 $\mu g/m^3$	None

[51] 30 TAC § 101.21.

[52] 30 TAC § 101.21.

	24-hour	0.14 ppm 365 $\mu g/m^3$	None
	3-hour	None	0.5 ppm 1300 $\mu g/m^3$

ASARCO never quite conceded that a NAAQS exceedance would cause or contribute to air pollution. In fact, its witness Dr. Dydek testified that such an exceedance would not necessarily expose people to unsafe level of contaminants. Dr. Dydek worked as a Senior Staff Toxicologist in the Health Effects Section of the TACB from 1984 until 1991 (during which time he reviewed over 1,000 air-permit applications)[53] and has continued to work as a professional toxicologist in various capacities since then.[54] He explained that NAAQS are deliberately set at levels to protect sensitive individuals and leave an adequate margin of safety. He explained that he was personally aware, at least to some extent, that EPA has taken that approach, since he once worked in EPA's clinical research branch performing human-exposure studies on which some NAAQS were based.[55]

While Dr. Dydek was a very credible and expert witness, the ALJs do not agree that it would be permissible for ASARCO to cause or contribute to a NAAQS exceedance. That is because they conclude that a NAAQS exceedance would be a condition of air pollution under the Texas Clean Air Act.

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[53] Tr. at 2255, lines 4-15 (Dydek direct examination testimony).

[54] ASARCO Ex. No. 56 (Dydek resume).

[55] Tr. at 2253 and 2259 *et seq*.

In the Federal Clean Air Act,[56] Congress directed EPA to adopt NAAQS[57] and stated:

> National primary ambient air quality standards . . . shall be ambient air quality standards the attainment and maintenance of which in the judgment of the [EPA] Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health. Such primary standards may be revised in the same manner as promulgated.[58]
>
> > Any national secondary ambient air quality standard . . . shall specify a level of air quality the attainment and maintenance of which in the judgment of the Administrator, based on such criteria, is requisite to protect the public welfare from any known or anticipated adverse effects associated with the presence of such air pollutant in the ambient air. . . .[59]

The above criteria for the adoption of a NAAQS closely parallel the definition of air pollution in the Texas Clean Air Act. Both focus on preventing adverse effects on human health. Additionally, all language in the Federal Clean Air Act referring to effects on welfare includes, but is not limited to, effects on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property, and hazards to transportation, as well as effects on economic values and on personal comfort and well-being, whether caused by transformation, conversion, or combination with other air pollutants.[60]

Thus, EPA in adopting the NAAQS was setting standards to avoid "air pollution" as that term is used in the Texas Clean Air Act. Since the Commission has specifically adopted those NAAQS by reference and indicated that they are to be enforced throughout the state, the ALJs conclude, as a matter of law, that to cause or contribute to an exceedance of a NAAQS would be to cause or contribute to a condition of air pollution, as defined by the Texas Clean Air Act.

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[56] As amended, 42 UNITED STATES CODE ANN. (U.S.C.A.) § 7401 *et seq*.

[57] 42 U.S.C.A. § 7409(a).

[58] 42 U.S.C.A. § 7409(b)(1).

[59] 42 U.S.C.A. § 7409(b)(2).

[60] 42 U.S.C.A. § 7602(h).

Despite failing to concede that a NAAQS exceedance would be air pollution, ASARCO does not seriously contend that a NAAQS exceedance would be acceptable. As discussed below, it attempted to prove that no such exceedance would result if its permit is renewed. However, ASARCO argues that the Commission when it referred the air pollution issue to hearing intended that the hearing be limited to consideration of whether operating under the renewed permit would cause a NAAQS exceedance. It cites Chairman White's preliminary discussion where she seemed to equate the two.[61]

El Paso responds that if the Commission wanted a hearing confined to a determination of whether a NAAQS exceedance would result, it would have referred that limited issue. Instead, the Commission referred an arguably broader issue: Would operation under the permit cause or contribute to a condition of air pollution?

What then, if anything, aside from a NAAQS exceedance, would be a condition of air pollution?

2. The Commission's NGLC Rules

In its rules, with certain exceptions, the Commission has generally prohibited any person in Texas from causing, suffering, allowing, or permitting emissions of certain substances to exceed specified net ground level concentrations (NGLCs). These are also referred to as property-line standards. Below is a summary of the NGLCs standards for substances that ASARCO is authorized to emit under its permit:

Net Ground Level Standards ($\mu g/m^3$ unless otherwise indicated)		
Substance	Concentration	Averaging Time

[61] Chairman White: "On issues, I would refer whether the emissions from this facility, in the general language of the law, cause a condition of air pollution, if that's the language. And specifically I'm thinking of impact on NAAQS." Audio tapes of April 28, 2004 Agenda (as quoted by ASARCO is prehearing brief and not disputed by any other part).

sulfur dioxide[62]	0.4 ppm (755 μg/m^3)[63]	30-minutes
TSP[64]	200	3 hours
	400	1 hour
H_2SO_4[65]	15	24 hours
	50	more than once in a 24-hour period
	100	any time

ASARCO witness David Cabe testified that these NGLCs are not used as a basis for concluding whether emissions from a source will cause or contribute to air pollution, because they are not ambient standards representing concentrations that are protective of public health and welfare, like NAAQS, but rather are intended merely to place a limit on a single source's ability to emit a certain pollutant without regard to the background level of the pollutant.[66] This view conforms with ASARCO's view that only a NAAQS exceedance, if that, would be air pollution. The ALJs disagree.

When the Commission adopted each of the above NGLC rules,[67] it indicated that it was doing so under section 382.017 of the Texas Clean Air Act, which provided it with the authority to adopt rules consistent with the policy and purposes of the Texas Clean Air Act. That policy and purpose are set out in section 112.3 of that Act:

> The policy of this state and the purpose of [the Texas Clean Air Act] are to safeguard the state's air resources from pollution by controlling or abating air pollution and

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[62] 30 TAC § 112.3(a).

[63] 0.053 ppm=100 μg/m^3. *See* 40 C.F.R. § 50.11(a). Hence, 0.4 ppm=755 μg/m^3.

[64] 30 TAC § 111.155.

[65] 30 TAC § 112.41(a).

[66] ASARCO Ex. 38, p. 8.

[67] 30 TAC § 112.3, adopted to be effective October 23, 1992, 17 Tex.Reg. 7085. 30 TAC §112.41 adopted to be effective January 1, 1976; amended to be effective July 14, 1989, 14 Tex.Reg. 3202. 30 TAC §111.155 adopted to be effective July 18, 1989, 14 Tex.Reg. 3296.

> emissions of air contaminants, consistent with the protection of public health, general welfare, and physical property, including the esthetic enjoyment of air resources by the public and the maintenance of adequate visibility.

As previously quoted, "air pollution" is the presence in the atmosphere of one or more air contaminants, or combination of air contaminants, in such concentration and of such duration that are or may tend to be injurious to or to adversely affect human health, *etc.*[68] Since each NGLC is a concentration and duration control, it is logical to conclude that the Commission adopted them to control air pollution and not just emissions. Moreover, the NGLC rules for sulfur dioxide and H_2SO_4 are included in a chapter entitled "Control of Air Pollution from Sulfur Compounds,"[69] and the NGLC rule for PM is in a chapter entitled "Control of Air Pollution from Visible Emissions and Particulate Matter."[70]

Additionally, while the NGLC rules are informally called the "property-line standards," the language of the rules do not limit their applicability to an operator's property line. It is true that no TCEQ rule may be applied solely to air conditions on property under the control of the person who is the source of the offending air contaminant.[71] But as modeling evidence in this case–which is discussed below–shows, excessive ground level concentrations can occur beyond the property line. The NGLCs would apply at those locations as well as on the property line.

Based on those titles, the history of and statutory authority for the rules, and the policy that the Commission sought to accomplish in adopting them, all of which are factors that the Commission and the ALJs should consider in interpreting statutes and rules,[72] the ALJs conclude that an exceedance of an applicable NGLC rule level at any location other than property under the control of the person who is the source of the offending air contaminant a condition of air pollution.

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[68] TEX. HEALTH & SAFETY CODE ANN. § 382.003(3).

[69] 30 TAC Chapter 112.

[70] 30 TAC Chapter 111.

[71] Health and Safety Code § 382.027.

[72] TEX. GOV'T CODE ANN. §§ 311.002(4) and 311.023.

However, ASARCO argues that one of the above NGLCs–the 0.4 ppm (755 $\mu g/m^3$), 30-minute average for SO_2 is not applicable to it. ASARCO maintains that the area around its facility is instead covered by an "area control plan" that sets an NGLC of 0.5 ppm, or 1137 $\mu g/m^3$,[73] measured over two consecutive half-hour averages. An "area control plan" is a site-specific regulatory scheme for which the owner of an SO_2-emitting source can apply as an alternative to compliance with the generally applicable SO_2 property line standard.[74] Upon application by a regulated entity and recommendation of the ED, the Commission may approve such a regulatory control plan.[75]

The area control plan that ASARCO contends sets a 0.5 ppm SO_2 NGLC for its facility is not in evidence. However, the 1992 Commission order approving the a prior version of the permit at issue in this case refers to that approved area control plan and notes the 0.5 ppm NGLC.[76] Additionally, ASARCO witness David Cabe testified that it was developed in the 1970s, as a sort of surrogate state implementation plan (SIP) for SO_2, when the SIP planning process really was not yet well defined, as an attempt to ensure compliance with the NAAQS for SO_2.[77] No party has disputed that such an area control plan was approved and remains applicable.

The ALJs conclude that such a plan has been approved; hence, ASARCO's facility is subject to a 0.5 ppm rather than the 0.4 ppm NGLC set out in the Commission's rules. They further conclude that an exceedance of that 0.5 ppm NGLC would be a condition of air pollution.

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[73] ASARCO Ex. No. 38, p. 18.

[74] 30 TAC . § 112.19.

[75] 30 TAC § 112.20.

[76] *ASARCO Incorporated*, No. 92-07 (Board Order) (May 8, 1992). *See* ASARCO Ex. 1, p. 7, FOF 29.

[77] Tr. at 2100 *et seq*.

3. Levels of Air Pollution Not Set By Rule

a. Sufficiency of Certain NAAQS

Would a lower concentration of a contaminant regulated by a NAAQS nevertheless cause or contribute to a condition of air pollution?

Dr. Fraiser testified for El Paso that she was concerned that the NAAQS for lead was not sufficiently protective in the area surrounding the El Paso facility. Dr. Fraiser's concern about lead was primarily due to the potential for multi-pathway exposure to lead already in the soil. The Commission specifically decided not to refer that multi-pathway exposure issue to SOAH for hearing[78]; hence, most of Dr. Fraiser's pre-filed testimony concerning it was excluded from evidence as not relevant.

Dr. Fraiser was allowed to testify that the NAAQS for lead might not be protective of people in El Paso who carry excess lead in their bodies because of prior exposure. As an example, she explained that some children eat soil, which would remain in their bodies, so that additional lead at NAAQS levels would not be safe for them. Similarly, she stated that other people might have been previously exposed to lead, through dust or soils, and the NAAQS levels would be excessive for them.[79]

While the ALJs permitted some of Dr. Fraiser's testimony concerning lead and NAAQS, they cannot escape the conclusion that she was trying to make a multi-pathway exposure argument. The ALJs will respect the Commission's decision not to refer that issue to hearing. Because multi-pathway

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[78] The Commission decided not to refer, ". . . whether the air emissions authorized by the permit renewal would, added to existing contamination of the soil, would [sic] cause unacceptable health impacts on the residents of the community . . .." Audio tapes of April 28, 2004 Agenda (as quoted by ASARCO in prehearing brief and not disputed by any other part).

[79] Tr. at 1308 *et seq*.

exposure is outside the scope of the case, they have no charge to consider whether prior exposure to lead makes the lead NAAQS inadequately protective.

Dr. Fraiser also testified that EPA Staff has considered suggesting that the EPA administrator consider changing the long-term NAAQS for $PM_{2.5}$. She noted that certain studies have suggested that the 15.0 $\mu g/m^3$ annual average NAAQS should be reduced to 14, 13, or even 12 $\mu g/m^3$.[80] In general response, Dr. Dydek testified that the NAAQS are based on thorough and painstaking research.[81]

There is some evidence that the NAAQS are not sufficiently protective for $PM_{2.5}$. Studies were conducted of eight Canadian cities; Phoenix, Arizona; and Santa Clara, California.[82] Using statistical methods to account for other data, they sometimes showed a correlation, under some circumstances, between higher mortality and levels of $PM_{2.5}$ that are lower than the NAAQS.[83] One study concluded that total mortality was *not* significantly associated with $PM_{2.5}$, though cardiovascular death was.[84] Another study found that there might not be a correlation if lower $PM_{2.5}$ did not significantly vary by season.[85] Any correlation is highly dependent and sometimes disappears, based on the distribution of chemical components of the $PM_{2.5}$.[86]

That $PM_{2.5}$ levels are associated with negative health effects is hardly a surprise. That is why EPA has set a primary NAAQS for $PM_{2.5}$.[87] The studies of Canada, Phoenix, and Santa Clara further support that conclusion. But they do not show that setting $PM_{2.5}$ standards lower than the current NAAQS would more likely than not reduce the impact on public health. As far as the ALJs can tell,

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[80] El Paso Ex. No. 4, p. 29, *et seq*. and Attach. LF-4, LF-5, and LF-6.

[81] Tr. at 2259.

[82] El Paso Ex. No. 4, Attach. LF-4, LF-5, and LF-6.

[83] El Paso Ex. No. 4–Attach. LF-4, p. 31; LF-5, p. ?????; and LF-6, p. 7.

[84] El Paso Ex. No. 4, LF-5, p. 5.

[85] El Paso Ex. No. 4, LF-6, p. 7.

[86] El Paso Ex. No. 4, LF-4, p. 35 and LF-5, p. 8.

[87] *See* 40 C.F.R. § 50.7(a), which sets a primary NAAQS for PM2.5, and 42 U.S.C.A. § 7409(b)(1), which direct EPA to set primary NAAQS to protect public health.

those studies do not calculate differences in mortality or other health effects between the NAAQS levels and those lower levels, much less show that such differences, were they calculated, would be statistically significant. Under these circumstances, the ALJs see no basis for finding that lower than NAAQS concentrations of $PM_{2.5}$ would cause or contribute to a condition of air pollution.

b. Integrated Risk Information System Levels

Dr. Fraiser suggested that the Commission should use EPA's Integrated Risk Information System (IRIS) electronic database to determine levels of air that would be polluted.[88] Dr. Fraiser was very qualified to have an opinion on air pollution toxicology issues. Her doctoral degree is in toxicology, she is certified by the American Board of Toxicology, and she has worked as a toxicologist since 1992, mostly for private consulting firms but also on the Commission Staff for approximately two years.[89]

IRIS is available on the Internet and lists toxicity values for different exposure paths, *e.g.* oral, air, *etc.* IRIS inhalation reference concentrations (IRIS values) are calculated based on EPA's assumptions of the average volume of air that an average-sized exposed person would breathe in a day--*e.g.,* 20 m^3/day and 70 kg body weight. The IRIS values show concentrations of a contaminant that EPA has calculated would cause one cancer in 10,000, one in 100,000, and one in one million people who were exposed to the contaminant through that path. For example, EPA calculates that one in one million people would develop some form of cancer if exposed to 0.0001 $\mu g/m^3$ of arsenic.[90]

Dr. Fraiser explained her view that using IRIS concentrations is a reasonable way of determining whether air is polluted. She noted that the methodologies that IRIS uses are thoroughly reviewed by peer experts both within and outside of EPA. They are calculated based on both cancer and non-cancer health risks. They are intended to be used to evaluate long-term community exposure

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[88] El Paso Ex. No. , p. 31 *et seq*.; Tr. at 1376.

[89] El Paso Ex. No. 4. p. 1 *et seq*.

[90] El Paso Ex. No. 4, p. 31 *et seq*.; Tr. at 1376 *et seq*.

rather than possibly shorter exposure while at work.[91] Those points are not in dispute.

There is evidence, however, showing that using IRIS values is not so straightforward. While EPA believes that IRIS inhalation exposure levels are useful in identifying potential health hazards and selecting a response, EPA indicates that they have many limitations. They are based on the assumption that a person is exposed to the concentration of contaminant for an entire lifetime. EPA also warns that they have a uncertain margin of error, of perhaps an order of magnitude. Directly on point in this case, EPA flatly states that the inhalation concentrations cannot be validly used to predict the incidence of human disease or the types of effects that chemical exposures have on humans. There is no evidence that EPA takes IRIS calculations into account in setting NAAQS, and Dr. Fraiser specifically indicated that she did not know if EPA did.[92]

While working with the Commission on air monitoring issues, Dr. Dydek became familiar with the quality of the ambient air in West Texas near the McDonald Observatory, where there are no industrial sources nearby and which likely has the purest air in Texas. He testified that the IRIS inhalation factors would indicate that is an area of very high cancer levels, which is not true. Moreover, Dr. Dydek testified that if you took the occupational exposure limits, which various entities including the U.S. Occupational Safety and Health Administration (OSHA) have established to ensure worker safety and which are discussed in great depth below, and ran them through the EPA cancer risk assessment process, which underlies the IRIS values, you would expect that five or ten percent of workers exposed to those limits would develop cancer. However, Dr. Dydek testified that such high cancer rates have not been observed,[93] and there is no evidence to contradict him.

Given the above evidence, the IRIS inhalation reference concentrations have some, but limited, relevance to this case. They do not help the ALJs to directly determine what quantities of emissions would be acceptable. As EPA indicates, however, they can serve as guides to evaluate potential health

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[91] Tr. at 1376.

[92] Tr. at 1383.

[93] Tr. at 2280 *et seq*.

hazards. Along those lines, the IRIS inhalation reference concentrations do show that emissions of arsenic, cadmium, hexavalent chromium, and nickel could pose a risk to public health at some concentrations. IRIS indicates that each of those in concentrations of 0.002 $\mu g/m^3$ or less could result in cancer in one average person out of in one million.[94] For that reason, the ALJs find that ASARCO has the burden of showing that the concentrations of those compounds that ASARCO's emissions might cause when combined with the concentrations in the ambient air would not likely cause adverse health or other effects.

c. Effects Screening Levels

Since at least the mid-1970s, the Commission Staff has developed effects screening levels (ESLs) for ground level concentrations of emitted constituents.[95] It is important to understand exactly what the ESLs are and are not within the context of a contested case.

Occasionally, a witness referred to the ESLs as "established" or "revised" by "the Commission"[96] or used other words to that same effect. That is not quite accurate. It is true that the Staff, the Parties, and even ALJs often informally refer to the Commission Staff as "the Commission," but properly speaking "the Commission" consists of the Governor's three appointees–the Commissioners.[97] There is no evidence that the Commission has established or revised the ESLs.

The Commission has not adopted the ESLs as rules.[98] Nor is there any evidence that the Commissioners have adopted either the Staff's approach to determining ESLs or any specific ESL as Commission policy. Since the ESLs have not been adopted by the Commissioners, they cannot be Commission standards or guidelines.

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[94] El Paso Ex. No. 4, p. 31.

[95] Tr. at 2263.

[96] ASARCO Ex. No. 38, p. 8.

[97] TEX. WATER CODE § 5.052(a).

[98] ED Ex. No. 27, p. 11.

Instead, the evidence shows that the Commission Staff has developed the methodology for determining ESLs and annually publishes a list of ESLs.[99] The Commission Staff has published a guidance document that addresses only the purpose and use of ESLs without specifically indicating how they are adopted.[100] Instead, that guidance indicates that ESLs are published annually and that they are guidelines rather than standards, which allows them to be easily revised to incorporate the newest toxicity data.

The Commission may and has delegated certain of its authority to the ED,[101] and the ED may and has delegated certain of his authority to other members of his Staff.[102] But there is no evidence that the Commission has delegated to the ED any authority it might have to adopt the ESLs as guidelines.

If neither rules, policies, standards, or even Commission guidelines, what are the ESLs? They are expert opinion evidence that ground level concentrations of contaminants lower than the ESLs will not adversely affect human health or cause other adverse effects. As ED witness Dr. Jong-Song Lee testified, the ESLs are prepared by the Staff of the Commission's Toxicology Section and identify the levels at which the members of that section believe that a constituent may be emitted without causing adverse health effects or other effects.[103] Of course, the entire toxicology Staff did not testify, only Dr. Lee did. Thus, for purposes of this case, Dr. Lee's expert opinion is that ground level concentrations of contaminants that are lower than the ESLs will not adversely affect human health or cause other adverse effects.[104] The ALJs' task is to weigh that evidence.

Though the Staff has developed ESLs for approximately 30 years, it apparently has not fully

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[99] Tr. at 2263.

[100] ED Ex. No. 19, p. 2 (marked as Page 26).

[101] *e.g.* TEX. WATER CODE §§ 5.122(a) and 5.501(c).

[102] *e.g.* TEX. WATER CODE § 5.222.

[103] ED Ex. No. 27, p. 8.

[104] ED Ex. No. 27, p. 15 and 17.

documented exactly how ESLs are set. The Commission Staff is currently reviewing its development and use of ESLs. The TCEQ's Chief Engineer has made it his top priority to develop and document the ESL methodology.[105] Despite the absence of a documented methodology for determining ESLs, Dr. Lee and other expert witnesses testified about how ESLs are developed.

The ALJs found Dr. Lee to be a very expert and credible witness on toxicology. He holds both a master's degree and a Ph.D. in public health. While obtaining those degrees, he largely concentrated on air pollution toxicology and planned and conducted animal inhalation toxicology research and learned to process the resulting data to determine its significance. He has written several published technical reports regarding health-effects studies of air pollution. Dr. Lee has been with the Commission's Toxicology Section for 16 years and is currently the coordinator for permits review. He has performed approximately 850 health effects reviews for permit applications and, since 1991, has reviewed all other health reviews by other Staff toxicologists.[106]

Dr. Lee testified that the Staff uses toxicological information from animal studies, exposure limits set for occupational situations, epidemiological studies, and Material Safety Data Sheets to identify concentrations of constituents at which no adverse health effect has been observed. When specific information on a constituent is not available, the Staff uses information that is available on constituents with similar chemical structures and toxicological properties to fill the gaps.[107]

Having determined a concentration of the contaminant with no reported or estimated health effect, the Staff divides that number by multiple safety factors of 10 to account for differences between animals and humans (when the underlying data was based on a study of animals), between people (to account for particularly sensitive individuals), and in exposure time.[108] Thus, to account for the shorter-term exposure effects, the Staff generally sets a 24-hour average ESL that is 1 percent of the

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[105] *See* City of El Paso Ex. No. 25, Lee Deposition, *supra* note 20, at 47-48

[106] ED Ex No. 27, p. 1 *et seq*.

[107] ED Ex. No. 27, p. 9 *et seq*.

[108] ED Ex. No. 27 (pre-filed testimony of Dr. Jong-Song Lee) page 10, lines 4-16.

occupational exposure limit. To account for longer-term exposure effects, they generally set a annual average ESL that is 1/1,000 of the occupational standard.[109]

Dr. Lee testified that ESLs set by the above-described method are very conservative and protective of children, the elderly, and people with pre-existing conditions and account for long term exposures.[110] ASARCO witness Dr. Dydek shared Dr. Lee's view that the ESLs are conservative and protective.[111] If a ground level concentration of a constituent does not exceed an ESL, Dr. Lee and Dr. Dydek concluded that no further review of that constituent is required, because exposures at that level will not result in adverse effects.[112]

However, the third well-qualified toxicological expert, Dr. Fraiser, was not nearly as impressed with the Staff's methodology for developing ESLs. Like the other two toxicological witnesses, Dr. Fraiser, as a former Commission toxicologist, was very familiar with the Staff's method of developing ESLs. Unlike them, she was not confident that the ESLs are sufficiently protective of public health.

Dr. Fraiser objects to so heavily basing the ESLs on occupational exposure data. She noted that much of that data comes from the National Institute of Occupational Safety and Health (NIOSH) or OSHA.[113] She stated that much of that data was provided by industry, which might make it self-serving, and that the data has not been subjected to the same level of external peer review as data that EPA and others might use.[114] These appear to be valid concerns, which at least some members of the Commission's Toxicology Section Staff seem to share.

A preliminary draft of the documentation of the ESL methodology, on which the Commission's

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[109] Tr. at 2264.

[110] ED Ex. No. 27, p. 10.

[111] Tr. at 2269.

[112] ED Ex. No. 27 (pre-filed testimony of Dr. Jong-Song Lee) page 15, lines 19-23.

[113] Tr. at 1373.

[114] Tr. at 1373 *et seq*.

Chief Engineer is so focused, states: ". . . IRIS . . . is the preferred database from which to obtain existing toxicity factors . . .."[115] The draft lists occupational data as the sixth, *the least preferred*, basis for setting an ESL. The draft ESL documentation does not necessarily represent current Staff policy on ESL development or its intent for the future, but it does show that at least some Staff members working on the project are concerned about over-reliance on occupational data.[116] The Commission also sees the need for greater outside peer review of its ESL process. The Commission has contracted with a private, non-profit entity–Toxicology Excellence and Risk Assessment (TERA)–to conduct a peer review of the ESL methodology once it is fully documented.[117]

Dr. Fraiser testified that ESLs, which are primarily based on occupational exposure limits,[118] were developed to protect an occupational population, typically consisting of healthy adults. In her opinion, the occupational exposure limits are intended to protect a population that is intermittently exposed, such as people who go to work eight hours a day and presumably are no longer exposed to the constituents when they go home. Dr. Fraiser noted that such a population is different from a standard community population, which, under a worst case assumption, is continuously exposed.[119]

However, Dr. Dydek testified that occupational data is based on exposure times that are likely to be longer in duration than someone in the community would be exposed to outside ambient air. The occupational standards assume an exposure time of 40 hours per week, which is approximately 24 percent of the hours in the week, but studies have shown that the average person is outside breathing outdoor ambient air only 10-20 percent of the time.[120]

Given the above, the ALJs conclude that a 24-hour or annual-average ground level

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[115] El Paso Ex. No. 29, p. 28; Tr. at 2309.

[116] Tr. at 23417 *et seq*.

[117] El Paso Ex. No. 25, p. 9.

[118] El Paso Ex. No. 25, p. 6, sub-page 35 (Dr. Lee).

[119] Tr. at 1374 *et seq*.

[120] Tr. at 2277 *et seq*.

concentration of a contaminant that was lower than the respective ESL would not likely cause air pollution. While not beyond a reasonable doubt, the ESL methodology seems more likely sound than not. Moreover, the Commission has a long history of finding that methodology sound in prior cases.[121]

Dr. Lee used the Staff's October 1, 2003, ESLs to review ASARCO's application.[122] Below are those ESLs for the remaining compounds that ASARCO could emit under its permit, if renewed:[123]

Contaminant	**ESL ($\mu g/m^3$)**	**Averaging Time**
Arsenic	0.4	24-hour
	0.1	Annual
Chromium	0.4	24-hour
	0.1	Annual
Chrome VI	0.4	24-hour
	0.1	Annual
Copper-dust	4	24-hour
	1	Annual
Copper-fume	0.4	24-hour
	0.1	Annual
Nickel	0.06	24-hour
	0.015	Annual
Zinc	20	24-hour
	5	Annual

[121] *See* ASARCO Ex. No. 1, p. 4 *et seq.*, FOF 22. *Also Southwestern Refining Company, Inc.,* TNRCC Docket No. 95-0431-AIR (An Order Renewing Air Quality Permit No. R-3153)(Jul. 13, 1995)(FOF 27 and 28) and *In the Matter of the Application of TXI Operations, L.P. for Permit No. HW-50316-001* (An Order Granting the Application of TXI Operations, L.P. for Permit No. HW-50316-001)(Mar. 10, 1999)(FOF 423 *et seq.*)

[122] ED Ex. No. p. 27 and Ex. No. 20.

[123] ED Ex. Nos. 20 and 22, p. 2.

Manganese	2	24-hour
	0.2	Annual
Barium	5	24-hour
	0.5	Annual
Cadmium	0.1	24-hour
	0.01	Annual
Iron salts	4	24-hour
	1	Annual
Respirable silica	0.4	24-hour
	0.1	Annual

The ALJs find that net ground level concentrations of the above constituents that are lower than the above ESLs will not cause air pollution.

There are no ESLs for carbon[124] or VOCs generally,[125] which ASARCO would also emit. There is no evidence that carbon, in and of itself, would cause adverse health effects. However, carbon emissions would also be PM emissions,[126] hence the NAAQS for PM_{10} and $PM_{2.5}$ would indirectly set standards to avoid adverse health effects from carbon emissions. There are ESLs for certain VOC (*e.g.* benzene[127]) but not for VOCs generally. There is no evidence that ASARCO would emit a specific VOC in a quantity of even potential concern. However, VOCs and NO_X form ozone, hence VOCs are indirectly regulated by the NAAQS for ozone.

d. Is an ESL Exceedance Always Air Pollution?

[124] Tr. at 492 and note absence in ED Ex. No. 20 (ESL list).

[125] Note absence in ED Ex. No. 20 (ESL list).

[126] Tr. at 492.

[127] Ex. No. 20, p. 20 (ESL list).

Dr. Dydek testified that even a net ground level concentration that exceeded an ESL might have no adverse effect.[128] Similarly, Dr. Lee testified that such an exceedance could be safe, depending on other information.[129] In part, Dr. Fraiser disagreed with that approach.

Both Dr. Lee and Dr. Dydek are very experienced and credible, but there is little evidence to support their across-the-board opinions that discounting observed-effects levels by 99 or 99.9 percent accomplishes all of the objectives–i.e., adjusting for different sensitivities, exposure times, etc. Instead, the underlying assumption seems to be that the discounts are so large that they surely must be sufficient to account for the differences in species, sensitivities, and exposure time and for multiple sources of contaminants. The ALJs are generally persuaded by that logic, but not if those assumed margins of safety are eroded. In the absence of very specific evidence to the contrary, the ALJs find that an exceedance of an ESL would create a condition of air pollution. For certain specific contaminants, as discussed below, there is more specific evidence that the margins of safety can be reduced.

Dr. Lee and Dr. Dydek both described the Staff's traditional three-tiered health-effects review process. The first tier of review would be to compare modeled or monitored values for the air contaminant to the ESL for that air contaminant. If the modeled or monitored number is less than the ESL, the toxicology group would conclude there is no public health risk, and their review would be completed. In a second-tier review, if the expected concentration level is less than twice the ESL at an industrial or other non-residential area and no greater than the ESL at residential receptors, that also would pass the Staff review. If the net ground level concentration exceeded those levels, the Staff would conduct a third-tier review and consider site- and chemical-specific information, the frequency and location of the ESL exceedances, and the type of toxic effect that the chemical might cause if exposures are high enough (for example, short-term versus long-term effects). The Staff might also consider the adequacy of the database, how confident they were that the ESL is set correctly, the

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[128] Tr. at 2269.

[129] ED Ex. No. 27, p. 15.

margin of safety that was included in the occupational standard on which the ESL was based, and other factors.[130]

(1) Copper Dust, Iron Salts, Respirable Silica

Dr. Lee analyzed whether higher-than-ESL concentrations of copper dust, iron salts, respirable silica, arsenic and compounds, and cadmium would create unacceptable risks.[131] He concluded that specific concentrations of each would not.

Dr. Lee testified that a 24-hour copper dust concentration of 5.2 $\mu g/m^3$, which is 1.3 times the ESL, and a 24-hour iron salt concentration of 4.43 $\mu g/m^3$, which is 1.1 times the ESL, would be acceptable. He explained that these ESL exceedances were so small and the margin of safety in setting the ESLs was so large that the impacts would be acceptable.[132]

Dr. Lee's opinion was that a 24-hour respirable silica concentration of 7.3 times the ESL and an annual-average concentration of 4.3 times the ESL would still be safe. He reasoned that the primary concern with silica is a chronic effect, silicosis, hence the short-term level could be much higher. He also stated that the California EPA's chronic exposure level is 3 $\mu g/m^3$. Thus, Dr. Lee concluded that the 2.9 $\mu g/m^3$ 24-hour and 0.43 $\mu g/m^3$ annual-average concentrations of respirable silica that ASARCO predicted would not cause adverse health effects.[133]

There is no significant toxicological evidence to contradict Dr. Lee's opinion that those concentrations would be safe. No other party or witness even argued that lower ground level concentrations of those three constituents were necessary to avoid adverse health or other effects. The ALJs conclude that 24-hour concentrations of 5.2 $\mu g/m^3$ of copper dust, 11 $\mu g/m^3$ of iron salt, and 2.52

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[130] Tr. at 2267; ED Ex. No. 27, p. 20 *et seq*. and Ex. No. 19, p. 28.

[131] ED Ex. No. 27, p. 21 *et seq*.

[132] ED Ex. No. 20, pp. 8 and 19 and Ex. No. 27, p. 21 *et seq*.

[133] ED Ex. No. 22, p. 2 and Ex. No. 27, p. 21.

$\mu g/m^3$ of respirable silica and an annual-average respirable silica concentration of 0.37 $\mu g/m^3$ would not cause adverse health or other effects.

(2) Arsenic

There is a much greater dispute concerning arsenic. As discussed above, the annual-average ESL for arsenic is 0.1 $\mu g/m^3$. Dr. Fraiser indicated that the EPA's IRIS inhalation risk factor data indicated that a full-life exposure 0.002 $\mu g/m^3$ of arsenic would create a one-in-a-million risk of cancer. But Dr. Fraiser acknowledged that no state of which she was aware required a one-in-a-million or lower risk level.[134]

Dr. Dydek testified that studies of workers exposed to 13 $\mu g/m^3$ of arsenic for decades have shown no statistically significant elevated levels of cancer. He also testified that those results were reported in the Agency for Toxic Substances and Disease Registry, which he stated was generally relied on by toxicologists everywhere.[135] However, that same registry also indicated that there was strong evidence that arsenic exposure at some concentrations was responsible for observed lung cancer. It noted that quantitative dose-response data for arsenic-exposed workers at the ASARCO copper smelter in Tacoma, Washington, in 1983 showed a correlation between specific arsenic exposure levels and lung cancer risk.[136]

Dr. Lee also agreed that exposure to arsenic at certain concentrations would not impact health. He assumed maximum ground level concentrations (max GLCs) of arsenic of 1.32 $\mu g/m^3$ as a 24-hour average, which is 3.3 times the ESL, and 0.2 $\mu g/m^3$ annual-average, which is two times the ESL.[137] He focused on the annual average, which apparently is the average of greater concern in doing a health

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[134] Tr. at 1500.

[135] Tr. at 2271 *et seq*.

[136] Tr. at 2271 *et seq*. and 2313 *et seq*.; El Paso Ex. No. 30, p. 7 (marked as p. 44).

[137] As discussed below, ASARCO witness predicted a 0.018 $\mu g/m^3$ annual average ground level concentration. Tr. 2274. Dr. Lee apparently rounded that off to 0.02 $\mu g/m^3$.

analysis.[138] No party suggested that a 1.32 μg/m^3 24-hour average would pose a health risk. Using IRIS's one-in-100,000 cancer-inhalation-risk-factor concentration of 0.0043 per μg/m^3,[139] he testified that there was a risk that 8.6 additional people out of 100,000 would develop cancer at the 0.2 μg/m^3 annual average.[140] Dr. Fraiser agreed with Dr. Lee's calculation.[141]

Is a possibility of 8.6 additional cancers per 100,000 people an acceptable risk? Dr. Lee testified that EPA's guidance indicated that was an acceptable risk level. That led him to concluded that a 0.2 μg/m^3 annual-average arsenic concentration would not cause adverse heath effects.[142]

Dr. Dydek testified that EPA guidance states that even levels of risk calculated to be slightly in excess of 1 in 10,000 can still be acceptable, based on site-specific and chemical-specific information.[143] He also testified, based on personal observation and study as discussed above, that the cleanest air in Texas with no significant industrial sources of contaminants, is near the McDonald Observatory in far west Texas. He stated that the annual-average arsenic concentrations there are 0.01 to 0.02 μg/m^3. He also testified that above-average levels of cancer are not found in that part of the state.[144]

The ALJs are very hesitant to recommend that the Commission find that any contaminant concentration lower than an ESL would not cause adverse effects. Setting ESLs at a hundredth and a thousandth of the level at which effects have been observed serves several purposes. As discussed above, it is intended to account for differences between humans and animals, differences in human sensitivities, and periods of exposure. Dr. Lee and Dr. Dydek also testified that the ESLs are set

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[138] Tr. at 2264.

[139] Tr. at 1499 *et seq*.

[140] ED Ex. No. 27, p. 21 *et seq*.

[141] Tr. at 1499 *et seq*.

[142] ED Ex. No. 27, p. 21 *et seq*.

[143] Tr. at 2281.

[144] Tr. at 2282 *et seq*.

sufficiently low to account for the contribution of multiple sources of the same pollutant in an area.[145]

But if, as the evidence shows, the most unpolluted, cleanest air in Texas has an approximate long-term average arsenic concentration of 0.02 $\mu g/m^3$ and no increased cancer rates, the ALJs conclude that concentration of arsenic will not cause adverse health or other effects. Based on the above evidence, the ALJs concluded that maximum ground level concentrations of 1.32 $\mu g/m^3$, as a 24-hour average, and 0.2 $\mu g/m^3$, as an annual-average, of arsenic would not cause adverse health effects.

(3) Cadmium

Data for El Paso shows that the annual-average concentration of cadmium in the ambient air is higher than the ESL. In 1986, it was 0.018 $\mu g/m^3$ and in 1987 it was 0.014 $\mu g/m^3$.[146] Is there evidence to show that these higher-than-the-ESL levels are safe or do they show that El Paso already suffers from cadmium pollution?

Unlike for arsenic, there is no cleanest-air-in-Texas evidence for cadmium. But Dr. Dydek noted that there is a significant degree of debate among toxicologists as to whether cadmium is even a human carcinogen, though it has been found to lead to cancer in studies of some animals.[147] However, he conceded that EPA had assigned a risk factor to cadmium, based on at least one study. The ALJs conclude that cadmium does pose a health risk.

What is a safe level? Dr. Dydek testified that he took data from a study of a group of workers that showed no increased risk of cancer. Their exposure level would translate to a level of about 22

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[145] City of El Paso Ex. No. 25 (Jong-Song Lee deposition transcript) page 66 line 24 through page 69 line 10; Hearing transcript (Dydek direct examination testimony) page 2269 lines 12-23.

[146] ED Ex. No. 27, p. 22.

[147] Tr. at 2274.

$\mu g/m^3$ over a working lifetime of exposure.[148] However, the ESLs and other testimony by Dr. Dydek indicate that a lower annual-average, rather than lifetime-average, adversely affects workers. The annual-average ESL for cadmium is 0.01 $\mu g/m^3$.[149] Dr. Dydek even testified that the cadmium annual-average ESL was one-1,000th of the occupational exposure limit.[150] That would mean that the highest reported level not affecting exposed workers is not 22 $\mu g/m^3$ per lifetime but 10 $\mu g/m^3$ per year.

The literature reporting that 10 $\mu g/m^3$ worker exposure safe level is not in evidence, yet by testifying in support of the ESLs and explaining the ESL methodology, Dr. Dydek seemed to recognize that it existed. The ALJs do not mean to suggest that Dr. Dydek sought to deceive the ALJs, but based on this evidence, they must find that the lowest reported risk-free level of cadmium exposure for workers is 10 $\mu g/m^3$. Hence, without further evidence, the ALJ would find that the 0.01 $\mu g/m^3$ annual-average ESL for cadmium was necessary to ensure healthy air.

Dr. Lee concluded that a higher annual-average concentration, 0.018 $\mu g/m^3$, would be safe.[151] ASARCO claims that operation under its renewed permit would not exceed that level. Dr. Lee used EPA IRIS data indicating that there is a 0.0018 risk of additional lifetime cancers per $\mu g/m^3$ of lifetime exposure to cadmium. Dr. Lee then calculated that exposure to an annual average of 0.018 $\mu g/m^3$ of cadmium created a 3.2-in-100,000 risk of additional cancers.[152]

The prior consideration of arsenic and its clean-air concentration in west Texas suggests that the EPA IRIS risk factors for that contaminant may be unreasonably conservative. But there is no such real-world risk-free comparison in evidence for cadmium. It might be that the EPA IRIS methodology is generally flawed or that the studies underlying arsenic were flawed. But in the absence of specific evidence to the contrary, the ALJs rely on Dr. Lee's calculation and find that an annual average of

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[148] Tr. at 2274 *et seq*.

[149] ED Ex. No. 22, p. 2.

[150] Tr. at 2266.

[151] Tr. at 2274. The ALJs considered below whether ASARCO would exceed that concentration.

[152] ED Ex. No. 27, p. 22; Tr. 1973.

0.018 μg/m^3 of cadmium would create a 3.2-in-100,000 risk of additional cancers.

Is a 3.2-per-100,000 risk of cancer acceptable? Dr. Lee testified that such a level of excess-cancer risk is allowable,[153] apparently meaning that EPA considers it allowable.[154] However, he never explained his basis for testifying that EPA would consider a 3.2-per-100,000 risk of cancer allowable nor were EPA guidance documents introduced to show how EPA would make that determination.

Dr. Fraiser has broad experience in dealing with risk reduction factors with various environmental agencies and media, though primarily in waste-remediation programs.[155] She testified that EPA uses a range of risk factors from one-in-10,000 to one-in-a-million, depending on circumstances and that various governmental agencies use that same range. Dr. Fraiser testified that one-in-a-million is often used by agencies as a *de minimus* value, which requires no further scrutiny. A greater risk typically requires a more site-specific evaluation. Dr. Fraiser testified that a one-in-10,000 risk is sometimes acceptable where the population is very small. A greater risk than that, at least at Superfund sites, will always require corrective action. According to Dr. Fraiser, the target risk range in the TCEQ's Texas Risk Reduction Program (TRRP) is one-in-100,000.[156]

ASARCO does not dispute Dr. Fraiser's testimony concerning the range of or the factors considered by EPA or the Commission in determining an acceptable level of risk. Instead, it argues (and Dr. Dydek testified[157]) that Dr. Fraiser's risk-guidelines discussion concerned other environmental programs and that such an approach is not used in the air programs.

The TRRP, to which Dr. Fraiser referred, does concern corrective action when land has been

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[153] ED Ex. No. 27, p. 22.

[154] ED Ex. No. 27, p. 21.

[155] El Paso Ex. No. 4, attach. LF-1.

[156] Tr. at 1494 *et seq*.

[157] Tr. at 2279.

contaminated.[158] However, such land cleanups can impact air quality. The TRRP generally requires such cleanups to reduce emissions of carcinogenic air contaminants to a risk level of one in 100,000 for off-site receptors, except when a very detailed analysis of exposure pathways indicates that few people are likely to be exposed.[159] A full consideration of the TRRP is beyond the scope of this case. However, this very superficial review seems to indicate what the ALJs would expect: EPA and the Commission are approaching risk-analysis issues along similar lines in all environmental programs and steadily moving toward greater consistency. That is at least tentatively confirmed by the Staff's ESL-development-procedure draft, which also uses a one-in-100,000 target risk range.[160]

The ALJs note the obvious: There is no such thing as zero risk. They also recognize that determining the acceptability of an environmental risk is a complex and subtle policy decision that, in the absence of clearly applicable and specific standards, only the Commissioners can make. When no environmental regulatory agency in the country is enforcing a one-in-a-million risk standard, the ALJs find no reasonable basis for recommending that the Commission do so. While the picture is far from fully documented and clear in this case, the ALJs note that the Commission and EPA seem to be moving toward a consistent carcinogenic-risk target of not more than one in 100,000, unless evidence indicates that far fewer than 100,000 people would be exposed to the risk, which might make a target as low as one in 10,000 acceptable.

Given that apparent one-in-100,000 risk target and Dr. Lee's calculation, using IRIS data, that a 0.018 $\mu g/m^3$ concentration of cadmium could lead to 3.2 extra cancers per 100,000 population exposed for life, the ALJs do not recommend that the Commission find that a 0.018 $\mu g/m^3$ annual average concentration of cadmium would not cause adverse health effects. Instead, they recommend that the Commission find that a 0.001 $\mu g/m^3$ annual average for cadmium, which is the ESL, should generally be maintained.

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[158] 30 TAC §§ 350.1 and 350.2(a).

[159] 30 TAC § 350.72(a)(1), 350.74 and 350.75.

[160] El Paso Ex. 29, p. 19 (marked as p. 6); Tr. at 1494 *et seq*.

It is possible that more site-specific evidence concerning a low or highly transient population might show that a 0.018 $\mu g/m^3$ concentration is nevertheless acceptable. However, to reach that conclusion specific evidence would need to show the point or points where that concentration might be expected. Any such evidence would also depend on the modeling of ASARCO's emissions to show expected concentrations and peak points of concentration. That evidence is considered below in the modeling section of this PFD.

4. Summary of Non-Polluting Levels

For the reasons set out above, the ALJs find that ASARCO's emissions under its renewed permit would not cause adverse health or other effects, hence would not create air pollution, if they do not exceed the following:

Maximum Non-polluting Levels ($\mu g/m^3$ unless otherwise indicated)		
Contaminant	**Concentration**	**Averaging Times**
Carbon Monoxide	10,000	8-hour
	40,000	1-hour
Lead	1.5	Quarterly Average
Nitrogen Dioxide	100	Annual Arithmetic Mean
PM_{10}	50	Annual Arithmetic Mean
	150	24-hour
$PM_{2.5}$	15.0	Annual Arithmetic Mean
	65	24-hour
Ozone	0.08 ppm	8-hour
Sulfur Oxides	0.03 ppm	Annual Arithmetic Mean
	0.14 ppm	24-hour
	0.5 ppm (1300 $\mu g/m^3$)	3-hour
sulfur dioxide	755	30-minutes

TSP	200	3 hours
	400	1 hour
H_2SO_4	15	24 hours
	50	more than once in a 24-hour period
	100	any time
Arsenic	1.32	24-hour
	0.2	Annual average
Chromium	0.4	24-hour
	0.1	Annual average
Chrome VI	0.4	24-hour
	0.1	Annual average
Copper-dust	5.2	24-hour
	1	Annual average
Copper-fume	0.4	24-hour
	0.1	Annual average
Nickel	0.06	24-hour
	0.015	Annual average
Zinc	20	24-hour
	5	Annual average
Manganese	2	24-hour
	0.2	Annual average
Barium	5	24-hour
	0.5	Annual average
Cadmium	0.1	24-hour
	0.01	Annual average
Iron salts	11	24-hour
	1	Annual average

Respirable silica	2.52	24-hour
	0.37	Annual average

C. Does Previous Issuance of the Current Permit and its Predecessors Prove That ASARCO Will Not Cause or Contribute to Air Pollution by Operating under the Renewed Permit?

To prove that it will not cause or contribute to air pollution, ASARCO puts greatest reliance on the Commission's original approval of its Permit in 1992, following a contested case hearing, and on the ED's subsequent approval of amendments and alterations of that permit, without hearing. It argues that the prior approvals generally prove that no air pollution will result if its current permit is renewed. Additionally, ASARCO frequently points to specific Findings of Fact in the 1992 Commission order approving the Permit[161] and argues that those findings by themselves prove specific facts disputed in this case.

ASARCO even argues that unless it is shown that the Commission exceeded its authority when it issued the 1992 order or that the order was procured through extrinsic fraud, the order and the findings therein must be accepted as true and valid in the current case. ASARCO also argues that the other parties have not introduced sufficient evidence to show such exceedance of authority or fraud or even to disprove those prior findings.

ASARCO introduced evidence of those prior approvals, and no party dispute that those approvals were given. However, none of the other parties agree that ASARCO can rely on either the prior approvals, or the findings underlying them, to prove that ASARCO's operation under a renewed permit would not cause air pollution.

The Commission has not asked the ALJs to determine whether ASARCO was previously issued a permit for ConTop or amendments or alterations to that permit. Nor has it asked the ALJs to determine whether there were underlying findings in those approvals as to certain points. Nor has it asked the ALJs to determine whether the Commission is bound by those prior approvals and

[161] ASARCO Ex. No. 1.

findings. Nor has it, by rule or order, placed the burden on other parties to disprove such prior findings.

Instead, the Commission has asked the ALJs to determine whether operation under the proposed renewed permit will cause or contribute to air pollution and has assigned to ASARCO the burden of proving that it likely will not. The ALJs can only reasonably conclude from that charge that the Commissioners want a fresh look at the air-pollution issue, unbounded by any prior determinations. To the extent that ASARCO believes that the Commission is bound by its prior decisions and rulings, it will have to make that argument in another forum.

For the above reasons, the ALJs assign no weight to and generally will not even discuss the Commission's prior approvals and findings regarding ASARCO's permit except in a very general sense. The ALJs will, however, fully discuss and evaluate the evidence underlying those prior decisions and findings to the extent that evidence was admitted in the current case.

D. Does the Commission's State Implementation Plan Certifying That El Paso County Has Attained the NAAQS and EPA's Acceptance of That Plan Prove That ASARCO Would Not Violate the NAAQS If it Renewed Operations under the Permit?

The El Paso area has partially attained the NAAQS. Mr. Cabe testified that El Paso is a non-attainment area for ozone and PM_{10} and that a small portion of it is a non-attainment area for carbon monoxide. He testified that El Paso would have attained the PM_{10} NAAQS but for the quantity of PM_{10} from Mexico.[162] With those exceptions, El Paso County has otherwise attained the NAAQS. Although specific legal citations were not provided, no party disputes Mr. Cabe's summary of El Paso's attainment status.

The El Paso area was classified as in attainment (generally) based on Texas's SIP, which was adopted by the Commission the submitted to and approved by EPA. In developing the SIP, the Commission took existing sources into account, including ASARCO's emissions under the Permit at

[162] Tr. at 680.

issue in this case.[163] No legal citations were given and only an underlying 1991 SIP plan for PM_{10}[164] was offered as evidence, but no party disputes Mr. Cabe's testimony as to these facts.

ASARCO argues that the El Paso area's attainment status, which takes into account all permitted emissions, combined with the Commission's prior approval of Permit 20345, as amended, proves that ASARCO's emissions under Permit 20345 will not cause or contribute to exceedances of the NAAQS or throw the El Paso area out of attainment (to the extent that it is in attainment). Citing Commissioner's White's comments at the Commission meeting when this case was referred to hearing, ASARCO claims that this case only concerns attainment of the NAAQS.

El Paso rejects the claim that these circumstances satisfy ASARCO's burden of proof in this case. It maintains that the SIP process is designed to measure area-wide compliance with the NAAQS and not to determine whether a particular source causes a problem or to relieve a particular source from compliance with Texas's permitting program. El Paso also argues that the Commission's order, despite the Chairman's preliminary comments, did not limit the scope of the case to a consideration of the NAAQS, but instead requires ASARCO to prove that it will not cause or contribute to air pollution if it resumes operation under the renewed ConTop permit.

In large part, this argument is a variation and elaboration on ASARCO's arguments that the ALJs previously rejected when discussing burden of proof and the NAAQS. As the ALJs explained, they do not find that "air pollution" is synonymous with "NAAQS exceedance" or that the Commission intended to limit this case to a consideration of NAAQS exceedances.

Additionally, the ALJs cannot understand how partial NAAQS attainment in the El Paso area proves that ASARCO's emissions under Permit 20345 would not cause NAAQS exceedances in some part of the area. The area is not in attainment for ozone or PM_{10} or, to a lesser geographic extent, for carbon monoxide. Thus, the attainment status could not logically prove anything about those pollutants or NO_2, which is an ozone precursor. As to the other NAAQS, the ALJs cannot reconcile the

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[163] Tr. at 681, 1184 *et seq*., 1208, 1224, and 2116 *et seq*.

[164] ASARCO Ex. No. 39.

Commission's imposing the burden of proof on ASARCO with the argument that NAAQS attainment meets that burden. The Commission knows the El Paso area's attainment status and obviously does not need a hearing so ASARCO can prove what it already knows. The ALJs instead believe that ASARCO must show through a specific analysis of its emissions that it would not cause or contribute to air pollution at any location.

E. Does Air Monitoring Data Taken When ASARCO Previously Operated Prove That ASARCO Would Not Cause NAAQS Exceedances if it Resumed?

ASARCO argues that when it previously operated under the permit, data from certain ambient air monitors in El Paso showed no NAAQS exceedances, which proves that its resumed operation would not cause a NAAQS exceedance. El Paso does not agree, and neither do the ALJs.

From 1993 through 1999, when the El Paso Plant operated under the permit,[165] El Paso operated an ambient-air monitor (El Paso Monitor) that was 1.25 miles east of the ASARCO site.[166] TCEQ also operated a monitor (TCEQ Monitor) that was 1.5 miles from the ASARCO facility.[167] Mr. Cabe testified that those monitors provided the best indication of ASARCO's past and likely future contribution to ambient air contaminants in the area. He also testified that he reviewed the data recorded by those monitors for the period when ASARCO operated under the permit as well as for some years before and after.[168]

In addition to the nearest two, there are other monitors in El Paso County. Mr. Castor testified that ASARCO has maintained a network of five to six continuously operating ambient SO_2 monitors (ASARCO Monitors) around the El Paso Plant since the 1970s.[169] He also testified that the ASARCO

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[165] ASARCO Ex. Nos. 29, 30, 31, and 38, p. 39 *et seq.*

[166] ASARCO Ex. No. 28 (monitor marked as 33).

[167] ASARCO Ex. No. 28 (monitor marked as 37).

[168] ASARCO Ex. No. 38. p. 37 *et seq*.; Tr. 754 and 829 *et seq*., and 1029, *et seq*.

[169] Tr. at 2029, lines 9-13 (Castor rebuttal testimony); Tr. at 2061, line 7 through page 2063 line 1, and page 2,084, line 24 through page 2085, line 4 (Castor cross-examination testimony) .

monitors are two to three miles to the southeast, east, and northwest of the facility.[170]

The available data from the TCEQ and El Paso Monitors showed no exceedance of the NAAQS for lead when ASARCO operated. That data showed the following peak lead level:[171]

Monitored Maximum Levels Compared to NAAQS				
Contaminant	Averaging Period	NAAQS	Highest Level	Year of Highest
Lead	Quarterly Average	1.5 $\mu g/m^3$	0.4 $\mu g/m^3$	1996

There is some data from the TCEQ and El Paso Monitors for PM_{10}, but it is fragmentary. There are large gaps in data. Mr. Cabe testified that it is a long-standing TCEQ and EPA policy to exclude dust-storm days, when nearly every monitor would show a PM_{10} exceedance. He also stated that data is only available for 259 days in 1997, 148 days in 1998, 51 days in 2001, and 264 days in 2002. Once all those days are excluded, the highest recorded PM_{10} annual average was 34 $\mu g/m^3$ in 1998, significantly below the annual average NAAQS.[172] This evidence is too incomplete for the ALJs to reach any conclusions about ASARCO's past or future contribution to exceedances of the PM_{10} NAAQS.

The historical data from the El Paso and TCEQ Monitors for NO_2 and SO_2 are far more complete and undisputed. According to Mr. Castor, not a single exceedance of any SO_2 NAAQS was detected by any of the ASARCO Monitors during the years from 1993 through 1999, when ASARCO operated ConTop.[173] Moreover, during those years, the maximum 3-hour, 24-hour, and annual average concentrations of SO_2 recorded by the El Paso and TCEQ Monitors never came close to the NAAQS, steadily moved downward until approximately 2000, and then stayed at very small fractions of each

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[170] Tr. at 2061 *et seq*.

[171] ASARCO Ex. Nos.. 33 and 38, p. 44 *et seq*.

[172] ASARCO Ex. No. 38, p. 45 *et seq*.

[173] Tr. at 2031, lines 3-9, and at 2032, lines 1-4 (Castor rebuttal testimony) .

NAAQS thereafter.[174] During that same period of operation, the monitored level for NO_2 was also far below the NAAQS.[175] According to Mr. Cabe,[176] the following were the highest levels of NO_2 and SO_2 recorded by either the TCEQ or the El Paso Monitor during the periods before, during, and after ASARCO operated ConTop:

Monitored Maximum Levels Compared to NAAQS (1992-2004)				
	averaging period	NAAQS	Highest Level	Year of Highest
Sulfur Dioxide	Annual Arithmetic Mean	0.03 ppm	0.012 ppm	1992
	24-hour	0.14 ppm	0.095 ppm	1990
	3-hour	0.5 ppm (1300 $\mu g/m^3$)	0.4 ppm	1990
NO_2	Annual	0.053 ppm	0.023 ppm	1994-1996

At first, the ALJs found this monitoring data very impressive. They seemed to show that ASARCO would not violate the NAAQS for lead, SO_2, or NO_2 in the future, because it had not violated them in the past when operating under the same permit. On closer examination however, the ALJs realized that they did not necessarily show that.

El Paso's witness, Ms. Geran, testified and El Paso argues that the monitors have not been shown to have been at the max GLC points for ASARCO's ConTop's emission. According to Ms. Geran, the Commission's monitors were placed to monitor the overall quality of the air in the region and not specifically to monitor the localized impact of ASARCO's or any other entity's emissions.[177] El Paso contends that the air quality at the monitor locations may have been below the NAAQS, but ASARCO still may have caused or contributed to exceedances at other locations.

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[174] ASARCO Ex. Nos. 29, 30, 31, and 38, p. 39 *et seq.*

[175] ASARCO Ex. No. 32.

[176] ASARCO Ex. Nos.. 29-35, and Ex. No. 38, p. 39.

[177] Tr. at 1246 *et seq*.

According to El Paso, unless the points of ASARCO's maximum ground level concentration for lead, NO_2 and SO_2 are at the exact location of one of the monitors, the monitoring data does not show that ASARCO did not or could not cause an exceedance. The ALJs agree with El Paso on these points.

The monitoring data is some evidence that ASARCO's operation did not in the past and would not in the future cause or contribute to lead, NO_2, or SO_2 exceedances, but only at the points where the monitors are located. It may be that the air at the monitor locations, or even in most of the El Paso area, did not and would not exceed the NAAQS if ASARCO resumed operation, but that would not necessarily mean that ASARCO never did or never would contribute to such exceedances at other locations.

The ALJs could only find the monitoring evidence sufficiently strong to carry ASARCO's burden of proof if ASARCO also showed that at least one of the monitors was at or very near the max GLC points for SO_2 and NO_2. Such proof likely would indicate that the highest recordings at the monitor represented the highest peaks to which ASARCO would contribute. The evidence does not show, however, that any monitor location is at such a peak concentration point.

Mr. Cabe thinks that the El Paso and TCEQ Monitors are at or very near those max GLC points. He testified that those monitors were closer than other TCEQ monitors to potential maximum impact points from the plant and were also closer to the plant itself, so that ASARCO's air emission plume would receive less dispersion before it reached those points. In that context, he felt that those monitors were probably better representative of the impact of ASARCOs emissions than other monitors.[178]

But how would Mr. Cabe know where those max GLC points are so that he could know that the monitors were sufficiently close? Mr. Cabe certainly has the expertise to make an educated guess after studying the plant layout and geography of the area, but the concentrations of lead, SO_2 and NO_2 that would exceed the NAAQS are so small that the ALJs would not find an educated guess

[178] Tr. at 754.

convincing.

Mr. Cabe did attempt to much more precisely calculate max GLC points for SO_2. In March 1995, to support an amendment to its permit, Mr. Cabe modeled SO_2 for a broad grid of points surrounding the ASARCO facility and produced a set of maps showing the predicted annual SO_2 concentrations.[179] Those maps also showed the max GLC points that Mr. Cabe's modeling predicted for each averaging period. For example, the predicted annual SO_2 max GLC, before accounting for background SO_2 contribution, was 15.6 $\mu g/m^3$ at a point virtually on ASARCO's eastern property line.[180] The maximum predicted 30-minute impact was 1,135 $\mu g/m^3$ at a point approximately 8,200 feet, or 1.5 miles, east of the ASARCO's facility.[181] The max GLC points for 3-hour average max GLC is northeast of the ASARCO facility.[182]

The ALJs cannot attach significant weight to the monitoring data showing no exceedances until they conclude that Mr. Cabe was correct when he testified that the monitors correctly represented the impact of ASARCO's emissions. And they cannot find that until they determine whether the modeling reasonably predicted the max GLC locations.

Moreover, even if one assumes that those predicted SO_2 max GLC locations are correct, the El Paso monitor is approximately one-quarter mile from the 30-minute peak location, but far less close to the other peak locations.[183] The TCEQ Monitors are even farther away from those max GLC locations. The ASARCO Monitors, two or three miles from the plant and not just to the east, are likely farther away from peak GLC locations. For purposes of determining maximum ground level impact, short distances seem to matter. For example, the map that shows Mr. Cabe's modeled annual SO_2 concentrations generally falls from the predicted 15.6 $\mu g/m^3$ peak at the property line to approximately

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[179] ASARCO Ex. No. 23, pp. 7 and 26 through 29 of 76 (oversized maps); Tr. at 756 *et seq*. (mistakenly referred to as ASARCO Ex. 28).

[180] ASARCO Ex. No. 28, p. 29 of 76.

[181] ASARCO Ex. No. 23, pp. 9 and 26 (oversized map).

[182] ASARCO Ex. No. 23, p. 27 (oversized map).

[183] ASARCO Ex. No. 23, pp. 26-29 and Ex. 28.

half of that a mile to the east, while declining and then rising to 12 $\mu g/m^3$ over two miles to the north.[184] El Paso's witness, Ms. Geran was correct when she testified that none of the El Paso or ASARCO Monitors was located at the max GLC locations that Mr. Cabe modeled in 1994 for SO_2.[185]

Similarly, the modeling for lead prepared for the permit when originally issued predicted a max GLC west of the ASARCO facility, which was not close to either the TCEQ, El Paso, or ASARCO Monitors.[186]

Though it is tempting to conclude that the monitoring data showing no lead, SO_2, or NO_2 exceedances when ASARCO previously operated proves that ASARCO would not cause exceedances in the future if it resumes operation, the ALJs cannot reach that conclusion. At best, if ASARCO shows through other evidence that it is unlikely to cause or contribute to exceedances, the monitoring data would provide some additional confirmation.

F. Is ASARCO's Air Dispersion Modeling Evidence Generally Credible?

ASARCO argues that the air dispersion modeling evidence shows that its emissions of SO_2, lead, PM_{10}, $PM_{2.5}$, NO_2, CO, and 23 non-criteria contaminants would not cause or contribute to a condition of air pollution. The ED agrees, but the other parties do not.

Air dispersion modeling is a computerized mathematical tool based on the principles of physics that simulates the dispersion of an emission from the source to the location where it is received and provides an estimate of the concentration at the receptor location. Various factors are fed into a computer program, which then predicts concentrations of the contaminant at various locations. Among

[184] ASARCO Ex. No. 23, p. 29 (oversized map).

[185] El Paso Ex. No. 1, p. 58.

[186] ASARCO Ex. No. 55.

those factors are the type of contaminant; the temperature, point, and elevation of the emission; the speed and direction of the wind; the turbulence of the atmosphere; and the elevation of the surrounding terrain.[187]

ASARCO's expert modeling witness, Mr. Cabe, testified that atmospheric dispersion modeling, which is also referred to as air dispersion modeling, is the most suitable tool for predicting the ambient concentration of a particular pollutant that will result from the emissions of a particular sources. He also stated that the TCEQ Staff and EPA rely almost exclusively on modeling to determine whether a particular sources will cause or contribute to a condition of air pollution. According to Mr. Cabe, both agencies' policies and procedures for at least the last 30 years have directed applicants to use models.[188] El Paso's modeling expert, Ms. Geran, generally agreed that modeling, performed correctly, is the gold standard for determining the concentrations of a contaminant that will result from a given emission.[189] No party disagrees.

1. Overview of Models Discussed in This PFD

Though not required, EPA and the TCEQ Staff currently prefer that regulated entities generally use the Industrial Source Complex model, version 3 (ISC3) for the following regulatory applications:

- Industrial source complexes;
- Rural or urban areas;
- Flat or rolling terrain;
- Transport distances less than 50 kilometers;
- 1-hour to annual averaging times; and
- Continuous toxic air emissions.[190]

However, ASARCO has never modeled the dispersion of its emissions under Permit 20345

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[187] Tr. at 541.

[188] ASARCO Ex. No. 38, p. 33 *et seq*.

[189] Tr. at 1239 *et seq*.

[190] ASARCO Ex. No. 38, p. 11; Tr. at 1924. *See* also 40 C.F.R. Part 51, Appendix A to Appendix W of Part 51—Summaries of Preferred Air Quality Models.

using ISC3. In 1992, the preferred dispersion models were the original version of the Industrial Source Complex Model (ISC1) and COMPLEX I, which was another EPA-approved model that took into account the changes in the elevation of the terrain over which the emissions would be disbursed. After ASARCO applied for the permit in 1991, it prepared and submitted ISC1 and COMPLEX I modeling runs in early 1992 (1992 Modeling).[191]

Mr. Cabe testified that the ISC1 and COMPLEX I models used to support the 1992 application were similar in most respects to ISC3. The ISC3 model incorporates the features of the ISC1 and COMPLEX 1 models into a single model. In 1992, one had to run the two different models separately, look at the results and see which ones were higher.[192] That was necessary to determine concentrations at different terrain elevations.[193]

Superficially, there are differences in the interfaces with the ISC models. According to Mr. Cabe, one can now use menus to enter data for emission rate, stack height, stack diameter, *etc.,* and the menus transmit that data to the model input file. In 1991, one had to enter that data directly into a model input file in FORTRAN code. Numbers for the inputs–diameter, velocity, *etc.*–were entered left to right with no separation between them. As far as Mr. Cabe knows, there is no software to transfer that difficult-to-read data from the FORTRAN code to a user-friendly screen like the one used in the current model.[194]

The only other model that ASARCO has ever run and submitted to TCEQ concerning ConTop was that prepared to support its 1994 application to amend the permit. That application was primarily to change its authorized SO_2 emission rates. To support that application, Mr. Cabe in 1995 modeled those then-proposed SO_2 emissions using BEEST-X, Version 1.3 (1995 modeling). That was a private vender's software that combined the algorithms from a later version of ISC–Industrial Source Complex

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[191] Tr. at 2146 *et seq*.

[192] Tr. at 2146 *et seq*.

[193] Tr. at 2150 *et seq*.

[194] Tr. at 2147 *et seq*.

Short-Term model (ISC2)–and COMPLEX I into one model.[195]

There is also some testimony concerning another dispersion model: AERMOD, which was developed by the American Meteorological Society and EPA.[196] Since the use of ISC3 is only a preference, evidence concerning modeling runs using AERMOD could be considered if there was any. But no party offered specific evidence of an AERMOD modeling. There was also some speculation by Mr. Cabe and Ms. Wilson that AERMOD would have predicted lower dispersed pollutant concentrations.[197] But they later admitted that they were not sure if that was true.[198] Because there is no evidence of AERMOD runs or even solid opinion evidence as to how its results generally compare to those of the model that were run, the ALJs can deduce nothing from the testimony concerning AERMOD.

2. The Lack of Modeling Prepared for this Application

Although ASARCO's own expert agrees that modeling is the best way to determine where pollutants will concentrate in order to determine whether they will pollute the air, ASARCO did not prepare an up-to-date dispersion model for this case. Instead, ASARCO relies on its 1992 and 1995 modeling, neither of which modeled all of the concentrations of each pollutant that the Permit, if renewed, would authorize ASARCO to emit (although the 1995 modeling did model SO_2).

El Paso's modeling expert, Ms. Geran, testified that there were several reasons why ASARCO should have conducted a full and fresh modeling to support its renewal application. She noted the ASARCO facility predates the Texas Clean Air Act; hence, it was grandfathered and has never had to undergo full scrutiny. There have also been many changes in the permitted emissions since ConTop was first permitted. She was also concerned that the impacts on New Mexico and Mexico have never

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[195] ASARCO Ex. No. 23, p. 7 and Ex. 38, p. 15 *et seq*. The modeling to support the 1994 amendment application was actually submitted in 1995. In briefs and the transcript, it is often referred to as the "1994 modeling."

[196] Tr. at 1925.

[197] ED Ex No. 26, p. 8; Tr. 2149.

[198] Tr. at 1926 *et seq*. and 2197.

been considered.[199]

ASARCO argues that new modeling was unnecessary. It claims that the older models Mr. Cabe used in 1992 and 1995 were at least as reliable as ISC3, and, if anything, predicted higher concentrations rates than ISC3. Moreover, it claims that many overly conservative assumptions were made in the 1992 and 1995 modeling that further caused them to over-predict pollutant concentrations. Additionally, ASARCO claims that the max GLC predicted by the 1992 and 1995 modeling can be adjusted using a mathematical technique, referred to as scaling, in order to predict max GLCs for the emissions that the renewed permit would authorize.

The ALJs are very concerned, and more than a bit suspicious, that ASARCO did not prepare new modeling to support its application. As Ms. Geran noted, it would have been desirable if ASARCO had prepared up-to-date models in view of the intense public and Commissioner interest in its application.[200] The ALJs agree, and they see no reason, in view of ASARCO's choice, to give ASARCO any benefit of the doubt on these modeling issues.

That does not mean, however, that it is impossible for ASARCO to prove its case. But ASARCO, not the other parties, has the burden of proof. The circuitous route it has chosen to carry that burden makes it necessary for ASARCO to prove that each twist it took was more likely than not correct. Among other things, it will need to show that the older models were reliable, conducted according to established protocol and modeled all emitted pollutant sources at their correct locations and that extrapolations from those models for different emission rates of those pollutants were reasonable. In fact, it failed to show these things for each emission under the permit it now seeks.

3. Appropriateness of Using Older Models

Newer models of anything–cars, clothes, software, *etc.*–are not always better or necessary.

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[199] Tr. at 1239 *et seq*.

[200] El Paso Ex. No. 1, p. 44.

Mr. Cabe testified that the current models, ISC3 or AERMOD, would predict lower concentrations than the 1992 models. While he could not explain why that was so, he noted that EPA had published its research documenting that difference.[201] He also testified that the basic science of plume dispersion has not changed.[202]

Mr. Cabe has the expertise to support his opinion. He was trained as an engineer and meteorologist and has worked in the field of air dispersion modeling for 33 years.[203] He has performed over 500 modeling exercises in his career.[204]

Ms. Geran testified that ASARCO should have run AERMOD because she believes it is the state-of-the-art model and that EPA will soon adopt it as the preferred model.[205] It may be that EPA is considering adopting AERMOD as its preference,[206] but since it is not now the ALJs can conclude nothing from ASARCO's failure to use it.

More pointedly, ASARCO did not use EPA's currently preferred model, ISC3. But there is no evidence that either the Commission's or EPA's rules require its use. In the absence of a requirement, the ALJs cannot conclude that ASARCO's failure to use ISC3 was fatal.

Two of the other modeling experts, Ms. Geran and the ED's witness, Lori Wilson, had little prior experience with the ISC1 or COMPLEX I models on which ASARCO largely relies. The input files were in a format that was not familiar to them, and the computer code was very different from anything Ms. Wilson had ever seen before.[207] Neither has been a modeler for as many years as Mr. Cabe. As to the 1995 modeling, using a modification of ISC2 and COMPLEX I, Ms. Geran

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[201] Tr. at 2149 *et seq*.

[202] Tr. at 2153.

[203] ASARCO Ex. No. 38, p. 2 *et seq*.

[204] Tr. at 507.

[205] Tr. at 1238.

[206] Tr. at 1238.

[207] Tr. at 1948.

should have had less difficulty. In an odd twist, while she worked as an air modeler for the TNRCC, Ms. Geran personally approved the protocol for ASARCO's 1995 modeling.[208]

Just because other parties' experts did not understand the older modeling is not ASARCO's fault and does not mean ASARCO cannot prove its case based on that older modeling. The ALJs cannot find that evidence from the 1992 or 1994 modeling is inherently untrustworthy.

The other experts' lack of familiarity with the programs used for the 1992 and 1995 modeling does create a problem for ASARCO though. It cannot rely, even incidentally, on the expertise of those other experts to prove its case. That is mostly an issue as to Ms. Wilson, who did testify in support of ASARCO's modeling.

Ms. Wilson stated in her pre-filed testimony that, according to her review, the two modeling reports were done correctly, showing that ASARCO's operations would not exceed NAAQS or property-line standards and providing conservative results in comparison to currently preferred modeling.[209] She reiterated those conclusions in her cross-examination and redirect testimony.[210] However, the ALJs, regretfully, cannot attach any weight to Ms. Wilson's testimony.

Ms. Wilson certainly has significant expertise in dispersion modeling. She has a bachelor's degree in meteorology and a master's degree in applied geography and is working toward a professional engineering license.[211] She has worked for the Commission's air dispersion modeling team since 1999, has reviewed several hundred modeling reports, and is familiar with ISC3, AERMOD, and other dispersion models.[212]

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[208] ASARCO Ex. No. 23 (1995 Air Quality Impacts Analysis submitted to TNRCC in connection with $_{SO2}$ copper stack annulus amendment) page 34 (what is now referred to as a modeling protocol was called a "modeling checklist" at the time).

[209] ED Ex. No. 26, pp. 5 and 9.

[210] Tr. at 1911, 1930, 1938, and 1939.

[211] ED Ex. No. 26, p. 1.

[212] ED Ex. No. 26, p. 2.

Despite that background, the ALJs cannot understand how Ms. Wilson could have reached the conclusions that she did by the time she submitted her pre-filed testimony. Ms. Wilson testified that she was only assigned to work on this case in the middle of June 2005.[213] Prior to that date, her supervisor had been working on the project.[214] As Ms. Wilson admitted, the late reassignment of the case to her meant that she had virtually no time to review the ASARCO's modeling before her pre-filed testimony was filed on June 13, 2005.[215] On that date, however, she was not familiar with the models that ASARCO had used for its 1992 modeling.[216] Additionally, Ms. Wilson had only looked at ten percent of the modeling files prior to filing her testimony, though she indicated that she had looked at the most important ones.[217]

The ALJs conclude that Ms. Wilson had no reasonable basis to attest in her pre-filed testimony that the 1992 modeling was correct, conservative, and would not cause exceedances. It does appear that she worked hard prior to the hearing to increase her familiarity with the 1992 modeling. Ms. Wilson testified that after her testimony was pre-filed in June 13, she spent most of her time until she testified on July 21, 2005, working on the ASARCO case.[218] While that likely increased her expertise, it did not redeem her credibility. The ALJs find that a witness who attests to conclusions that she had neither the expertise nor the time to reasonably reach is not a credible witness. They feel compelled to disregard Ms. Wilson's testimony concerning modeling. The ALJ must add that they do not believe that Ms. Wilson intended to deceive anyone. Instead, she was an employee placed in a difficult position who tried to do her best, but stumbled into a mistake.

4. Scaling

Because there was no modeling prepared of all of the emissions quantities and rates that the

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[213] Tr. at 1912, 1945, and 1964.

[214] Tr. at 1945.

[215] Tr. at 1964.

[216] Tr. at 1948.

[217] Tr. at 1949.

[218] Tr. at 1952.

renewed permit would authorize, the ALJ can only rely on Mr. Cabe's extrapolations from earlier modeling of different quantities and rates and, for some pollutants, different locations. Mr. Cabe attempted to deduce those amounts from his 1992 modeling. Mr. Cabe repeatedly testified that GLCs for any emission rate could be calculated based on the modeling of a different emission rate for the same pollutant by calculating the ratio between the two rates and multiplying the modeled GLC by that same ratio.[219] He referred to this process as "scaling."

In scaling for this case, Mr. Cabe testified that he always reverted back to the latest modeling that was conducted for the pollutant at issue. In the case of SO_2, it was the 1994 modeling. In the case of the other pollutants, it was the 1992 modeling. To avoid distortions, he never scaled from a number that was previously scaled.[220]

Correct calculations, formulas, recipes, *etc.,* can be multiplied to adjust for different inputs or to determine which inputs are necessary for desired outputs. There is no evidence to contradict Mr. Cabe's expert testimony that scaling is an acceptable technique in modeling that is not forbidden by the modeling guidance. Given that, the ALJs find that scaling from a model, if performed correctly, can be used to predict GLCs for different emission rates from the same source.

El Paso argues that the scaling technique is flawed because it utilizes a plant-wide emissions ratioing approach that does not take into consideration the dispersive characteristics of the affected emission points. Ms. Geran testified that treating emissions from a tall stack exactly the same as emissions from ground level or short stacks was invalid. Similarly, she stated that using the technique to evaluate impacts from completely new emission points at different locations was inappropriate.[221]

As to location of the emission, that may not always be critical. Mr. Cabe testified that there are many options when modeling wide-spread fugitive dust sources, that their precise location does

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[219] ASARCO Ex. No. 38, p. 29, 30, and 32; Tr. at 627.

[220] Tr. at 2133.

[221] ASARCO Ex. No. 1, p. 45 *et seq*.

not matter that much, and that he often models them as a single source.[222] The ALJs cannot generally conclude that scaling is inappropriate just because the emission point is at a slightly different location. More emission-specific evidence would be necessary to make that finding for a particular emission.

While testifying concerning another issue, Mr. Cabe incidentally made one of the same points that Mr. Geran did. He agreed that, if one assumes rural conditions, which are explained and discussed below, the plume, hence the emissions, from high stacks move away from the stack for significant distances until they impact high terrain, while releases near ground level would produce max GLCs almost at the foot of the emissions.[223]

The ALJs conclude that scaling is not an appropriate approach when the heights of the emission sources dramatically differ.

5. Conservatism In Modeling

If a prediction is based on many worst-case assumptions strung together–floods during rush hour when only drunken teenagers are driving and only blind elderly people are crossing the street–the prediction is very conservative. It predicts bad outcomes that are extremely unlikely to occur.

Mr. Cabe testified that he made many choices while modeling ASARCO's emissions that tended to over-predict GLCs, making the modeling more conservative. In large part, the ALJs agree.

First, he stated that worst-case impacts from all sources were modeled, assuming all sources are operating at the same time, the events are coincidental, and there are worst-case meteorological conditions. He noted that, in his experience, all of those various factors do not come together very often.[224]There is some dispute as to whether all sources were actually modeled for each pollutant. That will be considered below. There is, however, no evidence to dispute Mr. Cabe's assertion that those

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[222] Tr. at 2113 *et seq*.

[223] Tr. at 2142 *et seq*.

[224] Tr. at 2134 *et seq*.; ASARCO Ex. No. 54.

sources he did model were presumed to be operating at the same time.

Second, although emissions hug the ground and cannot go uphill without turbulence, the ISC1 model assumed that ground-level and low-level releases from ASARCO could travel uphill and impact receptors higher than their points of emission.[225] There is no evidence disputing this assertion.

Third, when receptors were lower than plant elevation, they were nevertheless modeled as if they were at the plant grade. That meant that the plume did not have to travel downward and disperse to reach the receptors, hence the modeling predicts an exaggerated impact from those emissions.[226] There is no evidence disputing this assertion.

Fourth, although the EPA guidance for the ISC model states that one should not model receptors higher than the stack height, Mr. Cabe did model those higher receptors, which overestimated the impacts.[227] There is no evidence disputing this assertion.

Fifth, not all of ASARCO's sources operate 24 hours a day, yet the Mr. Cabe assumed that ASARCO's sources were operating 24 hours a day. That included nighttime, in stable conditions, which are worst-case conditions for many of the ASARCO sources.[228] Once again, there is no contrary evidence.

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[225] Tr. at 2134 *et seq*.; ASARCO Ex. No. 54.

[226] ASARCO Ex. No. 54; Tr. at 2136 *et seq*.

[227] ASARCO Ex. No. 54; Tr. at 2136 *et seq*.

[228] ASARCO Ex. No. 54; Tr. at 2136 *et seq*.

Sixth, he selected the rural instead of the urban switch for the modeling. The urban switch assumes many tall buildings, lots of paved surfaces, and dense traffic that add heat and turbulence to the environment, unlike the stable conditions in the countryside. Mr. Cabe testified that using the urban switch, thus assuming higher turbulence, would have led to the prediction of lower GLCs. By choosing rural, the model predicted higher GLCs.[229] As the term is conventionally used, El Paso is certainly not rural. The ALJs were convinced, however, by Mr. Cabe's testimony, which was not refuted, that modeling it as rural was appropriate and raised the predicted GLCs, adding a degree of conservatism.

6. Partial vs. Full Receptor Grid

In 1992 and 1995, Mr. Cabe modeled five relatively small grids near likely sensitive receptors. He explained that computers were incredibly slower then–so slow that modeling a broad range of points was very time-consuming and rather difficult.[230] Modeling only the five sensitive-receptor areas, rather than a very broad area, reduced the quantity, length, and cost of the computer runs. The five small areas were:

- La Calavera, a residential area immediately adjacent to the ASARCO facility;
- Executive Center, another residential area a bit farther away;
- Mesita Elementary School, the school in Texas that is nearest to the ASARCO facility;
- The nearest dorms at the University of Texas at El Paso; and
- A fifth area that Mr. Cabe could not recall.[231]

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[229] Tr. at 2139 *et seq*.; ASARCO Ex. No. 54.

[230] Tr. at 534 *et seq*. and 2153 *et seq*.

[231] Tr. at 534 *et seq*.

The TCEQ toxicologists assigned to review the applications in 1992 and 1995 agreed that the five sensitive receptor points were appropriate. Given the number of pollutants that needed to be modeled, the Commission Staff agreed that it was a reasonable alternative to model the five areas that represented worst-case or closest sensitive receptors to the plant. Those results would be deemed representative of any other nearby receptors and certainly a conservative estimate for receptors that might have been farther away.[232] The 1995 modeling protocol included the same receptor grid that Ms. Geran approved for the 1992 modeling when she worked for the agency.[233]

While the predicted max GLCs in the five receptor areas more likely than not represent the worst-case exposure areas in Texas for ASARCO emissions if it resumes operation under the permit. They cannot find, however, that there are no areas that could be exposed to higher concentrations. ASARCO likely could have shown that by running up-to-date modeling for a broader grid with a 50-mile radius, which Mr. Cabe testified is now standard modeling practice in Texas.[234] Nor can the ALJs find that it would have been unreasonably expensive and time-consuming to model such a broad grid for this case. Mr. Cabe's testimony concerning how much faster models can now be run than in 1992 at least partially shows the opposite.

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[232] Tr. at 2150 *et seq*.

[233] ASARCO Ex. No. 23 (1995 Air Quality Impacts Analysis submitted to TNRCC in connection with SO_2 copper stack annulus amendment) page 33 paragraph 18.

[234] Tr. at 803.

7. Gaps in the Modeling Evidence

For the 1995 model regarding the SO_2 amendment, ASARCO offered a detailed report into evidence that explains many details concerning how the modeling was done and what it found.[235] As to its other emissions, however, ASARCO never offered a similar report concerning its 1992 modeling. Without a report to explain the 1992 modeling, it is much more difficult for the ALJs to judge whethr the 1992 results are credible. Using the 1995 modeling report as an example leaves the ALJs with a long list of questions concerning the 1992 modeling:

- Which emission points were modeled?
- Were all of the emission sources listed in the current permit modeled?
- Which emissions were eliminated as *de minimus*?
- What were the criteria for determining that they were *de minimus*?
- Which ASARCO non-Permit 20345 emission sources, if any, were modeled?
- Which non-ASARCO sources, if any, were modeled?
- What are the criteria for determining whether non-ConTop or non-ASARCO sources should be modeled?
- Who established those criteria?
- What meteorological or other data did the models consider in calculating dispersion?
- To what sources did Mr. Cabe turn for that data?
- What are the locations of the max GLCs for each of the pollutants for each applicable averaging period?
- What are those max GLCs?

Despite the absence of a complete report, some evidence was admitted that partially answers the above questions. In his pre-filed testimony, Mr. Cabe explained to some extent how the 1992

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[235] ASARCO Ex. No. 23.

modeling was done. With a few exceptions, his testimony was very summary and conclusory.[236] Ironically, El Paso partially proved ASARCO's case concerning the 1992 modeling. It offered two pages from the 1992 modeling report, which Mr. Cabe agreed summarize that report's results as to most of the pollutants.[237] Additionally, late in the hearing, at the ALJs' request, ASARCO offered another excerpt from the 1992 modeling report, a map showing the modeled dispersion of lead from ConTop.[238] Moreover, through El Paso's cross-examination and redirect, Mr. Cabe also answered some of the questions concerning the 1992 modeling.[239] The ALJs examine that evidence below, but as they discuss, there still are gaps.

For some pollutants, Mr. Cabe modeled all "contiguous sources"–*i.e.*, all ASARCO sources at the El Paso site, whether ConTop related or not. For other pollutants, however, he modeled "all sources," meaning ASARCO and non-ASARCO sources.[240] For still others, he only modeled the ConTop changes. Thus, he modeled all sources for lead, all sources for SO_2 NAAQS standards, only ConTop sources for NO_2 and PM_{10} and contiguous ASARCO sources for everything else.[241] As discussed below, the ALJs cannot always find that modeling less than all the sources was appropriate.

G. Will ASARCO's PM Emissions Cause or Contribute to Air Pollution?

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[236] ASARCO Ex. No. 38, p. 9. *et seq*.

[237] El Paso Ex. Nos. 8 and 9; Tr. 484 *et seq*.

[238] ASARCO Ex. No. 55; Tr. 2156 *et seq*.

[239] Tr. at 445 *et seq*.

[240] Tr. at 509 *et seq*. In the transcript, "contiguous" is misreported as "continuous."

[241] El Paso Ex. Nos. 8, 9, and 23, p. 9; Tr. at 531 *et seq*.

ASARCO notes that it has reduced its authorized PM, PM_{10}, and $PM_{2.5}$ (collectively PM) emissions after receiving its 1992 permit for ConTop. It then argues that lower emissions obviously means lower ground level concentrations; hence, its 1992 modeling proves that its lower PM emissions will not cause or contribute to adverse health or other effects. The ED agrees.

But the Sierra Club, the PIC, and El Paso argue that ASARCO failed to properly calculate and take into account PM emissions from non-Permit 20345 and non-ASARCO sources, which was required to show that there would be no PM, PM_{10}, or $PM_{2.5}$ exceedances. They also argue that ASARCO has failed to prove that it properly modeled even the PM sources that ASARCO claims to have modeled. For both these reasons, they argue that ASARCO has not shown that its PM emissions will not likely cause air pollution.

For a handful of specific PM constituents, the ALJs agree that ASARCO has sufficiently shown that it will not cause or contribute to air pollution. Otherwise, the ALJs agree the Protestants that ASARCO should have modeled all other PM sources at its plant and at an adjacent facility intimately tied to ASARCO's plant. Because ASARCO did not do so, the ALJs cannot conclude that ASARCO's PM emissions would not cause or contribute to air pollution.

1. Will Emissions of Certain PM Constituents Cause Exceedances of the ESLs or other Safe Levels?

PM is a catchall category that includes many particular pollutants.[242] El Paso contends, and the ALJs agree, that one cannot know if operation under the permit will cause or contribute to air pollution

[242] Tr. at 491.

unless one knows whether the likely quantities of each of those constituents that would be emitted will exceed safe levels, generally the ESLs.

a. PM Constituents Modeled in 1992

In the 1992 modeling, Mr. Cabe modeled contiguous ASARCO sources and predicted max GLCs for the following PM constituents,[243] which are compared to the maximum concentrations that the ALJs found to be safe above in this PFD:

1992 Modeling of PM Constituents Compare to Maximum Non-polluting Levels ($\mu g/m^3$)			
Contaminant	**1992 Model Max GLC**	**Safe Concentration**	**Averaging Times**
Arsenic	0.11	1.32	24-hour
	0.02	0.2	Annual
Chromium	<0.01	0.4	24-hour
	<0.01	0.1	Annual
Chrome VI	<0.01	0.4	24-hour
	<0.01	0.1	Annual
Copper-dust	4.49	5.2	24-hour
	0.72	1	Annual
Copper-fume	0.17	0.4	24-hour
	0.02	0.1	Annual
Nickel	<0.01	0.06	24-hour

[243] El Paso Ex. 9; Tr. at 488 *et seq*.

	<0.01	0.015	Annual
Zinc	0.35	20	24-hour
	0.03	5	Annual
Iron salts	3.85	4.43	24-hour
	.61	1	Annual
Respirable silica	2.52	2.9	24-hour
	0.37	0.43	Annual

Since the current permit authorizes less PM than was studied in the 1992 modeling, that would indicate that the max GLCs for the above PM constituents would be 95 to 98 percent lower, just as PM as a group would. But El Paso argues that would not be true if the concentration of the above constituents in the emitted PM was different than what Mr. Cabe assumed and that his assumption was based on faulty estimates of the concentration of those constituents in the incoming copper ore that ASARCO smelts.

In order to support the application for the 1992 permit, ASARCO provided Mr. Cabe with a speciation analysis that he supposed to be representative of the concentrations of metals and other chemicals in the incoming copper concentrate.[244] Mr. Cabe then used this data to calculate emissions based on the performance ratings of the pollution control equipment and using emission factors of various fugitive sources.[245]

El Paso argues that at least some of those speciation estimates may have been wrong. For example, the copper ore from the J.D. Tayahua mine, which is one of ASARCO's sources for copper concentrate, had arsenic levels 4.7 times higher than represented by ASARCO in the speciation analysis provided to ASARCO's permit engineer.[246]

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[244] *See id.* at 652-53; *see also* City of El Paso Ex. No. 17, "Table 1, El Paso Design Basis: KHD Cyclone Retrofit, Mass Balance – Solid and Molten Streams" [hereinafter Speciation Analysis].

[245] *See* Tr. 653.

[246] *Id.* at 1072-73.

Obviously, the chemical characteristics of mined ore will vary. Moreover, as Mr. Cabe testified, the speciation table on which he relies is for concentrate mix, not raw ore. He explained that ASARCO processed ore to develop a mix for smelting; hence, there is no direct correlation between the percentage of various constituents in the ore and the mix smelted, which gives off PM emissions.[247]

Without even considering Mr. Cabe's credible ore-versus-mix point, the ALJs do not find that the higher level of certain constituents for which El Paso has provided evidence proves that the emissions of certain constituents will exceed safe levels. Assuming for a moment that ASARCO put 4.7 times the amount of arsenic that Mr. Cabe assumed in 1992 into the smelter, the lead emissions and max GLC estimated in 1992 also were multiplied by 4.7, and without even considering fact that permitted PM emissions were reduced after 1992, ASARCO's emissions would still only result in a 0.52 $\mu g/m^3$ max GLC of lead, only 39 percent of the safe level. The ALJs conclude that variations in the percentages of PM constituents would not likely cause an exceedance of air pollution levels for those constituents.

b. PM Constituents that ASARCO Never Modeled

There are other PM constituents that ASARCO will emit but which it never modeled:

PM Constituent Emissions That ASARCO Did Not Examine		
PM Constituent	Non-polluting Concentration ($\mu g/m^3$)	Averaging Times
Manganese	2	24-hour
	0.2	Annual
Barium	5	24-hour
	0.5	Annual
Cadmium	0.1	24-hour
	0.01	Annual

[247] Tr. at 1071 *et seq*.

(1) Manganese and Barium

As to barium, ASARCO puts forward no argument. ASARCO circularly argues that it is entitled to emit manganese although no maximum emission rates are set in the permit, but that if it emits it in violation of the permit that would be an issue for enforcement, not this case. The ALJs do not understand this argument. If ASARCO will emit manganese when operating under the permit, as its own witness Mr. Cabe said it would, then ASARCO has the burden of proving the its emissions of manganese will not cause air pollution.

The ALJs conclude that ASARCO has failed to show that its barium or manganese emissions will not cause or contribute to air pollution.

(2) Cadmium Emissions

ASARCO argues that historical monitoring data for a period before it had the current permit or operated ConTop shows that its cadmium emissions would not cause adverse health or other effects. It does not make a similar argument for any of the other non-NAAQS contaminants of concern. El Paso disagrees. So do the ALJs.

The monitor was at a site north of ASARCO's plant in a residential neighborhood called La Calavera. Cadmium monitor data was available for two years, which Mr. Cabe could not recall, but most likely 1986 and 1987. Mr. Cabe testified that ASARCO's pre-ConTop smelter emitted far more cadmium than ConTop would and that the La Calavera monitor would have measured cadmium contributions at a sensitive receptor site–a residential neighborhood–from that smelter and other non-ASARCO emissions. Hence, it over-predicted the impact of ConTop's cadmium emissions. Because Dr. Dydek concluded that those monitored, but allegedly over-predictive cadmium values were safe, Mr. Cabe and ASARCO reason that its lower ConTop emissions under the Renewed Permit would not cause an unsafe condition at La Calavera.[248]

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[248] Tr. at 570 *et seq*.

The ALJs have several problems with this reasoning. First, only two years of monitoring data were used, all of which were for a time period prior to operation of the ConTop reactors,[249] making it difficult for the ALJs to know if it reasonably represented an annual average.

Second, the ALJs cannot find that ASARCO reasonably determined the annual max GLC that would result due to ASARCOs' cadmium emissions. Before ConTop was permitted in 1992, Mr. Cabe actually modeled potential cadmium emissions from ConTop. The modeled annual max GLC rate for cadmium does not appear to be in evidence, but Mr. Cabe testified that it was higher than the monitored levels at La Calavera.[250] Mr. Cabe was not completely sure what the monitored rate was either, though he admitted that 0.018 $\mu g/m^3$ might be right.[251] Dr. Lee in performing his toxicological analysis, testified that the monitored concentration was 0.018 $\mu g/m^3$.[252] Dr. Dydek, who was familiar with the monitoring data due to his work on the 1992 application, testified that the highest monitored concentration during the two years was 0.017 $\mu g/m^3$.[253]

Whatever the modeled rate was, Mr. Cabe testified that both the modeled and monitored cadmium levels were mostly due to a cadmium plant that ASARCO once had at the facility but that by the time of the ConTop permitting had been shut down and removed from another ASARCO permit. He testified that the cadmium emissions from the cadmium plant accounted for 94 to 95 percent of the cadmium emissions, which were eliminated when the cadmium plant was shutdown. But he also testified that the cadmium plant emitted 5.45 tpy while ConTop would emit 3.5 tpy.[254] That certainly is not a 95 percent reduction.

Moreover, the emission rate data table submitted in 1992 to support the original application for a permit for ConTop, and on which Mr. Cabe relied in his above testimony, is in evidence. That table sums and compares all expected emissions of cadmium pre- and post-ConTop. It shows that the

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[249] Tr. at 570 *et seq*.

[250] Tr. at 572.

[251] Tr. at 571.

[252] ED Ex. No. 30, p. 22.

[253] Tr. at 2275.

[254] Tr. 1016 *et seq*.

total pre-ConTop cadmium emissions were 7.82 tpy, and the post-ConTop rates were expected to be 5.81 tpy–once again, nowhere near a 90-percent reduction and approximately 66 percent higher than the 3.5 tpy that Mr. Cabe said would be emitted by ConTop.[255]

Mr. Cabe also argued that the ConTop cadmium emission rate would be lower than the arsenic emission rate; hence, if cadmium had been modeled, its max GLC would be lower than arsenic's. But when he identified the specific rates, the opposite was true. He stated that the cadmium rate would be 3.5 tpy while the arsenic rate would be 2.62 tpy.[256] The total ConTop arsenic emission rate he cited is in the 1992 data table,[257] but as previously stated, the total ConTop cadmium emission rate stated in that table is 5.81 tpy.

ASARCO and Mr. Cabe attach great weight to the fact that the Staff accepted ASARCO's proposal to use the pre-ConTop monitoring data for cadmium when ConTop was permitted. However, Mr. Cabe could not recall if the Staff even knew that there was modeling data for ConTop predicting higher values.[258]

Third, even if using monitoring rather than modeling data for cadmium was a reasonable choice, it is very difficult for the ALJs to find that La Calavera was the likely max GLC point. Without modeling results for cadmium displayed on a map, it is difficult to begin to determine where the max GLC point would be.

Mr. Cabe testified that if he were attempting to pick a monitoring site he would have chosen to put a monitor exactly where it was, adjacent to La Calavera, since it was so close to the plant and to sensitive receptors.[259] There is also some modeling evidence that seems to indirectly support Mr. Cabe's conclusion that La Calavera should be the focus of consideration, at least for metal concentrations. The best evidence seems to be a map that shows the locations for modeled

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[255] ASARCO Ex. No. 41, Table H-2.4, page no. 3.

[256] Tr. at 1018 *et seq*.

[257] ASARCO Ex. No. 41, Table H-2.3, page no. 3.

[258] Tr. at 800 *et seq*. and 950 *et seq*.

[259] Tr. at 1014.

concentrations of lead. Cadmium, like lead, is a metal, and Mr. Cabe, in another context, testified that metals would have very similar dispersion patterns.[260] Hence, that lead-concentration map can be used to roughly predict where cadmium concentrations would be highest.

For the 1992 permit, Mr. Cabe modeled the dispersion of lead from ASARCO's site and prepared a wide-area grid map showing predicted lead concentrations. Only a portion of the map is in evidence, but it shows relatively high concentrations of lead in the La Calavera neighborhood, falling off quickly farther north and to the east. The highest concentrations in Texas are south of the ConTop facility along a public road and within feet of the international border.[261] By analogy, this shows that the La Calavera would *not* be the location in Texas that would receive the max GLC of cadmium under the renewed permit.

But even the above is based on the ALJs' search for evidence. ASARCO did not specifically argue that the lead-dispersion map indicates cadmium dispersion. Instead, ASARCO offered no cadmium dispersion map–certainly not one based on the level of cadmium it might emit if its permit were renewed.

Lastly, even assuming that the monitoring data should be used and La Calavera is the spot to look at, the monitored levels relied upon in 1992 were higher than the ESL value for cadmium.[262] The 1992 cadmium modeling, which ASARCO claims over-predicted ground level concentration, is not in evidence, but it predicted cadmium concentrations even more above the ESL, according to Mr. Cabe.[263]

As indicated above, the ALJs cannot generally find that an annual rate of cadmium higher than the ESL would not cause health or other adverse effects, given the need to leave room for contributions from other sources and a margin of error. However, they recognize the possibility that a more site specific-analysis could show that the affected population was sufficiently small or transient to indicate

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[260] Tr. at 2154 *et seq*.

[261] ASARCO Ex. No. 55; Tr. at 2156 *et seq*.

[262] *See, e.g.*, Tr. at 572 (Cross Exam (by Mr. Erich Birch) of Mr. David Cabe, P.E.).

[263] Tr. at 572.

that a one-in-10,000 risk was tolerable. There is no such evidence concerning La Calavera.

Based on all of the above, ASARCO has not proven that its cadmium emissions under renewed Permit 20345 would likely not cause or contribute to air pollution.

2. Permit 20345 PM Emissions Alone

Determining whether ASARCO has generally shown that its PM emissions would not cause or contribute to air pollution is far more difficult than it should be. As previously discussed, there is no modeling as such for the current amounts for which ASARCO seeks a renewed permit, and a detailed report concerning the 1992 modeling is not in evidence.

Moreover, at the hearing, Mr. Cabe oddly withdrew his pre-filed testimony concerning his scaling from the 1992 modeling to predict PM and PM_{10} GLCs that would result from the permit under review in this case. Prior to the hearing, Mr. Cabe had concluded that portion of his testimony was incorrect.[264] That leaves a considerable hole in ASARCO' case, with only scraps of evidence left on this important issue.

The bulk of the evidence comes from a single page that El Paso offered from the 1992 modeling.[265] It shows that Mr. Cabe calculated the following regarding PM in that modeling:

1992 PM Modeling Results ($\mu g/m^3$)				
	Averaging Time	Highest Concentration	EPA Significance Level	NAAQS or NGL
PM_{10}	24-hour	3.09	5	150
	annual	0.37	1	50
PM	1-hour	311	- -	400

[264] Tr. 444.

[265] El Paso Ex. No. 8.

	3-hour	177	- -	200

Based on what emission sources and quantities did Mr. Cabe calculate the above highest concentrations? The original 1992 permit is not in evidence, but the 1992 TACB order approving the ConTop permit is. According to that 1992 order, ASARCO was authorized to emit 485.9 tons per year (tpy) of PM, of which 482.8 tpy could be PM_{10}.[266] Yet, the manager of ASARCO's El Paso plant, Mr. Castor, testified that the 1992 permit authorized the emission of 371 tpy of PM, of which 368 tpy could be PM_{10}. He was asked but could not initially explain why the Board Order had different numbers.[267]

Mr. Cabe's understanding was the same as Mr. Castor's. Rounding off, Mr. Cabe prepared the 1992 modeling based on the following[268]:

1992 PM Modeling Assumptions ($\mu g/m^3$)		
	lbs/hour	tpy
PM	95	371
PM_{10}	92.5	368

However, the permit at issue in this case has been amended since 1992. The PM that ASARCO would be authorized to emit is lower than it was in the 1992 permit. The renewed permit would authorize 98 percent of the hourly and 95 percent of the annual PM and PM_{10} emissions that the 1992 permit did. Rounding off, the renewed permit would authorize the following,[269] as Mr. Cabe also assumed[270]:

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[266] ASARCO Ex. No. 1, p. 4, FOF 19.

[267] ASARCO Ex. No. 27; Tr. 127 *et seq*.

[268] ASARCO Ex. Nos. 27 and 38, p. 27.

[269] Acorn Ex. No. 5, p. 19 *et seq*.

[270] ASARCO Ex. Nos. 27 and 38, p. 27.

PM Emissions Under the Renewed Permit ($\mu g/m^3$)		
	lbs/hour	tpy
PM	93.3	353
PM_{10}	90.7	350

While Mr. Cabe's specific testimony concerning PM scaling is not in evidence, his statement concerning the general multiplying-by-the-ratio principle is.[271] Additionally, Mr. Cabe testified that there are a lot of options when modeling wide-spread fugitive dust sources, that their precise location does not matter that much, and that he often models them as a single source.[272] That would allow PM emissions to be scaled as a group.

Since the renewed permit would authorize 98 percent of the hourly and 95 percent of the annual PM and PM_{10} emissions that the 1992 permit did, scaling from the 1992 modeling would yield the following max GLCs under the permit if it is renewed:

Renewed Permit Maximum PM Impact Scaled from 1992 PM Modeling Results ($\mu g/m^3$)				
	Averaging Time	Highest Concentration	EPA Significance Level	NAAQS or NGL
PM_{10}	24-hour	3.0282	5	150
	annual	0.3515	1	50
PM	1-hour	304.78	- -	400
	3-hour	168.15	- -	200

If the above is correct, $PM_{2.5}$ concentrations would not likely exceed either the NAAQS or the significance level. Mr. Cabe, Ms. Geran, and Mr. Clark all testified that due to significant technical difficulties in directly estimating $PM_{2.5}$ from industrial facilities and estimating secondarily-formed

[271] ASARCO Ex. No. 38, p. 29, 30, and 32; Tr. at 627.

[272] Tr. at 2113 *et seq*.

fine particles through chemical reactions in the atmosphere, current EPA and TCEQ policy is to allow a source to use its PM_{10} NAAQS demonstration as a surrogate for making a $PM_{2.5}$ NAAQS demonstration.[273] Specific citations to that guidance is not in evidence, but no party argued otherwise; hence, the ALJs accept it as true that PM_{10} results can be used as a surrogate for $PM_{2.5}$.

3. PM Emissions from Non-Permitted Sources

Since the PM, PM_{10}, and $PM_{2.5}$ emissions from just the renewed permit would likely be below the NAAQS and even below the EPA significance levels, ASARCO and the ED claim that no further inquiry into those emissions is warranted. The Protestants, PIC, and the ALJs disagree for several reasons. To allow the Commissioners to understand those reasons, the ALJs must first discuss the evidence concerning other PM emissions at and adjacent to ASARCO's El Paso plant.

a. Additional PM from Roads

The opponents also believe that ASARCO's on-site PM emissions might be higher still due to roads at ASARCO's plant. The Sierra Club's air-dispersion-modeling expert, Michael Hunt, testified that roads on the site will emit additional PM, which was not properly modeled by ASARCO in 1992 or since. He was specifically concerned about the failure of ASARCO to consider fugitive emissions from certain haul roads and the underestimation of the number of round trips per hour on those roads.[274] Mr. Hunt also reviewed the methodology used to model road emissions and found what he thought were a number of errors, including incorrect calculations for the length of the roads, improper use of emission factors for watered, unpaved roads rather than emission factors for paved roads, and use of inappropriate inputs for building downwash effects.[275] He expressed particular concern about the lack of *any* data for $PM_{2.5}$. With those gaps, Mr. Hunt testified that he could not conclude that ASARCO had establish that it will meet the PM_{10} or $PM_{2.5}$ NAAQS.[276]

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[273] City of El Paso Ex. 1, p. 35; Tr. 745 *et seq*. and 1709.

[274] Sierra Club Ex. No. 2L, p. 7.

[275] Sierra Club Ex. No. 2L, p. 7 *et seq*.

[276] Sierra Club Ex No. 2L, pp. 6 and 13.

ASARCO argues that Mr. Hunt's concerns about PM emissions from roads are misplaced and based on incorrect calculations. Mr. Cabe testified that the roads at the plant are not major sources and account for less than five percent of all PM emissions there.[277] ASARCO also contends that either Mr. Cabe successfully rebutted the alleged errors[278] or Mr. Hunt later recanted them.[279] For those errors that were not so explained, Mr. Cabe testified that they would not have appreciably impacted the modeled concentrations and, in some cases, were inadvertently conservative assumptions that actually caused the model to over-predict concentrations.[280] Additionally, all of the plant's roads are swept and watered daily, and its unpaved roads are watered immediately before any vehicle travels on them.[281] Ms. Wilson testified that those practices should result in *no* particulate emissions from roads.[282]

Additionally, ASARCO correctly argues that roads are not even facilities that are required to be authorized by a TCEQ permit, which is true.[283] Because no permit is required for a road, ASARCO contends that the maximum allowable PM emission rates from each road stated in the current permit are simply estimates and not enforceable. The ALJs need not decide that enforceability issue, so they decline to do so.

Moreover, ASARCO and the ED argue that road PM emission modeling is inherently

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[277] *Id.* page 2103 line 23 through page 2104 line 3; ASARCO Ex. No. 26 (Draft version of Air Permit No. 20345) pages 17-24.

[278] Tr. at 2105, line 15 through page 2116, line 9 (rebuttal testimony of David Cabe).

[279] *See e.g.* Sierra Club Ex. No. 2E (supplemental pre-filed testimony of Michael Hunt) page 3 lines 11-17 (regarding Mr. Hunt's initial identification of a potential error in the hours of operation for one of the roads assumed in the modeling) and page 3 lines 19-23 (regarding Mr. Hunt's incorrect allegation that material handling emissions associated with Permit No. 4151 had been omitted).

[280] *See e.g.* Tr. at 2113 lines 10-24, regarding Mr. Hunt's allegation concerning the placement of one of the roads (rebuttal testimony of David Cabe).

[281] Tr. at 2103 lines 7-15 (rebuttal testimony of David Cabe) ; Tr. at 2170 lines 5-9(cross-examination testimony of David Cabe); and Tr. at 2037 line 22 through page 2038 line 14 (rebuttal testimony of Larry Castor).

[282] ED Ex. No. 26 (pre-filed testimony of Lori Wilson) page 7 lines 23-24; Tr. at 1932 line 24 through page 1933 line 23 (Wilson cross-examination testimony).

[283] TEX. HEALTH & SAFETY CODE ANN. § 382.003(6) and 382.0518(a)

uncertain.[284] They contend that Commission policy is that they should not be modeled[285] or should at least be discounted by 40 percent due to this uncertainty.[286] Mr. Cabe testified that he did not take that 40-percent reduction when modeling fugitive emissions.[287]

The ALJs recognize that any party is entitled to think and should be free to argue and present evidence that road-emission modeling is uncertain or that estimated emissions should be discounted, perhaps to zero, to account for that uncertainty. They also acknowledge that the Commission Staff may be so convinced of that point of view that it would decline even to attempt to calculate PM emissions from roads. The ALJs see no reason, however, why another party should not be free to hold, argue, and try to prove otherwise.

As indicated before, the Staff is not the Commission.[288] Staff guidance and position statements, which ASARCO and the ED cite,[289] might be good evidence, but they are not policies of the Commission that are binding on other parties, the ALJ, or the Commissioners. The ALJs would also note that in other cases ALJs have permitted discovery[290] and admitted evidence and proposed findings concerning PM emissions from roads when appropriate,[291] and the Commissioners have adopted such findings.[292]

The ALJs will not extensively analyze the road-emission dispute. That is because they believe that the other factors discussed below are determinative. However, they believe that ASARCO's evidence and argument was more persuasive. The ALJs do not believe that road-emissions are a significant problem at ASARCO site.

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[284] ED Ex. 26 (pre-filed testimony of Lori Wilson) page 7 lines 14-24.

[285] ED Ex. No. 17.

[286] ED Ex. No. 15.

[287] Tr. at 2139.

[288] TEX. WATER CODE § 5.052(a).

[289] ED Ex. Nos. 15 and 17.

[290] *Application of KBDJ, L.P., for a New Air Quality Permit No. 55480*; SOAH Docket No. 582-05-4493, TCEQ Docket No. 2004-1774-AIR (Order No. 4) (Sep. 29, 2005)(ALJ Newchurch).

[291] *Application of Ingram Ready-Mix for Registration No. 37170*, TNRCC Docket No. 98-0650-AIR, SOAH Docket No. 582-98-1009 (Proposal for Decision)(Apr. 1999)(ALJ Sullivan).

[292] *Application of Ingram Ready-Mix for Registration No. 37170*, TNRCC Docket No. 98-0650-AIR, SOAH Docket No. 582-98-1009 (Order)(Jul. 2, 1999).

b. The Oglebay Norton PM Source

When ASARCO previously operated under the permit at issue in this case, there was another PM emission source immediately adjacent to the ASARCO plant. The pollutants were emitted from slag coming from the ASARCO facility.

Slag is a molten waste that ASARCO pours on the ground and allows to cool and solidify.[293] After the slag cooled, Oglebay Norton, another company, bought the slag from ASARCO[294] and used front-end loaders[295] to carry it to property owned by ASARCO and adjacent to ASARCO's plant but leased by Oglebay Norton.[296] There Oglebay Norton processed the slag by crushing and sizing it, then sold it to a railroad for ballast.[297] Ms. Geran testified that resumption of this slag handling activity would cause PM emissions that are not included in ASARCO analysis for this case.[298] Mr. Cabe also conceded that Oglebay Norton's slag handling could cause PM emissions.[299]

While the only evidence is that Oglebay Norton is a separate company operating a legally separate facility, it operates on property adjacent to and owned by ASARCO to process the slag from ASARCO's smelter and generates PM emissions from that processing.[300] While ASARCO need not sell slag and could possibly store it, ASARCO cannot operate its smelter without generating slag.

Given the evidence showing a reasonable likelihood of significant PM emissions from Oglebay Norton, ASARCO's arrangement with that company regarding slag is so interconnected and interdependent that it seems extremely close to a contrivance. Other contrivances are discussed below.

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[293] ASARCO Ex. No. 36, p. 91.

[294] Tr at 2042.

[295] ASARCO Ex. No. 36, p. 91 *et seq*.

[296] ASARCO Ex. No. 36, p. 92.

[297] ASARCO Ex. No. 36, p. 93.

[298] El Paso Ex. No. 1, p. 41.

[299] Tr. at 2243.

[300] Tr. at 637 *et seq*.

c. PM Emitted by ASARCO under Permit 4151

ASARCO has two permits for its El Paso plant: the one considered for renewal in this case, 20345, and another, 4151. Mr. Castor explained that 4151 covers ASARCO's unloading and bedding building facilities, and 20345 covers the rest of the plant. He also acknowledged[301] that the 1992 TACB Order approving the original issuance of Permit 20345[302] listed all of the PM emissions authorized by both permits, while the PM emissions that Mr. Cabe modeled in 1992[303] included only the emissions under Permit 20345. That clarifies the discrepancy that Mr. Castor could not earlier explain.[304]

The PM emissions authorized in 1992 under Permit 4151 can be calculated by comparing those stated in the 1992 order for both permits[305] and those that Mr. Cabe modeled in 1992 for Permit 20345 alone[306]:

PM Emissions under Permits 20345 and 4151 in 1992 (tons per years)			
	Both	Permit 20345	Permit 4151
PM	485.9	371	114.9
PM_{10}	482.8	368	114.8

Assuming no changes in the emissions authorized by Permit 4151–and there is no evidence that there have been such changes–the PM emissions that the current versions of Permit 20345[307] and Permit 4151 would authorize together can then be calculated:

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[301] Tr. at 392 *et seq*.

[302] ASARCO Ex. No. 1, p. 4, FOF 19.

[303] ASARCO Ex. No.27.

[304] Tr. at 392 *et seq*.

[305] ASARCO Ex. No. 1, p. 4, FOF 19.

[306] ASARCO Ex. No. 27; Tr. 127 *et seq*.

[307] ACORN No. 5, p. 19 *et seq*.

PM Emissions under Current Versions of Permits 20345 and 4151 (tons per years)			
	Permit 20345	Permit 4151	Both
PM	353	114.9	467.9
PM_{10}	350	114.8	464.8

The ratios between the PM emissions under just Permit 20345 and under both permits can then be calculated:

Ratio of Permit 20345 PM Emissions to Emissions under Both ASARCO El Paso Permits			
	Permit 20345	Both	Ratio
PM	353 tpy	467.9 tpy	1.33
PM_{10}	350 tpy	464.8 tpy	1.33

Based on that and assuming that pound-per-hour emissions have the same ratio as tons-per-year emissions, scaling can be used to roughly calculate the PM max GLCs that would result from ASARCO's renewed operation under both permits for its El Paso plant:

Estimated PM Impact From Both Permits 20345 and 4151 ($\mu g/m^3$)						
	Averaging Time	Max GLC Permit 20345	Ratio	Max GLC Both Permits	EPA Sign. Level	NAAQS or NGL
PM_{10}	24-hour	3.0282	1.33	4.03	5	150
	annual	0.3515	1.33	0.47	1	50
PM	1-hour	304.78	1.33	405.36	- -	400
	3-hour	168.15	1.33	223.64	- -	200

Thus, there is also substantial evidence that the PM emissions under Permits 20345 and 4151

would cause an exceedance of the Commission's NGLC rule for particulate matter[308], which provides:

> No person may cause, suffer, allow, or permit emissions of particulate matter from a source or sources operated on a property or from multiple sources operated on contiguous properties to exceed any of the following net ground level concentrations.
>
> (1) Two hundred micrograms per cubic meter of air sampled, averaged over any three consecutive hours.
>
> (2) Four hundred micrograms per cubic meter of air sampled, averaged over any one-hour period.

The rule does not apply only to a single permit but to any combination of sources that a single person operates on contiguous properties. Additionally, the rule's standard does not apply only at ASARCO's property line. For these reasons, the ALJs conclude that the PM emissions under both ASARCO permits must be considered, at least for purposes of determining compliance with the NGLC rule.

Moreover, the Commission's circumvention rule[309] specifically prohibits efforts to circumvent the Commission's rules or the Texas Clean Air Act:

> No person shall use any plan, activity, device or contrivance which the executive director determines will, without resulting in an actual reduction of air contaminants, conceal or appear to minimize the effects of an emission which would otherwise constitute a violation of the Act or regulations. Air introduced for dilution purposes only is considered a circumvention of the regulations.

Despite the reference to the ED, the ALJs easily conclude that within the context of a contested case–in which the ED is only a party and the Commission itself is the decision maker–the Commission, rather than the ED, decides whether there is such a circumvention.[310]

Dividing a single plant's emissions between two permits in order to argue that operation under

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[308] 30 TAC § 111.155.

[309] 30 TAC § 101.3.

[310] *See BFI Waste Sys., Inc. v. Martinez Envtl. Group*, 93 S.W.3d 570, 576 (Tex.App.-Austin 2002, *no pet. h.*).

one of them would not be significant or cause or contribute to air pollution seems like a classic example of a plan or contrivance to minimize the effect of an emission without an actual reduction.

Thus, because ASARCO has failed to show that the combination of PM emissions under both Permits 20345 an 4151 will likely not cause an exceedance of the standards set by the NGLC rule for PM, the ALJs cannot conclude that ASARCO's renewed operation under Permit 20345 will likely not cause or contribute to exceedances of that rule's standards.

d. Additional ASARCO PM_{10} Sources

Apparently, ASARCO emits large quantities of PM_{10} not covered by Permit 20345 and perhaps not covered by Permit 4151. Mr. Cabe testified that when he prepared the 1992 modeling, he only took approximately ten percent of the total PM_{10} emissions from ASARCO's El Paso plant site into account.[311] Since 1990, Mr. Cabe has been ASARCO El Paso's primary consultant for air permitting and emission inventory issues;[312] hence, he has the knowledge to make such an estimate.

Mr. Cabe was not very specific but repeated his estimate at least twice[313] and, as best the ALJs can determine, never retracted or modified it. Despite that lack of clarity, the ALJs can easily conclude that the undisputed estimate of much higher PM_{10} emissions by ASARCO's own expert is reasonably accurate.

Few details concerning those emissions are in evidence. Ms. Geran pointed to some possibilities. They include several sets of cooling towers, uncrushed converter silica bins, crushed converter silica bins, portable screens, and fugitive emissions from the unloading and bedding buildings.[314] Those could be covered by Permit 4151, but that is not clear.

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[311] Tr. at 519 *et seq*. and 531.

[312] Tr. at 448 *et seq*.

[313] Tr. at 519 *et seq*. and 531.

[314] ASARCO Ex. No. 1, p. 40 *et seq*.

If the total PM_{10} emissions from the plant are ten times the emissions under Permit 20345, the max GLCs can be estimated using scaling. If the ten-times estimate also represents unmodeled PM of all sizes, that can be estimated too, as follows:

Estimated PM Impact From All ASARCO El Paso Plant Sources ($\mu g/m^3$)						
	Avg.Time	Max GLC Permit 20345	Ratio	Max GLC from all ASARCO Sources	EPA Sign. Level	NAAQS or NGL
PM_{10}	24-hour	3.0282	10	30.28	5	150
	annual	0.3515	10	3.52	1	50
PM	1-hour	304.78	10	3047.8	- -	400
	3-hour	168.15	10	1681.5	- -	200

This suggests a possible exceedance of the significance level for PM_{10}, and possibly massive exceedances of the NGLC for PM and an obvious need to examine the all of the PM, PM_{10}, and $PM_{2.5}$ sources in the area.

4. Particulate Matter Summary

The ALJs acknowledge that their above calculations of max GLCs after dispersion from non-Permit 20345 sources are based on rough estimates, are simplistic applications of the principles that Mr. Cabe explained, and likely contains many errors. Nevertheless, it is sufficiently based on the evidence to illustrate why the ALJs cannot conclude that ASARCO has proven that its renewed operation under the permit will not likely cause PM exceedances. Moreover, the ALJs do not have the burden of proof.

ASARCO does have that burden. What did it offer to carry it? Not much:

- No current modeling of the PM under the permit is asks to renew;

- Withdrawn testimony by its key witness;
- Scraps of evidence based on old modeling not reflective of the current emission levels it asks to renew; and
- No evaluation of its other PM emissions or that of its slag processor on its own land, accompanied by arguments that those emissions somehow do not count.

That is just not enough. The ALJs conclude that ASARCO has failed to prove that its renewed operation under Permit 20345 would likely not cause or contribute to particulate-matter air pollution.

H. Will ASARCO's SO_2 Emissions Cause or Contribute to Air Pollution?

If the permit is renewed, ASARCO would be authorized to emit 6,673.15 tpy of SO_2.[315] That is far and away the largest quantity of any pollutant that the permit would authorize ASARCO to emit.[316]

ASARCO also would be the largest emitter of SO_2 in El Paso County. According to the Commission's on-line emission-inventory database, the largest emission of SO_2 by any entity in El Paso County in 2002 was 401.31 tpy, and the total SO_2 emissions in the county were 591.91 tpy.[317] That was a year when ASARCO had suspended operation. If it resumed operation, ASARCO would be emitting over than 12 times more SO_2 than all others combined emitted in 2002.

ASARCO's case to support its SO_2 emissions is much more convincing and better organized than for PM. In the 1994 modeling,[318] Mr. Cabe included all SO_2 emissions from all sources at the ASARCO El Paso plant, plus all nearby external point sources and a background level.[319] He also used a very broad receptor grid and produced are maps showing the calculated max GLCs.[320] Mr. Cabe used what were then the latest models linked with an easy-to-use overlay.[321]

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[315] ACORN Ex. No. 5, p. 19 *et seq*.

[316] ASARCO Ex. No. 27 (showing quantities rounded to the nearest whole number).

[317] El Paso Ex. No. 16.

[318] ASARCO Ex. 23, p. 7 and Ex. 38, p. 15 *et seq*.

[319] Tr. at 531 *et seq*.

[320] ASARCO Ex. 23, pp. 27, 28, and 29 (rolled maps).

[321] ASARCO Ex. 23, p. 7 and Ex. 38, p. 15 *et seq*. The modeling to support the 1994 amendment application was actually submitted in 1995, but during the hearing and in post-hearing briefs it was generally referred to as the 1994

The 1995 modeling estimated the following max GLCs:

1995 Modeling Results for Maximum Ground Level SO_2 Concentrations ($\mu g/m^3$)					
Avg. Time	ASARCO El Paso Plant sources	ASARCO & Other Sources	Monitored Background	Total	NAAQS or Area Control Plan
Annual		16	14	30	80
24-hour		137	30	167	365
3-hour		797	121	918	1,300
30-min.	1,135			1,135	1,137

No party argues that those calculations are incorrect for the emissions authorized by the 1994 application based on the 1995 modeling. El Paso and PIC correctly note, however, that after the 1995 modeling, ASARCO's permit was changed many times, and no modeling was conducted to support the changes except once.[322] Some of those changes were amendments and some were alterations. The ALJs will not analyze that regulatory distinction. It suffices to say that the permit was changed.

Modeling was prepared only to support one of those changes, and that is the change on which El Paso focuses. ASARCO obtained a matte pouring amendment for which Mr. Cabe prepared a stand-alone model in 1996.[323] (Matte is an intermediate copper product.[324]) Mr. Cabe predicted the following SO_2 concentrations would result just from the matte pouring:

SO_2 Impacts Due Matte Pouring Amendment ($\mu g/m^3$)

modeling. To minimize confusion and to note that it concerned the 1994 application, the ALJs also refer to it as the 1994 modeling.

[322] El Paso Ex. No. 6; ED Ex. No. 3.

[323] El Paso Ex. No. 22; Tr. at 773 *et seq*.

[324] Tr. at 777.

one-hour	three-hour	24 hour	annual
4935	41.6	6.94	0.35

These additional concentrations, even if added to those predicted in the 1995 modeling, would not come anywhere close to the annual, 24-hour, or three-hour standards. Additionally, Mr. Cabe testified that the 1995 modeling contained a conservative assumption that tended to over-predict GLCs. The second biggest SO_2 source is ASARCO's 828-foot stack. However, Mr. Cabe modeled it as if it were approximately 525 feet high, which increased the resulting estimates of ground level concentration at some locations. That was in accord with EPA guidance that directs that a stack be modeled at a height consistent with good engineering practice. But according to Mr. Cabe it ignores the reality that emissions at the full 828-foot elevation would have passed over lower lying terrain. Thus, according to Mr. Cabe, the model unrealistically predicted higher impacts at lower elevations.[325]

He also generally testified that the post-1995 permit changes would only result in increased emissions that would be too small to matter.[326] As to the annual, 24-hour, and three-hour standards, there is no significant evidence or argument to the contrary. Based on that, the ALJs conclude that ASARCO's renewed operation under the permit would not likely lead to exceedances of the annual, 24-hour, and three-hour standards.

There is a controversy, however, concerning the 30-minute, area-control-plan standard. El Paso and the PIC note that the modeling showed that ASARCO's SO_2 emissions were at 99.8 percent of the Commission's property-line standard, or more accurately the approved control-area-plan standard for SO_2.[327] As previously discussed, ASARCO is not subject to the normally applicable NGLC, or property-line, standard for SO_2 set out in the Commission rule. That would be a 30-minute average of 0.4 ppm or 755 $\mu g/m^3$. Instead, the ASARCO facility is covered by an "area control plan,"[328] which allows it to go up to a 0.5 ppm, or 1137 $\mu g/m^3$,[329] concentration of SO_2 over two

[325] ASARCO Ex. No. 54; Tr. at 2137 *et seq*.

[326] ASARCO Ex. No. 38, p. 28 *et seq*.

[327] El Paso Ex. No. 1, 37.

[328] Approved pursuant to 30 TAC § 112.19.

[329] ASARCO Ex. No. 38, p. 18.

consecutive half-hour averages. Thus, the SO_2 concentration can be approximately 25 percent higher than the rule would normally allow. The 1994 SO_2 modeling predicts max GLCs only 0.2 percent below that more liberal area-control-plan standard. Any increase in SO_2 emissions beyond those modeled in 1994 likely would cause ASARCO to exceed the area-control plan standard.

El Paso argues that the SO_2 emission due to the matte pouring would push the 1,135 max GLC predicted in the 1994 modeling to 1,184.5 $\mu g/m^3$. It contends that indicates that the already liberal 1,137 $\mu g/m^3$ area-control-plan level would be exceeded.

ASARCO and the ED do not agree that the estimated matte pouring SO_2 emissions should be added to the other SO_2 emissions. Both Mr. Cabe[330] and Mr. Clark[331] testified that any emissions from matte pouring would be so short in duration and insignificant that new modeling for all of the emissions under the renewed permit was not necessary. The ALJs do not see how that helps ASARCO. When the issue is whether maximum consecutive 30-minute concentrations would exceed the applicable standard, a very short term spike in emissions might be all that is necessary to cause such an exceedance.

Mr. Cabe also testified that any increase in emissions from matte pouring would be offset by simultaneous reductions in SO_2 emissions from other sources. Mr. Cabe explained that the process of converting copper matte to anode grade copper or to blister copper involves the operation of converters. He also explained that matte pouring occurs when ASARCO cannot for some reason put matte in the converters, hence the converters are not operating or emitting SO_2 when matte is being poured. Since the converter aisle is one of the larger sources of SO_2 emissions both from the building itself as well as the converters, Mr. Cabe reasoned that the emissions avoided from the converters more than offset the emissions from the matte pouring.

El Paso responds that this testimony concerning the off-setting of emissions is confusing emissions at different heights, which do not necessarily offset. As Ms. Geran testified, the closer the

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[330] Tr. at 1899 line 10 through page 1901 line 14 (Cabe cross-examination testimony).

[331] Tr. at 1695 lines 16-22 (Clark cross-examination testimony).

emission is to the ground the higher impact per pound emitted; thus, even a dramatic reduction in an emission from an 828-foot-tall stack would not necessarily offset SO_2 emission from matte poured onto the ground. Impacts from ground-level emissions or short stacks can be orders of magnitude higher at ground level than impacts from tall stacks, because the plume from a tall stack is able to disperse before reaching the ground, whereas this will not occur from ground-level emissions.[332] There is no evidence to contradict Ms. Geran as to that general principle.

Despite the general principle, it might be that higher matter pouring emissions would be offset by lower stack emissions. It might also be true that the highest concentration caused by matte pouring would be at a different location than the max GLC calculated in the 1995 modeling. Comprehensive modeling of all SO_2 sources, including those affected by permit changes after 1995, might have helped to prove that. But ASARCO did not offer such an on-point modeling of all source that the renewed permit would authorize. The evidence it did offer is insufficient.

One more thing. It is not just a theoretical possibility that the control-area-plan standard for SO_2 might be exceeded. In 1995, even before the matte-pouring amendment was granted, TNRCC Staff members monitored ASARCO and found exceedances of the control-area-plan standard. That was the only time that ASARCO's compliance with that standard was monitored, or at least the only time that there is evidence of such monitoring. SO_2 concentrations of 0.702 and 0.907 ppm, well above the 30-minute 0.5-ppm control-plan level, were found during two of the ten monitoring time frames. A staff member experienced heaviness in the chest, periodic increases in heart rate, sulfur odor and tastes, and general feelings of discomfort. That is consistent with the short term respiratory irritation and aggravation of pre-existing respiratory illnesses that SO_2 exposure can produce.[333]

Mr. Castor testified that the above recorded exceedances were due to short-term upset conditions when something very unusual happened at the ASARCO plant. He did not indicate what that unusual condition was, though he did testify that the Commission Staff agreed that it was

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[332] El Paso Ex. No. 1, p. 45 *et seq*.

[333] El Paso Ex. No. 1, JG-7.

unusual.[334] The monitoring eventually lead to an agreed order, which indicated that the Staff alleged a violation based on the 1995 area-control-plan exceedance, although ASARCO did not admit that to be so.[335] ASARCO offered no documentary evidence to show that there was an unusual short-term condition that led to the SO_2 spike or to show that the Staff concluded it was unusual.

There is no evidence of other ASARCO-specific monitoring by the Commission Staff for SO_2. Nor, unlike for cadmium, is there evidence of monitoring for SO_2 at La Calavera, immediately north of the ASARCO plant, that might tend to show that the Staff monitoring found only a temporary abnormality.

Based on the above, ASARCO has not proven that its renewed operation under Permit 20345 would likely not cause or contribute to SO_2 exceedances.

I. Will ASARCO's Lead Emissions Cause or Contribute to Air Pollution?

1. The Scope of the Case Concerning Lead

The ASARCO El Paso plant began life as a lead plant in 1887 and continued as such until 1985. The lead portion of the plant has now been demolished, hence the permit, if renewed, would not authorize the emissions of lead from a lead plant that no longer exists.[336] Instead, the only lead emissions at issue are those that would be emitted from ASARCO's copper smelter.

However, the legacy of ASARCO's lead plant lives on in El Paso. On May 25, 2005, EPA issued a unilateral administrative order–pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)–that identified ASARCO as responsible for certain

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[334] Tr. at 2031.

[335] ASARCO Ex. No. 15, ASARCO Ex. No. 15, Agreed Order, Docket No. 96-1142-AIR-E, dated August 28, 1996. The ALJs note that there is a controversy, considered below in the PFD, as to whether or not this alleged violation and agreed order may be considered in evaluating ASARCO's compliance history. Even if the Commission concludes it may not be considered for that purpose, it may be considered for other relevant purposes. *See* former 30 TAC § 116.125. The ALJs conclude that evidence of the fence line exceedance is relevant to determining whether or not emissions under the renewed permit will exceed the control-area-plan standard, hence cause a condition of air pollution.

[336] ASARCO Ex. No. 36 (pre-filed testimony of Larry Castor) page 3 lines 5-7.

contamination of residential property soils due to decades of emissions of arsenic and lead from the ASARCO El Paso Plant.[337] EPA ordered ASARCO to remove those soils and take other corrective actions. On June 25, 2005, ASARCO agreed to comply with the EPA order, though it objected to some of the findings in the order and particularly to EPA's conclusion that the soil contamination was due to ASARCO emissions over decades.[338]

This case does not directly concern a review of EPA's order or the findings therein. Nor does it concern adverse health effects due to lead in the soils that arguably came from ASARCO. The ALJs understand and respect the Commission's decision not to refer to hearing issues concerning multi-pathway exposure to contaminants, which arguably could include exposure to lead in soils near the ASARCO plant. Except in extraordinary circumstances, the ALJs only have jurisdiction over those issues that the Commission refers to them when it grants a hearing.[339]

The ALJs have diligently attempted to keep the hearing focused on the air-emission and compliance-history issues that the Commission referred and to generally exclude offered evidence, upon objection, that concerned soils contaminated with lead and the health impact due to contact with those soils. Some such evidence, most notably including the EPA order, was admitted, when it might have tended to prove some air-pollution issue, such as the level of lead in the ambient air into which ASARCO would emit if the renewed permit is issued and ASARCO resumes operation.

2. Lead Emissions and Concentrations

For the 1992 modeling, Mr. Cabe testified that he modeled all sources of lead at the ASARCO plant as well as all nearby sources. For that modeling, he also assumed a background concentration for lead that was the highest level monitored in El Paso at that time, though that background level had decreased dramatically by 2005. Moreover, that monitored level included the influence of other point

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[337] PIC Ex. No. 4, *In the Matter of El Paso County Metal Survey Site, El Paso, El Paso County, Texas, ASARCO, Inc., Respondent,* U.S. EPA Region 6 CERCLA Docket No. 6-8-05 (Unilateral Administrative Order for Removal and Response Activities)(Mar. (sic) [May] 25, 2005).

[338] ASARCO Ex. No. 53.

[339] TEX. GOV'T CODE ANN § 2003.047(e) and (f).

sources, which he had separately modeled. Thus Mr. Cabe testified that he double counted the lead impacts of these non-ASARCO sources.[340] That 1992 modeling predicted the following[341]:

1992 Lead Modeling Results ($\mu g/m^3$)				
Avg. Time	ASARCO & Other Sources	Monitored Background	Total	NAAQS
Calendar quarter	0.67	0.42	1.09	1.5

Of course, as stated many times now, there was no post-1992 modeling of most pollutants, including lead, and the entire 1992 modeling report is not in evidence, so the underlying assumptions must be gleaned from evidentiary fragments. The modeling results are in evidence,[342] as is a map showing the 1992 modeled dispersion of lead for a 50-kilometer radius within Texas.[343] Mr. Cabe testified that he used the highest lead level recorded in the area, which was at monitor 33, and a graph showing those levels is in evidence.[344] He also stated that he modeled all point sources of lead at the time, not just ASARCO's, within the 50-kilometer radius.[345] But what specific emissions levels did he assume? According to Mr. Cabe, the following are authorized lead emissions under the 1992 and current versions of the Permit[346]:

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[340] Tr. at 505 and 2139; El Paso Ex. No. 8.

[341] El Paso Ex. No. 8.

[342] El Paso Ex. No. 8.

[343] ASARCO Ex. No. 55; Tr. at 2156 *et seq*.

[344] ASARCO Ex. Nos. 33 and 38, p. 44 *et seq*.

[345] Tr. at 505.

[346] ASARCO Ex. Nos. 27 and 38, p. 27. *See* also ACORN Ex. No. 5, p. 19 *et seq*., the draft permit, which shows slightly lower emissions then assumed.

Authorized Lead Emissions under Permit 20345 ($\mu g/m^3$)			
	1992	Current	Percent change
LB/HR	2.63	3.17	+20.53
TPY	8.03	7.67	-4.48

Mr. Cabe also testified that he used the above 1992 emissions for his 1992 modeling. There is a slight increase in the authorized maximum allowable hourly emission rate and a decrease in the annual emission rate. Mr. Cabe testified that, since the only applicable standard is the calendar-quarter NAAQS, it is more appropriate to use the annual rate to model concentrations than to use the hourly rate. Thus, if ASARCO resumed operation under the permit, the quarterly concentrations, in his judgment, would be lower than the 1992 model predicted. For the sake of argument, he noted that even if the 1.09 $\mu g/m^3$ max GLC predicted in the 1992 modeling was increased by 21 percent, which is the percent increased in hourly emissions from 1992 to current, the max GLC would still be only 1.32 $\mu g/m^3$, less than the 1.5 $\mu g/m^3$ NAAQS.[347]

There are only three substantive disputes with the Mr. Cabe's analysis. One is a general claim that there is no modeling of the current emission rates. The ALJs fail to see why that makes any difference if the older model used in 1992 was reliable, as the ALJs previously determined that it generally was, and the authorized annual emissions have actually declined. The annual emission rate for lead has declined, and the ALJs find Mr. Cabe's reasoning for using annual emissions to calculate quarterly concentrations persuasive.

Secondly, El Paso argues that ASARCO might exceed the emission rates authorized by the permit, which could cause a NAAQS exceedance. To support this theory, El Paso contends that ASARCO has not sufficiently and reliably analyzed the quantity of lead that would be in typical shipments of copper ore that ASARCO would smelt. El Paso offers some evidence that copper ore shipped from certain mines might have different percentages of certain pollutants, including lead, than

[347] ASARCO Ex. No. 38, p. 32 *et seq*.

ASARCO assumes.[348] Along these lines, El Paso notes that when ASARCO originally applied for Permit 20345, it underestimated the quantities of certain constituents, including lead, that would be in the incoming ore and later obtained an amendment in 1994 to correct its ore speciation estimate and emission levels for certain pollutants.

For lead, the ALJs need not consider the specifics of El Paso's ore-speciation argument. Unlike for other pollutants that might be emitted under the catchall categories of PM and VOCs, there is no need to determine what quantity of lead the permit would authorize ASARCO to emit. The permit sets specific limits on lead. Thus, as to lead, El Paso is attempting to raise an issue outside the scope of the case: Will ASARCO's lead emissions exceed those permit limits?

The Commission has not asked the ALJs to determine if ASARCO can or will comply with the permit if it is renewed. Nor has it asked them to determine what emission rates should be included in the permit. Instead the Commission has asked the ALJs to determine whether ASARCO's operation under the permit would cause or contribute to air pollution. Operation-under is different from compliance-with. If the permit is renewed and ASARCO does not comply with it, the ED can take enforcement action.

Based on the above evidence, the ALJs conclude that the 1992 modeling for lead, which considered all sources within the 50-kilometer radius study area of the ASARCO plant, as well as the highest recorded level of lead monitored in the ambient air in that study area, was very conservative. They also find that the 1992 modeling over-predicts concentrations of lead that might result if ASARCO resumes operation under the renewed permit, because the annual lead emission will be lower than considered in the 1992 modeling. Because the 1992 modeling predicted lead concentrations significantly below the NAAQs, the ALJs conclude that ASARCO's renewed operation under the permit will likely not cause or contribute to an exceedance of the lead NAAQS.

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[348] *Compare* ASARCO Ex. No. 42, "App. J, Analysis of Materials (Particulate Speciation)," at tbl. 1 & worksheet labeled "Lab – 1854 10/21/91 JBR" and City of El Paso Ex. No. 17, Speciation Analysis, supra note 100, at 1, which purports to show that lead from the J.D. Tayahua mine is present at a level of 3.4percent as compared to the represented level of 0.15percent in ASARCO Ex. No. 42, Appendix J.

J. Will ASARCO's H_2SO_4 Emissions Cause or Contribute to Air Pollution?

In the 1992 modeling, Mr. Cabe predicted the following for H_2SO_4:[349]

H_2SO_4 1992 Modeling Results ($\mu g/m^3$)		
Averaging Time	ASARCO Contiguous Sources Max GLC	NGLC Standard
24-hours	0.79	15
more than once in a 24-hour period	3.83	50
any time	3.83	100

For his 1992 modeling, Mr. Cabe used the H_2SO_4 emission rates shown below, and the current permitted emission rates, from the same stack, are shown as well:[350]

Authorized H_2SO_4 Emissions under Permit 20345			
	1992	Current	Percent change
LB/HR	3.75	3.75	0
TPY	14.5	16.2	+11.72

For scaling purposes, Mr. Cabe testified that the hourly emission rate should be used to calculate because the NGLC rule sets short-term standards.[351] That would mean that the current permit would predict the same max GLC as the 1992 model. But even if the change in the *annual* emission rate was inappropriately used for scaling purposes, the predicted max GLC for the current permit would still be far below the NGLC:

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[349] ASARCO Ex. No. 38, p. 32; El Paso Ex. No. 8.

[350] ACORN Ex. No. 5, p. 21 and ASARCO Ex. No. 27. Note that Mr. Cabe assumed a slightly higher lb/hr rate of 3.75 instead of 3.74.

[351] ASARCO Ex. No. 38, p. 32.

H_2SO_4 Max GLC scaled from 1992 Modeling Based on TPY Change ($\mu g/m^3$)				
Averaging Time	1992 Modeling Max GLC	Percent Change	Current Permit Max GLC	NGLC Standard
24-hours	0.79	+11.72	0.88	15
more than once in a 24-hour period	3.83	+11.72	4.28	50
any time	3.83	+11.72	4.28	100

Aside from the routine claims that complete new modeling was required and scaling is inappropriate, the only critique of the above H_2SO_4 calculations comes from the Sierra Club. Mr. Hunt testified that Mr. Cabe's calculations do not include H_2SO_4 emissions from trucks hauling sulfuric acid from the site.[352] Mr. Cabe did not dispute that he did not make that calculation.[353] ASARCO responds that there is no evidence that ASARCO has in the past or will in the future remove H_2SO_4 from the plant by truck and that the plant was specifically designed with many rail spurs.[354] The ALJs have insufficient evidence to conclude that there would be H_2SO_4 emissions from trucks leaving the facility.

The ALJs conclude that ASARCO's renewed operation under the permit would not likely lead to exceedances of the NGLC for H_2SO_4.

K. Would NO_2 Emissions under the permit exceed the NAAQS?

In the 1992 modeling, Mr. Cabe predicted the following for NO_2:[355]

[352] Sierra Club Ex. No. 2E, pp. 2-3

[353] Tr. at 2173 *et seq*.

[354] Tr. at 340.

[355] ASARCO Ex. No. 38, p. 29; El Paso Ex. 8.

1992 NO_2 Modeling Results ($\mu g/m^3$)			
Averaging Time	Permit 20345 Sources Max GLC	Significance Level	NAAQS
Annual	.944	1	100

For his 1992 modeling, Mr. Cabe only examined the 34-tpy change in NO_X emissions from the plant that the original version of Permit 20345 authorized and assumed that all of the NO_X emissions would actually be NO_2.[356] Mr. Cabe conceded that there were other sources of NO_X at the ASARCO facility, which he did not model in 1992.[357] In 1992, he concluded that the predicted max GLC of NO_2 was below the significance or *de minimus* level established by EPA and that, in accordance with EPA modeling guidance, further modeling was not required.[358]

If Permit 20345 is renewed, ASARCO would be authorized to emit 230.04 tpy of NO_X.[359] Since the 1992 modeling, based on a 34-tpy emission from Permit 20345 sources was barely under the significance level, the max GLC based on the current permit would undoubtedly be higher than the significance level. Thus, as Mr. Cabe and others testified,[360] ASARCO would be required under EPA guidance to consider all contiguous ASARCO sources. ASARCO does not argue otherwise.

ASARCO prepared no subsequent NO_2 modeling. For this case, Mr. Cabe scaled from the 1992 modeling and testified that, assuming all NO_X emissions were actually NO_2, the max GLC for all "site wide" NO_2 would be 6.0 $\mu g/m^3$.[361] That would be approximately 6.04 times the max GLCs

[356] ASARCO Ex. No. 38, p. 29.

[357] Tr. at 503 *et seq*.

[358] ASARCO Ex. No. 38, p. 9 *et seq*.; Tr. at 512 *et seq*.

[359] ACORN Ex. No. 5, p. 19 *et seq*. *See* also ASARCO Ex. 27, where current NO_X emissions are rounded to 230 tpy.

[360] El Paso Ex. No. 1, p. 9 *et seq*. Tr. at 1802 *et seq*.

[361] ASARCO Ex. No. 38, p. 29.

he predicted in 1992, or six times as much, as Mr. Cabe testified.[362] Mr. Cabe did not indicate how he made that calculation. But what NO_2 sources did he consider?

El Paso argues that other NO_X, possibly NO_2, sources at the plant were not considered for the current case. Mr. Cabe agreed that he only considered ConTop change sources, *i.e.* Permit 20345 sources, in 1992.[363] But when scaling, to determine max GLCs under the permit ASARCO seeks to renew, he stated that he considered "site wide source."[364]

It is hard to verify from other evidence that Mr. Cabe considered all other ASARCO sources when scaling. He certainly did not explain which ones or give emission numbers for them. When pressed, he admitted that he could not remember what percentage of all permitted NO_X emissions at ASARCO's El Paso plant were only from Permit 20345[365]; thus, he could not remember the quantity of NO_X from other sources.

Fragments of evidence indicate that all sources at the ASARCO plant may not have been included in the scaling. The 230.4 tpy of NO_X that renewed Permit 20345 would authorize is 6.78 times the 34 tpy the Mr. Cabe said he modeled in 1992. Thus, just the 20345 sources are more than six times the quantity modeled in 1992. It is possible that Mr. Cabe just misspoke when he said six times or may be he was rounding off and meant six hundred percent more, *i.e.* seven times the quantity modeled in 1992. It is hard to know when he did not give the emission quantity he was scaling up. But what is clear is that without even considering other continguous ASARCO sources, just the 20345 sources are 6.78 times the quantity modeled in 1992.

Some idea of ASARCO's non-Permit 20345 sources can be gleaned from evidence concerning the 1992 modeling and issuance of Permit 20345. Mr. Cabe testified that he modeled 34 tpy in 1992,[366] but elsewhere he indicated in an exhibit that ASARCO was authorized to emit 89.2 tpy of

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[362] Tr. at 2131.

[363] Tr. at 504.

[364] ASARCO Ex. No. 38, p. 29.

[365] Tr. at 531.

[366] ASARCO Ex. No. 38, p. 29.

NO_X under the original version of Permit 20345.[367] Why the difference?

As indicated above with regard to PM, the emissions stated in the 1992 TACB order[368] included all emissions at ASARCO's El Paso plant, not just Permit 20345 emissions.[369] In the order, the Board indicated that the entire plant emitted 89.2 tpy of NO_X.[370] That means, assuming no changes in the other authorized NO_X emissions since 1992, that ASARCO's non-Permit 20345 sources at the plant are authorized to emit 55.2 tpy of NO_X.

Adding those 55.2 tpy to the 230.04 tpy under Permit 20345 would mean that 285.24 tpy would be emitted from the entire plant. That is 8.39 times the 34 tpy Mr. Cabe modeled in 1992, not six times. Using that 8.39 ratio to scale from the 1992 model, the ALJs would expect the max GLC from all sources to be 7.92 $\mu g/m^3$.

Is this much ado about not much? Possibly. Even 7.92 $\mu g/m^3$ is still far below the 100 $\mu g/m^3$ annual-average NAAQS for NO_2. It also assumes that all authorized NO_X emissions are NO_2, when they might not be. Moreover, Mr. Cabe testified that the highest screening background NO_2 concentration anywhere in El Paso was 70 $\mu g/m^3$.[371] Putting all that together, the evidence indicates that the highest NO_2 concentration that ASARCO might contribute to, much less cause, would be 77.92 $\mu g/m^3$, which is still well below the NAAQS level.

It is also possible that the ALJs by piecing together evidence fragments to try to understand what is going have misconstrued ASARCO NO_2 emissions and resulting concentrations. But that points to the real problem. ASARCO did not offer sufficient evidence to indicate what its NO_2 emissions from all of its contiguous sources would be if Permit 20345 is renewed or how those emissions might impact NO_2 in El Paso. For that reason, ASARCO has failed to prove that its NO_2 emissions would likely not cause or contribute exceedances of the NO_2 NAAQS.

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[367] ASARCO Ex. Nos. 27 and 38, p. 27

[368] ASARCO Ex. No. 1, p. 4, FOF 19.

[369] ASARCO Ex. No. 27; Tr. at 392 *et seq*.

[370] ASARCO Ex. No. 1, p. 4, FOF 19.

[371] Tr. at 2133.

L. Would ASARCO's Emissions of NO_X and VOC Cause or Contribute to an Exceedance of the NAAQS for Ozone?

Under the terms of the draft permit, ASARCO would be authorized to emit only 230.04 tpy of NO_X and 7.66 tpy of VOC.[372] There is no NAAQS, NGLC, or ESL for either of those substances,[373] but both are precursors of ozone.[374]

The NAAQS for ozone is an 8-hour average concentration of 0.08 ppm. According to the Commission's own on-line database, all sources in the El Paso area collectively emit 25,154 tpy of NO_X and 23,849 tpy of VOC.[375] Thus, under the renewed permit, ASARCO would only be allowed to emit 0.9 percent of the NO_X total and 0.03 percent of the VOC total.[376]

Mr. Cabe testified that the El Paso area's ozone exceedances are driven by VOC, not NO_X, making ASARCO's NO_X emissions irrelevant for purposes of an ozone analysis.[377] Along those lines, a Commission rule concerning permits for new sources of air pollutants specifically provides: ". . . for El Paso County, the [non-attainment new source review] rules apply to sources of VOC but not to sources of NO_X."[378] Based on that specific Commission rule, the ALJs conclude that ASARCOs's emission of the quantities of NO_X authorized by Permit 20345 would not cause or contribute to an exceedance of the ozone NAAQS.

ASARCO's VOCs are the products of combusted fuels.[379] VOC emissions for ConTop have never been modeled by ASARCO,[380] and the Commission Staff has never asked that they be modeled.

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[372] ACORN Ex. No. 5, p. 19 *et seq*.(Emission Sources - Maximum Allowable Emission Rates when totaled). The draft permit contains a summary of allowable emissions (ACORN Ex. No. 5, p. 18, Special Condition 33) that does not accurately total the emissions authorized by other provisions of the permit.

[373] As discussed and considered above, there is a NAAQS for NO_2, which is a subset fo NO_X.

[374] Tr. at 501.

[375] ASARCO Ex. No. 38, p. 49.

[376] ASARCO Ex. No. 38, p. 49

[377] ASARCO Ex. No. 38, p. 49; tr. 1103 *et seq*.

[378] 30 TAC §§ 116.12, Table I, footnote 3.

[379] Tr. at 475 and 493.

[380] Tr. at 635.

According to Mr. Cabe, that is in recognition of the fact that small quantities of unburned organic compounds from the combustion of sweet natural gas do not cause or contribute to a condition of air pollution. Mr. Cabe testified and ASARCO argues that its VOC emissions are too small compared to the quantity of VOC in the ambient air in the El Paso area to have any effect on ozone.[381] The ED agrees.

There is no evidence to contradict Mr. Cabe's testimony that ASARCO's VOC emissions are so small compared to the quantity in the air in the El Paso area as to be irrelevant for purposes of impacting ozone. Neither is there any evidence to suggest why they should be modeled when they are so tiny. The ALJs conclude that ASARCO's emissions of VOC will not likely cause or contribute to an exceedance of the NAAQS for ozone.

M. Would ASARCO's Emissions of Carbon Monoxide Cause or Contribute to Air Pollution?

In the 1992 modeling, Mr. Cabe predicted the following for carbon monoxide based on his modeling of "site-wide permit allowables" under the original Permit 20345[382]:

CO 1992 Modeling Results		
Averaging Time	ASARCOs Contiguous Sources Max GLC	NAAQS
8-hour	25.9 $\mu g/m^3$	9 ppm 10,000 $\mu g/m^3$
1-hour	75.7 $\mu g/m^3$	35 ppm 40,000 $\mu g/m^3$

For his 1992 modeling, Mr. Cabe used the CO emission rates shown below, and the current permitted emission rates from all contiguous ASARCO sources are shown as well[383]:

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[381] ASARCO Ex. No. 38, p. 30 *et seq*.

[382] ASARCO Ex. No. 30, p. 32; El Paso Ex. No. 8.

[383] ACORN Ex. No. 5, p. 19 *et seq*. and ASARCO Ex. No. 27.

Authorized CO Emissions from All Contiguous ASARCOS Sources			
	1992	Current	Percent change
LB/HR	11.4	106	+830
TPY	24.8	288	+1061

Since the NAAQS are short-term standards, Mr. Cabe scaled based on the hourly emission rate and calculated the following max GLCs for all CO emissions under a renewed Permit 20345:[384]

CO Max GLCs Scaled from 1992 Modeling Based on TPY Change ($\mu g/m^3$)				
Averaging Time	1992 Modeling Max GLC	Percent Change	Current Permit Max GLC	NAAQS
8-hour	25.9 $\mu g/m^3$	+830	241 $\mu g/m^3$	9 ppm 10,000 $\mu g/m^3$
1-hour	75.7 $\mu g/m^3$	+830	704 $\mu g/m^3$	35 ppm 40,000 $\mu g/m^3$

Aside from the routine claims that complete new modeling was required and scaling is inappropriate, the only critique of the above comes from El Paso. Its argument is a bit hard to understand, but El Paso seems to contend that if scaling is used, the max GLC from the 1992 modeling should be multiplied by 11 times to determine max GLC of CO under Permit 20345 if it is renewed. El Paso points to Mr. Castor's testimony in which he agreed that the authorized emission of CO under the current permit was approximately 11 times the CO emission authorized in the original permit.

Even if the 1992 predicted max GLCs for CO were multiplied by 11 times, the predicted max GLCs under the renewed permit would be extremely small fractions of the NAAQS:

[384] ASARCO Ex. No. 38, p. 30.

CO Max GLC scaled from 1992 Modeling Based on TPY Change ($\mu g/m^3$)				
Averaging Time	1992 Modeling Max GLC	Multiplier	Current Permit Max GLC	NAAQS
8-hour	25.9 $\mu g/m^3$	11	284.9 $\mu g/m^3$	9 ppm (10,000 $\mu g/m^3$)
1-hour	75.7 $\mu g/m^3$	11	832.7 $\mu g/m^3$	35 ppm (40,000 $\mu g/m^3$)

Moreover, the ALJs find Mr. Cabe's use of the ratio between pound-per-hour numbers more reasonable, since the NAAQS are one- to eight-hour averages and nowhere near one year. The ALJs see no basis for multiplying by yearly ratios, as El Paso seems to suggest.

Based on the above, the ALJs find that ASARCO's CO emissions will not likely cause or contribute to an exceedance of the NAAQS if Permit 20345 is renewed and ASARCO resumes operation.

N. Would ASARCO's Emissions Cause or Contribute to Air Pollution in Mexico or New Mexico?

Immediately surrounding ASARCO's plant is one metropolitan area divided by three states and two nations. ASARCO would emit contaminants within 300 feet of the international border and 600 feet of the New Mexico state line.[385] The wind blows toward Anapra, New Mexico, approximately 22 percent of the time and toward the Ciudad Juárez, Chihuahua, Mexico, area approximately 46 percent of the time.[386] Primary School 213 in Ciudad Juárez is only approximately one-half mile from ASARCO's ConTop facility.[387]

[385] PIC Ex. No. 3 (rolled map).

[386] Tr. 976 *et seq.*

[387] Tr. at 1398.

ASARCO prepared no evidence concerning the impact that its emissions would have, if any, on air quality in Mexico or New Mexico. It contends that the Commission has no jurisdiction over the quality of air outside Texas. ASARCO relies on the Texas Clean Air Act, which states:

> The policy of this state and the purpose of this chapter are to safeguard **the state's** air quality resources from pollution by controlling or abating air pollution and emissions of air contaminants, consistent with the protection of public health, general welfare, and physical property, including the esthetic enjoyment of air resources by the public and the maintenance of adequate visibility. [Emphasis added.][388]

Additionally, when it issued Permit 20345 to ASARCO in 1992, the TACB concluded:

> The Texas Clean Air Act establishes the jurisdiction of the TACB to that of safeguarding the air resources of the State of Texas, and this jurisdiction does not extend beyond the political and geographical boundaries of the State of Texas.[389]

All of the Protestants disagree with that interpretation of the law. While they agree that the Commission has no jurisdiction over emission sources outside Texas, they contend that under the above-quoted policy and purposes the Commission can, in fact must, consider the impact such emissions from Texas would have on public health, *etc.,* wherever affected, including outside Texas. They also cite provisions of a treaty between Mexico and the United States.[390] They also argue that under the Federal Clean Air Act, a SIP adopted under it (such as Texas's), must assure sources and emissions will not violate the NAAQS in another state or another state's SIP.[391]

The ALJs will not address the merits of those jurisdictional arguments. The Commission did not ask the ALJs to consider the Commission's jurisdiction over the impact that in-Texas emissions might have on outside-Texas air.

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[388] TEX. HEALTH & SAFETY CODE ANN § 382.002(a).

[389] ASARCO Ex. No. 1. p. 19, Conclusion of Law (COL) No. 25.

[390] Agreement on Cooperation for the Protection and Improvement of the Environment and Transboundary Problems, also known as the La Paz Agreement, Aug. 14, 1983, U.S.-Mexico, T.I.A.S. No. 10827, entered into force Feb.16, 1984, at http://yosemite.epa.gov/oia/MexUSA.nsf/ae0396372fe73b828825671c007e0b90/208f81d47fde81b9882566b10061cbc2!OpenDocument. The scope of the La Paz Agreement and its annexes is limited to the area within 100 kilometers of each side of the U.S.-Mexico border.

[391] 42 U.S.C.A. § 7410(a)(2)(D)(i) & (ii).

Relatedly, the Commission did not ask the ALJs to determine whether ASARCO's permit should be renewed. For that reason, the ALJs denied Anapra's motion during the hearing, in which all other Protestants joined, to summarily deny ASARCO's application because ASARCO had not shown that its emissions would be protective of health, *etc.,* in Mexico or New Mexico. Because the Commission had not referred the issue of application denial or approval to them, the ALJs ruled that they had no jurisdiction to recommend a summary denial.

However, the ALJs recognized that TACB's conclusion that it had no jurisdiction to safeguard out-of-state air resources from impacts due to in-state emissions was made 13 years ago by a predecessor agency with a different structure and members. The ALJs recognized the possibility that the current Commission might reach a different conclusion if faced with the same jurisdictional issue.

The ALJs also thought that the air-pollution issue that the Commission had referred to them was geographically neutral, in that "air pollution" is defined as:

> . . . the presence in the atmosphere of one or more air contaminants or combination of air contaminants in such concentration and of such duration that:
>
> (1) are or may tend to be injurious to or to adversely affect human health or welfare, animal life, vegetation, or property; or
>
> (2) interference with the normal use or enjoyment of animal life, vegetation, or property.[392]

The ALJs concluded that the best course they could take was to permit any party to offer evidence concerning the effects that ASARCO's emission under Permit 20345 would have, if any, on health, *etc.,* in Mexico or New Mexico. That could give the Commission an evidentiary record should it wish to reconsider the out-of-state-impact issue.

There is, however, very little evidence concern the impact that ASARCO's emissions would have in Mexico or New Mexico, aside from what has already been discussed. By focusing on wind

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[392] TEX. HEALTH & SAFETY CODE ANN § 382.003(3).

direction, El Paso and other Protestants attempted to show that there would be an emission impact in Mexico and New Mexico. They offered no modeling evidence, however, to show that there definitely would be an impact or the degree of that impact, if there is one.

Because it contends that the Commission has no jurisdiction, ASARCO prepared nearly no evidence concerning out-of-state impact. This caused some of ASARCO's exhibits to look very odd. The maps showing modeled ground level concentration are sometimes quite detailed on the Texas side, but show blank space across the Rio Grande.[393] There is one small exception. For some reason, one map from the 1992 modeling shows annual-quarter GLCs for lead from all sources, not just ASARCO, including one location in Mexico with a 0.118 $\mu g/m^3$ GLC and two locations in New Mexico with a 0.118 and 0.138 $\mu g/m^3$ GLCs.[394] Those would be below the 1.5 $\mu g/m^3$ NAAQS, but all other locations in New Mexico and Mexico are blank, so it is not clear what the general lead concentrations would be there.

Mr. Cabe stated several times that he did not know what the impact would be in Mexico because he had not modeled it.[395] However, late in the hearing, he testified that he could tell that, if he had modeled it, the impact in Mexico would be lower than anywhere in Texas, seemingly conceding that there would be at least a minimal impact.[396] He based this opinion on the same 1992 annual-quarter-lead-concentration map discussed above. He stated it showed concentrations in Texas declining in the direction of the international border.[397]

However, during later questioning by an ALJ, Mr. Cabe conceded that the very highest lead concentration, 0.67 $\mu g/m^3$, was only feet from the border and approximately 400 feet from the Juarez school previously referred to.[398] The map shows a concentration of 0.576 $\mu g/m^3$ directly over the Rio Grande. He noted that even with consideration of the impact of monitored ambient air, which is 0.42

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[393] ASARCO Ex. No. 23, p. 26-29 (rolled maps) and Ex. 55.

[394] ASARCO No. Ex. 55.

[395] Tr. at 555 and 756 *et seq*.

[396] Tr. at 2157.

[397] Tr. at 2154 *et seq*.

[398] Tr. 2at 212 *et seq*.

$\mu g/m^3$ in nearby El Paso, the predicted lead concentration would only be 1.09 $\mu g/m^3$, still below the 1.5 $\mu g/m^3$ NAAQS.[399] Mr. Cabe also stated that these were likely over-predictions, since the areas in question are actually lower than the elevation of the ASARCO plant, although he modeled them as if they were at the same elevation. He also predicted, based on the data's trend, that the concentrations would be lower in Mexico.[400]

Since Mr. Cabe admitted that he had not modeled or otherwise fully studied the impact that emissions under Permit 20345 would have in Mexico and New Mexico, the ALJs can give no significant weight to his testimony concerning that impact, which was based only on information concerning the impact those emissions would have in Texas. To summarize, there is no evidence that ASARCO's emissions under Permit 20345 would cause or contribute to air pollution in Mexico or New Mexico. On the other hand, if the Commission should find that ASARCO was required to address the issue, ASARCO has failed to prove that its emissions under that permit would likely not cause or contribute to air pollution in Mexico or New Mexico.

VI. WHETHER THE APPLICANT'S COMPLIANCE HISTORY FOR THE LAST FIVE YEARS OF OPERATION OF THE EL PASO PRIMARY COPPER SMELTER WARRANT THE RENEWAL OF AIR QUALITY PERMIT NO. 20345

The last five years that ASARCO operated under Permit 20345, which is the compliance period that the Commission ordered reviewed, extends from February 1994 through February 1999. The consideration of compliance history is far from straightforward. There are several inconsistent statutes and rules that either mandate or prohibit the consideration of certain compliance components. There is vigorous debate among the parties as to which of those statutes and rules apply and which violations and alleged violations can be considered. Additionally, several parties contend that the Commission may and should consider non-compliance outside that five-year period.

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[399] Tr. at 2216 *et seq*.

[400] Tr. at 2216.

A. Compliance History Law

1. Which Law Applies?

Before deciding on the merits of Applicant's compliance history, the issue of which compliance history rules are applicable to ASARCO's renewal application must be addressed. As to the standard of review, the current generally applicable statute[401] was included in House Bill 2912 of 2001,[402] the Commission's Sunset Act. It adopted a very complex system for considering compliance history and called on the Commission to adopt rules to implement it. The Commission has adopted those rules.[403]

ASARCO advocates the application of the pre-HB 2912 law, which sets a standard of review based on substantial compliance and has no ranking system. The 2001 version of Texas Health and Safety Code Section 382.055(d) sets the following standard:

> [W]hether the facility is or has been in substantial compliance with [the Texas Clean Air Act] and the terms of the existing permit . . . .[404]

That law was preserved as to ASARCO's application. Section 18.05(f) of House Bill 2912 stated:

> The changes made by this Act in the consideration of compliance history in decisions by the Texas Natural Resource Conservation Commission relating to the . . . renewal of permits under the following sections apply only to an application for the . . . renewal of a permit submitted to the Texas Natural Resource Conservation Commission on or after September 1, 2002:
>
> * * *
>
> (2) Sections . . . 382.055 . . . Health and Safety Code.

In its closing argument, the Executive Director agreed with ASARCO with regard to the standard to

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[401] TEX. WATER CODE § 5.754. *See* TEX. HEALTH & SAFETY CODE ANN § 382.0518(c), which as to air permit renewals adopts TEX. WATER CODE § 5.754 by reference.

[402] Added by Acts 2001, 77th Leg., ch. 965, § 4.01, eff. Sept. 1, 2001.

[403] 30 TAC § 60.2.

[404] TEX. HEALTH & SAFETY CODE ANN. § 382.055(d)(1)(2001 version).

be applied. Although El Paso questions whether ASARCO has proven such substantial compliance, it does not dispute that is the standard. No other party weighed in on this issue.

As to compliance components, ASARCO also asserts that the former 30 TAC § 116.122, regarding contents of compliance history, applies to its application, which was filed on March 28, 2002. Section 116.122(a)(1) is the prior law, which predates the creation of the Agency's compliance history scoring system. The current generally applicable rule is found at 30 TAC § 60.1(c), which was adopted to implement House Bill 2912.

The ED is less certain on this point, due to § 18.05(i) of House Bill 2919, which stated:

> The changes made by this Act in the definition of compliance history apply to an action taken by the Texas Natural Resource Conservation Commission on or after February 1, 2002.

The Executive Director has interpreted this language to mean that regardless of when an application is submitted, if the action on that application is taken after February 1, 2002, then the components listed in 30 TAC § 60.1(c), the new rule, apply. Thus, Mr. Clark used the components in 30 TAC § 60.1(c) when evaluating ASARCO's compliance history, although Mr. Clark admitted that there was some confusion as to whether the section applied.[405] However, ASARCO more persuasively points to the previously quoted § 18.05(f) of House Bill 2912, which retained the old compliance history law for pre-September 1, 2002 applications.

The ALJs agree that the old law, former 30 TAC § 116.122, establishes the universe of compliance components to be considered in this case. Moreover, the new rule, at 30 TAC § 60.1(a)(7), specifically indicates that it only applies to permit renewal applications filed on or after September 1, 2002, which would not include ASARCO's. It states:

> Beginning September 1, 2002, this chapter shall apply to the use of compliance history in agency decisions relating to:

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[405] Executive Director Ex. No. 25 [pre-filed testimony of LeRoy "Skip" Clark] pages 15-16.

> (A) applications submitted on or after this date for the . . . renewal of permits;
> * * *

The Commission in the preambles when it proposed and adopted the chapter 60 rules made it clear that the old rules apply. It said:

> With regard to required implementation dates, as specified in HB 2912, §18.05, the adopted subsection reflects that new Chapter 60 applies as follows: in the consideration of compliance history for decisions by the agency relating to the . . . renewal of permits under . . . [Health and Safety Code] § . . . 382.055 . . . only to applications submitted on or after September 1, 2002 . . .[406]
>
> . . . according to proposed §60.1(a)(1), for an application submitted in March 2002, the agency should consider compliance history as provided in the [old] rules in evaluating the application.[407]

The Commission, in a recent proceeding involving a similar issue, interpreted its rules and found that the compliance history standard to be applied to an application filed before September 1, 2002, is the old law.[408]

The ALJs conclude that the former compliance-history-components rule, 30 TAC § 166.122, and the former standard-of-compliance-history-review statute, Health and Safety Code § 382.055(d), apply to ASARCO's application in this case.

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[406] 27 Tex. Reg. 194.

[407] 27 Tex. Reg. 211.

[408] *An Order concerning the application by CAP-TEX, Inc. for registration No. 710855*; TCEQ Docket No. 2001-1275-SLG (Nov. 24, 2003). The Commission found that Health & Safety Code 361.089 as it existed prior to HB 2912 applied.

2. Contents of Compliance History Under 30 T.A.C. § 116.122

The compliance history[409] under § 116.122(a)(1) includes just the following compliance events:[410] (A) criminal convictions, civil orders, judgments and decrees; (B) administrative enforcement orders; and (C) compliance proceedings.[411] There is absolutely no evidence that ASARCO has any criminal convictions.

B. Which Agreed Orders and Compliance Proceedings Admitted in the Case May Be Considered?

There is some evidence concerning possible violations by ASARCO for which no NOV was ever issued. These include ASARCO's:

- Failure to comply with permit testing requirements;
- Replacement of the ConTop reactors without prior approval by the Commission;
- Emission violations from ConTop;
- Obtaining a permit amendment in 1994; and
- Failure to notify concerning receipt of Encycle recycled metals.

The Protestants allege that these show that ASARCO has failed to comply with certain laws. The ALJs see no basis for considering them under 30 TAC § 116.122. Obtaining a permit amendment is

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[409] Compliance history is defined as the record of an applicant's adherence to air pollution control laws and rules of the State of Texas, other states, and of the United States except as provided in § 116.23 of this title(relating to effective dates). The history shall be for the five-year period prior ro the date on which the application for issuance, amendment, or renewal is filed. The compliance history shall include all compliance events, as defined in this section. §116.11(3).

[410] Compliance event is defined as an adjudicated decision or compliance proceeding as defined in paragraphs (1) and (4) this section. §116.11(2). An adjudicated decision is defined as any conviction, final order, judgment, or decree as follows:(A)a criminal conviction of the applicant in any court for violation of any law of this state, another state, or of the United States governing air contaminants; (B) a final order, judgment, or decree of any court or administrative agency, or agreement entered into settlement of any legal or administrative action brought in a court or administrative agency, addressing the applicant's past performance of compliance with the laws and rules of this state, another state, or of the United States governing air contaminants; or the terms of any permit or order issued by the commission; or (C) an order of any court or administrative agency, whether final or not, respecting air contaminants for the facility that is the subject of the permit application.§116.11(1).

[411] Compliance proceeding is defined as a notice of violation issued by the commission or other agency for which the commission has recommended formal enforcement action and has notified the applicant of such recommendation. §116.11(4).

not a violation of any kind. The other alleged violations fall into none of the applicable compliance-component categories, not even a compliance proceeding, since no NOVs were issued.

As discussed concerning air pollution above, EPA recently issued a Unilateral Administrative Order that identified ASARCO as responsible for certain contamination of residential property soils due to decades of emissions of arsenic and lead from the Asarco El Paso plant.[412] In that order, EPA determined that air quality had been negatively affected due to operation of the Asarco El Paso plant.[413] While agreeing to comply with the EPA order, ASARCO denies that assertion by EPA.[414] El Paso contends that the Commission should also consider this noncompliance by ASARCO.

The EPA order was issued in 2005.[415] It states that contamination of the residential property soils is due to decades of emissions or arsenic and lead from the copper and lead smelters into the El Paso community's ambient air.[416] The Order further concludes that "potential inhalation exposures may occur during frequent high wind events."[417]

It is not clear whether the alleged emissions and soil contamination occurred during the five-year compliance period, February 1994 through February 1999. The EPA Order alleges "decades of emissions" but does not say which decades. It does state that initial soil screening was done in 2001.[418] Thus, the ALJs are unable to determine whether the acts which created the contamination alleged in the EPA Unilateral Administrative Order fall within the time frame under review. Moreover, no NOV was ever issued for these alleged violations.

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[412] Office of Public Interest Counsel Ex. No. 4, EPA Unilateral Administrative Order, dated March 25, 2005.

[413] City of El Paso Closing Argument, page 72.

[414] ASARCO Ex. No. 53, p. 2.

[415] PIC Ex. No. 4, In the Matter of El Paso County Metal Survey Site, El Paso, El Paso County, Texas, Asarco, Inc., Respondent, U.S. EPA Region 6 CERCLA Docket No. 6-8-05 (Unilateral Administrative Order for Removal and Response Activities)(Mar. (sic) [May] 25, 2005).

[416] *Id*. at page 4.

[417] *Id*.

[418] *Id*. at page 5.

Applicant argues that TNRCC Agreed Order, Docket No. 96-1142-AIR-E, dated August 28, 1996, should not be considered in determining this case. In particular, the Applicant argues that this order was in settlement of alleged violations and provides: "This Agreed Order is not intended to become a part of ASARCO's compliance history."[419]

With respect to this Agreed Order, the Commission and the Applicant agreed that the order would not become part of the compliance history. The agreement made by the parties is legal and is binding on the Commission. The ALJs find that Agreed Order 96-1142-AIR-E should not be considered in this proceeding.

Applicant argues that the EPA/Texas Encycle Order should not be considered because it was unrelated to compliance with the plant's air permits or the Texas Clean Air Act, and because there is no basis for its inclusion in the five-year compliance history. The ALJs do not agree.

The Encycle Consent Decree falls under § 116.122; it is a final order of a federal court judge.[420] There were four specific violations against the ASARCO El Paso Plant. The copper concentrate, which was actually hazardous waste, was smelted by ASARCO in its Permit 20345 facility which caused at least some air emissions.[421] Although the decree was executed in October of 1999, the compliance events at issue occurred within the five-year compliance history period. *United States of America and the State of Texas v. ENCYCLE/Texas, Inc. & ASARCO, Inc.* Consent Decree, H-99-1136, will be considered.

Also appropriate for consideration are the June 17, 1994 EPA Consent Agreement and Order, Docket No. TSCA-VI-598C and August 28, 1996 TNRCC Agreed Order, Docket No. 96-0212-MLM-E. ASARCO did not object to their consideration.

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[419] ASARCO Ex. No. 15, Agreed Order, Docket No. 96-1142-AIR-E, stipulation 10, page 2.

[420] El Paso Ex. No. 7, p. 116.

[421] Tr. at 105 *et seq*.

Of all the NOVs issued to ASARCO during the relevant period, only two ripened into formal enforcement actions, hence compliance proceedings, under 30 T.A.C. § 116.122(a)(1)(C). Under 30 T.A.C. § 116.11(4), a compliance proceeding is limited to those NOVs for which the Commission has recommended formal enforcement action. There were nine other NOVs issued by the ED during the five-year period.[422] None of those resulted in an Executive Director's Preliminary Report and Petition or other formal enforcement action.

The table below summarizes the enforcement matters that the ALJs find may be considered under 30 T.A.C. § 116.122:

Summary of Applicant's Compliance History Components	
	Number of Violations and/or claims alleged
06-17-94 EPA ORDER	12
08-02-94 NOV	16
05-04-95 NOV	2
08-28-96 ORDER NO. 96-0212-MLM-E	20
10-99 ENCYCLE	38

C. Possible Compliance Components

1. June 17, 1994 EPA Consent Agreement and Order, Docket No. TSCA-VI-598C

This proceeding was instituted by EPA for violations of the Toxic Substance Control Act. The Agency found that ASARCO improperly stored and managed materials containing Polychorinated Biphenyls (PCBs) without notifying EPA of its handling activities prior to storage and disposal. Improper actions included:

- Using eight transformers with had dielectric fluid containing PCBs at a concentration of 500 ppm or greater;
- Storing combustible materials closer than five meters from the PCB transformer;
- Failing to notify EPA of PCB waste-handling activities prior to storage and disposal;
- Failing to maintain and make available records of inspection and maintenance history of the

[422] ASARCO Ex. Nos. 4 and 16; Sierra Club Ex. Nos. 3, 9, 10, 11, 13, 14, and 16.

transformers;
- Failing to mark large high voltage capacitors containing PCBs as required by law;
- Failing to check all PCB articles and containers in storage for leaks at least every 30 days;
- Failing to date the capacitors when they were placed in storage;
- Failing to develop and maintain an annual document recording disposition of PCBs and PCB items for eight years;
- Failing to record total weight of PCBs contained;
- Failing to record removal dates of PCBs;
- Failing to record storage and transport dates of PCBs; and
- Failing to record removal, storage, and shipment information concerning transformers.[423]

ASARCO was assessed a civil penalty of $19,500.00 and ordered to reconstruct PCB annual documents for 1983 through 1990, to remove combustible materials closer than five meters to a PCB transformer, to photograph that removal, to clean up leaking PCB-contaminated rectifiers and present supporting documentation, and to pay a $1,000.00 penalty per day for failure to comply with the order.

Dr. Neil Carman testified that, because of their high toxicity, there can be no release of PCBs under Texas law.[424] The ALJs agree with Carman's conclusion that the clerical nature of some of the violations does not diminish their significance, because labeling and manifest requirements are a primary means for ensuring proper handling of toxic substances.

2. August 2, 1994 Notice of Violation

The Commission found violations of air emissions and monitoring required by specific provisions of the permit in question in this case during a regular inspection by TNRCC conducted on May 31 through June 3, 1994. Also found were federal notification and record-keeping violations, including:

- Excessive SO_2 emissions due to boiler feed water pump problems;
- Failure to span to the required concentration for SO_2;
- Exceedance in a 6-hour block average from acid plant stack
- Exceedance of 1-hour block average from acid plant stack;

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[423] Sierra Club Ex. No. 4, Notice of Violation dated June 17, 1994.

[424] Sierra Club Ex. No. 3, pg. 12.

- Failure to conduct daily calibrations of the acid gas plant's continuous emission monitoring system (CEMS);
- Fugitive dust emissions;
- Open duct;
- Plastic slats at converter building failing to effectively contain emissions within the building;
- Lapse of required daily checks/calibration of acid plant stack;
- Failure to maintain the converter building ventilation baghouse Continuous Opacity Monitoring System (COMS);
- Lapse of required daily checks of system (specifically the fluid bed dryer exhaust duct and the converter building ventilation baghouse);
- Failure to span the fluid bed dryer exhaust duct COMS to the required opacity range;
- Fugitive emissions from the delumper;
- Failure to maintain information to determine the gas distribution for the waste water treatment plant boiler, spray dryer, two power boilers and the fluid bed concentrate;
- Failure to submit required quarterly reports documenting excessive emissions and total CEMS/COMS downtime from the acid plant stack and fluid bed dryer exhaust duct; and
- Failure to have quality assurance procedures for acid plant stack CEMS and the fluid bed dryer exhaust COMS.[425]

The violations cited arose from an annual inspection. They were addressed only after being brought to the attention of Applicant, resulting in fugitive emissions escaping for an undetermined period. TNRCC indicated in a letter to ASARCO dated June 13, 1996, to ASARCO that "certain violations were forwarded to the Air Section in Austin for initiation of formal enforcement action while other violations alleged in the NOV were not."[426] Enforcement action was taken on this NOV, which resulted in Agreed Order No. 96-1142-AIR-E.

3. May 4, 1995 Notice of Violation

On May 4, 1995, the Commission Staff issued an NOV after Staff members found ambient SO_2 violations resulting from mobile monitoring downwind of ASARCO on January 28 through February 1, 1995. [The monitoring evaluated ambient air concentrations of SO_2 and H_2S downwind of the smelter.] The sampling location during this period was southwest of ASARCO on Paisano Avenue. The following SO_2 concentrations above allowable limits, were observed:

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[425] Sierra Club Ex. No. 5, Notice of Violation dated August 2, 1994.

[426] ASARCO Ex. No. 8.

- On February 1, 1995, SO_2 concentrations were emitted above the regulatory allowable level, during two one-hour periods;
- One-hour average concentrations of 0.702 ppm were recorded from 00:45 to 1:45;
- One-hour average concentration of 0.907 ppm was recorded from 2:50 to 3:50.[427]

Dr. Carman, in his pre-filed testimony, noted that the above exceedances resulted from one-hour averages, so peaks and averages over shorter periods of time were even higher.[428] Enforcement action was taken on this NOV, which resulted in Agreed Order No. 96-1142-AIR-E.

4. August 28, 1996 TNRCC Agreed Order, Docket No. 96-0212-MLM-E

The Commission assessed administrative penalties of $168,400.00 and required corrective actions for numerous violations involving the mismanagement of solid and liquid hazardous wastes. These contaminants were found during three separate periods of inspections conducted on May 31 through June 13, 1994; January 12 through 13, 1995; and April 28 through May 8, 1995.

Laboratory testing confirmed the release of unauthorized discharges of industrial solid waste, wastewater, and storm water, (including lead and other toxic metals). The order also found storage, labeling, and record-keeping requirements violations. The specific violations are listed below:

AUGUST 28, 1996 TNRCC AGREED ORDER, NO. 96-0212-MLM-E PERMIT VIOLATIONS FOR MAY-JUNE, 1994 & JANUARY 12-13, 1995:

• Elevated levels of metals evidencing the presence of industrial solid waste were found in:
  • pond nos. 1 and 6;
  • an asphalt-lined surface impoundment located west of the converter building ventilation baghouse, which was used as a spill containment area; and
  • a 90,000-gallon tank, which served the unloading building' s wastewater treatment plant. (The effluent from the tank was used for wash down in the bedding building, unloading building and for dust suppression around the facility.)

[427] Sierra Club Ex. No. 6, Notice of Violation, dated May 4, 1995.

[428] Sierra Club Ex. No. 3, pg. 14.

AUGUST 28, 1996 TNRCC AGREED ORDER, NO. 96-0212-MLM-E PERMIT VIOLATIONS FOR MAY-JUNE, 1994 & JANUARY 12-13, 1995:

• Elevated levels of metals in the soil were found in:
  • an asphalt-lined surface impoundment located west of the converter building ventilation baghouse, which was used as a spill containment area. (Leakage was found due to cracks in the impoundment asphalt);
  • the " boneyard" area, which was on top of a slag pile consisting of spent scrubber saddles, discarded brick, wood, plastic, flues, and flue residue;
  • the base of a slope located outside of ASARCO' s perimeter fence outside of Acid Plant No. 2;
  • an area of stained soil adjacent to a roll-off container located just west of Acid Plant No. 2;
  • a berm located west of the lead plant and south of the closed copper roaster; and
  • a berm located south of the lined storm water pond.

• Sulfuric acid spill at Acid Plant No. 2 in 1994;
• Sulfuric acid spill on the ground at Acid Plant No. 2 in 1995;
• Failure to perform a waste determination and to amend the Notice of Registration concerning the generation of the following solid wastes: air conditioning filters, spent catalyst, lathe cleaning solvent, anti-freeze and freon recycling machine filters, waste oils, scrubber saddles, brick materials, residues in flues, waste oil, grease bags from the spray dryer baghouse, drums with spent solvents, and waste oil;
• Failed to amend the Notice of Registration concerning the following waste management units: the 90,000-gallon wastewater treatment plant, 1,000-gallon laboratory wastewater holding tank, the RCC pre-treatment wastewater-treatment plant, and the RCC wastewater treatment plant;
• Labeling violations of hazardous waste; and
• Uncovered hazardous waste containers;.

AUGUST 28, 1996 TNRCC AGREED ORDER, NO. 96-0212-MLM-E PERMIT VIOLATIONS FOR APRIL 28 THROUGH MAY 8, 1995:
• Elevated levels of arsenic in groundwater-monitoring wells;
• Unauthorized discharges of solid waste consisting of sludge, sediment, scrubber saddles, boneyard waste materials, and leaking 35-gallon drum containing lubricating oil;

AUGUST 28, 1996 TNRCC AGREED ORDER, NO. 96-0212-MLM-E PERMIT VIOLATIONS FOR APRIL 28 THROUGH MAY 8, 1995:
• Failure to perform a waste determination and to amend the Notice of Registration concerning the generation of the following solid wastes: air conditioning filters, anti-freeze and freon recycling machine filters, scrubber saddles, brick materials, residues in flues, and grease bags from the spray dryer baghouse;
• Failure to amend the Notice of Registration concerning the following waste management units: the 90,000-gallon wastewater treatment plant, 1,000-gallon laboratory wastewater holding tank, the Zig Zag building, and the RCC wastewater-treatment plant; and
• Failure to perform a waste determination on a 55-gallon drum containing contaminated grease and 55-gallon drum containing sludge.[429]

The Agreed Order also documented that on-site and off-site groundwater monitoring wells were sampled in May 1995 and that the analytical results confirmed the presence of elevated levels of arsenic and other metals in some on-site and off-site wells.[430] In addition to the extensive directives that ASARCO was to comply with, the Agreed Order contained a provision whereby a portion of the penalty would be remitted with the condition that ASARCO perform and comply with certain Supplemental Environmental Project (SEP) provisions.

5. Complaint from civil action, *United States of America and the State of Texas v. ENCYCLE/Texas, Inc. & ASARCO, Inc.*, H-99-1136.

This civil action was for injunctive relief and civil penalties for violations of federal and state laws.[431] In their complaint, the federal and state agencies made 38 claims for relief for violations of the laws regarding receipt, generation, management, treatment, storage, and disposal of hazardous wastes and the discharge of pollutants into navigable waters at various facilities, one of which was ASARCO's El Paso Plant.[432]

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[429] Sierra Club Ex. No. 12, TNRCC Agreed Order, Docket No. 96-0212-MLM-E.

[430] Sierra Club Ex. No.12, page 5.

[431] The Federal Solid Waste Disposal Act, the Resource Conservation and Recovery Act of 1976, the Solid Waste Disposal Act Amendments of 1980, the Hazardous and Solid Waste Amendments of 1984, the Clean Water Act, the Texas Solid Waste Disposal Act, the Texas Water Code, and 30 Texas Administrative Code § 335.

[432] ASARCO, Inc., is the parent company of Encycle, Inc. The suit involved ASARCO operations in Corpus Christi, Amarillo, and El Paso, as well as operations in Tennessee and Montana.

The ASARCO El Paso facility was alleged to have released hazardous waste into the environment.[433] The specific alleged federal violations are described below:

- failure to notify EPA or Texas that the ASARCO El Paso facility stored and/or disposed of hazardous waste;[434]
- ASARCO treated and/or stored, and/or disposed of hazardous waste at the ASARCO El Paso facility;[435]
- failure to obtain permit to treat, store of dispose of hazardous waste at the El Paso facility;[436] and
- failure to meet storage and treatment standards by storing and disposing of restricted hazardous waste at the El Paso facility.[437]

The State of Texas separately alleged violations of Texas law by the ASARCO El Paso Plant:

- On May 31-June 13, 1994 inspections revealed that hazardous-waste sludges and waste water were being stored in Texas;
- failure to document daily inspection reports;
- unpermitted discharge of industrial solid waste;
- failure to notify of process change as required by permit; and
- failure to sign and return manifests to generators.

The following general violations were alleged by both the federal and state governments:

- failure to follow waste-analysis process;
- failure to comply with waste acceptance requirements [accepted waste that contained organic carbon concentration greater than 1,000 ppm];
- management of hazardous waste in unpermitted areas;
- failure to maintain hazardous waste container in good condition;
- failure to amend its contingency plan;
- failure to list items to be inspected;
- failure to maintain the necessary personnel training documents;
- failure to post signs;
- failure to transfer waste in areas with secondary containments;

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[433] Sierra Club Ex. No. 18, *United States of America and the State of Texas v. ENCYCLE/TEXAS, Inc. & ASARCO, Inc.*, Page 13, stipulation 64.

[434] *Id.* at page 32.

[435] *Id.* at page 33.

[436] *Id.*

[437] *Id.* at 34.

- failure to notify the regional administrator of wastes from foreign sources;
- failure to install a monitoring system;
- treating hazardous wastes without a permit or interim status;
- failure to comply with hazardous waste exporting requirements;
- failure to package, label, mark and placard;
- failure to comply with manifesting requirements;
- failure to report and keep records;
- failure to conduct waste analysis and record keeping;
- failure to comply with tank system requirements;
- failure to comply with general inspection requirements;
- failure to comply with closure requirements;
- failure to comply with financial assurance requirements; and
- failure to notify EPA and Texas of its storing activities of hazardous waste sent for precious metals recovery.

In October 1999, a Consent Decree ordered ASARCO to take extensive corrective actions and assessed a civil penalty of $5.5 million.[438] In 2001, compliance inspections resulted in a referral to the Texas Attorney General to collect stipulated penalties in the amount of $2,046,000. The penalty demand was reduced to $1,526,000.[439]

D. Evaluation of Compliance History Components

The relevant standard for evaluating ASARCO compliance history is:

> [W]hether the facility is or has been in substantial compliance with [the Texas Clean Air Act] and the terms of the existing permit.[440]

Sierra Club's witness Dr. Carman provided testimony on compliance history. He is well qualified and his testimony was credible. As a former employee of the Texas Air Control Board, he

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[438] City of El Paso Ex. No. 7.

[439] Sierra Club Ex. No. 19.

[440] 2001 version of Health & Safety Code §382.055(d), which pre-dated the creation of the Agency's compliance history scoring system in September 2001, and is applicable to Applicant's renewal application under Section 18.05(g) of Acts 2001, 77th Leg., ch.965, which provides: "(g) For the purposes of consideration of compliance history in decisions by the Texas natural resource Conservation Commission relating to the issuance, amendment, modification, or renewal of a permit under the sections listed under subsection 9f) of this section [which include permit renewals under §382.055], an application submitted before September 1, 2002, is governed by the law as it existed immediately before September 1, 2001, and the former law is continued in effect for that purpose."

has conducted approximately two thousand compliance inspections of industrial facilities.[441] Dr. Carman concluded that ASARCO's environmental compliance history allows for no other conclusion than that the renewal of Permit No. 20345 is unwarranted.[442]

Applicant did not present its own witness on compliance history, but asserted that Dr. Carman's testimony was sufficient to prove its case. Mr. Clark, the person who has been the permitting engineer for ASARCO since the application for Permit 20345 was originally submitted, testified that ASARCO's compliance history warrants renewal because there was no pattern of major violations of the permit.[443]

Dr. Carman agreed that it is normal for major industrial facilities such as ASARCO to have the violations noted. [444] He also agreed that such facilities subject to enforcement actions with penalty amounts comparable to those involving the El Paso plant have had their permits renewed.[445] A close reading of Dr. Carman's testimony clarifies that those other facilities were not going through contested case hearings regarding permit renewals.[446]

Dr. Carman also testified that another applicant, General Tire, had its permit renewed but had received several hundred NOVs in a five-year period. The Applicant asserts that if even General Tire's permit was renewed, there is no basis not to renew ASARCO's. But a close reading of Dr. Carman's testimony seems to indicate that the several hundred NOVs were received *after* the permit renewal. Dr. Carmen stated that he had not opposed the renewal, because at the time of the renewal General Tire had very few violations.[447]

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[441] Sierra Club Ex. No. 3, Testimony of Dr. Neil Carman, Ph.D., page 1, lines 11-25 through page3, lines 1-23.

[442] Sierra Club Ex. No. 3, Testimony of Dr. Neil Carman, Ph.D., page 31, lines 2-3.

[443] Prefiled testimony of LeRoy "Skip" Clark, page 20, lines 7-17.

[444] ASARCO Ex. No. 48, oral deposition of Neil Carman, Ph.D.

[445] Applicant's Closing Brief, page 45.

[446] ASARCO Ex. No. 48, oral deposition of Neil Carman, PhD, page 75, line 16 through page 76, line 21.

[447] ASARCO Ex. No. 48, oral deposition of Neil Carman, PhD, page 97, line 25 through page 98, lines 1-5.

ASARCO argues that it would be arbitrary to deny its renewal, in that Dr. Carman stated that he was not aware of any instance in which the Agency denied an air permit to any source, including those specifically mentioned in his testimony, because of compliance history.[448]

The Applicant, in its response to the Protestants' Closing Briefs, states: "Instead of advancing any reasons at all why ASARCO's five-year compliance history should be considered any worse, or even as bad as, any other large industrial facility in Texas, the Protestants grasp at alleged compliance issues that are simply not part of ASARCO's five-year compliance history."[449]

ASARCO further states, "..[R]ather than presenting any convincing argument that ASARCO's five-year compliance history is the worst in Texas history (which is what it would have to be in order to justify denial of the permit), the Protestants simply argue that ASARCO failed to meet its burden on this issue because it did not offer any expert testimony on it."[450] Applicant asserts that: 1) evaluation of compliance history is not a subject on which "expert" testimony is needed; 2) there are no treatises or journal articles on evaluating compliance histories; and 3) it is simply not the type of field in which expert testimony is normally offered and accepted by courts.[451]

The ALJs concur with ASARCO that the "other compliance issues" are not part of the compliance history. But the Protestants do not have the burden of proof. The Applicant does.

ASARCO offered no comparison data or other information to quantitatively evaluate its compliance history. The ALJs can make no valid comparison or analysis from the brief comments of other parties witnesses.[452] It is not sufficient for ASARCO to merely state that because there are only five components to be considered, the permit should be renewed. Precisely why?

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[448] Applicant's Closing Brief, page 46.

[449] Applicant's Response to Protestants' Closing Briefs, page 16.

[450] Applicant's Response to Protestants' Closing Briefs, page 19.

[451] Applicant's Response to Protestants' Closing Briefs, page 20.

[452] ASARCO Ex. No. 48, oral deposition of Neil Carman, PhD, page 79. In answering the question of which cases he was called upon to give testimony in adjudication, Carman testifies that he was involved with various permit renewals: Permian Chemical, El Paso Products, Fina Oil & Chemical, General Tire Corp.

Both Applicant and the Executive Director take the position that "the weight of ASARCO's compliance history should not be evaluated because it has already been established by TCEQ's various decisions about when to pursue enforcement and how much."[453] The ALJs cannot agree with this. It simply does not make sense that the referral would be made to SOAH, if such were the case. The issue of "weight" in the context that TCEQ exercised it, is an element of Applicant's burden of proof.

Applicant stated that even if one were to consider all of the evidence regarding its compliance, not just the components under the applicable rules, its compliance is exemplary.[454] But it did not demonstrate why it characterizes itself as exemplary. The ALJs see no evidentiary basis for that claim.

No party points to, and the ALJs are not aware of an applicable rule or statute defining "substantial compliance" for purposes of this case. It is customary to say that "substantial compliance" does not mean the literal and exact compliance with every requirement of a statute, but simply compliance with the "essential" requirements of the statute.[455] The Austin Court of Appeals has further expanded upon the meaning of "substantial compliance" with a statutory requirement, as two follows:

> Do the acts tendered in satisfaction of a statutory requirement (1) secure the legislative objectives that underlie the requirement and (2) come fairly within the character and scope of each action or thing explicitly required by the statute in terms that are concise, specific and unambiguous?[456]

The Commission assigned the burden of proof to the Applicant. Aside from this specific assignment to the Applicant, in contested case hearings involving the Commission, the burden of proof is on the moving party by a preponderance of the evidence.[457]

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[453] Applicant's Response to Protestants' Closing Briefs, page 20.

[454] Applicant's Closing Brief, page 36.

[455] *Santos v. Guerra*, 570 S.W.2d 437,440 (Tex.Civ. App. 1978, writ ref'd n.r.e.); *Wentworth v. Medellin*, 529 S.W.2d 125 (Tex. Civ. App. 1975, no writ.); *Methodist Hospital of Dallas v. Tx. Industrial Accident Board*, 798 S.W.2d 651 (Tex. App.–Austin 1990, writ dism'd w.o.j.).

[456] *Methodist Hospital of Dallas v. Tx. Industrial Accident Board*, 798 S.W.2d 651 (Tex. App.–Austin 1990, writ dism'd w.o.j.)

[457] 30 TAC §80.17(2000). *BFI Waste Sys. Of N.Am. v. Martinez Envtl. Group*, 93 S.W.3d 570, 577-578 (Tex. App.2002).

The Texas Clean Air Act places several core requirements on Applicant. The permit places specific requirements on Applicant as well. It was Applicant's burden to prove that it has complied with those specifics of the permit and with the legislative objectives behind the statute. It did neither.

The Applicant made conclusory statements about its compliance history. It based its rationale on the number of NOVs, or lack thereof, that the Applicant had received and on the fact that TCEQ Staff reviewed the file and concluded it was worthy of renewal. The Applicant and the Executive Director went so far as to suggest that the ALJs need not weigh the evidence of the components, but merely accept the conclusions of the Agency. The ALJs do not agree.

It was incumbent upon the Applicant to show what the core components and legislative objective were and that it complied with them. It did not. The evidence does not support a finding that Applicant was in substantial compliance with the permit and with the Texas Clean Air Act. The ALJs cannot conclude that the Applicant's compliance history for the last five years of operation of the El Paso Primary Copper Smelter warrants the renewal of Air Quality Permit No. 20345.

VII. TRANSCRIPT COSTS

The Commission's rules provide that the Commission will not assess transcript costs against the ED or the PIC[458] and that it will consider the following relevant factors in allocating reporting and transcription costs among the other parties[459]:

- the party who requested the transcript;
- the financial ability of the party to pay the costs;
- the extent to which the party participated in the hearing;
- the relative benefits to the various parties of having a transcript;
- the budgetary constraints of a state or federal administrative agency participating in the proceeding;
- in rate proceedings, the extent to which the expense of the rate proceeding is included in the utility's allowable expenses; and
- any other factor which is relevant to a just and reasonable assessment of costs.

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[458] 30 TAC § 80.23 (d)(2).

[459] 30 TAC § 80.23 (d)(1).

The ALJs ordered ASARCO to pay for transcripts of the hearing for the ALJs' and the Commission's use and for the Commission's record. ASARCO asks that the Commission order ASARCO, El Paso, Sierra Club *et al.*, Sandoval *et al.,* and ACORN *et al.* to pay equal shares of that cost. El Paso, ACORN, and Sierra Club argue that ASARCO should be required to pay the entire cost. The other parties took no position on the issue.

Several of the allocation factors do not apply. Since the ALJs ordered it, no party requested the transcript. This is not a rate case, and none of the parties who is potentially liable is a state or federal agency.

As to financial ability, ACORN argues that its members, who are represented by Texas Rio Grande Legal Aid, Inc., a non-profit agency that specializes in providing free civil legal services to indigents, do not have money to cover the transcript costs. Sierra Club argues that it has budget constraints and that some of the members of its alignment, such as student groups, have limited financial resource. The Sierra Club offered no evidence to support those assertions. ACORN and Sandoval, *et al.*, which prefers to be referred to as the Anapra Group, made similar representations concerning their lack of resources at the preliminary hearing. ASARCO and El Paso do not argue that they cannot pay.

As to extent of participation, all of the parties actively participated in the hearing, though some far more than others. The ALJs' rough count of the number of transcript pages devoted to each party's examination of witnesses shows that the parties participated to the following extent:

PARTY	**PERCENT**
ASARCO	20
Sandoval	28
El Paso	32
Sierra Club	5
ACORN	6
PIC	5

ED	3

As to benefits of having a transcript, ASARCO and El Paso used and cited to it extensively in their post-hearing arguments. Sandoval did not at all. The other parties used it approximately in proportion to their participation.

Finally, there are justice and reasonableness factors. ASARCO argues that the hearing was only conducted to please politicians and that the prior hearing in 1992 on its permit and subsequent approvals showed that its operation under the permit would cause no air pollution. The ALJs disagree. The Commission has the authority to call a hearing when it finds that the public interest warrants it.[460] On judicial review, the district court upheld the Commission's authority to send this case to contested case hearing, despite ASARCO's argument to the contrary.[461] Moreover, ASARCO failed to show that its emissions under the permit would not cause or contributed to air pollution. Instead, there are gaps and inconsistencies throughout its case.

El Paso contends that ASARCO put on such a convoluted case, based on the 1992 modeling that did not represent what would be emitted if the permit is renewed, and made so many questionable adjustments to its case hat the hearing took far longer than it should have. Generally, the ALJs agree. As discussed throughout the PFD, the ALJs had a very difficult time understanding ASARCO's air-pollution case, even on issues where they eventually agreed with ASARCO. Where they disagreed, it was even more difficult. The ALJs find that the same must have been true for the other parties, and particularly for El Paso, which took the lead for the Protestants on nearly every issue. While ASARCO's attorneys and witnesses were orderly, prepared, and professional at the hearing, the ALJs find that the amount of time that El Paso took during the hearing was in very large part due to the odd nature of ASARCO's substantive case.

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[460] TEX. WATER CODE § 5.556(f).

[461] *ASARCO Incorporated v. Texas Commission on Environmental Quality*, Cause No. GN401709, Order on Appeal from Texas Commission on Environmental Quality's Order Dated May 14, 2004 (261st Dist. Ct., Travis County, Tex. Mar. 9, 2005)

As to the Anapra/Sandoval group, it took an enormous amount of time during the hearing pursuing wildly irrelevant lines of inquiry and suggesting misconduct by ASARCO and nearly every other party and witness. It offered virtually no relevant evidence, or even irrelevant evidence that supported the thrust of its irrelevant questioning. Anapra's representative was repeatedly instructed by the ALJs to move on the relevant evidence, but he continually failed to do so.

Ultimately, the ALJs believe that the most just and reasonable approach is to assess the entire cost of the transcript to ASARCO. That is because ASARCO has failed to carry its burden of proof on so many sub-issues and attempted to do so in odd and indirect ways that forced the other parties to unduly expend resources in preparing for and participating in the hearing. In the ALJ's judgment, that factor predominates over all other considerations.

VIII. CONCLUSION

The ALJs recommend that the Commission adopt the Findings of Fact and Conclusions of Law, in the attached proposed order concluding that ASARCO failed to prove that its operation under Permit 20345, if renewed, would likely not cause or contribute to air pollution or that its compliance during its last five years of operation under that permit warrants renewal. Because the Commission only referred those two issues to the ALJs, the Commission will need to add other findings, conclusions, and ordering provisions that reflect the Commission's final ruling on ASARCO's application to renew Permit 20345.

ISSUED October 27, 2005.

WILLIAM G. NEWCHURCH
ADMINISTRATIVE LAW JUDGE
STATE OFFICE OF ADMINISTRATIVE HEARINGS

VERONICA S. NAJERA
ADMINISTRATIVE LAW JUDGE
STATE OFFICE OF ADMINISTRATIVE HEARINGS
EL PASO REGIONAL OFFICE