APPENDIX C

(Introduction Section 1.0)

C.1 - Figure 1: Upper Open Channel

C.2 - Figure 2: Middle Open Channel

C.3 - Figure 3: Lower Open Channel

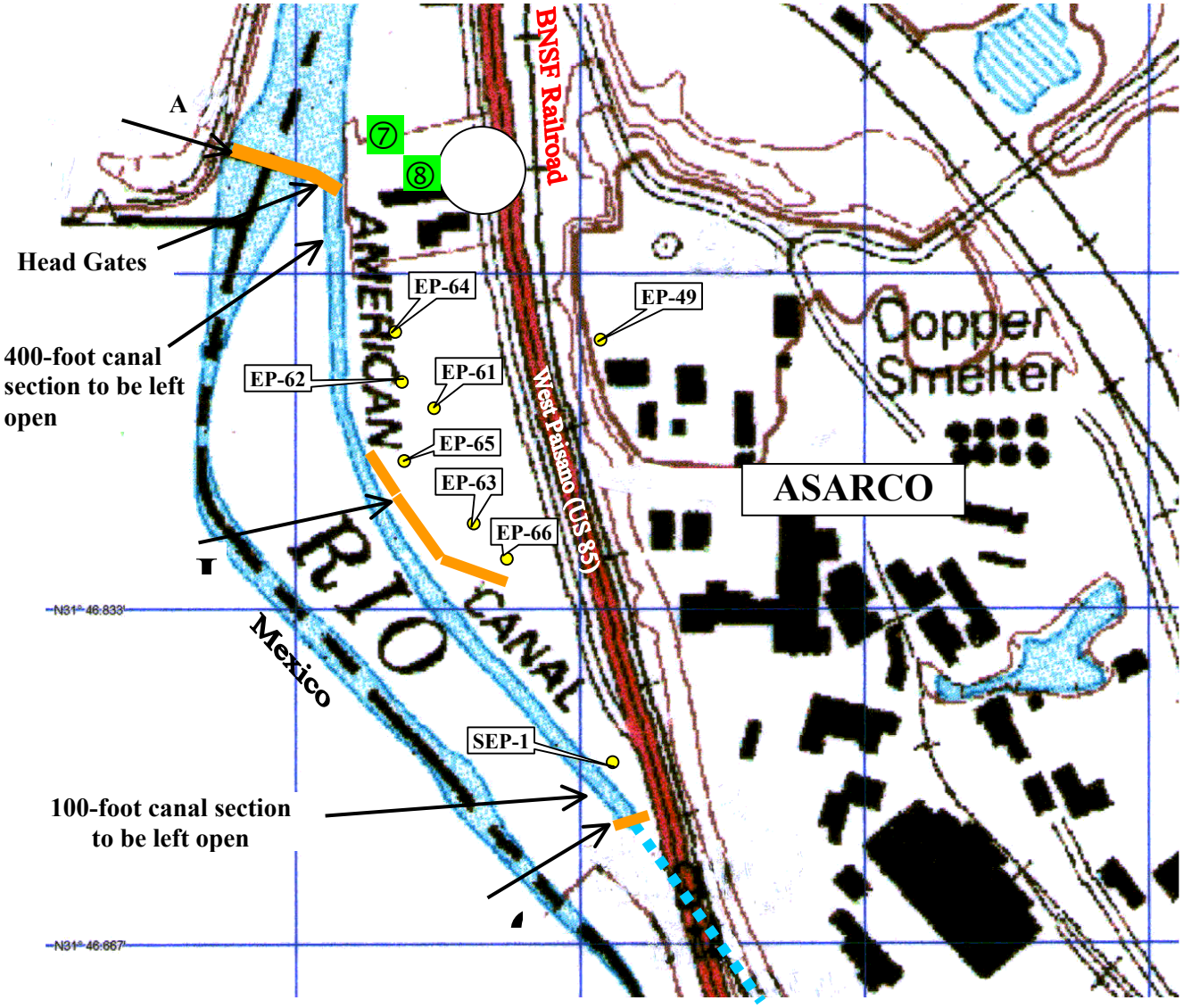
C.4 - Figure 4: Map of Utilities

C.5 - Figure 5: Soil Cross Section

C.6 - Rio Grande American Canal Extension Act of 1990 Document

C.1 - FIGURE 1: UPPER OPEN CHANNEL

Figure 1: Upper Open Channel Segment of the American Canal, El Paso, Texas



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Datum: WGS84
250 feet Source Data: 1994 USGS Smeltertown, TX-NM 31106-G5-TF-024

Open Channel

Conduit

⑧ Building

Monitor or Surface Well

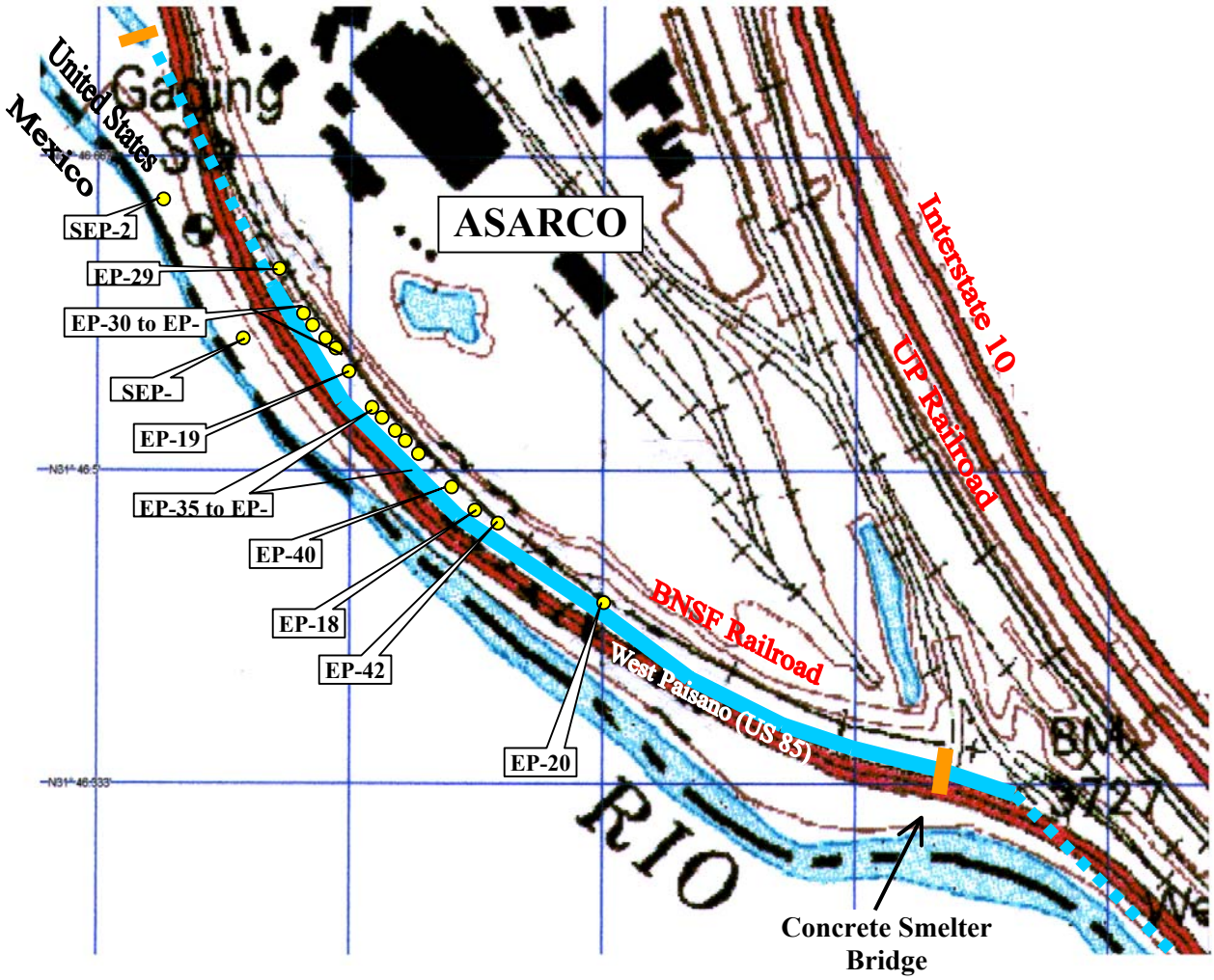
N

⑧ USIBWC Field Office

⑦ Closed UST at American Dam

C.2 - FIGURE 2: MIDDLE OPEN CHANNEL

Figure 2: Middle Open Channel Segment of The American Canal, El Paso, Texas



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Source Data: 1994 USGS Smeltertown, TX-NM 31106-G5-TF-024

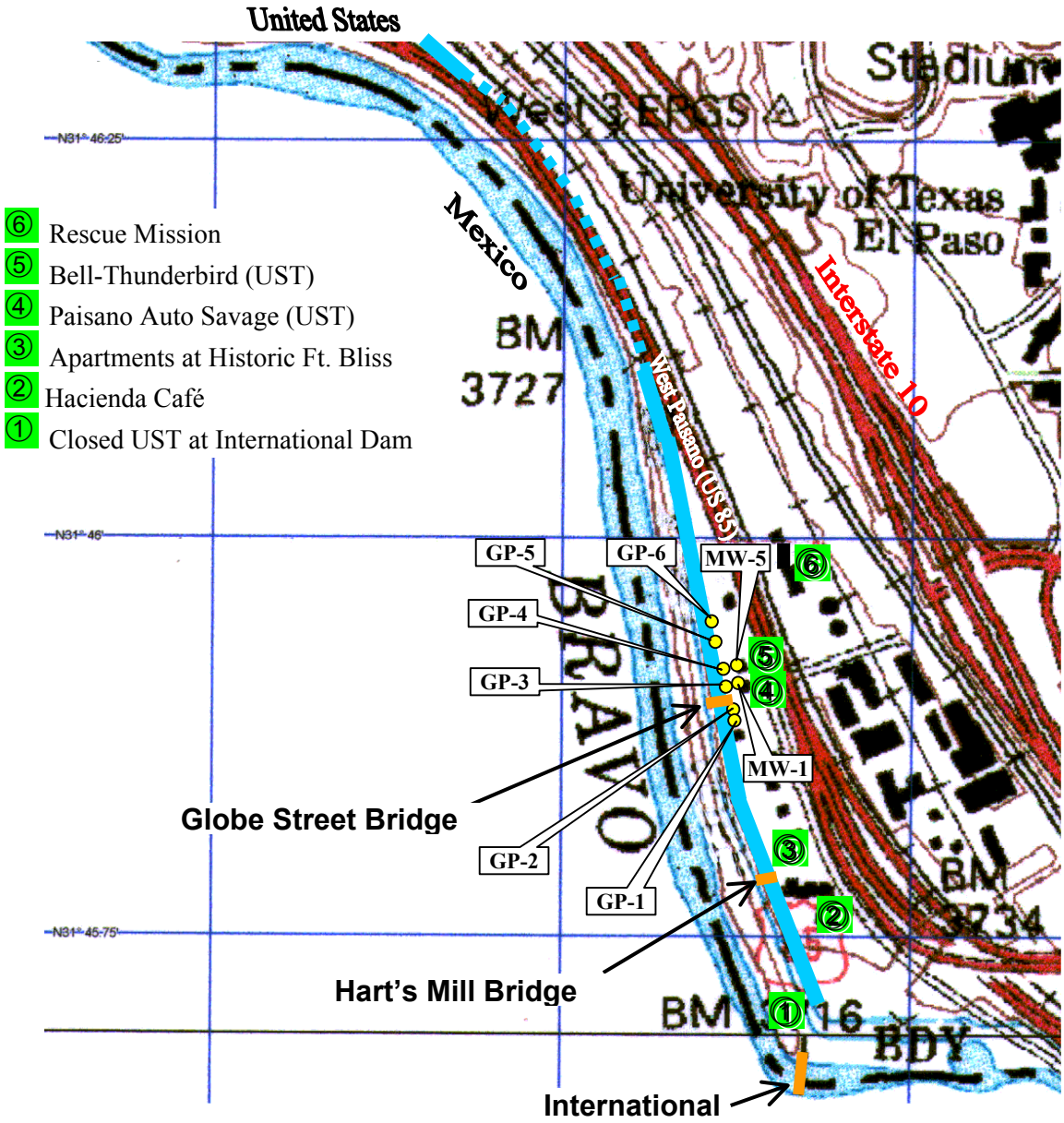
250 feet
Scale 1:6,400

Open Channel
Conduit
Building
Monitor or Surface Well

N

C.3 - FIGURE 3: LOWER OPEN CHANNEL

Figure 3: Lower Open Channel Segment of The American Canal, El Paso, Texas



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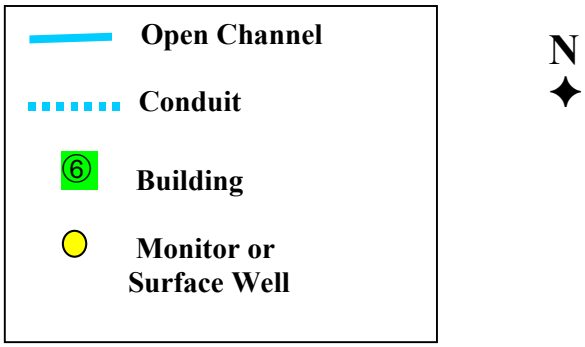
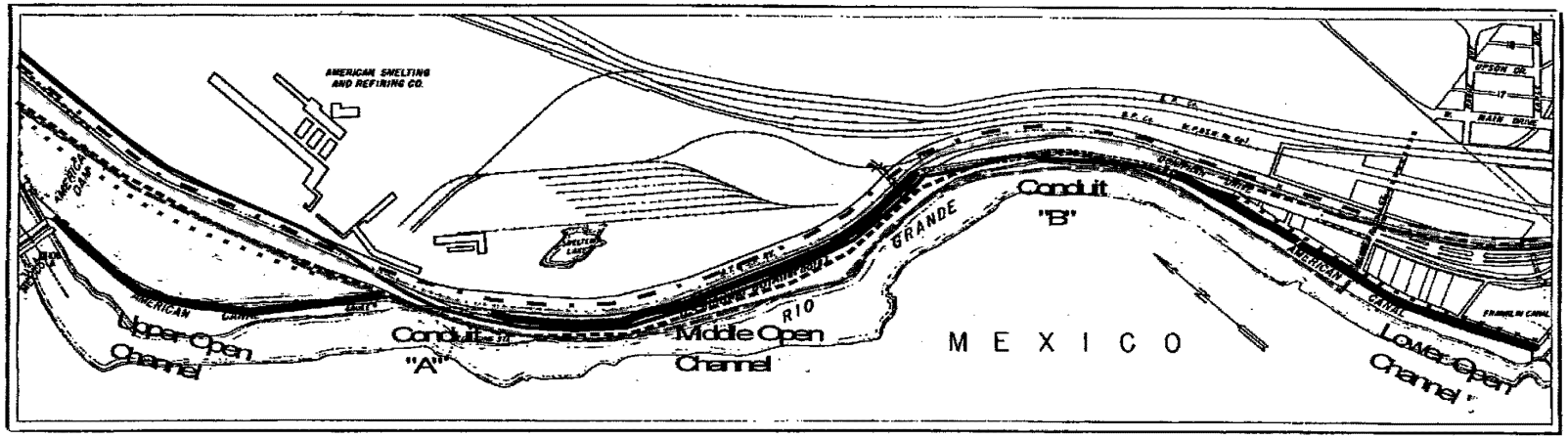
250 feet Source Data: 1994 USGS Smeltertown, TX-NM 31106-G5-TF-024



C.4 - FIGURE 4: MAP OF UTILITIES

Figure 4: Map of Utilities Located Within American Canal Area, October 1999



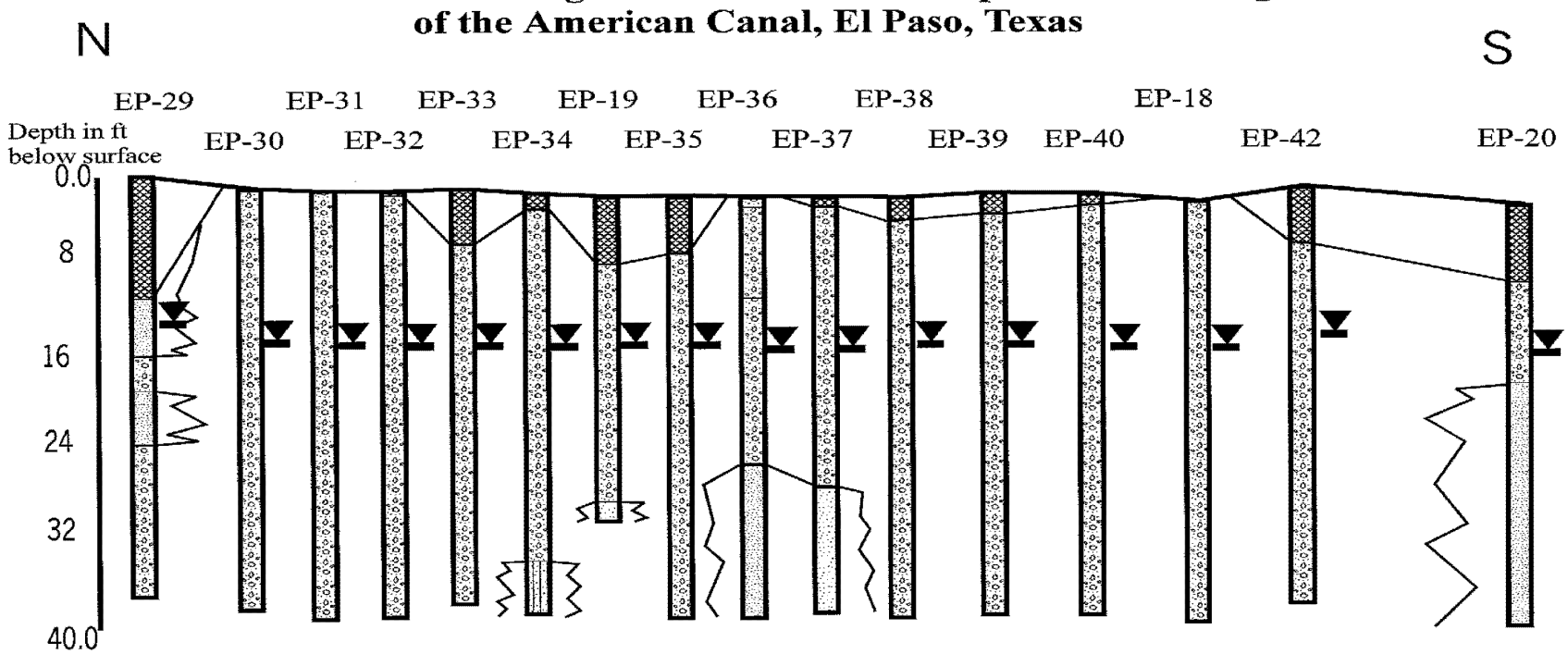
Legend:

- .... Southern Union Gas Pipeline
- - - Overhead Electric and Telephone Lines
- —— Underground Electric Lines
- ---- Water Lines
- — — Sanitary Sewer
- — · MCI Fiber Optic Lines
- QWEST Fiber Optic Lines

Map Source: 1961 US Bureau of Reclamation

C.5 - FIGURE 5: SOIL CROSS SECTION

Figure 5: Simplified North-South Soil Cross Section of Selected ASARCO Soil Borings Converted to Monitoring Wells in the Middle Open Channel Segment of the American Canal, El Paso, Texas



Legend:

- Fill
- Silty material
- Gravelly material
- Static water level
- Sandy material

Reference Elevation of EP-29: 3727.5 ft above sea level

C.6 - RIO GRANDE AMERICAN CANAL EXTENSION ACT OF 1990 DOCUMENT

Appendix A.

Rio Grande American Canal Extension Act of 1990 (Enrolled Bill (Sent to President))
--H.R.4758--
H.R.4758

One Hundred First Congress of the United States of America
AT THE SECOND SESSION

Begun and held at the City of Washington on Tuesday, the twenty-third day of January, one thousand nine hundred and ninety

An Act

To provide for the construction, operation, and maintenance of an extension of the American Canal at El Paso, Texas.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the `Rio Grande American Canal Extension Act of 1990'.

SEC. 2. FINDINGS.

The Congress finds the following:

(1) The Riverside Dam on the international reach of the Rio Grande River at El Paso, Texas, provides the water used to irrigate nearly 32,000 acres of farmland in the United States.

(2) In June 1987, the Riverside Dam failed, and the temporary replacement structure now in place on the river cannot be relied upon to guarantee the continued provision of these waters to the United States.

(3) Building a permanent structure in an international reach of the Rio Grande would require the conditional approval of the Government of Mexico through an action of the International Boundary and Water Commission, United States and Mexico, and Mexico could use such structure to divert waters to its own land.

(4) The United States constructed the American Dam completely in United States territory to ensure that waters from the American Canal would be completely retained within the United States up to a point below Mexico's diversion at the International Dam.

(5) Potentially disruptive international issues might arise from the commingling of the waters of the United States and the waters of Mexico in this reach of the Rio Grande, while such issues would not arise if a canal extension were constructed and operated wholly on the American side of the river.

(6) The construction and operation of an extension of the American Canal which would lie wholly in the United States would provide for a more equitable distribution of waters between the United States and Mexico, reduce water losses, and eliminate many hazards to public safety.

SEC. 3. CONSTRUCTION OF CANAL EXTENSION, OPERATION, MAINTENANCE, AND USE.

(a) CONSTRUCTION OF EXTENSION- Subject to subsection (e), the Secretary shall construct an extension of the American Canal, together with pumping plants, wasteways, measuring devices, and other facilities needed to connect such extension with existing irrigation systems. Such extension shall lie wholly in the United States and shall be approximately 13 miles in length, beginning at the downstream end of the current American Canal in El Paso, Texas, and extending to Riverside Heading.

(b) OPERATION OF CANAL-

(1) IN GENERAL- Except as provided in paragraph (2), the Secretary shall operate the extension of the American Canal provided for in subsection (a).

(2) DELIVERY OF WATERS- The Secretary shall enter into an agreement with El Paso County Water Improvement District Number 1 pursuant to which the Water Improvement District would be responsible for the operation of the American Canal with respect to the delivery of all waters, with the exception of those waters belonging to Mexico which, consistent with paragraph (3), the Secretary shall be responsible for delivering.

(3) UNITED STATES OBLIGATIONS UNDER 1906 AND 1933 CONVENTIONS- In authorizing the agreement described in paragraph (2), this Act--

(A) does not in any way affect the jurisdiction, powers, or prerogatives of the International Boundary and Water Commission, United States and Mexico, and

(B) does not in any way impede the ability of the United States Government to fulfill its obligations under the 1906 and 1933 Conventions.

(c) USE OF CANAL AS CONVEYANCE CHANNEL-

(1) USE BY MEXICO- The Secretary may enter into an agreement with Mexico which permits Mexico to usethe American Canal as a conveyance channel. Any such agreement shall require Mexico to make payments to the United States for Mexico's use of the American Canal.

(2) USE BY NON-FEDERAL ENTITIES- Upon obtaining the express approval of the Secretary, El Paso County Water Improvement District Number 1 may enter into agreements with other non-Federal entities pursuant to which such entities may use the American Canal as a conveyance channel.

(d) MAINTENANCE OF EXTENSION- The Secretary shall maintain the extension of the American Canal provided for in subsection (a).

(e) LOCAL CONTRIBUTIONS TO COSTS- The extension of the American Canal provided for in subsection (a) may not be constructed unless the Secretary and El Paso County Water Improvement District Number 1 have entered into the following agreements:

(1) CONSTRUCTION COSTS- An agreement pursuant to which El Paso County Water Improvement District Number 1 will pay $5,000,000 as its share of the construction costs for the construction of the extension of the American Canal provided for in subsection (a).

(2) MAINTENANCE COSTS- An agreement pursuant to which El Paso County Water Improvement District Number 1 will contribute a cumulative amount of $50,000 each year to the United States Commissioner as its share of the costs for maintenance of the extention of the American Canal provided for in subsection (a). After the 7-year anniversary of the completion of the construction of that extension (and after the end of each 7-year interval since the last such renegotiation), the Secretary and the El Paso County Water Improvement District Number 1 may renegotiate the amount of the contribution of El Paso County Water Improvement District Number 1 pursuant to the agreement required by this paragraph in order to reflect any increase in Bureau of Labor Statistics Consumer Price Index-Urban Wage Earners and Clerical Workers (CPI-W)-1982-84-100 Index. In the event the funds contributed by the El Paso County Water Improvement District Number 1 pursuant to this paragraph are not utilized during any given year, the funds shall be carried over to the succeeding years in a contingency fund for necessary preventative and routine maintenance work to be performed by the United States Section, International Boundary and Water Commission.

(f) REPEAL OF PREVIOUS CONSTRUCTION AUTHORIZATION- Title IV of the Act entitled `An Act to authorize various Federal reclamation projects and programs, and for other purposes', approved September 28, 1976 (Public Law 94-423; 90 Stat. 1327), is repealed.

SEC. 4. STUDY OF SUBSIDENCE DAMAGE.

The Secretary--

(1) shall conduct a study to determine the likelihood and extent of any damage to property adjacent to the American Canal which would be caused by subsidence related to the Canal extension provided for in section 3(a), and

(2) shall submit a report to the Congress detailing his findings not later than 1 year after the date of the enactment of this Act.

SEC. 5. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated--

(1) $42,000,000 to construct the extension of the American Canal provided for in section 3(a); and

(2) such sums as may be necessary to operate and maintain that extension and to conduct the study required by section 4.

SEC. 6. DEFINITIONS.

As used in this Act--

(1) the term `American Canal' means the Rio Grande American Canal constructed pursuant to the Act of August 29, 1935 (49 Stat. 961);

(2) the term `United States Commissioner' means the United States Commissioner, International Boundary and Water Commission, United States and Mexico; and

(3) the term `Secretary' means the Secretary of State, acting through the United States Commissioner.

Speaker of the House of Representatives.

Vice President of the United States and President of the Senate.

APPENDIX D

(Purpose and Needs Section 2.0)

- **USIBWC Purpose and Need Statement for the Environmental Assessment**

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

OFFICE OF THE COMMISSIONER
UNITED STATES SECTION

SEP 3 - 1999

John Knopp, Project Manager
ENCON International, Inc.
7307 Remcon, Suite 101
El Paso, TX 79912

Dear Mr. Knopp:

Development of a purpose and need statement for the Environmental Assessment (EA) for the rehabilitation of the existing American Canal Project, El Paso, Texas (Canal) was discussed during a telephone conversation between you and Mr. Douglas Echlin of the United States Section, International Boundary and Water Commission (USIBWC) on August 17, 1999. The following statement is provided for the EA which is being prepared by ENCON International, Inc.

> "The proposed Canal rehabilitation is authorized under the Rio Grande American Canal Extension Act of 1990. The existing Canal discharges into the Rio Grande American Canal Extension Project (RGACE). Rehabilitation is needed to increase Canal security, stabilize the Canal and increase the Canal capacity to obtain the full benefits of the RGACE. The Canal has limited right-of-way within the reach located along the east side of Highway 85. The Canal vicinity map is shown in Figure 1 and features of it are shown on Figure 2. At several locations, the reinforced concrete panels of the Canal have deteriorated and are in distress. Rehabilitation of the Canal is necessary to increase its conveyance capacity to equal that of the RGACE canal, improve the structural integrity of the existing, deteriorated concrete lining, and to increase its structural stability to allow for the continued operation of the Canal over the expected life of the newer RGACE canal. Further, structural stability may be increased by installation of: 1) a thicker concrete lining; 2) improved panel joints which contain smooth dowels to permit longitudinal expansion and contraction while limiting transverse movement, and flexible joint filler material between the concrete panels; and/or 3) replacement of the existing Canal lining with precast concrete box culverts and/or reinforced concrete lining. Installation of high fences, posted signs, safety ladders, and safety cables set at intervals along the Canal will minimize physical access to the canal and reduce the chance for human injury."

The Commons, Building C, Suite 310 • 4171 N. Mesa Street • El Paso, Texas 79902
(915) 832-4100 • (FAX) (915) 832-4190

If you have questions, please call me at (915) 832-4740, or have your staff call Steve Fox at 832-4736.

Sincerely,

Sylvia A. Waggoner

Sylvia A. Waggoner
Division Engineer
Environmental Management Division

Attachments:
Figure 1. Canal Vicinity Map
Figure 2. Strip Map of American Canal Showing Open Channels and Conduits

Cc: Human Systems Research, Inc.,

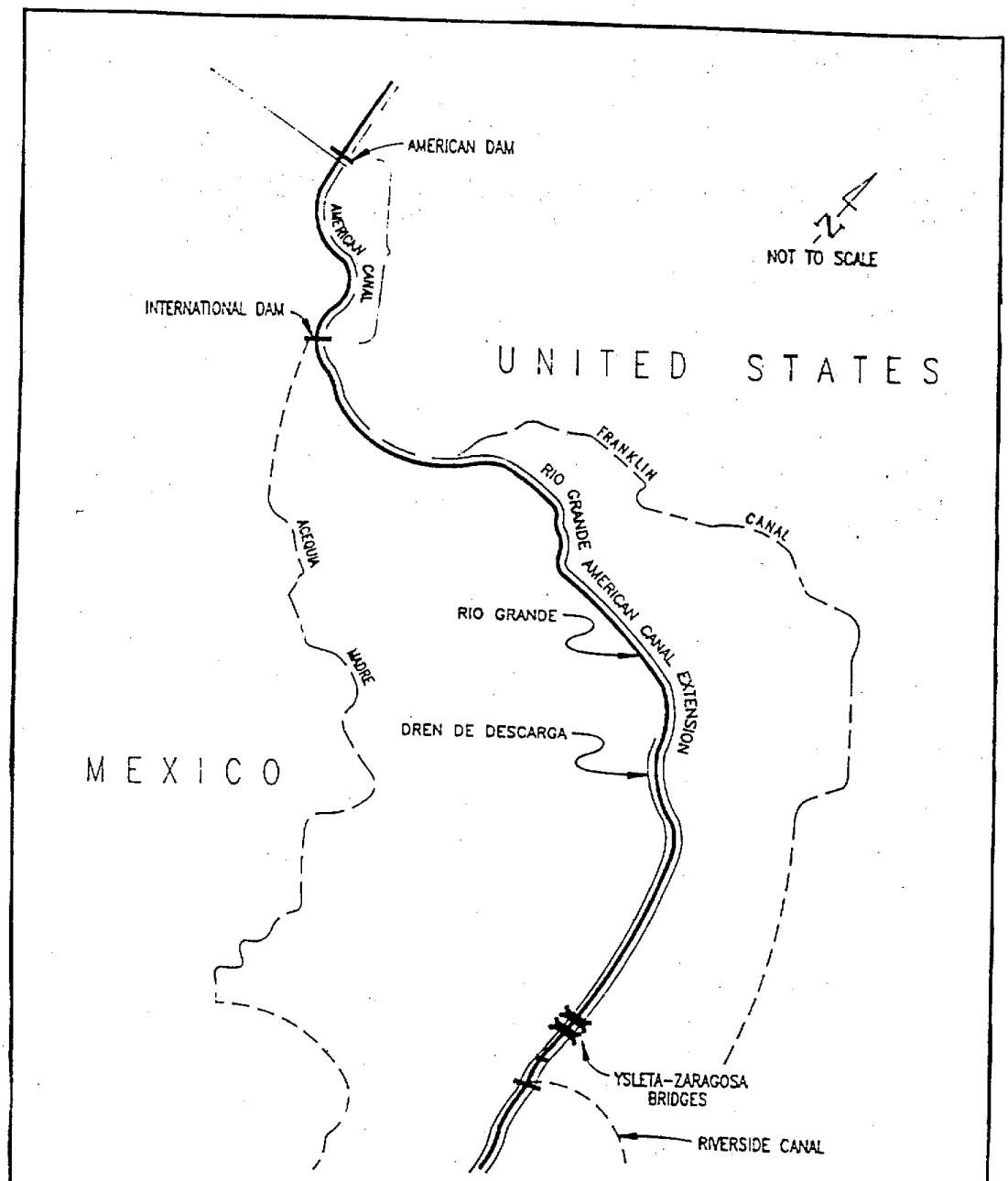


Figure 1. Canal Vicinity Map

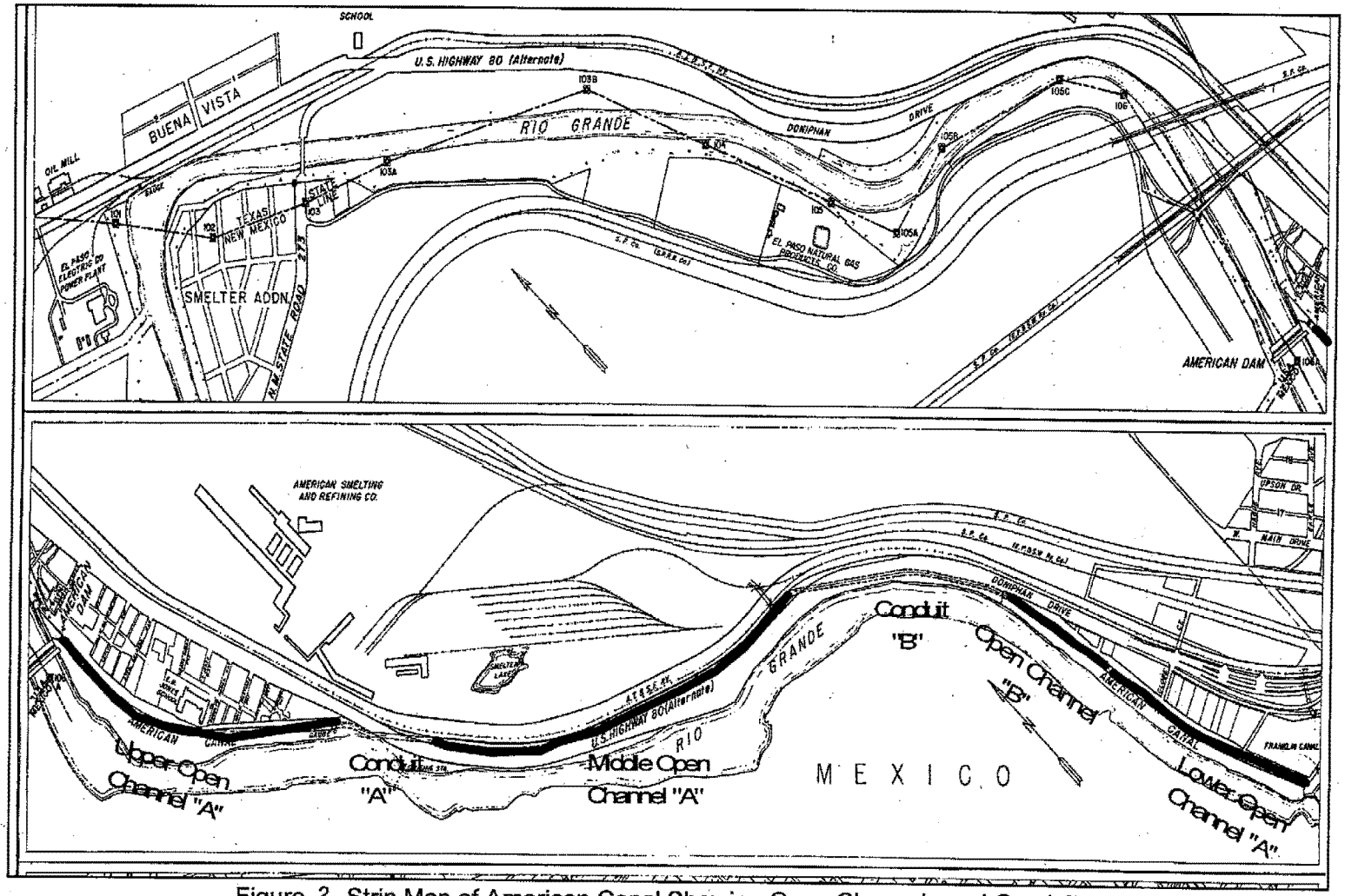


Figure 2. Strip Map of American Canal Showing Open Channels and Conduits
(From U.S. Bureau of Reclamation, Irrigable Area and Property Maps, Sheet 1, 1961).

APPENDIX E

(Alternative Section 3.0)

E.1 - Representative Cross-sections of Existing Open Channel Segments of the American Canal

E.2 - Representative Cross-sections of Existing Closed Conduit Segments of the American Canal

E.3 - Representative Cross-section of Proposed 1535 cfm Open Channel Section

E.1 - REPRESENTATIVE CROSS-SECTIONS OF EXISTING OPEN CHANNEL PORTIONS OF THE AMERICAN CANAL

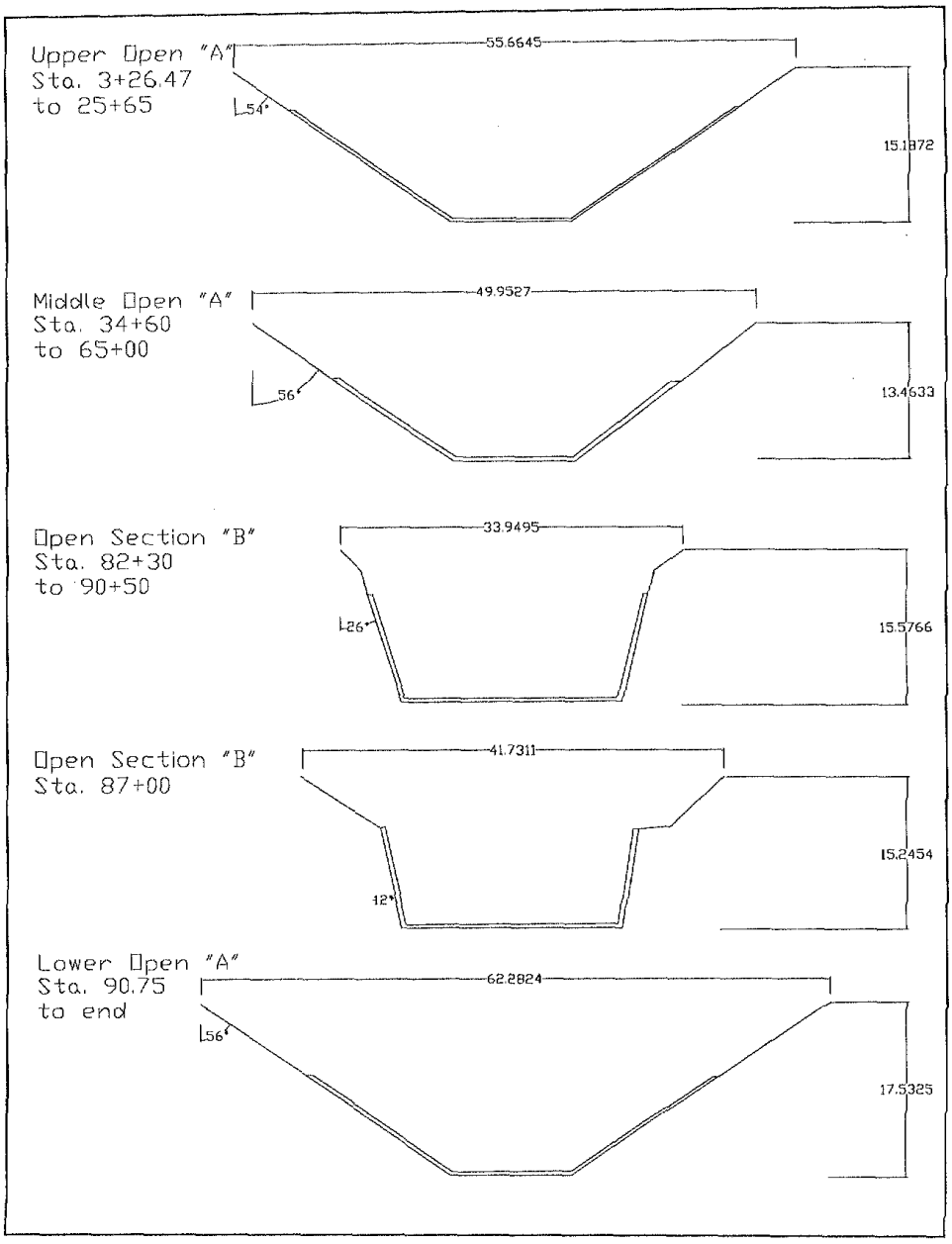


Figure 5. Representative Cross-sections of Open Channel Portions of the American Canal (Redrawn from original engineering drawings on file at IBWC).

E.2 - REPRESENTATIVE CROSS-SECTIONS OF EXISTING CLOSED CONDUIT PORTIONS OF THE AMERICAN CANAL

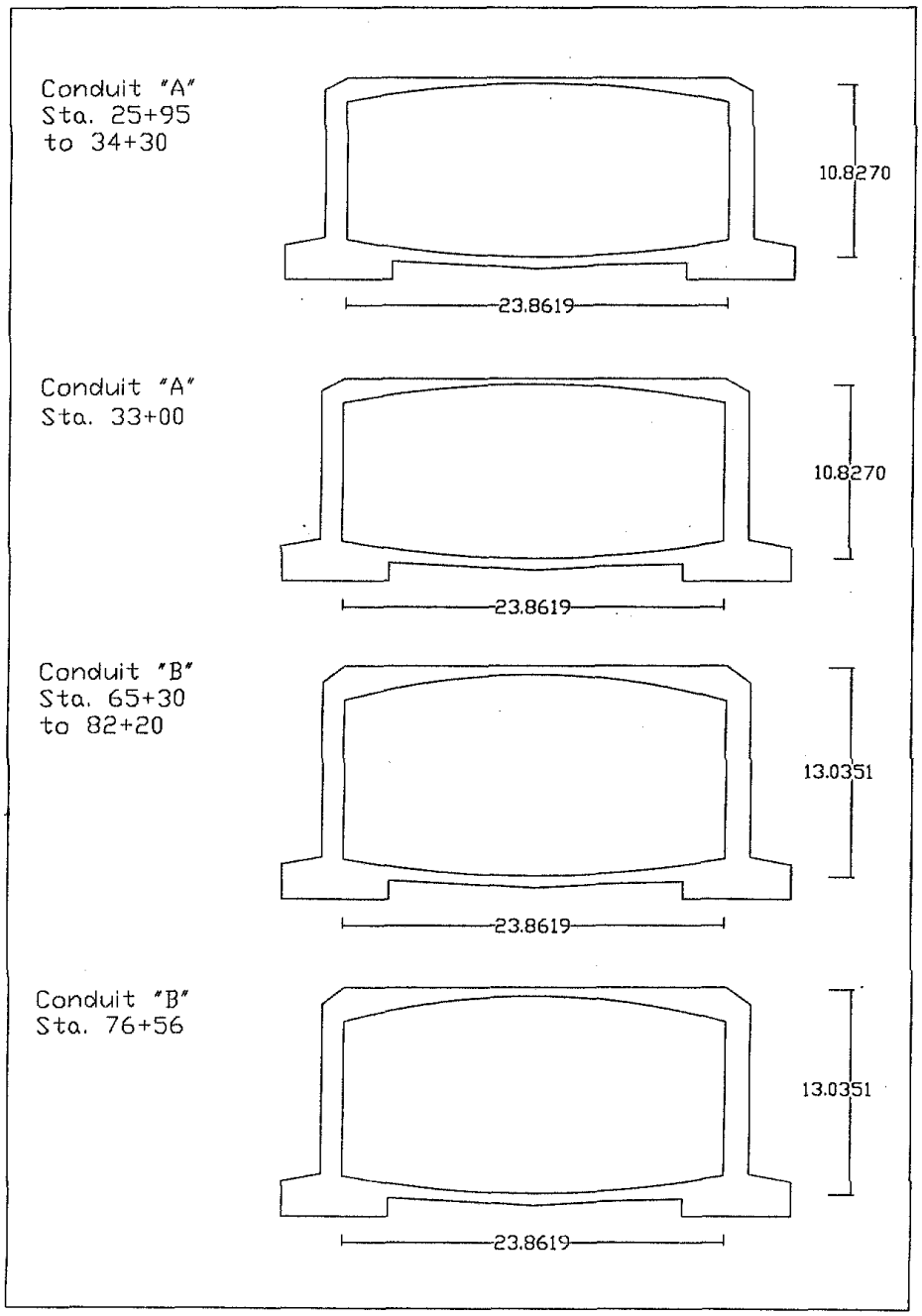
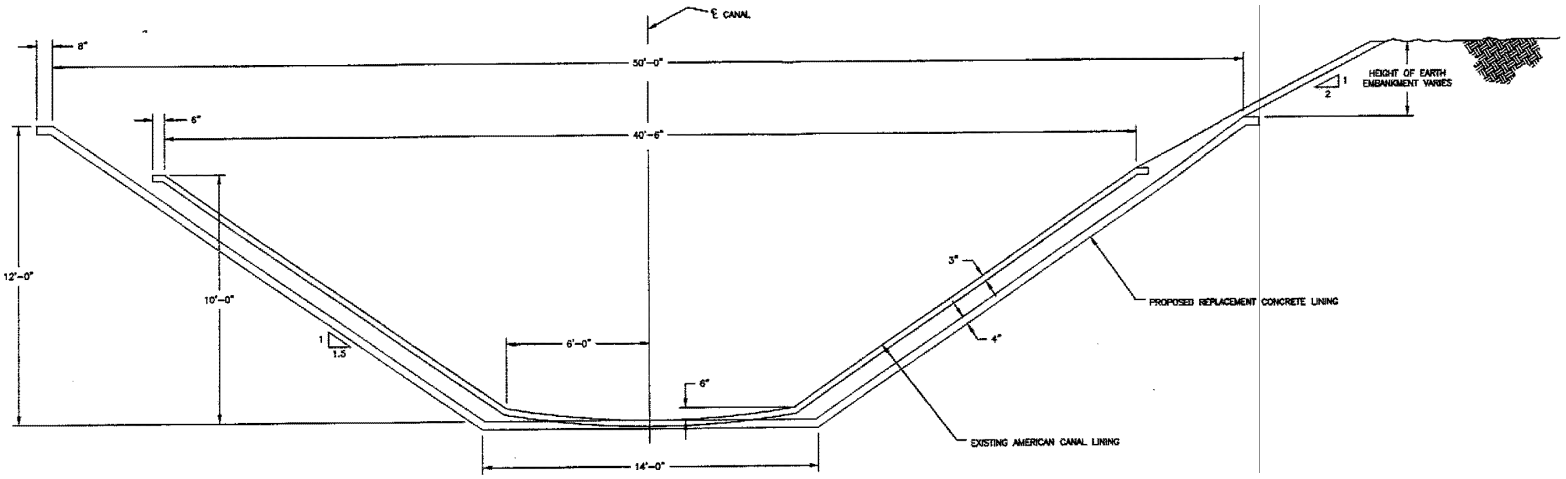


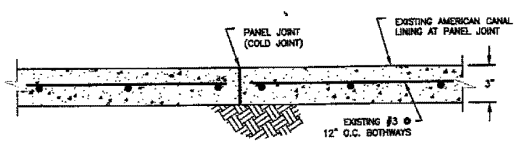
Figure 6. Representative Cross-sections of Closed Conduit Portions of the American Canal (Redrawn from original engineering drawings on file at IBWC).

E.3 - REPRESENTATIVE CROSS-SECTION OF PROPOSED 1535 cfm OPEN CHANNEL SECTION

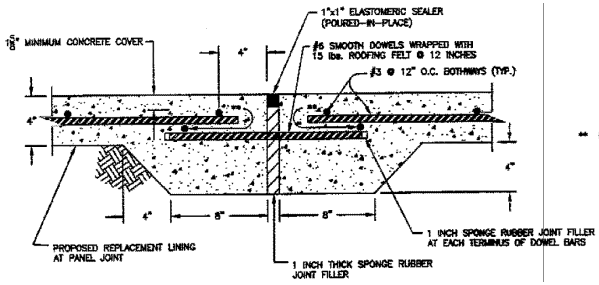


CROSS SECTION VIEW

(INVERT OF EXISTING AND PROPOSED LINING TO BE IDENTICAL)



EXISTING LINING



** EXTRA #3 REINFORCING BARS PLACED TO STABILIZE #6 SMOOTH DOWELS DURING CONCRETE PLACEMENT.

PROPOSED REPLACEMENT LINING

CROSS SECTION OF TYPICAL PANEL JOINT

CROSS SECTION LOCATED ALONG CANAL CENTERLINE

REV.	DESCRIPTION	RECOM'D. BY	DATE

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO
UNITED STATES SECTION

RIO GRANDE AMERICAN CANAL EXTENSION PROJECT

REACH F

TYPICAL DETAILS OF OPEN CANAL ALTERNATIVE

DESIGNED A. ERVIN SUBMITTED
DRAWN MAR. RECOMMENDED
CHECKED APPROVED

1 OF 1 | EL PASO, TEXAS | FEBRUARY 2000 | 25171

APPENDIX F

(Air Quality)

F.1 – Air Quality Text

F.2 – Air Monitoring Sites in the El Paso-Juarez-Las Cruces Area

F.3 – UTEP Air Quality

F.4 – Downtown El Paso Air Quality

F.5 – Estimates of Emissions During American Canal Reconstruction

F.6 – Air Quality Records of Conversations

F.1 – AIR QUALITY TEXT

AIR QUALITY

1.0 Federal, State, and Local Standards

Local air quality is monitored by federal, state, city-county, and Mexican entities, but is not subject to Mexican legislation. The State of Texas has adopted the NAAQS or National Ambient Air Quality Standards (40 CFR Part 50), including subsequent changes to the Standards.

Under the Clean Air Act, in 1976, the EPA established an Air Quality Index called the "Pollutant Standards Index" for use by local and state communities. The Index provides information on pollutant concentrations for nitrogen dioxide, sulfur dioxide, carbon monoxide, ground-level ozone, and particulate matter. The Air Quality Index is "normalized" for each pollutant, so that an index of 500 indicates significant harmful levels from that pollutant.

The presently used EPA Air Quality Index was revised in 1997. The new Index replaced the previous 1-hour ozone standard with a new 8-hour standard, and supplemented the particulate matter standard with 24-hour and annual standards for fine particulate matter.

REVISED AIR QUALITY INDEX

Index Values	Descriptor	Color
0-50	Good	Green
51-100	Moderate	Yellow
101-150	Unhealthy for Sensitive Groups	Orange
151-200	Unhealthy	Red
201-300	Very Unhealthy	Purple
301-500	Hazardous	Maroon

2.0 El Paso – Juarez – Las Cruces Air Quality Control Region

El Paso is located in an area designated as a "non-attainment area" by the EPA. The standards found in the 1997 EPA Air Quality Index set maximum air quality contaminant concentrations for ozone, carbon monoxide, and particulates. The non-attainment designation indicates that at least once per year, the area exceeded the maximum air concentration of ozone, carbon monoxide, or particulates.

It should be noted that because of significantly improved air quality in El Paso since 1992, TNRCC has requested that EPA drop El Paso's restrictive non-attainment designation, and redesignate El Paso as a less-restrictive air quality "maintenance" area. If this change occurs before beginning of canal construction activities, the recommended Best Management Practices or BMPs would still be recommended, but air quality-related construction delays would be very unlikely.

EPA NON-ATTAINMENT AREA DESIGNATION PARAMETERS

Parameter	Maximum Allowable Concentration (MAC)	Frequency
Carbon Monoxide (CO)	9.5 ppm	Once per year
Ozone (O_3)	0.125 ppm (125 ppb) per one hour or 0.085 ppm (85 ppb) average per 8 hours	Once per year
Particulates (PM-10)	0.155 mg/m^3 (155 $\mu g/m^3$)	Once per year

3.0 Local Air Quality Monitoring

Throughout the El Paso region, fifteen air monitors gather data continuously. The El Paso City-County Health & Environmental District (EPCCHED) maintains three sites, TNRCC operates five sites, New Mexico Environment Department (NMED) operates four sites, and the Juarez Directorate of Ecology & Emergency Response supplies four sites monitored by EPCCHED. The various agencies monitor carbon monoxide, sulfur dioxide, particulates, wind speed, wind direction, and temperature.

WEBSITES TO OBTAIN EL PASO VICINITY AIR MONITORING DATA

Agency	Number of Area Monitoring Sites	Website Address
TNRCC	5	http://www.tnrcc.state.tx.us/air/monops
EPCCHED	3	http://airq.ci.el-paso.tx.us
Cd. Juarez Directorate of Ecology & Emergency Response	3	Maintained by EPCCHED, but data not available online
NMED	4	Forwarded to UTEP–CERM, but data not available online

4.0 Discussion of Principal Local Air Pollutants

Carbon Monoxide

From sunset through mid-morning during typical winter months when air inversion layers trap airborne contaminants near the land surface, carbon monoxide is a more serious concern than ozone in El Paso. No data is available for the expected low levels of construction-generated air pollution during the proposed canal reconstruction activities. No air pollution-related delays were caused during the nearby construction of the American Canal Extension (RGACE) in 1997 and 1998. No air pollution-related delays are expected during the proposed reconstruction. Most of the construction activities would occur during the daylight hours when carbon monoxide levels are typically lowest during the proposed construction months.

The following air data was taken from an EPCCEHD air monitoring site located in downtown El Paso, approximately two miles southeast of the study area and a half mile from the Rio Grande. Data from the entire year is offered as a comparison of peak winter carbon monoxide measurements and lower summer carbon monoxide measurements.

1998 WIND AND CARBON MONOXIDE MEASUREMENTS NEAR AMERICAN CANAL

Month	Average Daily Wind Speed (mph)	Maximum Hourly Wind Speed (mph)	Avg. Wind Direction (Degrees from North)	Avg. CO (ppm)	Hourly CO Maximum (ppm)
January	3.2	7.7	NW 304.2	1.45	16.79
February	4.5	20.9	NW 310.2	0.83	6.71
March	4.9	17.5	WNW 295.0	0.74	6.05
April	4.8	12.6	W 279.3	0.76	6.41
May	4.1	14.2	NW 304.6	0.85	9.09
June	4.3	11.5	WNW 286.7	0.65	4.56
July	4.8	15.8	WSW 256.7	0.34	3.04
August	4.4	18.1	NW 292.2	0.48	3.68
September	3.9	12.5	WSW 257.2	0.66	7.09
October	4.2	12.2	S 176.8	0.97	10.63
November	2.9	12.5	WSW 242.7	1.36	13.25
December	3.9	14.6	SW 221.0	1.31	16.73

Measured EPCCEHD at Tillman Health Center in Downtown El Paso, approximately 2 miles SE of study area. Hourly measurements were taken through the entire month and averaged.

Ozone

In the El Paso area, ozone is typically only a potential air quality problem in the warmest months of the year, May through October, especially from 10:00 a.m. to 3:00 p.m. If the airborne concentrations of ozone are expected to reach unhealthy levels, TNRCC notifies the National Weather Service and the Paso del Norte Clean Cities Coalition which declares an Ozone Action Day. The Clean Cities Coalition then notifies the media, schools, and businesses of the alert. A declared Ozone Action Day alert advises persons with respiratory problems to stay indoors during the peak ozone hours, and advises individuals and businesses to curtail driving, lawn-mowing, use of solvents, and other ozone-producing activities until after 6:00 p.m.

As no air monitoring data is available from the exact study area, the following air data was taken from the TNRCC air-monitoring site at UTEP, located less than a half mile from the study area. The months of October through February correspond to the non-irrigation months during which the proposed canal reconstruction would take place.

OZONE MEASUREMENTS FROM AIR SAMPLED NEAR AMERICAN CANAL DURING WINTER MONTHS, 1998 - 1999

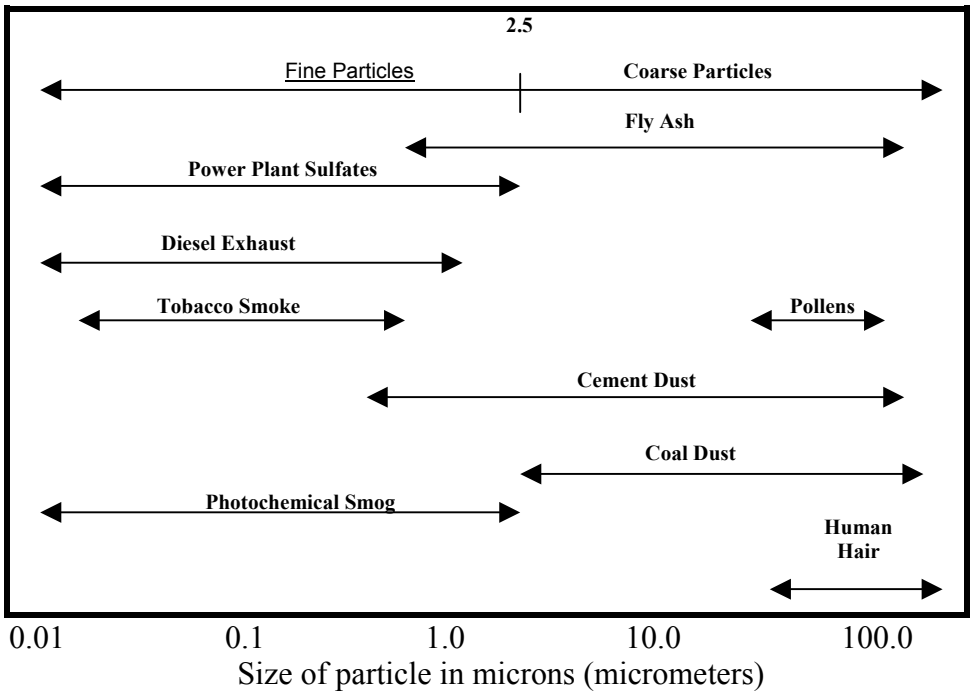
Month	Average Ozone in parts per billion (ppb)	Hourly Ozone Maximum (ppb)	Does Maximum exceed EPA 125 ppb MAC Std.?
October	18.53	86.12	No
November	11.87	54.25	No
December	10.85	34.34	No
January	10.30	32.65	No
February	11.30	41.73	No

Measured by TNRCC at UTEP, approximately ½ mile east of study area.
Hourly measurements were taken through the entire month and then averaged.

Particulates

Airborne particulate matter is often described as a haze. Airborne particulates include both solid particles and liquid droplets, ranging in size from 0.01 to 100 microns (micrometers). Those particles smaller than 2.5 microns are designated as "fine particles," and include diesel exhaust emitted directly from its source, and gases such as SO, SO_2, NOx, and VOCs which can interact with other compounds in the air to form particulate matter commonly found in photochemical smog. Many types of fine particles can grow in size with added humidity, and therefore, can produce increased smog during the slightly more humid summer months in the El Paso area.

SIZE OF TYPICAL AIR PARTICULATES



Particles larger than 2.5 micrometers or "coarse particles" are generally derived from unpaved roads, materials handling, crushing and grinding operations like rock quarries, combustion, or (in El Paso) from strong, dry westerly winds.

Breathing particulates can cause lost work days, school absences, and serious health problems such as asthma.

As no air monitoring data is available from the exact study area, the following air particulate data was taken from the TNRCC air-monitoring site at UTEP, located less than a half mile from the study area. The months of October through February correspond to the non-irrigation months during which canal reconstruction would take place. The TNRCC web site does not yet include readings for the new EPA air particulate PM-2.5 category, but does include the larger size PM-10 particulates.

MEASUREMENTS OF AIRBORNE PARTICULATES (PM-10) SAMPLED NEAR AMERICAN CANAL DURING WINTER MONTHS, 1998 - 1999

Month	Avg. P-10 in micrograms per cubic meter ($\mu g/m^3$)	Hourly P-10 Maximum ($\mu g/m^3$)	Does Maximum exceed EPA 155 $\mu g/m^3$ MAC ?
October	30.78	275.20	Yes
November	46.97	966.00	Yes
December	30.21	176.20	Yes
January	39.39	636.94	Yes
February	45.07	368.16	Yes

Measured by TNRCC at UTEP, approximately ½ mile east of study area.
Hourly measurements were taken through the entire month and then averaged.

5.0 Summary Information

El Paso's air pollution is not caused by persons exclusively on the American side of the border. Individuals and businesses on both sides of the American - Mexican border contribute to the pollution. Automobiles are considered to be the chief source of ozone, carbon monoxide, and particulates in the El Paso area. Unpaved roads, open burning and both large and small manufacturing operations are also sources of air pollution in the area.

SUMMARY OF 1999 PRINCIPAL AIR QUALITY PARAMETERS IN EL PASO, TEXAS

Parameter→ Comparison↓	Carbon Monoxide (CO)	Ozone (O_3)	Particulates (PM-10)
Principal sources of contaminant	Automobiles, fire places, open burning	Automobiles	Smokestacks, unpaved roads, automobiles, pollens, open burning, and dust storms
Local measures to reduce pollutant levels	Fireplace and no-burn days are announced, and only oxygenated gasoline is sold October – April.	Ozone Actions Days May – Oct., but compliance with restrictions is strictly voluntary.	No warnings are made for airborne particulates. Grading & other dirt work requires spraying water. New El Paso buses run on natural gas rather than diesel.
Problem season in El Paso area	Cool weather October - March	Warm weather May - October	All year
Months with possible elevated levels during reconstruction	October - February	October	October – February

6.0 Air Quality Effects of Five *Canal Replacement* Alternatives

No long-term, indirect, or cumulative effects to Air Quality are expected from any alternative. Possible short-term effects during construction are described in the following discussion.

In the El Paso area, carbon monoxide and particulates are more serious concerns than ozone, especially during the hours from sunset through mid-morning during winter months when air inversion layers trap airborne contaminants near the land surface. No data is available for the expected low levels of construction-generated air pollution during the proposed canal reconstruction activities. No air pollution-related delays were caused during the construction of the RGACE in 1997 and 1998. No air pollution-related delays are expected during the proposed reconstruction. Most of the construction activities would occur during the daylight hours when carbon monoxide levels are typically lowest during the proposed construction months. Ambient air quality issues should not affect the reconstruction activities.

Under CFR, Part 51.858 and the Texas State Implementation Plan, air emissions for Federal projects in El Paso, a non-attainment area, must fall below the *De Minimus* values of 50 tons per year for each of the two precursors of Ozone, namely Oxides of Nitrogen (NO_x) and Volatile Organic Hydrocarbons VOCs; and also below 100 tons per year each for Carbon Monoxide (CO) and Particulates (PM-10). Using a typical construction estimate of 80 pounds of fugitive dust per acre would add approximately 35 tons of PM-10 in the year 2001 and 22 tons in 2002. Using the methodology approved by EPA's "Nonroad Engine and Vehicle Emission Study Report," and EPA's "AP 42," an Air Emissions Estimate was performed for this project. The 1991 emission estimates have not yet been

updated by EPA. The estimates for project air emissions contained in the following table are much lower than the *De Minimus* quantities. Therefore, pursuant to the USIBWC's affirmative obligation under Section 176 (c) of the Clean Air Act, in accordance with the requirements of 40 CFR, Ch. 1, Part 51, Subpart W, the project has been determined to be in compliance with the Clean Air Act. Spreadsheets of the Air Emission Estimates are located in Section F.5.

ESTIMATES OF AIR EMISSIONS DURING AMERICAN CANAL RECONSTRUCTION
OCT. 15 – FEB. 15

Parameter → Year ↓	CO	PM - 10	NO_x	VOCs
***De Minimus* per Year**	100 Tons / Year	100 Tons / Year	50 Tons / Year	50 Tons / Year
2001	3.6 Tons / Year	36.2 Tons / Year	8.6 Tons / Year	0.9 Tons / Year
2002	2.3 Tons / Year	22.8 Tons / Year	5.7 Tons / Year	0.6 Tons / Year

Air quality will not be affected more than any typical construction project due to any of the five proposed canal reconstruction alternatives, especially if the below-listed mitigation activities are followed. Monitoring the air and soil for hydrocarbons during soil excavation activities can prevent possible worker exposure caused by harmful levels of airborne substances.

Either airborne particulate or carbon monoxide concentrations would serve as an indicator, but particulates are more visible to the public as smog, therefore air particulates was chosen as the indicator of this resource in the following table.

SUMMARY OF SHORT-TERM AIR QUALITY EFFECTS
FROM FIVE *CANAL REPLACEMENT* ALTERNATIVES

Alternative → Effect ↓	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Will canal reconstruction activities add great amounts of carbon monoxide to the air?	No	No	No	No	No
Will canal reconstruction activities add great amounts of ozone to the air?	No	No	No	No	No
Will canal reconstruction activities add great amounts of PM-10 particulates to the air?	No	No	No	No	No
High risk of delays during reconstruction due to ambient air quality?	No	No	No	No	No
Risk of worker exposure to airborne hydrocarbons during reconstruction activities	Low	Low	Low	Low	Low*
Risk of worker exposure to airborne heavy metals during reconstruction	Low	Low	Low	Low	Low*

* During possible emergency reconstruction

7.0 Suggested Best Management Plan Measures to Mitigate Air Quality Concerns

1. To reduce CO and Particulates:
    - Do construction work during daytime hours.
    - Spray disturbed soil with water.
    - When breaking old concrete lining, spray with water to minimize dust.
    - No open fires after sunset on days designated as “No Burn” days.

2. To reduce Ozone (during warm days during canal rebuilding, especially in October), follow general voluntary guidelines of the Ozone Action Days.

3. Monitor air and soil for hydrocarbon concentrations during excavation activities to prevent possible worker exposures.

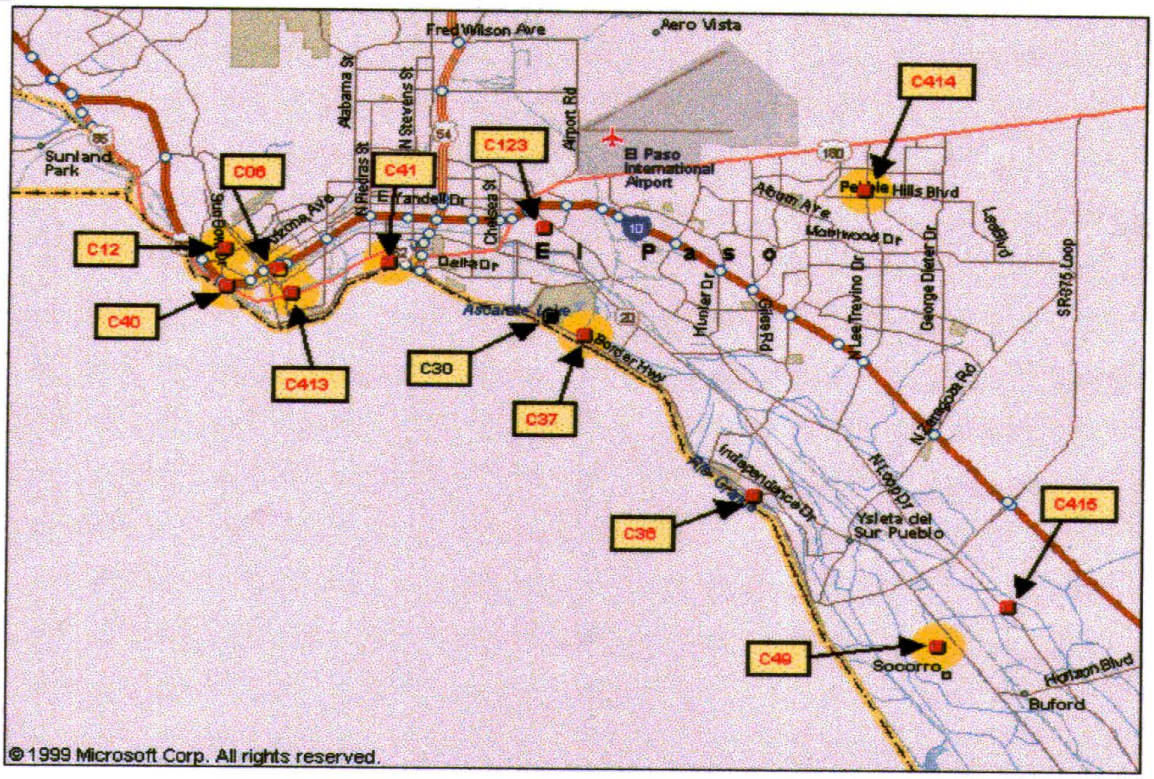
F.2 – AIR MONITORING SITES IN THE EL PASO – JUAREZ - LAS CRUCES AREA

(Source: TNRCC)

Texas Natural Resource Conservation Commission

Select a Monitoring Site in Region 6 (El Paso)

Select a monitoring site from the map(s) below to retrieve a monthly summary of the hourly data collected at a specific continuous air monitoring station.



- Red station numbers and symbols indicate currently active sites.
- Black station numbers and symbols indicate de-activated sites. Historical data is available for these sites.
- Yellow highlighted sites indicate there is Air Quality data available at the site.
- Stations numbered 1 through 300 are operated and maintained by the TNRCC.
- Stations numbered 400 through 499 are operated and maintained by one or more local Government entities (city or county).
- Stations numbered 600 through 699 are operated and maintained by one or more private monitoring networks.

Return to Map of Texas

PLEASE NOTE: This data has not been verified by the TNRCC and may change. This is the most current data, but it is not official until it has been certified by our technical staff. Data is collected from TNRCC air monitoring sites and may include data collected by other outside agencies. This data is updated hourly. All times shown are in Local Standard Time.

F.3 – UTEP AIR QUALITY

Air Quality Data from UTEP for Ozone and Particulates (November 1999 - March 2000)

(Source: TNRCC)

Daily Air Quality Statistics at UTEP (TNRCC Site C-12) November 1999

Day	Carbon Monoxide (ppm)			Ozone (ppb)			P-10 Particulates ($\mu g/m^3$)		
	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation
1	4.2	0.7	0.93	32.96	13.66	13.62	140.00	43.10	27.21
2	1.4	0.4	0.30	28.77	17.85	10.42	183.69	70.31	49.34
3	2.5	1.0	0.69	24.07	7.96	9.39	157.76	56.96	41.90
4	3.8	1.3	1.08	38.65	7.85	13.49	147.94	64.54	38.77
5	4.5	1.9	1.22	27.48	6.08	9.91	263.80	109.50	78.18
6	4.4	1.2	1.02	27.78	7.70	10.48	147.54	45.26	37.98
7	1.0	0.5	0.22	28.24	11.18	10.30	67.48	26.44	17.02
8	3.1	1.0	0.81	31.69	9.76	10.19	246.34	75.86	66.71
9	1.4	0.8	0.37	32.30	9.27	12.08	102.89	53.07	26.53
10	2.4	1.1	0.64	30.39	6.78	11.38	225.11	76.67	56.80
11	2.6	1.0	0.59	30.12	8.00	11.29	150.61	49.58	41.51
12	2.2	0.8	0.47	22.80	8.30	8.44	65.55	28.32	16.35
13	3.7	1.4	0.94	49.76	10.42	15.37	291.00	92.94	96.32
14	2.7	0.8	0.53	31.58	9.09	11.53	157.49	52.02	41.68
15	2.3	1.1	0.49	35.55	8.81	13.09	191.40	73.76	48.92
16	4.3	1.4	0.98	37.62	8.65	14.42	228.57	94.67	60.36
17	2.5	1.2	0.63	27.07	7.90	10.48	189.01	80.76	46.90
18	0.6	0.4	0.08	31.64	16.84	7.81	155.36	53.14	44.01
19	2.5	0.8	0.61	36.05	12.68	12.58	101.95	58.76	28.18
20	2.5	1.0	0.62	30.75	9.41	11.93	139.60	62.39	38.19
21	1.1	0.5	0.18	36.22	20.54	10.63	157.93	37.89	37.13
22	0.7	0.5	0.07	42.07	24.75	12.89	75.37	36.34	22.68
23	2.3	0.8	0.46	39.50	13.65	13.12	161.87	55.34	45.90
24	2.0	0.8	0.46	35.80	20.78	14.22	62.33	36.53	17.64
25	1.2	0.6	0.24	40.85	19.05	15.26	65.42	29.90	13.69
26	3.7	0.8	0.68	36.45	15.76	12.54	117.67	40.65	34.71
27	6.0	1.4	1.27	36.25	9.95	13.95	243.10	71.99	60.06
28	3.6	1.5	0.89	24.41	4.26	6.76	243.53	104.59	70.95
29	2.0	0.9	0.40	41.51	17.25	15.88	64.04	33.57	15.08
30	4.6	1.7	1.30	42.80	16.04	16.20	328.41	85.79	108.01
Monthly	6.0 ppm	0.99 ppm	0.82 ppm	49.76 ppb	12.00 ppb	13.25 ppb	328.41 $\mu g/m^3$	60.02 $\mu g/m^3$	54.67 $\mu g/m^3$

*Complete hourly statistics can be found on the TNRCC website at http://www.tnrcc.state.tx.us/cgi-bin/monops

Daily Air Quality Statistics at UTEP (TNRCC Site C-12) December 1999

Day	Carbon Monoxide (ppm)			Ozone (ppb)			P-10 Particulates ($\mu g/m^3$)		
	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation
1	2.9	1.0	0.75	45.19	11.07	15.38	209.24	73.30	64.70
2	0.7	0.1	0.17	40.16	22.38	10.98	128.36	59.19	35.17
3	0.3	0.0	0.08	42.06	27.30	10.34	341.32	90.11	106.18
4	0.8	0.1	0.25	36.02	17.19	13.18	46.96	21.70	11.51
5	1.1	0.3	0.29	38.96	12.86	11.52	33.07	17.34	5.77
6	1.6	0.4	0.42	30.60	8.68	10.29	141.96	43.56	39.96
7	2.7	0.7	0.88	37.54	12.07	13.12	129.53	43.15	41.16
8	2.4	0.6	0.79	44.33	18.46	15.90	242.52	88.41	60.95
9	2.0	0.5	0.51	37.20	12.83	12.78	78.44	38.92	18.23
10	2.7	0.9	0.83	22.03	5.75	7.50	125.59	36.91	33.27
11	2.6	0.6	0.74	30.71	12.90	13.35	66.79	38.88	17.45
12	2.8	0.5	0.73	38.75	12.79	14.12	178.56	58.09	62.42
13	1.1	0.2	0.35	38.31	12.23	13.49	110.34	46.72	29.60
14	0.1	0.0	0.02	39.73	26.17	9.22	77.02	26.13	16.43
15	2.0	0.4	0.53	38.42	13.48	14.05	390.21	89.74	109.37
16	1.3	0.3	0.42	27.73	6.22	9.66	85.54	37.96	23.17
17	2.7	0.4	0.76	25.71	8.87	9.84	217.51	51.25	64.48
18	1.5	0.4	0.34	46.92	10.97	13.61	96.38	41.62	25.80
19	0.9	0.1	0.19	36.32	20.30	10.85	66.19	23.61	16.91
20	2.2	0.4	0.50	35.01	11.05	13.28	217.61	53.99	46.75
21	1.0	0.4	0.28	28.66	15.43	8.56	80.67	30.49	21.08
22	0.5	0.1	0.14	33.64	24.08	10.85	19.58	12.55	3.12
23	0.8	0.3	0.23	33.39	15.24	10.17	44.56	21.37	11.51
24	1.1	0.2	0.28	32.39	21.09	8.61	26.78	14.83	5.88
25	0.6	0.2	0.14	28.04	17.01	8.06	21.83	11.57	3.40
26	1.5	0.3	0.46	24.42	15.00	9.54	50.94	16.12	11.86
27	1.6	0.6	0.47	24.53	5.53	9.18	93.60	35.71	24.19
28	1.9	1.0	0.54	14.73	2.42	4.74	99.16	40.71	27.46
29	1.2	0.5	0.26	30.98	10.13	10.82	40.97	19.02	8.70
30	unavailable	unavailable	unavailable	23.57	7.26	7.17	99.16	33.08	28.08
31	unavailable	unavailable	unavailable	46.79	8.18	13.48	230.63	61.97	67.22
Monthly	2.9 ppm	0.39 ppm	0.56 ppm	46.92 ppb	13.67 ppb	12.89 ppb	390.21$\mu g/m^3$	41.23 $\mu g/m^3$	48.51 $\mu g/m^3$

*Complete hourly statistics can be found on the TNRCC website at http://www.tnrcc.state.tx.us/cgi-bin/monops

Daily Air Quality Statistics at UTEP (TNRCC Site C-12) January 2000

Day	Carbon Monoxide (ppm)			Ozone (ppb)			P-10 Particulates ($\mu g/m^3$)		
	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation
1	unavailable	unavailable	unavailable	36.68	23.29	9.24	173.48	173.47	0.01
2	unavailable	unavailable	unavailable	40.58	29.40	10.30	unavailable	unavailable	unavailable
3	unavailable	unavailable	unavailable	40.51	27.86	12.35	173.44	39.63	45.55
4	unavailable	unavailable	unavailable	38.65	12.01	12.76	185.65	55.34	59.11
5	unavailable	unavailable	unavailable	39.49	14.09	13.55	95.31	48.13	25.59
6	0.0	0.0	--	39.56	21.22	15.23	99.22	28.73	25.89
7	1.0	0.1	0.25	38.12	19.96	12.97	131.26	42.98	40.67
8	0.2	0.0	0.04	42.74	19.59	13.66	44.98	23.20	10.35
9	0.0	0.0	0.01	46.14	35.41	7.17	39.67	16.90	7.49
10	0.8	0.1	0.17	44.00	28.88	10.24	53.11	24.94	12.46
11	1.1	0.2	0.28	40.37	21.27	10.81	65.60	23.81	14.54
12	1.0	0.2	0.30	39.76	19.90	11.84	94.46	31.23	24.46
13	3.1	0.4	0.67	29.08	14.19	9.05	86.78	27.75	23.46
14	0.5	0.2	0.14	31.77	21.60	6.75	33.10	18.67	7.12
15	1.7	0.7	0.56	41.98	12.58	14.33	178.72	57.24	49.52
16	3.9	1.2	1.10	44.56	13.63	14.36	199.83	82.63	58.53
17	3.8	0.5	0.86	42.78	12.26	14.04	198.14	95.17	53.22
18	2.2	0.4	0.62	40.94	9.59	10.01	262.81	86.37	79.20
19	7.1	1.2	1.81	43.45	13.87	15.88	309.61	83.75	98.49
20	3.8	1.5	1.10	36.39	12.70	12.40	251.54	77.52	61.38
21	3.8	0.7	0.82	38.59	19.86	13.90	115.72	42.72	37.53
22	0.5	0.2	0.07	35.53	25.60	7.48	40.81	18.29	9.79
23	4.3	0.7	0.98	43.71	18.48	15.42	273.55	51.97	72.25
24	3.0	1.1	0.86	67.07	13.00	18.15	103.09	46.33	28.34
25	3.2	0.7	0.72	63.81	14.39	19.05	128.96	54.20	40.89
26	2.5	0.4	0.56	39.42	18.59	11.65	250.42	70.44	56.37
27	0.4	0.2	0.10	45.07	29.80	11.53	101.43	36.98	23.98
28	1.7	0.4	0.38	42.52	23.92	10.60	62.97	26.68	17.94
29	0.9	0.5	0.24	44.68	22.25	15.25	44.20	18.43	10.20
30	1.0	0.5	0.25	58.03	21.00	17.22	82.50	33.43	21.17
31	0.4	0.2	0.07	41.12	28.69	9.47	77.33	25.34	17.60
Monthly	7.1 ppm	0.48 ppm	0.76 ppm	67.07 ppb	19.99 ppb	14.32 ppb	309.61$\mu g/m^3$	46.95 $\mu g/m^3$	51.06 $\mu g/m^3$

*Complete hourly statistics can be found on the TNRCC website at http://www.tnrcc.state.tx.us/cgi-bin/monops

Daily Air Quality Statistics at UTEP (TNRCC Site C-12) February 2000

Day	Carbon Monoxide (ppm)			Ozone (ppb)			P-10 Particulates ($\mu g/m^3$)		
	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation
1	0.8	0.3	0.16	37.57	25.64	7.93	33.83	16.95	6.96
2	2.4	0.6	0.46	45.23	16.70	15.08	108.78	33.26	27.24
3	2.9	0.6	0.64	48.88	19.35	18.12	150.60	39.71	37.11
4	1.3	0.6	0.40	35.71	19.88	13.08	112.70	33.47	24.69
5	2.9	0.9	0.86	49.21	23.22	16.50	224.73	64.04	75.04
6	2.6	1.1	0.67	50.33	15.71	19.12	146.67	76.10	38.59
7	2.7	0.9	0.69	53.49	15.40	19.13	160.87	45.31	49.52
8	6.7	2.0	1.57	41.53	11.31	14.59	337.51	116.05	106.25
9	3.0	0.6	0.59	38.32	14.05	11.87	172.55	58.87	46.00
10	0.8	0.3	0.19	41.92	19.48	13.69	92.18	39.73	23.70
11	0.9	0.3	0.20	47.78	27.19	13.90	109.64	35.03	30.87
12	1.6	0.4	0.37	47.04	28.55	14.91	239.05	67.26	60.78
13	0.4	0.2	0.05	46.97	35.10	9.72	103.18	33.10	27.41
14	0.6	0.3	0.13	32.66	20.84	8.93	64.30	27.17	18.87
15	0.5	0.2	0.09	38.43	22.52	10.45	67.97	23.00	17.03
16	2.6	0.7	0.61	67.79	18.88	18.31	138.15	49.41	33.16
17	0.8	0.3	0.14	40.77	27.80	10.85	461.08	126.86	153.81
18	3.8	0.7	0.93	47.00	24.87	15.23	181.53	46.26	51.42
19	2.4	1.0	0.60	52.78	18.42	19.84	112.55	49.79	26.07
20	3.1	0.8	0.76	51.87	24.90	17.77	203.55	55.53	59.89
21	1.7	0.7	0.47	42.09	16.76	14.00	60.76	35.31	15.24
22	0.3	0.2	0.05	42.98	30.93	8.42	148.11	33.97	32.98
23	4.7	0.7	1.07	49.88	25.24	17.73	205.71	45.97	51.06
24	3.9	1.1	1.01	39.94	20.05	16.78	718.82	165.90	183.29
25	0.3	0.2	0.03	48.87	39.35	6.71	76.32	29.19	21.61
26	4.2	0.6	1.03	52.76	32.93	16.01	167.59	39.10	44.36
27	4.3	1.0	0.92	unavailable	unavailable	unavailable	301.38	76.76	75.32
28	2.1	0.6	0.59	unavailable	unavailable	unavailable	655.13	144.31	192.98
29	2.3	0.6	0.64	unavailable	unavailable	unavailable	104.91	36.32	33.39
Monthly	6.7 ppm	0.63 ppm	0.76	67.79 ppb	22.91 ppb	16.09	718.82 $\mu g/m^3$	56.76 $\mu g/m^3$	80.22 $\mu g/m^3$

*Complete hourly statistics can be found on the TNRCC website at http://www.tnrcc.state.tx.us/cgi-bin/monops

Daily Air Quality Statistics at UTEP (TNRCC Site C-12) March 2000

Day	Carbon Monoxide (ppm)			Ozone (ppb)			P-10 Particulates ($\mu g/m^3$)		
	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation	Maximum	Average	Standard Deviation
1	2.5	0.8	0.61	unavailable	unavailable	unavailable	84.10	47.33	20.32
2	1.3	0.4	0.38	51.90	28.43	22.70	107.69	36.64	30.06
3	1.8	0.7	0.44	50.28	21.39	17.70	100.90	36.44	24.72
4	0.8	0.4	0.13	59.53	38.16	12.71	37.59	20.67	8.40
5	0.7	0.3	0.16	51.36	34.83	12.82	93.20	44.84	23.22
6	2.8	0.7	0.56	50.22	23.64	16.58	127.13	45.45	31.31
7	0.3	0.2	0.05	46.69	39.01	6.19	244.39	63.57	74.28
8	1.3	0.4	0.32	49.43	24.47	15.14	126.95	34.73	34.06
9	1.0	0.3	0.18	47.61	20.67	13.97	69.97	29.42	17.49
10	0.4	0.2	0.08	52.97	33.60	12.66	53.66	20.05	11.20
11	4.7	0.9	1.19	59.17	33.31	19.76	303.66	53.28	85.92
12	3.6	1.0	0.72	85.42	26.98	27.75	177.86	60.47	46.56
13	2.2	0.8	0.54	54.23	19.35	19.36	150.92	69.01	47.75
14	1.3	0.5	0.37	59.87	25.24	21.42	130.72	45.48	38.84
15	1.3	0.5	0.32	59.38	32.70	21.08	90.14	36.56	19.29
16	0.4	0.2	0.07	55.51	40.41	7.92	186.63	60.14	54.22
17	0.8	0.4	0.19	51.42	33.79	12.51	49.54	23.02	12.09
18	0.6	0.2	0.10	57.63	45.65	12.16	514.27	131.63	154.04
19	2.8	0.9	0.73	60.52	32.01	20.07	141.40	35.91	40.53
20	2.0	1.1	0.31	50.49	35.43	11.69	198.55	77.26	54.55
21	1.1	1.0	0.04	52.26	42.80	7.91	33.93	15.93	6.55
22	1.1	0.5	0.37	47.00	30.04	11.16	49.31	21.10	10.59
23	0.8	0.3	0.17	61.81	35.85	18.69	76.78	30.23	18.23
24	2.1	0.7	0.49	61.95	22.58	25.02	144.93	60.37	42.75
25	1.5	0.6	0.36	72.40	19.20	22.96	132.91	61.91	38.37
26	0.9	0.2	0.15	59.20	34.56	16.04	35.27	17.84	7.26
27	1.1	0.3	0.24	61.12	31.37	19.04	73.84	28.21	20.27
28	0.6	0.4	0.13	39.20	28.59	8.48	105.38	43.05	25.61
29	1.0	0.4	0.18	48.14	31.37	13.16	79.51	23.66	16.48
30	0.7	0.3	0.13	47.65	31.21	14.25	86.66	39.55	21.75
31	1.1	0.3	0.20	51.55	34.48	13.65	110.85	45.21	30.27
Monthly	4.7 ppm	0.51 ppm	0.48 ppm	85.42 ppb	31.18 ppb	17.91 ppb	514.27$\mu g/m^3$	43.85$\mu g/m^3$	50.27 $\mu g/m^3$

*Complete hourly statistics can be found on the TNRCC website at http://www.tnrcc.state.tx.us/cgi-bin/monops

F.4 – DOWNTOWN EL PASO AIR QUALITY

Air Quality Data from Tillman Health Center for Wind Speed (WS) and Wind Direction (WD) (October 1998 - February 1999)

(Source: El Paso City-County Health & Environmental District)

Daily Wind Data
Tillman Health Center (2 miles SE of Study Site)
(Source: EPCCHED-Air Quality Program)

Day	October-98		November-98		December-98		January-99		February-99	
	Avg. Wind Speed (mph)	Avg. Wind Dir.	Avg. Wind Speed (mph)	Avg. Wind Dir.	Avg. Wind Speed (mph)	Avg. Wind Dir.	Avg. Wind Speed (mph)	Avg. Wind Dir.	Avg. Wind Speed (mph)	Avg. Wind Dir.
1	3.7	198.1	2.5	270.7	2.9	156.8	4.7	N/A	N/A	N/A
2	3.1	282.2	2.6	240.1	3.8	216.0	2.7	N/A	N/A	N/A
3	4.9	285.6	1.9	254.6	4.3	301.7	4.4	N/A	N/A	N/A
4	6.8	286.1	3.8	148.5	2.6	279.1	2.8	N/A	N/A	N/A
5	4.6	309.1	5.7	131.4	2.8	266.9	3.0	N/A	N/A	N/A
6	2.5	204.8	4.1	222.7	3.9	282.5	2.4	N/A	N/A	N/A
7	3.2	144.1	2.9	282.6	4.5	309.7	2.2	N/A	N/A	N/A
8	2.3	156.2	3.1	253.9	4.3	102.4	3.6	N/A	N/A	N/A
9	1.6	161.1	6.4	288.7	3.9	135.2	3.5	N/A	N/A	N/A
10	2.4	249.2	3.3	279.5	10.8	77.9	2.3	N/A	N/A	N/A
11	2.2	259.3	2.6	159.6	3.2	285.8	1.9	N/A	N/A	N/A
12	4.6	137.9	3.4	143.1	3.0	288.9	4.1	N/A	N/A	N/A
13	2.6	144.7	3.0	275.0	1.6	204.9	3.3	N/A	N/A	N/A
14	2.3	191.9	2.4	276.5	2.9	147.4	N/A	N/A	N/A	N/A
15	6.3	279.5	1.9	244.5	6.0	108.8	N/A	N/A	N/A	N/A
16	4.6	281.8	1.8	246.5	4.9	120.8	N/A	N/A	N/A	N/A
17	4.0	286.1	1.8	233.0	7.7	97.6	N/A	N/A	N/A	N/A
18	9.4	97.6	2.7	284.3	5.7	301.6	N/A	N/A	N/A	N/A
19	9.0	110.0	2.6	284.9	2.3	228.1	N/A	N/A	N/A	N/A
20	8.7	94.5	5.0	123.8	3.1	260.2	N/A	N/A	N/A	N/A
21	7.4	124.2	2.3	268.7	3.9	281.3	N/A	N/A	N/A	N/A
22	6.2	105.5	1.9	246.3	8.0	125.7	N/A	N/A	N/A	N/A
23	3.8	94.7	2.0	169.1	3.4	153.2	N/A	N/A	N/A	N/A
24	2.6	137.3	2.2	238.7	3.9	150.9	N/A	N/A	N/A	N/A
25	3.2	152.0	2.1	236.4	2.7	282.5	N/A	N/A	N/A	N/A
26	4.5	305.7	1.5	199.5	2.5	281.4	N/A	N/A	N/A	N/A
27	4.3	119.0	1.5	233.0	2.4	285.0	N/A	N/A	N/A	N/A
28	2.3	267.6	1.8	232.3	2.9	N/A	N/A	N/A	N/A	N/A
29	1.5	189.1	4.9	299.1	2.4	N/A	N/A	N/A	N/A	N/A
30	2.7	223.8	3.5	192.7	1.7	N/A	N/A	N/A	N/A	N/A
31	3.7	283.8	N/A	N/A	2.4	N/A	N/A	N/A	N/A	N/A

Note: Wind direction in degrees measured clockwise from north.
Complete statistics can be found at the EPCCHED website at: http://airq.ci.el-paso.tx.us
N/A = Not Available

F.5 – ESTIMATES OF EMISSIONS DURING AMERICAN CANAL RECONSTRUCTION

Estimated 2001 Air Emissions During American Canal Reconstruction (Oct. 15 - Dec. 31)

Construction Equipment Used	N	HRS	HP	LF	EF				T			
					CO	PM	NOx	VOC	CO	PM	NOx	VOC
Dump Truck	4	80	658	0.50	2.80	1.44	9.60	0.84	0.3	0.2	1.1	0.1
Water Truck	1	440	658	0.50	2.80	1.44	9.60	0.84	0.4	0.2	1.5	0.1
Compactor-Roller	2	320	99	0.50	3.10	0.78	9.30	0.20	0.1	0.0	0.3	0.0
Grader	1	320	147	0.50	3.80	1.00	9.60	1.54	0.1	0.0	0.2	0.0
Excavator	1	160	143	0.50	5.20	1.44	10.73	0.70	0.1	0.0	0.1	0.0
Dozer	1	240	356	0.50	3.00	1.26	9.60	0.84	0.1	0.1	0.5	0.0
Crane	2	240	194	0.50	4.20	1.44	10.30	1.26	0.2	0.1	0.5	0.1
Backhoe/Loader	1	440	175	0.50	4.30	1.29	10.30	1.40	0.2	0.1	0.4	0.1
Concrete Truck	3	240	658	0.50	2.80	1.44	9.60	0.84	0.7	0.4	2.5	0.2
Generators	6	440	99	0.50	9.20	1.44	9.20	1.41	1.3	0.2	1.3	0.2
Total Emissions for Construction Equipment									**3.6**	**1.2**	**8.6**	**0.9**
Fugitive Dust	-	-	-	-	-	-	-	-	-	**35.0**	-	-
Total Emissions									**3.6**	**36.2**	**8.6**	**0.9**

T = N * HRS * HP * LF * EF) 910,000 grams/ton

N = # Units
HRS = # Hours used per Calendar Year
HP = Average Rated Horsepower
LF = Load Factor
EF-CO = Average CO Emissions in grams per horsepower-hour
EF-PM = Average PM Emissions in grams per horsepower-hour
EF-NOx = Average NOx Emissions in grams per horsepower-hour
EF-VOC = Average VOC Emissions in grams per horsepower-hour
T-CO = Estimated Mass of CO Emissions in tons per year
T -PM = Estimated Mass of PM Emissions in tons per year
T -NOx = Estimated Mass of NOx Emissions in tons per year
T -VOC = Estimated Mass of VOC Emissions in tons per year

Estimated 2002 Air Emissions During American Canal Reconstruction (Jan. 1 - Feb. 15)

Construction Equipment Used	N	HRS	HP	LF	EF				T			
					CO	PM	NOx	VOC	CO	PM	NOx	VOC
Dump Truck	3	80	658	0.50	2.80	1.44	9.60	0.84	0.2	0.1	0.8	0.1
Water Truck	1	280	658	0.50	2.80	1.44	9.60	0.84	0.3	0.1	1.0	0.1
Compactor-Roller	1	280	99	0.50	3.10	0.78	9.30	0.20	0.0	0.0	0.1	0.0
Grader	1	50	147	0.50	3.80	1.00	9.60	1.54	0.0	0.0	0.0	0.0
Excavator	0	0	143	0.50	5.20	1.44	10.73	0.70	0.0	0.0	0.0	0.0
Dozer	1	200	356	0.50	3.00	1.26	9.60	0.84	0.1	0.0	0.4	0.0
Crane	2	200	194	0.50	4.20	1.44	10.30	1.26	0.2	0.1	0.4	0.1
Backhoe/Loader	0	0	175	0.50	4.30	1.29	10.30	1.40	0.0	0.0	0.0	0.0
Concrete Truck	3	200	658	0.50	2.80	1.44	9.60	0.84	0.6	0.3	2.1	0.2
Generators	6	280	99	0.50	9.20	1.44	9.20	1.41	0.8	0.1	0.8	0.1
Total Emissions for Construction Equipment									**2.3**	**0.8**	**5.7**	**0.6**
Fugitive Dust	-	-	-	-	-	-	-	-	-	**22.0**	-	-
Total Emissions									**2.3**	**22.8**	**5.7**	**0.6**

T = N * HRS * HP * LF * EF) 910,000 grams/ton

N = # Units
HRS = # Hours used per Calendar Year
HP = Average Rated Horsepower
LF = Load Factor
EF-CO = Average CO Emissions in grams per horsepower-hour
EF-PM = Average PM Emissions in grams per horsepower-hour
EF-NOx = Average NOx Emissions in grams per horsepower-hour
EF-VOC = Average VOC Emissions in grams per horsepower-hour
T-CO = Estimated Mass of CO Emissions in tons per year
T -PM = Estimated Mass of PM Emissions in tons per year
T -NOx = Estimated Mass of NOx Emissions in tons per year
T -VOC = Estimated Mass of VOC Emissions in tons per year

F.6 – AIR QUALITY RECORDS OF CONVERSATIONS

RECORD OF CONVERSATION - ENCON File # 122-9
Air

Name: Brad Everett **Date/Time:** 9/8/99 3:00 p.m.
Agency: Abrams Construction **Phone No:** 915-593-7393

No Air Emissions data was requested, collected, or kept by Abrams Construction during previous American Canal extension construction.

However, no one from City-County Health Dept., or TNRCC ever asked them to delay due to air emissions or a pollution layer created during winter temperature inversion layers. He said air quality was never a problem.

Recommended Action or Response

Name and Date: John Knopp 9/8/99

RECORD OF CONVERSATION - ENCON File # 122-9
Air

Name: Veronica Carbajal **Date/Time:** 10/9/99 11:15 a.m.
Agency: Clean Air Partnership **Phone No:** 915-543-9933

Ref: Ozone

At this time, compliance with Ozone Action Days is still voluntary. Typically, ozone levels in El Paso only exceed maximums in the period from May through October.

Ref: Carbon Monoxide
Although El Paso does exceed CO standards, much progress has been made by selling oxygenated gasoline from October through April.

No "CO Action Days" exist.

Recommended Action or Response

Name and Date: John Knopp 10/9/99

RECORD OF CONVERSATION - ENCON File # 122-9
Air

Name: Archie Clouse, Regional VI Dir. **Date/Time:** 10/8/99
Agency: TNRCC/Air Quality **Phone No:** 915-783-6683

1) Ozone Action Days are voluntary and should not affect canal construction

2) No specific construction regulations exist for non-attainment areas to protect air quality

Addendum June 2, 2000 11:00 a.m.

Concerning Clean Air Conformity:
In non-"attainment" areas like El Paso, the state may institute a State Implementation Plan (SIP) to measure conformity. In Texas, the conformity rule is used only on environmental assessments dealing with transportation structures like highways or with factories.

TNRCC considers that the formulas for estimating the quantity of air pollutants are not applicable for this canal reconstruction--even during the construction phase.

Name and Date: John Knopp 6/2/00

RECORD OF CONVERSATION - ENCON File # 122-9
Air

Name: Chuck Jacobs **Date/Time:** 9/27/00 10 a.m.
Agency: USIBWC/Construction **Phone No:** 915-832-4780

RE: Assumptions for Reconstruction to be used to estimate air emisions

1. 8-hour work shifts, 5-day work weeks
2. Oct 15, 2001 - Feb 15, 2002, Estimated Project Timeline
3. Two weeks to break and remove concrete using 1 excavator and 1 backhoe/loader
4. Two weeks to haul concrete debris for recycle using loader and 4 dump trucks
5. Subgrade preparation, Nov 1 - Feb 1 using 2 compactors, 2 dozers, 1 grader
6. Construction Nov 15 - Feb 15 using 3 concrete trucks, 1 roller, 1 mechanical form, 2 cranes, 1 dozer, 1 roller, 1 dump truck
7. Six days to reconstruct roads using 3 dump trucks, 1 grader, 1 roller
8. One water truck used throughout project

Recommended Action or Response

Name and Date: John Knopp 9/27/00

RECORD OF CONVERSATION - ENCON File # 122-9
Air

Name: Mike Jansky
NEPA Reviewer, (CAA #309)

Date/Time: 9/15/00 9:30 am

Agency: EPA

Phone No: 214-665-7451

RE: Air Quality Comformity

Under his authority under the Clean Air Act #309, he would not expect more than a statement that emissions for the construction project would be far under the deminimus.

Recommended Action or Response

Call John Behnam, EPA Region 6 Conformity Director

Name and Date: John Knopp 9/15/00

RECORD OF CONVERSATION - ENCON File # 122-9
Air

Name: John Behnam
Air Conformity Dept.

Date/Time: 9/18/00

Agency: EPA Region VI

Phone No: 214-665-7247

RE: Air Quality

If the E. A. shows air conformity for construction, no modeling is required

No technical analysis of long term effects or mitigations would be required.

Consult AP-42 and TNRCC for SIP rules.

Recommended Action or Response

Name and Date: John Knopp 9/18/00

RECORD OF CONVERSATION - ENCON File # 122-9
Air

Name: Greg Janssen **Date/Time:** 10/17/00 2:00 pm
Agency: EPA, Air Quality Office **Phone No:** 734-214-4285

To estimate emissions from specific pieces of construction equipment in accordance with AP-42, use methodology and values from November 1991, "Nonroad Engine and Vehicle Emission Study Report," (Publication # EPA-21A-2001 or EPA 460/3-91-002). Go to www.epa.gov/otaq/nonroadt.htm

Recommended Action or Response

Name and Date: John Knopp 10/17/00

RECORD OF CONVERSATION - ENCON File # 122-9
Air

Name: Archie Clouse, Director **Date/Time:** 2/21/01
Agency: TNRCC Region VI **Phone No:** 834-4949

RE: Air Quality Non-Attainment Status

By using oxygenated gasoline in the winter, Ozone Alert days, dust control, and other emission control measures, the local air quality has been improving since 1992. Actually, the maximum contaminant levels of ozone, carbon monoxide, and particulates have not been exceeded in El Paso for three years. Therefore, TNRCC Region VI has requested that EPA drop El Paso's non-attainment status, and redesignate El Paso as an Air Quality "Maintenance Area." An air quality maintenance area has comparatively less stringent air emissions and air monitoring requirements.

Though that change in air quality status is expected, the local area retains its non-attainment status until that time.

Recommended Action or Response

Name and Date: John Knopp 02/21/01