

MINED LANDS INVENTORY, INDUSTRIAL MINERALS, EAST TEXAS

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**Contract report prepared for Railroad Commission of Texas,
Surface Mining and Reclamation Division,
under interagency cooperation contract no. IAC (90-91)-0492**

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October 1990

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ABSTRACT

The Bureau of Economic Geology, under an interagency cooperative contract with the Railroad Commission of Texas, conducted a comprehensive inventory of abandoned and active mining operations across 84 counties in East Texas. This report represents the second phase of the inventory, begun in 1988 in South Texas (Jackson and others, 1989). Project objectives were to characterize potential reclamation, or priority, sites, to create a surface-mining database of industrial minerals, and to provide data to meet future legislative and regulatory needs.

Comprehensive procedures were established for identification and evaluation of mined lands using U.S. Geological Survey topographic maps, black-and-white and color-infrared aerial photographs, on site surveys, and low-altitude flyovers. The site location, mineral commodity, and relative size were recorded on a Mined Lands Inventory Form (MLIF) for each site greater than 2 acres. Data on health, safety and environmental aspects were recorded for all priority sites. All data were entered into the Texas Mined Lands Data Base (TMLDB), a computer data base that follows the format of the MLIF. Locations of all inventoried sites are shown on over 600 topographic maps.

In East Texas, 6,492 mined sites were identified, 3,341 greater than 2 acres, 3,112 less than 2 acres, and 39 of undetermined size. Among sites larger than 2 acres, approximately 1,637 are abandoned, 1,166 are active, and 573 are reclaimed. An estimated 140,000 acres have been disturbed by surface mining, predominantly by sand and gravel mining. Other commodities mined in the East Texas area include limestone, clay, and iron ore.

Dallas, Harris, Tarrant, Montgomery, and Grayson Counties contain 27 percent of the sites larger than 2 acres. Harris and Montgomery contain dominantly sand and gravel pits, whereas Dallas, Tarrant, and Grayson contain both sand and gravel pits and limestone quarries. San Jacinto and Harris Counties contain the most abandoned mined sites and Dallas and Tarrant the most active sites. Few mined sites occur in unpopulated areas in coastal counties and in counties along the Texas-Louisiana border.

Approximately 290 priority sites were identified on the basis of size, presence of a highwall or wetland, proximity to public roads and populated areas, and surrounding urban land use. Priority sites

occur in 45 of the 84 East Texas counties, the largest number (60) being in Dallas County. Urban reclamation (development) is an effective and rapid process and relatively few priority sites are located in downtown areas. Instead, most priority sites in East Texas are located on the fringes of large metropolitan areas.

INTRODUCTION

Surface mining of industrial minerals is a major mining activity in Texas. For example, production of crushed stone and sand and gravel were estimated at 82 and 52 million short tons in 1988 for a value of \$271 and \$198 million, respectively (Ohl and others, 1988), making Texas among the nation's top ranking producers of these commodities (Bureau of Mines, 1990). Texas also ranks among the top ten states in acreage disturbed by surface mining of industrial minerals (National Research Council, 1979).

Unreclaimed mined lands can become health, safety, and environmental hazards. For example, three of the 27 sites in the 1988 Texas Superfund Registry are located in abandoned sand and gravel and uranium pits (Texas Water Commission, 1989a). Accidents in abandoned mines, pits, and quarries injure or kill many individuals each year (Mine Safety and Health Administration, undated), and erosion and sedimentation from mined sites can increase the incidence of flooding, decrease the quality of surface water, reduce the capacity of reservoirs, remove top soil, and harm fish and wildlife (Soil Conservation Service, 1976). To address these potential problems an inventory of mined lands in South and East Texas was initiated in June 1988 under an interagency cooperative contract with the Railroad Commission of Texas, the state regulatory agency for surface mining in Texas.

In a first phase, a comprehensive inventory of abandoned and active industrial-mineral mines in 48 South Texas counties (fig. 1) was conducted to (1) characterize, on the basis of health, safety, and environmental considerations, potential reclamation sites, (2) create a surface-mining database of industrial minerals, and (3) provide data to meet future legislative and regulatory needs (Jackson and others, 1989). The second phase of the study extended the inventory to an 84-county area in East Texas (fig. 1), the subject of this report.

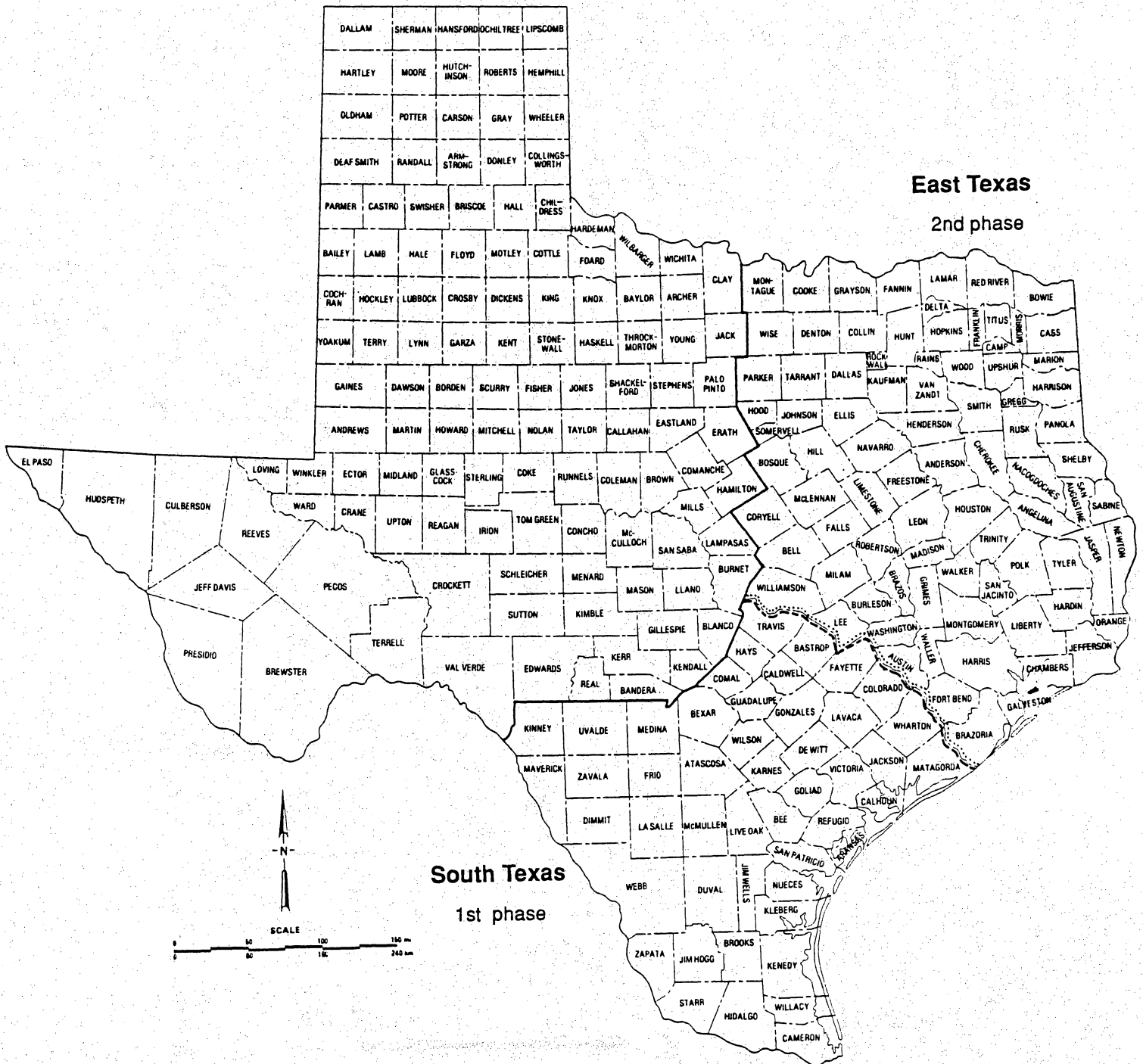


Figure 1. Inventory study areas for East and South Texas

PREVIOUS STUDIES

Prior to this study, there was no up-to-date, comprehensive inventory of abandoned and active mining operations in East Texas. Published mineral resource evaluations that cover all or part of East Texas include reports and maps by Phillips (1914), Perkins and Lonsdale (1955), Fisher (1965), Rodda and others (1966), Fisher and Rodda (1967), Garner (1967), Finley and others (1979), Garner and others (1979), and Seni and others (1984). An unpublished inventory of Texas mines, pits, and quarries (Groat, 1973) is on open file at the Bureau of Economic Geology. In addition, the Railroad Commission of Texas, Surface Mining and Reclamation Division has completed a preliminary survey of abandoned coal in East Texas (SMRD, undated).

METHODOLOGY

The inventory of mining operations in East Texas consisted of site identification and data acquisition. Inventory data were recorded on a form designed for this project, the Mined Lands Inventory Form (MLIF) (appendix 1). A complementary manual describes each field of the inventory form, explains codes, and defines key words (appendix 2). Inventory data were hierarchically divided into levels 1A, 1B, and 2, where each level represents greater detail of information about each mined site. Data were entered on the MLIF and recorded in a computer data base, the Texas Mined Lands Data Base (TMLDB), which follows the format of the MLIF. The MLIF and TMLDB contain data on site location and health, safety, and environmental characteristics. The MLIF contains 40 information fields divided into 4 sections: general information, remarks, health and safety considerations, and environmental considerations. It was adapted from forms used in an inventory and environmental evaluation of abandoned coal mines in north-central Texas (Finley and others, 1979) and in federal mined-land inventories (Office of Surface Mining, 1984). Final definition of the MLIF was achieved in cooperation with the SMRD. The Texas Mined Lands Data Base resides on a VAX 11/780 computer at the Bureau of Economic Geology. All computerized data have been copied to MS-DOS floppy disks and translated to RCT Reflex format for use by the SMRD (appendix 3). Locations of all inventoried sites are shown on approximately 600 topographic maps (appendix 4).

Initial identification, location, and inventory of mined sites was made using U.S. Geological Survey topographic maps (inventory level 1A). Sites smaller than 2 acres were not inventoried. The abandoned, active, or reclaimed status of each site greater than 2 acres was determined from aerial photographs (inventory level 1B). Health, safety, and environmental criteria, developed jointly with the SMRD, were then used to determine if sites were priority sites (potential candidates for reclamation). Field visits were made to confirm the characteristics of each potential priority site, and a site inventory was completed at level 2 for the selected priority sites.

Identification of Mined Sites

Topographic maps

Prior to entry on the MLIF, mined sites were identified from symbols, labels, and patterns on U.S. Geological Survey (USGS) topographic maps at a scale of 1:24,000 (7.5-minute quadrangles). Symbols on the topographic maps depict mines, pits, tunnels, shafts, dumps, tailings, and disturbed lands and were used to identify mined sites. Named mine dumps and cultural features, for example, "Quarry Park", were obviously active or abandoned mined sites. Specific map patterns for relief, woodland, and cultural features were used to identify abandoned mined sites. Relief patterns indicate man's influence and include closely spaced (highwall) or depression (pit) topographic contours and contours that follow straight lines or make right-angle bends. Many of these patterns are located adjacent to roads, airports, or other features where road metal or aggregate was likely used in construction. Irregularly shaped or conical hills anomalous to surrounding landforms were identified as possible mine dumps and cleared areas of woodlands along crests of hills were designated as possible mined sites. Cultural features such as abandoned railroad lines and spurs and elevated abandoned haul roads were also useful in locating abandoned mined lands.

In the initial survey of USGS topographic maps, all potential sites were identified, regardless of size; however, only sites greater than 2 acres were inventoried. Identification of sites less than 2 acres was simplified because a pit or quarry shown on topographic maps by only a symbol (no mine outline or

topographic expression) was commonly less than 2 acres (Thompson, 1988). Mined sites smaller than 2 acres were classified as below threshold (BT).

Aerial photographs

The most recent aerial photographs available were used in classification and description of mined sites. Smaller scale, more expensive color-infrared photographs were purchased in monoscopic coverage, whereas larger scale, inexpensive black-and-white photographs were purchased in stereoscopic coverage.

Aerial photographs used in the site inventory include:

- (1) Color-infrared photographs at a scale of 1:58,000 purchased from the Agricultural Conservation and Stabilization Service (ASCS) of the U.S. Department of Agriculture. These photographs were taken between 1981 and 1988 as part of the National High Altitude Photography (NHAP) program and were used for approximately 40% of the sites inventoried.
- (2) Color-infrared photographs at a scale of 1:40,000 taken in 1989 as part of the National Aerial Photography Program (NAPP), purchased from the U.S. Geological Survey.
- (3) Black-and-white photographs at a scale of 1:24,000 purchased from the State Department of Highways and Public Transportation (TXHWY) or on loan from the Texas Natural Resource Information System (TNRIS). These photographs were taken between 1979 and 1989 and were the primary source for site evaluation in Brazos, Burleson, Dallas, Harris, Orange, Jefferson, Lamar, Leon, Limestone, Tarrant, Williamson, and several other counties, representing over 50% of the sites inventoried.
- (4) Black-and-white photographs at a scale of 1:12,000 taken by the State Department of Highways and Public Transportation. These photographs are the property of the Texas Natural Resource Information System, and were the primary source for site evaluation in the metropolitan area of Texarkana, Texas.

Site Inventory

Site inventory data, as recorded on information fields in the MLIF, were hierarchically divided into levels of completion, 1A, 1B, and 2. All abandoned, active, and reclaimed sites greater than 2 acres were completed at levels 1A and 1B (table 1). All priority sites were completed at level 2, which consisted of inventory completion of as many fields as possible on the MLIF (appendix 1).

Level 1A

Upon identification on a USGS topographic map or from other published and open-file sources, a site was coded on the MLIF using six fields in the general and remarks sections (level 1A, table 1). At this level of inventory, a unique identification number was recorded for each site, as well as the county name and quadrangle identification number. To complete level 1A inventory data, the name of the preparer, and the date of preparation are entered on the MLIF.

Level 1B

Level 1B inventory consisted of five steps: (1) location of site, (2) determination of commodity, mine type, and size, (3) evaluation of mine status, (4) determination of whether or not a site is within 1/2 mile of a public road, and (5) determination of presence or absence of a highwall or wetland (table 1). Only abandoned sites were evaluated for proximity to a public road and presence of a highwall or wetland. If a site contained either a highwall or a wetland and was within 1/2 mile of a public road, it was also evaluated for surrounding land use using criteria adapted from Anderson and others (1976), and Loelkes and others (1983).

In the first two steps, latitude and longitude were determined for the approximate geographic center of each site, and commodity and size category were determined to allow calculation of approximate mined acreage. Pit type was also evaluated at this stage. Commodities for East Texas are listed in the TMLBD Manual (appendix 2). Major commodities are sand and gravel and limestone, and minor commodities are clay and iron ore. Mine size was estimated with an acetate template placed over the site as mapped on the USGS topographic map. Three sizes were defined: small (greater than 2 to

less than or equal to 10 acres), medium (greater than 10 to less than 200 acres) and large (greater than or equal to 200 acres).

In the third step, mined sites larger than 2 acres were classified as abandoned, active, or reclaimed on the basis of aerial photographic interpretation. The boundaries of each mined site, outlined on topographic maps in level 1A inventory, were verified and updated if necessary. For many sites, revised mine boundaries were transferred directly to the topographic map from aerial photographs using a Bausch & Lomb Zoom Transfer Scope.

A site was designated as active if there was photographic evidence that mining activity, such as excavation, milling, or processing, had taken place in the recent past. Determination of active mine status relied on the following observations made by the photointerpreter:

- (1) High albedo or absence of vegetation in the excavation, adjacent to an access shaft, and/or along access roads.
- (2) Mining equipment observed in excavations and on haul roads, or railroad cars observed along sidings. If this equipment was observed on mined land with a high albedo, the site was classified as active.

A site was designated as reclaimed if 1) land use was other than mining such as a shopping center, park, or a private recreational water body with adjacent gentle slopes, mowed perimeter and/or houses on 50% or more of the site perimeter, 2) the site had been filled and graded, and/or 3) native vegetation and gentle slopes were apparent on aerial photographs. Key words for reclamation type such as recreational and natural are found in the TMLDB Manual (appendix 2).

In the last two steps of Level 1B inventory, sites not designated as active or reclaimed were designated as abandoned and all such sites greater than 2 acres were evaluated, using aerial photographs, for proximity to public roads and for the presence of a highwall or wetland (table 1). The proximity criterion, a distance of 1/2 mile or less from a public road, was chosen because it was judged to be a distance easily walked by potential visitors; it was measured from any part of the site to the nearest public road. Public roads were identified using the most recent TXHWY county maps.

Highwalls are obvious safety hazards, especially if adjacent to a public road. The presence of a highwall was indicated if the sides of an excavation cast a shadow visible on a single aerial photograph or stereoscopic image. In the field, the highwall was defined as the excavated face of a mining operation that has a slope greater than or equal to 45 degrees.

Wetlands, or water bodies, were chosen for evaluation primarily because of the potential hazard if used as a swimming hole or because of the potential value to wildlife. Changes in hue, chroma, and value of the color-infrared signature of the mined site were used to identify the aerial extent of a wetland. Wetlands are defined as land covered by water or land transitional between terrestrial and aquatic systems where the water table is usually at or near the surface (Cowardin and others, 1979).

Level 2

Level 2 inventory is the completion of the MLIF to the fullest extent possible. All available geographic, geologic, operator, end-use, health and safety, and environmental data are recorded. In addition to topographic maps and aerial photographs, data sources used were: geologic, county highway, planimetric, flood, water-well location, and surface-water intake maps, mineral producers lists, county soil survey reports, unpublished Bureau materials on mined lands, and published reports. Specific subdivisions and information fields completed at level 2 not completed at levels 1A and 1B are directions to the site, geometry of pit, highwall, and spoil piles, accessibility and visitation criteria, wetlands classification, susceptibility to flooding, and nearest public water supply and aquifer.

Selection of Priority Sites

All abandoned mined sites within 1/2 mile of a public road and having a highwall or wetland were considered for priority status. These sites, called potential priority sites, were further evaluated using proximity to populated areas and land-use criteria (table 2). A populated area was defined as a residential subdivision, an apartment complex, or 10 or more closely spaced dwellings along a street, road, or highway, where close spacing meant that most dwellings were within 200 ft of each other. Sites beyond 1 mile of a populated area were eliminated from further evaluation. Sites within 1 mile of a

populated area were examined in a contiguous 1/2-mile area of the site for compliance with land-use criteria. Land use was classified using a modification of the U.S. Geological Survey land-use and land-cover classification for use with remote sensor data (Anderson and others, 1976; Loelkes and others, 1983) (appendix 2, table 5) and was determined on topographic maps and aerial photographs. The land use of highest priority for this project was urban. Only those sites having residential, school, or recreational land use (park, recreation area, playground, zoo, golf course, public garden, or fairground) within 1/2 mile of the site were classified as potential priority sites. Potential status was also assigned to sites that contained waste materials or were large (>200 acres).

All inventory data for potential priority sites were verified in the field, and sites were eliminated or given priority status as appropriate. A reasonable effort was made to gain access to or approach the site boundary as close as possible. Sites not accessible by land were flown over at low altitude (500 to 1,000 ft). From these data, a list of priority sites was compiled (table 3) and the MLIF was filled out for inventory level 2 as completely as possible. Selected sites that lacked a highwall or wetland but contained waste materials were also assigned priority status. Finally, at the request of the SMRD, abandoned mine sites greater than 200 acres in size were also given priority status. The ownership of priority sites in five counties containing large numbers of such sites is presented in appendix 5 and was determined mainly from county tax records.

RESULTS

Sites Inventoried

In this study, 6,539 sites of all sizes were identified and are tabulated by county on the basis of 7.5-minute quadrangle maps (table 4). To facilitate data management, quadrangle boundaries instead of actual county boundaries were used to estimate county totals. A list of all quadrangles included in each county count and an alphabetical list of all quadrangles in the study area are given in tables 4 and 5. Among the 6,492 sites, 27 percent, or 1,738, occur in Dallas (488), Williamson (325), Ellis (255), Tarrant (248), Collin (211), and Grayson (211) Counties. Among the 3,380 sites greater than 2 acres, 27 percent, or 910, are found in Dallas (308), Harris (175), Tarrant (167), Montgomery (142), and Grayson (118)

Counties. The total number of sites below threshold (BT) is 3,125 (table 4), and Williamson (244), Dallas (180), Ellis (180), Collin (159), and Coryell (144) Counties contain the greatest percentages of these sites. In terms of mine status, abandoned sites total 1,637, active sites total 1,166 and reclaimed sites total 573. San Jacinto and Harris Counties contain the most abandoned sites and Dallas and Tarrant the most active and reclaimed sites (figs. 2 through 4).

Disturbed Acreage

Acreage estimates were made using the small, medium, and large size categories assigned in level 1A described above. A value of 7 acres was used for small sites. The acreage estimate for medium sites was split into two parts based on experience gained during estimation of site areas, 20 acres for two-thirds of the sites and 150 acres for the remaining third. Large sites were assumed to be 220 acres in size. Acreage of below threshold sites was calculated using 1.5 acres per site. Based on these assumptions, a total of 139,819 acres has been disturbed in East Texas (table 6). Disturbed acreage by mined commodity is estimated to be: 106,469 acres for sand and gravel, 18,471 acres for limestone, 7,904 acres for clay, and 2,289 acres for iron ore (table 6).

Mined Sites by Geologic Unit

The geologic unit of the mined commodity was determined for all numbered sites (table 7). Most of the mined sites lie in Quaternary sand and gravel deposits along rivers and streams, consisting of fluvial terrace deposits and alluvium, and in the older Beaumont and Willis Formations. The Austin Chalk, Queen City Sand, and Deweyville Formation also contain many sites. Other geologic groups and formations containing from 20 to 60 sites each include the Calvert Bluff, Catahoula, Cook Mountain, Edwards, Fleming, Glen Rose, Kincaid, Paluxy, Reklaw, Weches, and Whitsett.

Site Distribution

Numbered mined sites in the study area are distributed along major river systems such as the Trinity and Brazos, in the east-central portion of the region in iron-bearing outcrops, and along the north-

south trending limestone belt on the western edge of the study area (figs. 2 through 4). Relative distribution of abandoned, active, reclaimed, and priority sites is shown on individual, large-scale maps for Dallas, Harris, Orange, and Galveston/Fort Bend/Brazoria Counties (figs. 5 through 8). In Dallas County, large- and medium-sized sand and gravel pits are located along the Trinity River and its tributaries. Limestone quarries are located on the uplands nearby (fig. 5). Harris County also has a similar distribution of sand and gravel pits along the San Jacinto River (fig. 6). Large sand and gravel pits in Orange County are located in Pleistocene sand deposits on upland regions (fig. 7). Mined sand and gravel sites in the Galveston/Fort Bend/Brazoria County area are in alluvium and terrace deposits of Clear Creek and Mustang Bayou, and in barrier island sands along the Gulf Coast (fig. 8).

Density of mine development is presented in terms of number of sites 2 acres or more in size per quadrangle sector (table 8). Areas of densest mining occur in Dallas, San Jacinto, Montgomery, Harris, Wise, Tarrant, Williamson, Lee, and Freestone Counties. Dallas and Montgomery Counties have the greatest number of densely mined sectors. Sector statistics may not reflect actual disturbed acreage because a few large pits may cover more area than many small pits.

Reclaimed Sites

Approximately 570 abandoned mine sites have been reclaimed in a total of 45 counties in East Texas (fig. 4). Most (23 percent) of the reclaimed sites are in Dallas County (table 9 and fig 5). This reflects rapid growth and corresponding reclamation, principally for industrial and residential purposes, in the Dallas area. The number of reclaimed sites in Tarrant (36), Harris (35) (fig. 6) , Montgomery (31), and Cherokee Counties (26) make up an additional 22 percent (fig. 4). Each of these counties contains only 5 to 6 percent of the total reclaimed sites, and the remaining counties have less than 4 percent each.

Thirteen types of reclamation were recorded in East Texas counties (table 10). Of the reclaimed sites, natural reclamation accounts for almost 45 percent (251) of the total. Other types of reclamation observed are residential (74 sites), industrial (46), recreational (43), reservoir (40), agricultural (36), commercial (29), and landfill (21). Appendix 2 contains an explanation of the reclamation types.

Priority Sites

Almost 300 priority sites were identified in field evaluations from an original list of about 400 potential priority sites. Key health, safety, and environmental characteristics have been tabulated for each priority site (table 3). Most priority sites are abandoned sand and gravel pits (244) and limestone quarries (29). Eighteen sites are clay pits. Other sites include ironstone (1) and halite (1). Sites that contain highwalls total 95, and among these, 45 have highwalls that are considered unstable. Sites that contain wetlands (predominantly standing water) total 275, and sites with both wetlands and highwalls number 80. Selected sites containing waste materials total 119. Nine sites exceed 200 acres in size. All but 13 sites are completely or moderately vegetated, but most (about 70 percent) are visible from a public road. Almost 60 percent (169) of the priority sites are located within aquifer recharge areas. Also, more than half (169) are within one mile of a public water-supply well or surface source. Approximately 20 percent (63) of the priority sites were posted with "no trespassing" or "keep out" signs at the time field surveys were conducted. Very few abandoned sites were securely fenced or adequately posted. Where present, fencing was typically incomplete and poorly maintained. This included one site in Harris County with a chemical hazard posting.

Priority sites occur in 45 of the 84 East Texas counties (fig. 9, table 3). The highest number of priority sites occur in Dallas County (60), followed in decreasing order by Orange (36), Harris (32), Galveston (15), Fort Bend (14), Brazoria (13), McLennan (12), Tarrant (9), and Montgomery (9). Each of the remaining counties have fewer than 9 priority pits.

Water bodies characterize almost 95 percent of the priority sites. In East Texas, rainfall averages 40 to 56 inches per year (Arbingast and others, 1976), and abandoned pits become the sites of ponds and lakes. Water bodies enhance the value of surrounding property and are favored sites for residential developments. Water bodies are frequently used for recreational purposes such as fishing and boating, and occasionally for swimming. Numerous sites were designated as reclaimed because of their recreational use or because of extensive residential development along their margins. Some sites that were retained on the priority list could possibly be reclassified as reclaimed because of recreational uses; many owners and nearby residents see the water bodies as assets. The water quality of sites next to

residential areas, however, may be seriously degraded because of septic-tank and sewer-line discharges. Residents reported this to be the case at more than one site in Jefferson and Orange Counties. Some property owners expressed an interest in grants for fencing, rather than for reclaiming, the water bodies.

During the field visit to water-filled site no. 339SPR303 in Harris County, an adjacent property owner reported possible hazardous waste dumping to the EPA. Sites that were under the jurisdiction of EPA (fenced and posted with EPA warning signs) were not included on the priority list. Other water-filled sites may contain hazardous waste that was not detected in this study.

Visibility of a site from public roads, residences, businesses, and public lands may be less of a safety consideration than previously thought. Sites that were hidden, rather than visible, appeared to have moderate to heavy visitation. Water bodies surrounded by woodlands appeared to be prime sites for recreation. Some hidden sites have become sites for waste disposal, but the majority (70 percent) of the sites where waste material was observed were visible from a public road.

No effort was made to examine the health, safety, or environmental hazards of abandoned portions of sites being actively mined. Many active sites have substantial acreage that is far removed from operating equipment and facilities. Some of the acreage may not be under lease to the operating company and may lack proper oversight, posing a threat to public safety. The worst school bus accident in Texas history occurred in such a sites near Mission, Texas (site no. 215ALT801, see Jackson and others, 1989).

SUMMARY

This project was designed to identify abandoned mine sites with potential for reclamation, and to inventory all mined sites in an 84-county area in East Texas. Mined sites were identified on U.S. Geological Survey topographic maps and aerial photographs. Site-specific information was recorded on a specially designed form, the MLIF, and entered into the Texas Mined Lands Data Base. Locations of all inventoried sites are shown on over 600 topographic maps.

A total of 3,341 sites greater than 2 acres were identified in the study area, of which approximately 1,637 are abandoned. All abandoned sites were examined for proximity (1/2 mile) to a public road and for the presence of a highwall or wetland. Sites close to a public road and with a highwall or wetland were further examined for proximity to populated areas (within 1 mile) and surrounding urban land use (contiguous 1/2 mile area) to produce a short list of potential priority sites. Field visits were made to verify data for potential priority sites and to confirm their priority status. Priority status was also assigned to selected sites that lacked a highwall or wetland but contained waste materials, and to all large (>200 acres) abandoned sites. A total of 292 priority sites were identified in 45 counties (table 3). The largest number (60) of priority sites is in Dallas County, where the mined commodity was predominantly sand and gravel.

ACKNOWLEDGMENTS

This study was funded by the Railroad Commission of Texas, Surface Mining and Reclamation Division, under interagency cooperation contract no. IAC (90-91)-0492. Word processing of the text was by the authors and Susan Lloyd. Others helping with the manuscript included Dorothy Johnson and Ginger Zeikus. Computer assistance was provided by Gerry White. Computer-generated maps were produced by Diane Spinney. Final quadrangle maps showing mined sites were drafted by Patricia van Rensburg and Garth Hawkins. Special thanks to the District Offices of the State Department of Highways and Public Transportation and to the Harris County District Engineer for assistance in locating mine sites, and to the Texas Natural Resources Information System.

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Table 1. Levels 1A and 1B inventory consisted of completion of the MLIF fields listed below. All sites greater than 2 acres in size were completed at levels 1A and 1B. Priority sites were completed at level 2. A complete list of fields is given on the MLIF (appendix 1).

Level 1A inventory - sites over 2 acres are identified and coded on USGS 7.5 minute quadrangles, using the following fields:

1. County
2. Site No.
5. USGS 7.5 Quad. Name
8. Lat.-Long. of Site
18. Commodity
- 25.a.(1) Preparer

Level 1B inventory - geographic extent of sites is confirmed with aerial photographs, and the following fields are entered:

- 4.a. Active (Y/N)
- 4.c. Confirmed
- 4.d. Reclaimed
- 4.e. Type of Reclamation (if applicable)
- 4.f. Size Category
8. Lat.-Long. of site
17. Type of Mine
18. Commodity
21. Mined area
22. Verification of Mine Status
23. Aerial Photos Used
- 25.a.(1) Preparer

If a site was abandoned (answer N in field 4a), the following level 1B fields were also filled out:

- 26.i. Presence of Highwall (Y/N)
- 27.j. Presence of Wetlands (Y/N)
- 31.c. Accessibility: site less than or equal to 0.5 mile from public road

Level 2 inventory - all available geographic, geologic, operator, end-use, health, safety, and environmental data are recorded, completing as many fields on the MLIF as possible.

Table 2. Steps in priority site selection process. If a site qualified for the criteria in a given step, then it was examined at the next step. If it did not qualify, it was eliminated from the selection process.

Step 1. Determine if site is greater than 2 acres in size. (Level 1A inventory)

Step 2. Determine if site is abandoned. (Level 1B inventory)

Step 3. Determine if site has a highwall or a wetland and if site is within 0.5 mi of a public road. (Level 1B inventory)

Step 4. Determine if site is within 1 mile of a populated area.

Step 5. Determine if site has a land-use of residential, school, park, zoo, golf course, public garden, or fairground within 1/2 mile of the site.

Step 6. Verify the characteristics listed in steps 1-5 by making a field visit to the site.

Step 7. Classify site as priority and complete MLIF to Level 2.

Table 3. Priority site characteristics.

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Table 3. Priority site characteristics.

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Angelina	005LUF302	Clay-common	Pit	7	No ¹	5	Stable	POWx
Angelina	005LUF303	Clay-common	Pit	3	No	4	Stable	POWx
Bell	027BEL502	Sand & Gravel	Pit	3	No	15	Stable	None
Bell	027MOF801	Limestone	Quarry	17	No ²	12	Stable	POW
Bell	027MOF802	Limestone	Quarry	50	No ²	25	Stable	None
Bell	027MOF804	Limestone	Quarry	74	No ²	15	Unstable	POWx
Bosque	035CLI801	Sand & Gravel	Pit	17	No ²	15	Stable	POWx
Bowie	037DOM101	Sand & Gravel	Strip	15	Carrizo-Wilcox	15	Unstable	POWx
Bowie	037LEA905	Sand & Gravel	Pit	8	Carrizo-Wilcox	0	na ⁹	POWx,PSSx, PABx
Bowie	037TEX704	Sand & Gravel	Strip	37	Carrizo-Wilcox	0	na	POWx,PFO/SSx
Bowie	037TEX705	Sand & Gravel	Strip	17	Carrizo-Wilcox	15	Unstable	PSS/EMx
Brazoria	039ALG701	Sand & Gravel	Pit	6	Chicot	0	na	POWx
Brazoria	039ALG702	Sand & Gravel	Pit	16	Chicot	15	Unstable	POWx
Brazoria	039ALG704	Sand & Gravel	Pit	18	Chicot	10	Unstable	POWx
Brazoria	039ALM601	Sand & Gravel	Pit	22	Chicot	0	na	POWx,PSSx
Brazoria	039ANG201	Sand & Gravel	Pit	7	Chicot	0	na	POWx
Brazoria	039ANG203	Sand & Gravel	Pit	16	Chicot	0	na	POWx
Brazoria	039LAJ902	Sand & Gravel	Pit	7	Chicot	0	na	POWx
Brazoria	039MAN602	Sand & Gravel	Pit	6	Chicot ¹	0	na	POWx
Brazoria	039PEA401	Sand & Gravel	Pit	30	Chicot	15	Unstable	POWx
Brazoria	039PEA403	Sand & Gravel	Pit	5	Chicot	10	Stable	POWx,PSSx
Brazoria	039PEA501	Sand & Gravel	Pit	4	Chicot	15	Stable	POWx
Brazoria	039PEA504	Sand & Gravel	Pit	7	Chicot	15	Unstable	POWx
Chambers	071ANA104	Sand & Gravel	Pit	19	Chicot	15	Stable	POWx, PFO/SS/EMx
Chambers	071MOP601	Sand & Gravel	Pit	16	Chicot ¹	0	na	POWx
Collin	085CEL601	Limestone	Quarry	4	No ¹	20	Stable	PEM/ABx
Collin	085CEL602	Limestone	Quarry	3	No ¹	12	Stable	PEM/SSx
Collin	085HEB501	Limestone	Quarry	9	No ¹	8	Stable	POWx

Table 3 (cont.)

Site Number	Vegetation Density In Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
005LUF302	Complete	None	TR,F	Nb	PR,R/B	26-50%	Sharp turn on road near NE corner of pit.
005LUF303	Moderate	None	R,F,G	Nb	PR	0-25%	Wetland used for recreation.
027BEL502	Sparse	I,III	R,TR	Nb	None	0-25%	Piles of insulation dumped on site.
027MOF801	Moderate	None	R,TR,F,G	Nb	None	0-25%	
027MOF802	Moderate	III	R,TR,F,G	Nb	PR,R/B	0-25%	
027MOF804	Moderate	None	R,F,G	Yes	PR,R/B	0-25%	
035CLI801	Complete	None	R,TR,F,G	Nb	None	0-25%	
037DOM101	Moderate	III	R,F,G	Nb	None	0-25%	flyover ⁷
037LEA905	Moderate	None	R,TR,F,G	c/o	PR,R/B	0-25%	flyover
037TEX704	Complete	None	None	c/o	None	0-25%	flyover
037TEX705	Moderate	None	R,TR,F	c/o	PR	0-25%	flyover
039ALG701	Moderate	None	R,TR	Yes	R/B	0-25%	Wetland used for recreation.
039ALG702	Complete	None	F	Nb	PR,R/B	0-25%	
039ALG704	Complete	None	R	Yes	R/B	0-25%	Wetland used for recreation. Moderate susceptibility to erosion.
039ALM601	Moderate	None	R,F,G	Nb	PR,R/B	0-25%	Child reportedly drowned at site in 1987.
039ANG201	Complete	None	R,F,G	Nb	PR	0-25%	
039ANG203	Complete	None	R,F,G	Nb	PR,R/B	0-25%	
039LAJ902	Complete	None	TR	c/o	None	0-25%	flyover
039MAN602	Moderate	None	R,F	Yes	None	0-25%	
039PEA401	Moderate	None	R,TR	Nb	PR	26-50%	
039PEA403	Complete	III	R,TR,F,G	Yes	PR,R/B	0-25%	
039PEA501	Complete	I,III	R,G	Nb	R/B	0-25%	Partially reclaimed as salvage yard.
039PEA504	Moderate	None	R,TR	Nb	R/B	26-50%	Wetland used for recreation.
071ANA104	Complete	None	R,TR	Nb	None	0-25%	
071MOP601	Moderate	III	None	c/o	None	0-25%	flyover
085CEL601	Sparse	III	R,F,G	Nb	PR,R/B	26-50%	Impact on adjacent property-runoff and devegetation.
085CEL602	Complete	III	R,F,G	Nb	PR,R/B	0-25%	
085HEB501	Complete	None	R,TR,F,G	Nb	R/B	0-25%	

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Collin	085MCE505	Limestone	Quarry	16	Nb	25	Stable	None
Cooke	097GAN801	Sand & Gravel	Pit	93	Trinity Group ^{1,2}	0	na	POWx, PEM/OWx,L20Wx
Cooke	097GAN803	Limestone	Quarry	4	No ^{1,2}	10	Stable	POWx
Cooke	097GAS302	Sand & Gravel	Pit	40	No ^{1,2}	0	na	PAB/OWx,PABx
Cooke	097VAV201	Sand & Gravel	Pit	3	No ¹	12	Unstable	PSSx
Coryell	099CPC201	Limestone	Quarry	6	Nb	12	Stable	None
Coryell	099CPC302	Limestone	Quarry	12	Nb	15	Stable	None
Coryell	099CPC303	Limestone	Quarry	29	Nb	15	Stable	None
Coryell	099CPC305	Limestone	Quarry	17	Nb	12	Stable	None
Dallas	113CAR106	Sand & Gravel	Pit	82	No ^{1,2}	0	na	POWx
Dallas	113CAR112	Sand & Gravel	Pit	14	No ^{1,2}	0	na	POWx,PEM/OWx
Dallas	113CAR201	Sand & Gravel	Pit	148	No ²	0	na	L10Wx,POWx
Dallas	113CAR203	Sand & Gravel	Pit	12	No ²	8	Stable	POW/SSx
Dallas	113CAR205	Sand & Gravel	Pit	37	No ^{1,2}	0	na	POWx
Dallas	113CAR209	Sand & Gravel	Pit	13	No ^{1,2}	0	na	POWx
Dallas	113CAR508	Sand & Gravel	Pit	110	No ²	0	na	L20Wx
Dallas	113CAR807	Sand & Gravel	Pit	9	No ²	0	na	L10Wx
Dallas	113CAR809	Sand & Gravel	Pit	13	No ²	0	na	POWx
Dallas	113CAR901	Sand & Gravel	Pit	166	No ²	0	na	POWx,L20Wx
Dallas	113CAR903	Sand & Gravel	Pit	6	No ²	10	Stable	PSSx
Dallas	113CAR911	Sand & Gravel	Pit	8	No ²	0	na	POWx
Dallas	113CDH304	Limestone	Quarry	12	No ¹	11	Stable	None
Dallas	113EUL601	Sand & Gravel	Pit	17	No ¹	0	na	POWx
Dallas	113EUL607	Sand & Gravel	Pit	18	No ¹	0	na	POWx
Dallas	113EUL608	Sand & Gravel	Pit	25	No ¹	0	na	POWx
Dallas	113EUL902	Sand & Gravel	Pit	104	No ¹	0	na	POWx
Dallas	113EUL906	Sand & Gravel	Pit	180	No ¹	0	na	POWx

Table 3 (cont.)

Site Number	Vegetation Density in Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
085MCE505	Complete	None	R,TR,F	Nb	PR,R/B	0-25%	Degraded equipment on site. Runoff received by Big Branch Creek.
097GAN801	Complete	None	R,F,G	Yes	PR,R/B	0-25%	
097GAN803	Complete	III	F,G	Nb	PR	0-25%	Degraded equipment on site.
097GAS302	Complete	III	R,F	Nb	PR	0-25%	
097VAV201	Moderate	None	R,TR	c/o	None	0-25%	flyover. Moderate susceptibility to erosion.
099CPC201	Moderate	III	R,TR	Nb	PR,R/B	0-25%	
099CPC302	Sparse	III	R,TR	Nb	R/B	0-25%	
099CPC303	Sparse	III	R,TR	Nb	PR,R/B	0-25%	Spoil piles on and eroding onto adjacent properties (private homes).
099CPC305	Sparse	None	R,TR,G	Nb	PR,R/B	0-25%	
113CAR106	Complete	None	R,TR,G	Nb	PR,R/B,PL	0-25%	
113CAR112	Complete	None	R,F,G	Nb	PR,R/B	0-25%	
113CAR201	Moderate	None	R,TR	c/o	R/B	0-25%	flyover
113CAR203	Complete	None	R	Nb	PR,R/B	0-25%	
113CAR205	Complete	None	None	Nb	PR,R/B	0-25%	
113CAR209	Complete	None	F,R	c/o	None	0-25%	flyover
113CAR508	Complete	None	None	Nb	PR,R/B	0-25%	
113CAR807	Complete	III	TR	Nb	PR,R/B	0-25%	
113CAR809	Complete	None	TR	Nb	PR,R/B,PL	0-25%	
113CAR901	Complete	None	R,TR	Nb	PR,R/B	0-25%	
113CAR903	Complete	None	TR	Nb	PR,R/B	0-25%	
113CAR911	Moderate	III	R	Nb	PR,R/B	0-25%	
113CDH304	Moderate	None	R,TR,G	Nb	R/B	0-25%	Runoff received by Bee Branch.
113EUL601	Complete	III	R,F,G	Nb	PR	0-25%	Degraded facilities on site.
113EUL607	Complete	I,II,III	R,TR	Nb	None	0-25%	Abandoned cars on site.
113EUL608	Complete	None	TR,F	Nb	PR,R/B	0-25%	Wetland used for recreation.
113EUL902	Complete	None	R	Nb	PR	0-25%	Runoff received by Trinity River. Wetland used for recreation.
113EUL906	Complete	None	R	Nb	PR,R/B	0-25%	Wetland used for recreation.

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine In Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Dallas	113EUL907	Sand & Gravel	Pit	165	No ¹	0	na	POWx
Dallas	113GRA311	Sand & Gravel	Pit	35	No ²	10	Stable	PABx
Dallas	113HUT104	Sand & Gravel	Pit	76	Nb	0	na	POWx
Dallas	113HUT105	Sand & Gravel	Pit	103	Nb	15	Unstable	L1OWx
Dallas	113HUT106	Sand & Gravel	Pit	9	Nb	0	na	POWx
Dallas	113HUT401	Sand & Gravel	Pit	185	Nb	0	na	PAB/SSx
Dallas	113HUT503	Sand & Gravel	Pit	11	Nb	0	na	PABx
Dallas	113HUT605	Sand & Gravel	Pit	14	Nb	15	Stable	POWx
Dallas	113HUT606	Sand & Gravel	Pit	8	No ¹	0	na	PAB/OWx
Dallas	113HUT803	Sand & Gravel	Pit	50	No ¹	0	na	PABx
Dallas	113HUT806	Sand & Gravel	Pit	42	No ¹	0	na	PABx,POWx
Dallas	113HUT810	Sand & Gravel	Pit	47	No ¹	0	na	POWx
Dallas	113IRV202	Sand & Gravel	Pit	3	Nb	0	na	POWx
Dallas	113IRV204	Sand & Gravel	Pit	9	No ²	0	na	POWx
Dallas	113IRV205	Sand & Gravel	Pit	28	No ²	0	na	L1OWx
Dallas	113IRV304	Sand & Gravel	Pit	20	No ²	15	Stable	POWx
Dallas	113IRV309	Sand & Gravel	Pit	44	No ²	0	na	R2OWx
Dallas	113IRV314	Sand & Gravel	Pit	27	No ²	0	na	POWx
Dallas	113IRV327	Sand & Gravel	Pit	31	No ²	10	Unstable	POW/SSx
Dallas	113IRV707	Sand & Gravel	Pit	52	No ¹	0	na	POWx
Dallas	113IRV709	Sand & Gravel	Pit	164	No ¹	0	na	L2OWx
Dallas	113IRV712	Sand & Gravel	Pit	188	No ¹	0	na	POWx

Table 3 (cont.)

Site Number	Vegetation Density In Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
113EUL907	Complete	III	R,TR	Nb	PR,R/B	0-25%	Runoff received by Trinity River. Wetland used for recreation.
113GRA311	Complete	None	R,TR,F	Nb	PL	0-25%	
113HUT104	Complete	None	R,TR,F,G	Yes	PR	0-25%	Runoff received by Trinity River.
113HUT105	Complete	III	R,TR,F,G	Yes	R/B	0-25%	Wetland used for recreation.
113HUT106	Moderate	None	R	Nb	PR	0-25%	
113HUT401	Complete	None	R,TR,F,G	Yes	PR	0-25%	Runoff received by Trinity River. Degraded facilities on site.
113HUT503	Complete	I,II	R,TR,F,G	Nb	None	0-25%	Runoff received by Trinity River. Several rusted 50 gallon drums on site. Degraded facilities on site.
113HUT605	Complete	I,II	R,TR,F,G	Nb	R/B	0-25%	50 gallon drum on site. Degraded equipment on site.
113HUT606	Complete	None	F	Yes	PR,R/B	0-25%	
113HUT803	Complete	II	R,TR,F	Nb	None	0-25%	
113HUT806	Complete	II	R,TR,G	Nb	PR,R/B	0-25%	
113HUT810	Complete	II	R,TR,F,G	Yes	PR,R/B	0-25%	Degraded equipment on site.
113IRV202	Complete	None	F,G	Yes	PR,R/B	0-25%	Posted as "wildlife area."
113IRV204	Complete	None	R,TR	Nb	PR,PL	0-25%	Runoff received by Elm Fork of the Trinity River.
113IRV205	Complete	None	R,TR	Nb	PR,PL	0-25%	
113IRV304	Complete	None	R,F,G	Nb	None	0-25%	Partially reclaimed
113IRV309	Complete	None	None	Nb	PR,R/B	0-25%	Partially reclaimed. Runoff received by Elm Fork of the Trinity River.
113IRV314	Moderate	None	TR	Nb	PR,R/B,PL	0-25%	
113IRV327	Complete	None	TR	Nb	PR,R/B,PL	0-25%	Runoff received by Elm Fork of the Trinity River.
113IRV707	Moderate	III	R,TR,F,G	Yes	PR,R/B	0-25%	Facilities and degraded equipment on site. Site being filled.
113IRV709	Complete	III	R,TR	Nb	PR,R/B	0-25%	Wetland used for recreation.
113IRV712	Complete	III	R,TR,F,G	Nb	PR,R/B	0-25%	Currently being filled.

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Dallas	113IRV715	Sand & Gravel	Pit	129	No ¹	0	na	POWx
Dallas	113IRV804	Sand & Gravel	Pit	247	No ¹	0	na	PSSx,PABx, POWx
Dallas	113IRV806	Sand & Gravel	Pit	287	No ¹	0	na	L10Wx,PSSx, POWx
Dallas	113IRV807	Sand & Gravel	Pit	595	No ¹	0	na	POWx,PSSx
Dallas	113IRV903	Clay	Pit	17	No ¹	40	Unstable	POWx
Dallas	113OAK303	Sand & Gravel	Pit	14	Nb	0	na	PSSx
Dallas	113OAK307	Sand & Gravel	Pit	26	Nb	0	na	POWx
Dallas	113OAK308	Sand & Gravel	Pit	11	Nb	0	na	POWx
Dallas	113ROW102	Limestone	Quarry	13	Nb	13	Stable	POWx
Dallas	113ROW403	Sand & Gravel	Pit	2	Nb	0	na	POWx
Dallas	113SEA401	Sand & Gravel	Pit	7	Nb	0	na	PSS/ABx
Dallas	113SEA408	Sand & Gravel	Pit	3	No ¹	0	na	PABx
Dallas	113SEA409	Sand & Gravel	Pit	7	Nb	13	Unstable	POWx
Dallas	113SEA702	Sand & Gravel	Pit	25	Nb	0	na	PABx
Dallas	113SEA706	Sand & Gravel	Pit	32	Nb	0	na	PABx
Dallas	113SEA707	Sand & Gravel	Pit	770	No ¹	0	na	PABx,POWx
Dallas	113SEA708	Sand & Gravel	Pit	31	Nb	0	na	PABx,POWx
Dallas	113SEA716	Sand & Gravel	Pit	12	Nb	25	Unstable	None
Dallas	113SEA717	Sand & Gravel	Pit	6	Nb	20	Unstable	PEMx
Dallas	113SEA801	Sand & Gravel	Pit	4	No ¹	0	na	PABx
Denton	121ARG703	Sand & Gravel	Pit	74	No ^{1,2}	0	na	R4ABx
Denton	121ARG801	Sand & Gravel	Pit	13	No ^{1,2}	15	Unstable	POWx
Denton	121CAR204	Sand & Gravel	Pit	271	No ²	0	na	POWx

Table 3 (cont.)

Site Number	Vegetation Density In Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
113IRV715	Complete	None	R,F,G	Yes	PR,R/B	0-25%	Portion of site reclaimed as office complex.
113IRV804	Complete	None	F	Nb	PR,R/B	0-25%	
113IRV806	Complete	III	R,TR,F,G	Yes	PR,R/B	0-25%	Wetland used for recreation. Portion of site industrial.
113IRV807	Complete	II,III	R,F,G	Nb	PR,R/B	0-25%	Partially reclaimed residential. Part of site used for waste disposal. Abandoned facilities and degraded equipment on site.
113IRV903	Complete	II,III	R,TR,F,G	Nb	PR,R/B	0-25%	
113OAK303	Complete	II,III	R,F,G	Nb	None	0-25%	Runoff received by Trinity River.
113OAK307	Complete	II	F	Nb	PR,R/B	0-25%	
113OAK308	Moderate	II,III	R,TR,F,G	Nb	PR	26-50%	Runoff received by Trinity River. Site used for waste disposal.
113ROW102	Complete	III	R,TR,F,G	Yes	R/B	0-25%	Runoff received by Rowlett Creek.
113ROW403	Complete	None	R,TR,F,G	Yes	PR,R/B	0-25%	Runoff received by Rowlett Creek.
113SEA401	Complete	None	TR	Nb	PR,R/B	0-25%	
113SEA408	Complete	None	None	Nb	PR,R/B	0-25%	
113SEA409	Complete	II,III	R,TR,G	Yes	None	0-25%	
113SEA702	Complete	None	TR,F	Nb	PR,R/B	0-25%	
113SEA706	Complete	II,III	R,TR,F,G	Nb	PR	0-25%	
113SEA707	Complete	None	R,F,G	Yes	PR,R/B	0-25%	Abandoned facilities and equipment on site.
113SEA708	Complete	I,II,III	R,TR,G	Nb	PR,R/B	0-25%	Abandoned cars on site.
113SEA716	Complete	None	R,TR,F,G	Nb	R/B	0-25%	
113SEA717	Sparse	III	R,TR,F,G	Yes	R/B	26-50%	Wetland used for waste disposal.
113SEA801	Complete	None	R	Nb	PR,R/B	0-25%	
121ARG703	Complete	None	R,F,G	Nb	PR	0-25%	Runoff received by Denton Creek.
121ARG801	Sparse	None	R,F,G	Yes	PR	0-25%	
121CAR204	Complete	None	R,TR	Nb	PR,R/B,PL	0-25%	Runoff received by Elm Fork of the Trinity River.

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine In Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Denton	121HEB701	Limestone	Quarry	4	No ¹	15	Stable	PEM/OWx
Denton	121JUS202	Limestone	Quarry	3	No ¹	0	na	PEM/OWx
Denton	121LEE501	Sand & Gravel	Strip Mine	22	No ²	0	na	PEM/OWx
Denton	121LEE701	Sand & Gravel	Pit	19	No ^{1,2}	0	na	L10Wx
Ellis	139LAN701	Sand & Gravel	Pit	24	No	0	na	PABx
Ellis	139PAL501	Clay-common	Pit	35	No	35	Unstable	None
Ellis	139PAL502	Clay-common	Pit	8	No	25	Unstable	POWx
Falls	145MAR601	Sand & Gravel	Pit	14	Alluvium, Bolson Deposits ²	20	Unstable	None
Fannin	147TRE402	Limestone	Quarry	7	No ¹	0	na	PEMx
Fort Bend	157ALI801	Sand & Gravel	Strip	21	Chicot ¹	0	na	POWx
Fort Bend	157ALI802	Sand & Gravel	Pit	6	Chicot	0	na	POWx
Fort Bend	157ALM401	Brine, Halite	UM-Solution	na	Chicot	0	na	None
Fort Bend	157ALM701	Sand & Gravel	Pit	6	Chicot	0	na	POWx
Fort Bend	157ALM801	Sand & Gravel	Strip	10	Chicot	0	na	POWx
Fort Bend	157ALM802	Sand & Gravel	Pit	24	Chicot	12	Unstable	POWx
Fort Bend	157ALM803	Sand & Gravel	Pit	29	Chicot	0	na	POWx
Fort Bend	157ALM804	Sand & Gravel	Pit	10	Chicot	6	Stable	POWx
Fort Bend	157MIC202	Sand & Gravel	Pit	10	Chicot	0	na	POWx,PSSx
Fort Bend	157MIC203	Sand & Gravel	Pit	6	Chicot	0	na	POWx
Fort Bend	157MIC204	Sand & Gravel	Pit	3	Chicot	10	Stable	POWx
Fort Bend	157MIC205	Sand & Gravel	Pit	14	Chicot	0	na	POWx
Fort Bend	157MIC206	Sand & Gravel	Pit	11	Chicot	0	na	POWx
Fort Bend	157MIC301	Sand & Gravel	Pit	44	Chicot ¹	15	Unstable	POWx
Galveston	167ALG901	Sand & Gravel	Pit	44	Chicot	12	Unstable	POWx
Galveston	167GAL702	Sand & Gravel	Pit	20	Chicot	0	na	E10Wx
Galveston	167HII601	Sand & Gravel	Pit	3	No	0	na	POWx
Galveston	167LAC301	Sand & Gravel	Pit	7	Chicot	0	na	E10Wx
Galveston	167LAC302	Sand & Gravel	Pit	10	Chicot	0	na	E10Wx

Table 3 (cont.)

Site Number	Vegetation Density in Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
121HEB701	Sparse	I,II,III	TR,F	No	R/B	0-25%	Abandoned cars on site. Wetland used for recreation.
121JUS202	Complete	None	TR,F,G	No	R/B	0-25%	
121LEE501	Complete	III	R,F,G	No	PR,R/B	0-25%	Degraded facilities and equipment on site.
121LEE701	Complete	II,III	R	No	R/B	0-25%	Degraded equipment on site.
139LAN701	Complete	II	R,TR	No	None	0-25%	Wetland used for recreation.
139PAL501	Moderate	I,II,III	R,F,G	Yes	PR,R/B	0-25%	Degraded facilities and equipment on site.
139PAL502	Complete	II,III	R,F,G	No	PR,R/B	0-25%	Wetland used for waste disposal.
145MAR601	Complete	I,II,III	R,TR,F,G	No	PR	0-25%	
147TRE402	Complete	None	TR	No	PR,R/B	0-25%	
157ALI801	Moderate	None	R,F,G	No	PR,R/B	0-25%	Probably used by city to contain storm sewer runoff.
157ALI802	Moderate	None	R,G	Yes	PR,R/B	0-25%	
157ALM401	Moderate	II,III	F,G	No	None	0-25%	Shaft is 20 feet deep.
157ALM701	Moderate	None	F,G	No	R/B	0-25%	
157ALM801	Moderate	None	R,TR,F,G	Yes	None	0-25%	Wetland used for recreation & irrigation.
157ALM802	Moderate	None	R,TR,F,G	No	R/B	0-25%	Wetland used for recreation.
157ALM803	Complete	None	TR	No	PR	0-25%	Wetland used for recreation.
157ALM804	Moderate	None	R	Yes	R/B	0-25%	Wetland used for recreation.
157MIC202	Complete	None	TR	No	PR,PL	0-25%	
157MIC203	Complete	None	R,TR,F,G	No	R/B	0-25%	Degraded equipment on site.
157MIC204	Moderate	II,III	R,TR,F,G	Yes	PR,R/B	0-25%	Wetland used for waste disposal.
157MIC205	Moderate	None	R,F,G	Yes	PR,R/B	0-25%	
157MIC206	Complete	II	TR,F,G	No	None	0-25%	Wetland used for recreation.
157MIC301	Sparse	II,III	R,F	No	PR,R/B	0-25%	Currently being filled. Moderate susceptibility to erosion.
167ALG901	Complete	II	R,TR	No	PR,R/B	0-25%	Tires on site.
167GAL702	Complete	None	None	No	PR,R/B	0-25%	
167HII601	Complete	None	None	No	PR,R/B,PL	0-25%	
167LAC301	Complete	II,III	R,F,G	No	PR,R/B	0-25%	
167LAC302	Complete	None	F,G	Yes	PR	0-25%	

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine In Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Galveston	167LAC303	Sand & Gravel	Pit	44	Chicot	0	na	E10Wx
Galveston	167LAC304	Sand & Gravel	Pit	5	Chicot	0	na	E10Wx
Galveston	167LAC306	Sand & Gravel	Pit	6	Chicot	0	na	E10Wx
Galveston	167LEC902	Sand & Gravel	Pit	7	Chicot	0	na	POWx
Galveston	167LEC905	Sand & Gravel	Pit	4	Chicot	0	na	POWx
Galveston	167LEC908	Sand & Gravel	Pit	17	Chicot	0	na	POWx
Galveston	167VIP101	Sand & Gravel	Pit	16	Chicot	0	na	POWx
Galveston	167VIP104	Sand & Gravel	Pit	5	Chicot	0	na	PABx
Galveston	167VIP201	Sand & Gravel	Pit	19	Chicot	7	Stable	POWx
Galveston	167VIP402	Sand & Gravel	Pit	9	Chicot	0	na	POWx
Grayson	181POT201	Limestone	Quarry	110	No ^{1,2}	20	Stable	PEM/OWx,PABx
Grayson	181POT301	Limestone	Quarry	56	No ^{1,2}	25	Unstable	POWx
Grayson	181POT601	Limestone	Quarry	108	No ^{1,2}	25	Unstable	L20Wx
Grayson	181SHN603	Sand & Gravel	Pit	2	Nb	0	na	POWx
Grayson	181WHI705	Limestone	Quarry	3	No ¹	20	Stable	None
Hardin	199SIL102	Sand & Gravel	Pit	27	Gulf Coast ^{1,2}	0	na	PABx
Hardin	199SIL103	Sand & Gravel	Pit	4	Gulf Coast ²	4	Stable	POWx
Hardin	199SIL401	Sand & Gravel	Pit	4	Gulf Coast	0	na	PABx
Hardin	199VOT201	Sand & Gravel	Pit	15	Gulf Coast ¹	6	Stable	POWx
Hardin	199VOT501	Sand & Gravel	Pit	6	Gulf Coast ^{1,2}	15	Stable	POWx,PABx
Harris	201ALM301	Sand & Gravel	Pit	11	Chicot ¹	30	Stable	POWx,PFO/SSx
Harris	201CRO701	Sand & Gravel	Pit	25	Chicot	0	na	POWx
Harris	201CRO703	Sand & Gravel	Pit	23	Chicot	0	na	POWx
Harris	201CRO801	Sand & Gravel	Pit	6	Chicot	0	na	POWx

Table 3 (cont.)

Site Number	Vegetation Density in Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
167LAC303	Complete	None	R,F,G	Yes	PR,R/B	0-25%	Wetland used for recreation.
167LAC304	Complete	None	F,G	No	PR,R/B	0-25%	
167LAC306	Complete	II,III	TR,F	No	PR,R/B	0-25%	Wetland used for recreation. Runoff received by Gulf of Mexico.
167LEC902	Moderate	II,III	R	No	PR,R/B	0-25%	Site used for waste disposal.
167LEC905	Moderate	None	TR	Yes	PR,R/B	0-25%	Wetland used for recreation.
167LEC908	Moderate	None	R,TR,F,G	Yes	PR,R/B	0-25%	Wetland used for recreation.
167VIP101	Moderate	None	R,TR,G	Yes	PR,R/B	0-25%	Wetland used for recreation.
167VIP104	Moderate	III	R	No	PR	0-25%	Wetland used for waste disposal.
167VIP201	Moderate	III	R,G	Yes	PR,R/B	0-25%	Wetland opens to Highland Bayou. Wetland used for recreation.
167VIP402	Moderate	II,III	R,TR	No	PR	0-25%	Wetland used for recreation.
181POT201	Complete	None	R,G	No	PR,R/B	0-25%	Degraded facilities on site.
181POT301	Complete	None	F,G	Yes	R/B	c/o	Highwall slumping, affecting adjacent property. Degraded equipment on site. Moderate susceptibility to erosion.
181POT601	Sparse	II	R,F	No	PR,R/B	0-25%	Runoff received by local creek. Moderate susceptibility to erosion.
181SHN603	Complete	None	TR,F,G	No	PR,R/B,PL	0-25%	Runoff received by local creek.
181WHI705	Complete	None	R,TR,F,G	Yes	PR,R/B	0-25%	
199SIL102	Complete	None	R,F,G	No	None	0-25%	
199SIL103	Sparse	I,II,III	TR	No	None	0-25%	Runoff received by Mill Creek. Moderate susceptibility to erosion.
199SIL401	Moderate	II	TR	No	R/B	26-50%	
119VOT201	Complete	None	R,G	Yes	PR,R/B,PL	0-25%	
119VOT501	Complete	None	R,F,G	Yes	PR,R/B	26-50%	Pipes from adjacent sewage treatment plant lead to site.
201ALM301	Complete	II,III	R,TR,F,G	No	PR,R/B	26-50%	Wetland used for recreation. Several tires on site.
201CRO701	Complete	None	R,G	c/o	R/B,PL	0-25%	flyover
201CRO703	Moderate	III	R	No	PR,PL	0-25%	Wetland used for recreation.
201CRO801	Complete	None	R	No	None	0-25%	

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Harris	201CRO803	Sand & Gravel	Pit	5	Chicot ¹	0	na	POWx,PFO/SSx
Harris	201HAR801	Sand & Gravel	Pit	9	Chicot	0	na	POWx,PSS/EMx
Harris	201HEV701	Sand & Gravel	Pit	17	Chicot ¹	0	na	POWx
Harris	201HIG103	Sand & Gravel	Pit	25	Chicot ¹	0	na	L10Wx
Harris	201HIG104	Sand & Gravel	Pit	45	Chicot ¹	0	na	POWx,PFOx
Harris	201HIG107	Sand & Gravel	Pit	98	Chicot ¹	0	na	PFO/SS/EMx, POWx
Harris	201HIG201	Sand & Gravel	Pit	19	Chicot ¹	0	na	POWx
Harris	201HIG202	Sand & Gravel	Pit	8	Chicot ¹	12	Stable	PEM/OWx
Harris	201HIG205	Sand & Gravel	Pit	31	Chicot ¹	0	na	POWx
Harris	201HIG401	Sand & Gravel	Pit	29	Chicot	0	na	POWx
Harris	201HIG501	Sand & Gravel	Pit	42	Chicot ¹	0	na	POWx,PSSx
Harris	201HIG504	Sand & Gravel	Pit	6	Chicot ¹	0	na	POWx,PFO/SSx
Harris	201HIG601	Sand & Gravel	Pit	14	Chicot ¹	0	na	POWx
Harris	201HUM201	Sand & Gravel	Pit	11	Chicot ¹	0	na	POWx,PABx
Harris	201HUM301	Sand & Gravel	Pit	8	Chicot ¹	0	na	POWx,PABx
Harris	201HUM901	Sand & Gravel	Pit	6	Chicot ¹	0	na	POWx
Harris	201HUM906	Sand & Gravel	Pit	9	Chicot ¹	0	na	POWx,PABx
Harris	201HUM910	Sand & Gravel	Pit	5	Chicot ¹	0	na	POWx,PSS/EMx
Harris	201LEC601	Sand & Gravel	Pit	62	Chicot ¹	12	Unstable	L10Wx,PSSx
Harris	201LEC602	Sand & Gravel	Pit	16	Chicot ¹	6	Unstable	POWx,PSS/EMx
Harris	201MAE903	Sand & Gravel	Pit	9	Chicot ¹	0	na	POWx
Harris	201MOB702	Sand & Gravel	Pit	4	Chicot	0	na	POWx,PSSx

Table 3 (cont.)

Site Number	Vegetation Density in Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
201CRO803	Complete	None	R,G	No	PR,R/B,PL	0-25%	
201HAR801	Moderate	None	R,TR	No	PR,R/B	51-75%	Wetland used for recreation
201HEV701	Complete	III	R,TR,F,G	No	PR,R/B	0-25%	
201HIG103	Moderate	I,II,III	R,G	Yes	PR	0-25%	Construction equipment on site.
201HIG104	Complete	None	R,TR,G	No	PR	26-50%	
201HIG107	Complete	None	R,TR,G	Yes	None	0-25%	
201HIG201	Complete	None	R,TR,F,G	c/o	None	0-25%	flyover
201HIG202	Moderate	II	R,TR	No	PR,R/B	26-50%	Several tires on site.
201HIG205	Complete	None	R,G	Yes	None	0-25%	
201HIG401	Complete	None	R,F,G	No	PR,R/B	76-100%	Abandoned equipment on site. Partially reclaimed recreational.
201HIG501	Moderate	II,III	R	No	PR,R/B	26-50%	
201HIG504	Complete	None	R	No	PR,R/B	0-25%	
201HIG601	Complete	III	R,G	No	PR,R/B	0-25%	Wetland used for recreation and waste disposal.
201HUM201	Complete	II,III	None	No	R/B	0-25%	
201HUM301	Complete	II	R,TR,F,G	Yes	R/B	26-50%	
201HUM901	Complete	III	R,TR	No	None	26-50%	Degraded equipment on site.
201HUM906	Complete	III	R	No	PR,R/B	51-75%	East end of wetland being filled, west end used for recreation.
201HUM910	Complete	II,III	R,TR	No	PR,R/B	26-50%	East end being filled. Wetland used for recreation.
201LEC601	Complete	None	R,TR,F,G	Yes	None	0-25%	Wetland used for recreation.
201LEC602	Complete	None	R,TR	No	PR,R/B,PL	0-25%	Site next to schoolgrounds. Wetland used for recreation.
201MAE903	Moderate	II,III	R,TR	No	PR,R/B	76-100%	Degraded equipment and facilities on site. Wetland used as landfill. Moderate susceptibility to erosion.
201MOB702	Complete	c/o	R,F,G	Yes	PR,c/o	0-25%	

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Harris	201PAS801	Sand & Gravel	Pit	81	Chicot	0	na	POWx
Harris	201PEA301	Sand & Gravel	Pit	4	Chicot ¹	0	na	POWx, PFO/SS/EMx
Harris	201SAT202	Sand & Gravel	Pit	12	Chicot ¹	0	na	POWx,PEMx
Harris	201SAT901	Sand & Gravel	Pit	17	Chicot ¹	20	Unstable	POWx,PSSx
Harris	201SPR208	Sand & Gravel	Pit	5	Chicot ¹	0	na	POWx
Harris	201SPR503	Sand & Gravel	Pit	2	Chicot ¹	0	na	POWx,PFO/SSx
Harrison	203MAE402	Clay	Pit	20	Nb	0	na	POWx,PABx
Harrison	203MAE701	Clay	Pit	13	Nb	10	Unstable	POWx
Henderson	213ATH101	Clay	Pit	5	Carrizo-Wilcox ¹	10	Unstable	L20Wx
Henderson	213ATH401	Clay	Pit	10	Carrizo-Wilcox ¹	18	Unstable	PEMx,POWx
Henderson	213ATH402	Clay, Ironstone	Pit	16	Carrizo-Wilcox ¹	15	Unstable	L10Wx
Hill	217BLU902	Sand & Gravel	Pit	17	No ¹	0	na	POWx
Hood	221ACT501	Sand & Gravel	Pit	10	Trinity	5	Stable	None
Hood	221GRA501	Sand & Gravel	Pit	7	Trinity	10	Unstable	PEMx
Hood	221GRA503	Limestone	Quarry	16	Trinity	0	na	PEM/ABx,PEMx
Hood	221GRA505	Limestone	Quarry	4	Trinity	8	Stable	POWx
Hood	221TOL901	Limestone	Quarry	2	Trinity	0	na	PAB/EMx
Hopkins	223SUS201	Clay	Pit	5	Carrizo-Wilcox	10	Unstable	POWx
Hunt	231ABL101	Limestone	Quarry	21	No ²	15	Stable	PEMx,L2RBx
Jefferson	245PAN301	Sand & Gravel	Pit	15	Chicot	0	na	POWx,PSS/EMx
Jefferson	245PAN302	Sand & Gravel	Pit	3	Chicot	0	na	POWx,PABx
Jefferson	245PAN304	Sand & Gravel	Pit	9	Chicot	0	na	POWx,PEMx

Table 3 (cont.)

Site Number	Vegetation Density In Plt	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
201PAS801	Moderate	I	R,TR,F	Yes	PR,R/B	26-50%	Chemical hazards warning sign posted. Pasadena Dept. of Health is investigating contents of drums.
201PEA301	Complete	None	R,TR	No	R/B	51-75%	
201SAT202	Moderate	II	R	No	PR,R/B	26-50%	Degraded equipment and facilities on site. Local fireman reported possible drowning in 1987.
201SAT901	Moderate	II,III	R,TR,F,G	No	PR,R/B	51-75%	Wetland used for recreation. Moderate susceptibility to erosion.
201SPR208	Complete	None	R,F,G	Yes	PR,R/B	26-50%	Wetland used for recreation.
201SPR503	Complete	None	F,G	Yes	PR,R/B	0-25%	Wetland used for recreation.
203MAE402	Complete	None	R,RR	c/o	R/B	0-25%	flyover
203MAE701	Moderate	None	R	c/o	None	0-25%	flyover
213ATH101	Complete	I,III	R,TR	No	R/B	0-25%	
213ATH401	Complete	III,II	R,TR,F	No	PR,R/B	0-25%	Accidents reported by local residents.
213ATH402	Complete	None	R,F,G	No	PR,R/B	0-25%	
217BLU902	Complete	III	R	No	PR,R/B	0-25%	
221ACT501	Moderate	None	TR	No	PR,R/B	0-25%	
221GRA501	Moderate	II,III	R,TR,F,G	No	R/B	0-25%	
221GRA503	Moderate	II,III	R,TR,F,G	No	PR	0-25%	Equipment on site.
221GRA505	Moderate	II	R,TR,F,G	No	PR,R/B	0-25%	
221TOL901	Moderate	II,III	R,TR,F,G	No	R/B	0-25%	Degraded equipment on site.
223SUS201	Complete	II,III	R,TR,F,G	No	PR,R/B	0-25%	Runoff received by tributary of Rock Creek. Degraded equipment on site.
231ABL101	Complete	None	R,TR,F,G	No	PR	0-25%	
245PAN301	Complete	None	R,F,G	Yes	PR,R/B	0-25%	Wetland used for recreation.
245PAN302	Complete	None	G	No	PR,R/B	0-25%	Local resident claims sewage from adjacent residence goes into pond.
245PAN304	Complete	None	R,G	No	R/B	0-25%	

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Jefferson	245PAN502	Sand & Gravel	Pit	23	Chicot	0	na	POWx
Jefferson	245PAN701	Sand & Gravel	Pit	6	Chicot	0	na	POWx
Jefferson	245PIF702	Sand & Gravel	Pit	27	Chicot	0	na	POWx,PFO/SSx
Jefferson	245POA302	Sand & Gravel	Pit	30	Chicot	0	na	POWx
Jefferson	245POA602	Sand & Gravel	Pit	13	Chicot	20	Stable	POWx
Johnson	251PRI801	Limestone	Quarry	3	No	0	na	PEM/ABx,PABx
Kaufman	257ROS101	Sand & Gravel	Pit	19	No	0	na	L10Wx
Limestone	293GRO901	Clay	Pit	4	No	25	Unstable	POWx
McLennan	309CHS802	Sand & Gravel	Pit	16	No ¹	0	na	PEM/OWx
McLennan	309GHL904	Sand & Gravel	Pit	6	Alluvium, Bolson Deposits ²	25	Stable	PEM/OWx
McLennan	309ROB202	Sand & Gravel	Pit	12	Alluvium, Bolson Deposits ²	8	Unstable	POWx,PFOx
McLennan	309SBQ201	Sand & Gravel	Pit	13	Alluvium, Bolson Deposits ¹	15	Unstable	POWx
McLennan	309SBQ302	Sand & Gravel	Pit	66	Alluvium, Bolson Deposits ¹	0	na	PEMx
McLennan	309WAE101	Sand & Gravel	Pit	8	Alluvium, Bolson Deposits ¹	0	na	POWx
McLennan	309WAE102	Sand & Gravel	Pit	8	Alluvium, Bolson Deposits ¹	15	Stable	POWx
McLennan	309WAE705	Sand & Gravel	Pit	9	Alluvium, Bolson Deposits ¹	0	na	POWx,PEMx
McLennan	309WAE706	Sand & Gravel	Pit	59	Alluvium, Bolson Deposits ^{1,2}	10	Unstable	POWx
McLennan	309WAW302	Sand & Gravel	Pit	98	Alluvium, Bolson Deposits ²	0	na	POWx

Table 3 (cont.)

Site Number	Vegetation Density in Pit	Waste Dumping⁴	Visitation and Accessibility⁵	Posted	Visibility⁶	Human Visitation	Remarks
245PAN502	Moderate	None	R,F,G	Yes	PR,R/B	0-25%	Wetland used for industrial purposes. Discharge canal from adjacent oil refinery leads to site.
245PAN701	Complete	III	R	No	PR,R/B	51-75%	Wetland used for recreation.
245PIF702	Complete	None	R,TR,F,G	Yes	PR,R/B	51-75%	
245POA302	Complete	II,III	R,TR	No	PR,R/B	26-50%	Wetland used for recreation.
245POA602	Complete	None	F	No	PR,PL	0-25%	Wetland may be used for irrigation or flood control.
251PRI801	Complete	II,III	R,F,G	No	None	0-25%	Runoff received by local creek.
257ROS101	Complete	None	R,TR,F,G	Yes	PR,R/B	0-25%	
293GRO901	Complete	I,III	R,TR	No	PR,R/B,PL	0-25%	Degraded facilities and equipment on site.
309CHS802	Complete	II,III	R,F,G	No	R/B	0-25%	
309GHL904	Complete	I,III	R,TR	No	PR,R/B	0-25%	Degraded equipment on site.
309ROB202	Complete	II	R,F,G	No	PR,R/B	0-25%	Irrigation equipment on site.
309SBQ201	Complete	III	R,TR	No	R/B	0-25%	Site partially reclaimed - agricultural, residential. Runoff received by Harris Creek.
309SBQ302	Complete	None	R,TR,F,G	No	PR,R/B	0-25%	Runoff received by Bosque River.
309WAE101	Complete	II,III	R,TR,F,G	Yes	R/B	0-25%	
309WAE102	Complete	I,II	R,TR,F	No	PR,R/B,PL	0-25%	Degraded equipment on site. "Brown Lake" recreation area.
309WAE705	Complete	None	R,TR,F,G	No	PR,R/B	0-25%	
309WAE706	Moderate	III	R,F,G	Yes	PR,R/B	0-25%	Many pits on site being filled.
309WAW302	Complete	None	R,F	No	PR,R/B	0-25%	

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
McLennan	309WAW305	Sand & Gravel	Pit	12	Alluvium, Bolson Deposits ²	40	Unstable	None
McLennan	309WAW601	Sand & Gravel	Pit	58	Alluvium, Bolson Deposits ^{1,2}	0	na	POWx
Montague	337BOW401	Sand & Gravel	Pit	14	Trinity Group	0	na	POWx
Montague	337NOC701	Sand & Gravel	Pit	7	Nb	15	Stable	PEMx
Montgomery	339CON701	Sand & Gravel	Pit	26	Chicot ^{1,2}	0	na	L10Wx
Montgomery	339SPR202	Sand & Gravel	Pit	9	Chicot ¹	0	na	POWx
Montgomery	339SPR301	Sand & Gravel	Pit	19	Chicot	0	na	POWx,PSSx
Montgomery	339SPR303	Sand & Gravel	Pit	15	Chicot	0	na	POWx,PSS/EMx
Montgomery	339SPR304	Sand & Gravel	Pit	6	Chicot	12	Unstable	POWx
Montgomery	339TAM201	Sand & Gravel	Pit	13	Chicot ²	0	na	POWx
Montgomery	339TAM501	Sand & Gravel	Pit	6	Chicot	0	na	POWx
Montgomery	339TAM502	Sand & Gravel	Pit	5	Chicot	0	na	POWx
Montgomery	339TAM503	Sand & Gravel	Pit	4	Chicot	0	na	POWx
Navarro	349COS201	Clay	Pit	6	Nb	0	na	POWx
Navarro	349COS202	Clay	Pit	6	Nb	0	na	POWx
Navarro	349COS402	Clay	Pit	35	Nb	0	na	POWx
Navarro	349STR801	Sand & Gravel	Pit	11	Carrizo-Wilcox ²	0	na	POWx
Orange	361BEE201	Sand & Gravel	Pit	17	Chicot	0	na	POWx
Orange	361BEE202	Sand & Gravel	Pit	24	Chicot	0	na	L1AB/OWx, PSS/EMx
Orange	361BEE207	Sand & Gravel	Pit	3	Chicot	10	Stable	POWx
Orange	361BEE302	Sand & Gravel	Pit	11	Chicot	0	na	POWx
Orange	361BEE303	Sand & Gravel	Pit	6	Chicot ¹	0	na	POWx
Orange	361BEE305	Sand & Gravel	Pit	17	Chicot ¹	0	na	PAB/OWx, PSS/EMx

Table 3 (cont.)

Site Number	Vegetation Density in Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
309WAW305	Moderate	III	R	No	PR,R/B	0-25%	Moderate susceptibility to erosion.
309WAW601	Complete	III	R,TR	No	PR,R/B	0-25%	Wetland used for recreation. Most of site is filled. Runoff received by Brazos River.
337BOW401	Moderate	III	None	No	PR,R/B,PL	0-25%	
337NOC701	Complete	II	R,TR,F,G	No	PR	0-25%	
339CON701	Complete	None	R,TR,G	No	None	26-50%	
339SPR202	Complete	None	R	No	None	0-25%	
339SPR301	Complete	II,III	R,G	No	PR,R/B	0-25%	Degraded equipment on site.
339SPR303	Complete	III	R	No	None	26-50%	Possible toxic waste dumping.
339SPR304	Sparse	None	R,G	Yes	PR	26-50%	Water is being pumped into adjacent pit.
339TAM201	Complete	None	R,TR	No	PR,R/B	26-50%	
339TAM501	Complete	None	R	No	PR,R/B	0-25%	Partially reclaimed residential and transportation.
339TAM502	Complete	None	R	No	PR,R/B	26-50%	Wetland used for recreation.
339TAM503	Complete	None	R,TR,G	No	None	51-75%	
349COS201	Complete	None	R,TR	No	PR,R/B	0-25%	Wetland used for recreation.
349COS202	Complete	None	R	No	PR,R/B	0-25%	Wetland used for recreation.
349COS402	Complete	II,III	R,TR	No	PR,R/B	26-50%	Wetland used for waste disposal.
349STR801	Complete	None	R	No	PR,R/B	0-25%	Wetland used for recreation.
361BEE201	Complete	None	R,TR,F,G	No	PR,R/B	76-100%	Site partially filled. Wetland used for recreation and industry.
361BEE202	Complete	II,III	TR	No	R/B	0-25%	Runoff received by Neches River.
361BEE207	Complete	II,III	R,TR	No	PR,R/B	51-75%	Site partially filled. Wetland used for waste disposal.
361BEE302	Complete	None	R,TR,F,G	Yes	PR,R/B	51-75%	Wetland used for recreation.
361BEE303	Complete	None	R,TR,F,G	No	R/B	26-50%	Wetland used for recreation.
361BEE305	Complete	None	R,TR,F	No	PR	0-25%	

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Orange	361BEE306	Sand & Gravel	Pit	17	Chicot ¹	5	Unstable	POWx
Orange	361ECH501	Sand & Gravel	Pit	12	Chicot	0	na	POWx
Orange	361MAU101	Sand & Gravel	Pit	6	Chicot	0	na	PABx
Orange	361MAU102	Sand & Gravel	Pit	9	Chicot	8	Unstable	POWx
Orange	361MAU602	Sand & Gravel	Pit	8	Chicot	0	na	POWx
Orange	361MAU901	Sand & Gravel	Pit	57	Chicot ¹	0	na	L10Wx
Orange	361ORA101	Sand & Gravel	Pit	5	Chicot ¹	0	na	POWx,PABx
Orange	361ORA201	Sand & Gravel	Pit	10	Chicot	0	na	POWx,PABx
Orange	361ORA205	Sand & Gravel	Pit	4	Chicot ¹	0	na	POWx
Orange	361ORA206	Sand & Gravel	Pit	7	Chicot ¹	0	na	POWx
Orange	361ORA207	Sand & Gravel	Pit	8	Chicot ¹	0	na	POWx
Orange	361ORA301	Sand & Gravel	Pit	4	Chicot	0	na	POWx
Orange	361ORA302	Sand & Gravel	Pit	9	Chicot ¹	0	na	POWx
Orange	361ORA303	Sand & Gravel	Pit	4	Chicot ¹	0	na	POWx
Orange	361ORA304	Sand & Gravel	Pit	10	Chicot ¹	0	na	POWx
Orange	361ORA401	Sand & Gravel	Pit	11	Chicot ¹	0	na	POWx
Orange	361ORA501	Sand & Gravel	Pit	9	Chicot	0	na	POWx
Orange	361ORA502	Sand & Gravel	Pit	7	Chicot ¹	0	na	POWx,PFO/SSx
Orange	361PIF902	Sand & Gravel	Pit	6	Chicot ¹	0	na	POWx
Orange	361PIF903	Sand & Gravel	Pit	25	Chicot ¹	0	na	L10Wx
Orange	361PIF904	Sand & Gravel	Pit	11	Chicot ¹	0	na	POWx,PFOx
Orange	361TER601	Sand & Gravel	Pit	3	Chicot ¹	0	na	POWx,PABx
Orange	361TEX701	Sand & Gravel	Pit	5	Chicot ¹	0	na	POWx
Orange	361TEX702	Sand & Gravel	Pit	5	Chicot ¹	0	na	POWx
Orange	361TEX704	Sand & Gravel	Pit	3	Chicot	0	na	POWx,PEM/ABx
Orange	361TEX706	Sand & Gravel	Pit	4	Chicot	0	na	POWx,PABx
Orange	361TEX802	Sand & Gravel	Pit	8	Chicot	0	na	POWx
Orange	361TEX803	Sand & Gravel	Pit	3	Chicot	0	na	POWx
Orange	361TEX901	Sand & Gravel	Pit	9	Chicot	0	na	POWx
Orange	361TEX703	Sand & Gravel	Pit	3	Chicot	0	na	POWx

Table 3 (cont.)

Site Number	Vegetation Density in Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
361BEE306	Moderate	None	TR,F	No	PR,R/B	76-100%	Wetland used for recreation. Moderate susceptibility to erosion.
361ECH501	Complete	II,III	R,F,G	Yes	PR,R/B	26-50%	Wetland used for recreation.
361MAU101	Complete	None	R,TR	No	None	0-25%	
361MAU102	Complete	None	R	No	PR,R/B	26-50%	
361MAU602	Complete	None	R,TR	No	PR,R/B	51-75%	Wetland used for recreation.
361MAU901	Complete	III	R,TR,G	No	PR	26-50%	
361ORA101	Complete	None	TR	No	R/B	26-50%	Wetland used for recreation.
361ORA201	Complete	II	R,TR	No	PR,R/B	26-50%	
361ORA205	Complete	None	R,F,G	No	PR,R/B	0-25%	
361ORA206	Complete	None	R,TR	No	PR,R/B	26-50%	Wetland used for recreation.
361ORA207	Complete	None	R,TR	No	R/B	51-75%	Wetland used for recreation.
361ORA301	Complete	None	R,TR	No	PR	0-25%	Runoff received by Adam's Bayou.
361ORA302	Complete	None	R,TR,F,G	No	PR,R/B	0-25%	
361ORA303	Complete	None	R,TR,F,G	Yes	R/B	0-25%	Wetland used for recreation.
361ORA304	Complete	I,II,III	R,TR,G	No	None	26-50%	Wetland used for waste disposal.
361ORA401	Moderate	None	R,F,G	Yes	PR	0-25%	Moderate susceptibility to erosion.
361ORA501	Complete	None	R	No	PR,R/B	0-25%	Wetland used for recreation.
361ORA502	Complete	None	R,TR,F	No	R/B	0-25%	
361PIF902	Complete	None	TR,F	No	PR,R/B	51-75%	Wetland used for recreation. Degraded equipment on site.
361PIF903	Complete	None	R,TR,F	Yes	PR,R/B	26-50%	Wetland used for recreation.
361PIF904	Complete	None	R,TR	No	PR,R/B	26-50%	
361TER601	Complete	None	TR,F	No	None	26-50%	
361TEX701	Complete	None	R,F,G	No	PR,R/B	26-50%	Wetland used for recreation.
361TEX702	Moderate	None	R,TR	No	None	76-100%	Old abandoned car on site.
361TEX704	Complete	None	TR,F	No	R/B	51-75%	Wetland used for recreation.
361TEX706	Complete	None	TR	No	None	0-25%	
361TEX802	Complete	None	None	Yes	PR,R/B	26-50%	Wetland used for recreation.
361TEX803	Complete	None	None	No	PR,R/B	0-25%	Wetland used for recreation.
361TEX901	Complete	None	R,TR	No	PR,R/B	51-75%	Wetland used for recreation.
361TEX703	Complete	None	R,F,G	No	PR,R/B	26-50%	Wetland used for recreation.

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Parker	367MWE602	Clay	Pit	4	Nb	30	Stable	POWx
Polk	373LIV501	Sand & Gravel	Pit	20	Alluvium	0	na	PFLx,PSS/EMx
Rains	379ALB101	Sand & Gravel	Pit	13	Wilcox-Carrizo	0	na	PAB/OWx, L1OWx, PEM/OWx
Robertson	395HEN702	Sand & Gravel	Pit	9	Nb	18	Stable	PABx
Robertson	395HEN703	Sand & Gravel	Pit	4	Nb	0	na	PABx
Robertson	395HES101	Sand & Gravel	Pit	118	Alluvium, Bolson Deposits ²	0	na	POWx
Rockwall	397ROC501	Limestone	Quarry	32	No ²	10	Stable	POWx
Smith	423MTS102	Sand & Gravel	Pit	5	Queen City, Sparta	0	na	PEMx
Smith	423TYS101	Sand & Gravel	Pit	5	Queen City, Sparta	15	Unstable	None
Tarrant	439BEN401	Limestone	Quarry	34	No ¹	40	Unstable	POWx
Tarrant	439BRT202	Sand & Gravel	Pit	40	Nb	15	Unstable	None
Tarrant	439HLC905	Sand & Gravel	Pit	14	Nb	0	na	POWx
Tarrant	439HUR402	Sand & Gravel	Pit	12	No ¹	0	na	POWx
Tarrant	439HUR501	Sand & Gravel	Pit	370	No ¹	0	na	POWx
Tarrant	439HUR603	Sand & Gravel	Pit	10	Nb	20	Unstable	POWx
Tarrant	439LKW901	Sand & Gravel	Pit	13	No ¹	0	na	POWx
Tarrant	439MAN101	Sand & Gravel	Pit	22	Woodbine ¹	0	na	POWx
Tarrant	439MAN102	Sand & Gravel	Pit	20	Woodbine ¹	10	Stable	POWx, PEM/OWx,PEMx
Walker	471RIV302	Clay-common	Pit	12	No ^{1,2}	25	Stable	POWx
Wise	497BRW303	Clay	Pit	4	No ²	0	na	POWx

Table 3 (cont.)

Site Number	Vegetation Density in Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
367MWE602	Moderate	III	R,G	Nb	PR,R/B	0-25%	Gas well on site.
373LIV501	Complete	II,III	R,G	Nb	None	26-50%	Runoff received by Long King Creek.
379ALB101	Complete	None	TR,F	Nb	PR,R/B	0-25%	
395HEN702	Complete	II	F,G	Nb	PR,R/B	26-50%	
395HEN703	Moderate	II	F	Nb	PR,R/B	0-25%	Dried black tar on site.
395HES101	Complete	None	R,F,G	Nb	PR	0-25%	Abandoned facilities at site.
397ROC501	Complete	None	TR	Nb	PR,R/B	0-25%	
423MTS102	Moderate	None	TR,F	Nb	PR,R/B	0-25%	Degraded equipment on site.
423TYS101	Barren	III	R	Nb	PR,R/B	0-25%	Moderate susceptibility to erosion.
439BEN401	Moderate	None	R,F	Yes	R/B	0-25%	
439BRT202	Complete	None	R,F,G	Yes	PR	0-25%	Runoff received by Walnut Creek. Degraded facilities on site.
439HLC905	Moderate	II	R,TR	Nb	PR,R/B	0-25%	Wetland used for recreation.
439HUR402	Moderate	III	R,F,G	Yes	R/B	0-25%	
439HUR501	Complete	II,III	R	Yes	PR,R/B	0-25%	
439HUR603	Complete	None	TR	Nb	R/B	0-25%	Runoff received by Trinity River.
439LKW901	Complete	III	R,G	Nb	PR,R/B	0-25%	Site being filled.
439MAN101	Complete	I,II,III	R,TR,F,G	Nb	PR,R/B	0-25%	Excavated wall eroding beyond fence toward access road. Runoff received by local creek.
439MAN102	Complete	II,III	R,F,G	Nb	PR,R/B	0-25%	Runoff received by local creek.
471RIV302	Complete	None	TR	Nb	None	0-25%	Moderate susceptibility to erosion.
497BRW303	Moderate	None	R,TR,F	Nb	PR,R/B	0-25%	

Table 3 (cont.)

County	Site Number	Commodity	Type of Mine	Disturbed Area (acres)	Mine in Recharge Area of Aquifer	Max. Height of Highwall (feet)	Stability of Highwall	Type of Wetland ³
Priority sites due to waste dumping only:								
Brazoria	039HOM201	Sand & Gravel	Pit	6	Chicot ¹	0	na	None
Burleson	051SNK601	Sand & Gravel	Pit	15	No	15	Unstable	POWx
Priority sites due to large size only:								
Kaufman	257IND601	Sand & Gravel	Strip	348	No	0	na	POWx
Kaufman	257IND602	Sand & Gravel	Strip	253	No	0	na	POWx
Liberty	291RAY601	Sand & Gravel	Pit	560	Chicot ²	15	Stable	POWx

¹ Public water supply: well field within 1 mile of site.

² Public water supply: surface source within 1 mile of site.

³ Classification from Cowardin and others, 1979, and U.S. Fish and Wildlife Service, 1987.

⁴ Classes of solid waste adapted from the Texas Water Commission and the Environmental Protection Agency (TDWR, 1981; Groundwater Protection Unit Staff, 1989)

⁵ R = road, TR = trail, F = fenced, G = gated

⁶ PR = public road, R/B = residence and/or business, PL = public land.

⁷ flyover = Site not accessible from the ground. Field information from aerial visit.

⁸ c/o = can't observe.

⁹ na = information is either not applicable or not available.

Table 3 (cont.)

Site Number	Vegetation Density In Pit	Waste Dumping ⁴	Visitation and Accessibility ⁵	Posted	Visibility ⁶	Human Visitation	Remarks
Priority sites due to waste dumping only:							
039HOM201	Moderate	I,II,III	R	c/o	R/B	51-75%	Owned by Monsanto.
051SNK601	Complete	None	R,F,G	Yes	None	0-25%	
Priority sites due to large size only:							
257IND601	Complete	None	F	c/o	None	0-25%	flyover
257IND602	Complete	None	R,F,G	c/o	PR	0-25%	flyover
291RAY601	Complete	None	R,TR,F,G	No	PR,R/B	26-50%	Wetland used for recreation.

Table 4. Quadrangles grouped by county and numbered and below threshold site counts for each county.

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
ANDERSON				Eagle Lake NE	0	0	0
Augusta	0	0	0	Industry	0	4	4
Blackfoot	0	0	0	New Ulm	2	10	12
Cayuga	0	1	1	Rexville	3	0	3
Elkhart Creek	0	1	1	San Felipe	5	6	11
Indian Lake	0	2	2	Sealy	1	5	6
Long Lake	1	2	3	Sunny Side	0	0	
Northeast Palestine	0	0	0	Wallis	4	0	4
Northwest Palestine	1	0	1	County Totals	26	37	63
Percilla	0	0	0	BELL			
Pert	0	0	0	Belfalls	0	0	0
Slocum	0	0	0	Belton	20	13	33
Southeast Palestine	0	1	1	Bland	4	2	6
Southwest Palestine	0	1	1	Briggs	1	0	1
Tennessee Colony	1	1	2	Copperas Cove	6	1	7
Wilkerson Mountain	0	0	0	Ding Dong	1	6	7
Yard	0	0	0	Holland	12	13	25
County Totals	3	9	12	Killeen	0	0	0
ANGELINA				Little River	8	8	16
Bald Hill	0	0	0	McMillan Mountains	2	6	8
Boykin Spring	7	5	12	Moffat	4	2	6
Cassells-Boykin Park	0	0	0	Nolanville	9	0	9
Clawson	5	3	8	Rogers	0	0	0
Diboll	0	2	2	Salado	1	1	2
Etoile South	0	0	0	Seaton	0	0	0
Huntington	0	0	0	Temple	2	0	2
Keltys	0	0	0	Troy	0	2	2
Lufkin	7	0	7	Youngsport	0	0	0
Manning	0	0	0	County Totals	70	54	124
Platt	0	0	0	BOSQUE			
Redland	5	0	5	Allen Bend	4	0	4
Rockland	12	8	20	Camp Branch	0	7	7
Wells	0	0	0	Clairette	0	0	0
Wolf Hill	0	0	0	Clifton	4	2	6
Zavalla	3	2	5	Cranfills Gap	2	7	9
County Totals	39	20	59	Fairy	0	0	0
AUSTIN				Hurst Spring	0	1	1
Bellville	3	5	8	Iredell	0	3	3
Bernardo	0	0	0	Laguna Park	2	0	2
Burleigh	3	2	5	Lakeside Village	3	3	6
Cat Spring	5	5	10				

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Meridian	4	3	7	Christmas Point	0	0	0
Morgan	4	16	20	Danbury	0	1	1
Mosheim	4	2	6	Danciger	0	0	0
Pilot Knob	0	0	0	East Columbia	0	0	0
Spring Creek Gap	0	9	9	Freeport	1	0	1
Sugarloaf Mountain	4	13	17	Hoskins Mound	1	0	1
Walnut Springs East	3	8	11	Jones Creek	1	0	1
County Totals	34	74	108	Juliff	3	1	4
BOWIE				Lake Jackson	4	0	4
Barkman	0	0	0	Liverpool	0	0	0
Bassett	0	0	0	Manvel	8	0	8
Corley	1	6	7	Otey	1	1	2
Dalby Springs	0	0	0	Oyster Creek	2	0	2
Daniels Chapel	0	0	0	Rosharon	0	0	0
DeKalb	0	0	0	Sweeny	5	0	5
DeKalb NW	0	0	0	West Columbia	0	0	0
Domino	15	3	18	County Totals	37	3	40
Foreman	0	0	0	BRAZOS			
Hodgson	0	0	0	Bryan East	0	1	1
Hooks	0	0	0	Bryan West	18	5	23
Leary	19	1	20	Canary	9	3	12
Malta	0	0	0	Clear Lake	1	4	5
Maud	1	0	1	Ferguson Crossing	13	0	13
New Boston	0	6	6	Kurten	0	1	1
Oak Grove	4	2	6	Millican	4	1	5
Ogden	0	0	0	Reliance	5	0	5
Redbank	0	0	0	Wellborn	0	4	4
Texarkana	7	2	9	County Totals	50	19	69
Tom	0	0	0	BURLESON			
Wright Patman Dam	0	4	4	Caldwell	5	4	9
County Totals	47	28	75	Chances Store	11	2	13
BRAZORIA				Clay	5	0	5
Angleton	8	0	8	Flag Pond	0	0	0
Ashwood	0	0	0	Frenstat	1	6	7
Bay City NE	0	0	0	Gay Hill	1	21	22
Brazoria	3	0	3	Goodwill	0	1	1
Cedar Lakes East	0	0	0	Lyons	0	2	2
Cedar Lakes West	0	0	0	Mumford	4	3	7
Cedar Lane	0	0	0	Snook	3	5	8
Cedar Lane NE	0	0	0	Somerville	7	1	8

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Tunis	0	0	0	Umbrella Point	0	0	0
County Totals	37	45	82	County Totals	20	7	27
CAMP				CHEROKEE			
Leesburg	0	1	1	Alto	1	3	4
Pittsburg	0	3	3	Atoy	6	7	13
County Totals	0	4	4	Berryville	2	3	5
CASS				Denson Springs			
Atlanta North	4	3	7	Forest	1	4	5
Atlanta South	1	0	1	Griffin	4	4	8
Avinger	0	2	2	Jacksonville East	6	9	15
Bloomburg	4	0	4	Jacksonville West	7	7	14
Bryans Mill	2	3	5	Maydelle	1	4	5
Cartersville	0	2	2	Mount Selman	1	5	6
Cunningham Creek	0	0	0	Neches	0	0	0
Douglasville	0	2	2	New Summerfield	3	3	6
Kildare	0	0	0	Pryor Mountain	0	3	3
Lanier	1	0	1	Rusk	11	14	25
Linden	7	1	8	Tecula	0	3	3
Marietta	0	1	1	Todd City	4	4	8
McLeod	0	0	0	Weches	0	1	1
Ravanna	0	0	0	County Totals	47	74	121
Sardis	1	3	4	COLLIN			
County Totals	20	17	37	Anna	4	16	20
CHAMBERS				Blue Ridge			
Anahuac	11	1	12	Celina	2	4	6
Bacliff	0	1	1	Culleoka	3	2	5
Cove	0	0	0	Farmersville	0	0	0
Frozen Point	0	0	0	Frisco	5	6	11
High Island	2	0	2	Hebron	3	10	13
Lake Stephenson	0	0	0	Josephine	0	0	0
Monroe City	0	0	0	Lavon	2	4	6
Mont Belvieu	6	2	8	McKinney East	16	59	75
Morgans Point	1	1	2	McKinney West	2	10	12
Oak Island	0	0	0	Pike	2	1	3
Oyster Bayou	0	0	0	Plano	4	19	23
Smith Point	0	0	0	Weston	0	6	6
Stanolind Reservoir	0	0	0	Wylie	3	6	9
Stowell	0	0	0	County Totals	52	159	211

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
COOKE				Twin Mountains	5	8	13
Callisburg	0	0	0	County Totals	22	144	166
Era	2	7	9	DALLAS			
Freemound	2	4	6	Addison	5	9	14
Gainesville North	5	8	13	Carrollton	63	9	72
Gainesville South	5	0	5	Dallas	19	5	24
Greenwood	1	1	2	Duncanville	3	10	13
Hood	0	1	1	Garland	15	63	78
Horseshoe Bend	0	0	0	Hutchins	60	20	80
Leon North	0	0	0	Irving	74	11	85
Leon South	3	3	6	Mesquite	6	4	10
Marietta West	0	0	0	Oak Cliff	20	24	44
Marysville	2	3	5	Rowlett	8	6	14
Muenster East	7	1	8	Seagoville	31	18	49
Muenster West	0	5	5	White Rock Lake	4	1	5
Thackerville	6	7	13	County Totals	308	180	488
Woodbine	1	8	9	DELTA			
County Totals	34	48	82	Charleston	1	0	1
CORYELL				Cooper North	0	3	3
Ater	0	3	3	Cooper South	0	0	0
Coryell	0	0	0	Cunningham	0	1	1
Evant	0	0	0	Klondike	0	0	0
Fort Hood	0	0	0	Minter	0	0	0
Gatesville East	8	19	27	Pecan Gap	0	3	3
Gatesville West	1	23	24	Tira	0	1	1
German Valley	0	0	0	County Totals	1	8	9
Izoro	0	3	3	DENTON			
Jonesboro	0	2	2	Argyle	11	2	13
Leon Junction	0	0	0	Aubrey	0	0	0
North Fort Hood	1	18	19	Denton East	6	14	20
Oglesby	3	11	14	Denton West	3	6	9
Ohio	0	5	5	Era SE	0	0	0
Pearl	0	6	6	Green Valley	13	6	19
Pidcoke	0	17	17	Justin	9	13	22
Post Oak Mountain	0	0	0	Lewisville East	6	1	7
Purmela	0	7	7	Lewisville West	0	0	0
Rumley	0	0	0	Little Elm	0	2	2
Shell Mountains	4	19	23	Mountain Springs	5	14	19
Turnersville	0	3	3				

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Pilot Point	3	2	5	Westphalia	0	0	0
Ponder	1	6	7	County Totals	16	39	55
Sanger	5	6	11	FANNIN			
Valley View	1	4	5	Bennington South	0	0	0
County Totals	63	76	139	Bonham	0	0	0
ELLIS				Dodd City	1	5	6
Avalon	1	4	5	Ector	0	5	5
Boz	4	24	28	Gober	1	5	6
Bristol	4	3	7	Honey Grove	0	3	3
Britton	6	3	9	Kemp	0	0	0
Cedar Hill	7	17	24	Ladonia	0	0	0
Cryer Creek	1	6	7	Lake Bonham	0	0	0
Ennis East	0	1	1	Lake West	0	0	0
Ennis West	1	3	4	Lamasco	0	0	0
Ferris	12	5	17	Leonard	3	7	10
Files Valley	5	8	13	Monkstown	0	0	0
Forrester	3	9	12	Mulberry	7	1	8
India	15	7	22	Selms	0	0	0
Italy	4	3	7	Telephone	0	1	1
Lancaster	5	21	26	Trenton	5	13	18
Maypearl	0	1	1	Yuba	0	0	0
Mertens	1	6	7	County Totals	17	40	57
Midlothian	1	21	22	FORT BEND			
Palmer	2	0	2	Boling	0	0	0
Venus	0	0	0	Clodine	5	0	5
Waxahachie	3	33	36	Damon	0	0	0
County Totals	75	180	255	East Bernard	0	0	0
FALLS				Fulshear	1	0	1
Bremond	0	0	0	Guy	1	0	1
Bruceville	1	10	11	Hungerford	0	0	0
Cedar Springs	3	8	11	Kendleton	2	0	2
Chilton	1	2	3	Missouri City	9	0	9
Kosse West	5	0	5	Needville	0	0	0
Lott	0	0	0	Orchard	3	0	3
Marlin	2	4	6	Richmond	3	5	8
McClanahan	0	2	2	Richmond NE	0	0	0
Reagan	4	13	17	Smithers Lake	0	0	0
Rosebud	0	0	0	Sugar Land	5	3	8

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Thompsons	0	0	0	GRAYSON			
County Totals	29	8	37	Achille	1	1	2
FRANKLIN				Ambrose	3	2	5
Hagansport	0	0	0	Collinsville	3	6	9
Mount Vernon	1	0	1	Denison Dam	13	6	19
New Hope	0	0	0	Dexter	4	1	5
County Totals	1	0	1	Dorchester	19	15	34
FREESTONE				Ethel	0	0	0
Butler	1	0	1	Gordonville	2	0	2
Dew	3	0	3	Gunter	16	17	33
Fairfield	1	3	4	Howe	2	4	6
Keechi	0	1	1	Kingston South	0	0	0
Kirvin	0	1	1	Lebanon	4	3	7
Lanely	0	0	0	Marilee	0	1	1
Roustabout Camp	0	3	3	Pilot Grove	17	16	33
Stewards Mill	1	0	1	Platter	0	0	0
Teague North	5	9	14	Pottsboro	8	2	10
Turlington	27	6	33	Sadler	0	0	0
Winkler	0	0	0	Sherman	4	2	6
Young	0	1	1	Sherman NW	5	1	6
County Totals	38	24	62	Van Alstyne	9	5	14
GALVESTON				Whitesboro	0	0	0
Algoa	10	2	12	Whitewright	8	11	19
Caplen	0	0	0	County Totals	118	93	211
Dickinson	9	0	9	GREGG			
Flake	0	0	0	Kilgore NE	4	9	13
Friendswood	6	0	6	Kilgore NW	0	0	0
Galveston	3	0	3	Lakeport	3	2	5
Hitchcock	0	0	0	County Totals	7	11	18
Lake Como	6	3	9	GRIMES			
League City	11	1	12	Anderson	1	2	3
Mustang Bayou	2	1	3	Bedias	1	2	3
Port Bolivar	0	0	0	Carlos	8	1	9
San Luis Pass	0	0	0	Courtney	4	1	5
Sea Isle	0	0	0	Dacus	0	0	0
Texas City	0	0	0	Howth	10	1	11
The Jetties	0	0	0	Iola	0	1	1
Virginia Point	11	0	11	Keith	1	0	1
County Totals	58	7	65	Navasota	3	7	10
				Plantersville	8	2	10

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Roans Prairie	3	7	10	Pasadena	4	1	5
Singleton	0	0	0	Pearland	17	0	17
Stoneham	0	0	0	Rose Hill	1	0	1
Waller NW	0	1	1	Satsuma	9	0	9
County Totals	39	25	64	Settegast	8	0	8
HARDIN				Spring	19	1	20
Bevil Oaks	1	0	1	Tomball	2	0	2
Bragg	0	0	0	Warren Lake	2	0	2
Deserter Baygall	0	5	5	County Totals	180	19	199
Kountze North	0	0	0	HARRISON			
Kountze South	0	0	0	Ashland	3	3	6
Kountze SW	0	0	0	Colliers Creek	0	0	0
Saratoga	0	1	1	Darco	8	8	16
Silsbee	10	0	10	Easton	3	0	3
Sour Lake	4	0	4	Hallsville	0	1	1
Thorsen Gully	0	0	0	Latex	0	0	0
Village Mills	0	0	0	Longview Heights	0	7	7
Votaw	0	1	1	Marshall East	10	6	16
Voth	13	5	18	Marshall West	4	4	8
County Totals	28	13	41	Scottsville	2	0	2
HARRIS				Stricklin Springs	0	0	0
Addicks	2	0	2	Waskom	0	0	0
Aldine	0	0	0	County Totals	30	29	59
Alief	6	0	6	HENDERSON			
Almeda	13	1	14	Athens	12	0	12
Bellaire	0	0	0	Brownsboro	0	3	3
Crosby	9	1	10	Coon Creek Lake	0	0	0
Cypress	3	0	3	Creslenn Ranch	3	1	4
Harmaston	7	0	7	Cross Roads	3	1	4
Hedwig Village	6	1	7	LaRue	0	1	1
Highlands	31	0	31	Leagueville	2	1	3
Hockley	0	0	0	Mabank	0	0	0
Houston Heights	4	1	5	Malakoff	10	7	17
Humble	12	3	15	Mallard Hill	0	0	0
Jacinto City	3	0	3	Moore Station	0	0	0
Katy	1	0	1	Murchinson East	0	0	0
La Porte	0	0	0	Murchison West	12	2	14
Maedan	19	6	25	Poynor	0	6	6
Moonshine Hill	2	0	2	Stockard	0	1	1
Park Place	0	4	4				

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Tool	3	2	5	Sulphur Springs	1	1	2
County Totals	45	25	70	Sulphur Springs SE	8	3	11
				County Totals	18	5	23
HILL				HOUSTON			
Abbott	11	10	21	Austonio	7	1	8
Aquilla	0	1	1	Berea	0	0	0
Blanton	2	7	9	Crockett	0	0	0
Covington	4	0	4	Crockett NE	0	0	0
Hillsboro East	5	5	10	Fodice	0	0	0
Hillsboro West	0	0	0	Grapeland	0	0	0
Hubband	0	0	0	Halls Bluff	1	1	2
Irene	0	0	0	Hays Spring	2	0	2
Itasca	0	0	0	Kennard	0	0	0
Malone	0	2	2	Kennard NE	0	0	0
Penelope	0	0	0	Lovelady North	2	2	4
Peoria	0	2	2	Pearsons Chapel	0	0	0
Smiths Bend	12	4	16	Porter Springs	0	1	1
West	0	3	3	Ratcliff	0	0	0
Whitney	1	4	5	Stanmire Lake	0	0	0
County Totals	35	38	73	Weldon	1	0	1
				County Totals	13	5	18
HOOD				HUNT			
Acton	7	5	12	Celeste	0	0	0
Bluff Dale	0	0	0	Commerce North	0	0	0
Bluff Dale NE	0	4	4	Commerce South	8	2	10
Chapin	0	4	4	Greenville NE	0	0	0
Dennis	0	3	3	Greenville NW	0	0	0
Granbury	12	2	14	Greenville SE	0	0	0
Tin Top	0	15	15	Greenville SW	0	0	0
Tolar	1	3	4	Lone Oak North	1	0	1
County Totals	20	36	56	Quinlan	0	0	0
				West Tawakoni	0	0	0
HOPKINS				JASPER			
Brashear	5	0	5	Beech Grove		0	0
Como	3	1	4	Buna	0	0	0
Cumby	0	0	0	Call Junction	0	0	0
Dike	0	0	0	Ebenezer	1	2	3
Gafford Chapel	0	0	0	Evadale	1	6	7
Miller Grove	0	0	0				
Mitchell Creek	0	0	0				
Purley	0	0	0				
Saltillo	1	0	1				
Sulphur Bluff	0	0	0				

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Franklin Lake	2	3	5	Cresson	0	7	7
Gist	0	0	0	Godley	2	1	3
Harrisburg	7	2	9	Grandview	0	0	0
Jasper East	2	1	3	Joshua	11	8	19
Jasper West	3	4	7	Keene	2	7	9
Kirbyville	0	0	0	Mansfield	11	5	16
Magnolia Springs	1	7	8	Primrose	8	13	21
McGee Bend	0	0	0	County Totals	63	82	145
Pace Hill	0	0	0	KAUFMAN			
Potato Patch Lake	0	0	0	Ables Springs	4	1	5
Roganville	0	1	1	Cedarvale	0	0	0
County Totals	17	26	43	Elmo	8	6	14
JEFFERSON				Forney South	2	0	2
Alligator Hole Marsh	0	0	0	Grays Prairie	0	0	0
Beaumont West	1	0	1	Kaufman	2	0	2
Big Hill Bayou	0	0	0	Kemp	0	0	0
China	0	0	0	Ola	4	0	4
Clam Lake	0	0	0	Poetry	4	1	5
Fannett East	0	0	0	Prairieville	0	0	0
Fannett West	0	0	0	Rosser	4	4	8
Hamshire	1	0	1	Scurry	3	1	4
Mud Lake	0	0	0	Terrell South	1	0	1
Port Acres	12	1	13	Wills Point	7	0	7
Port Arthur North	12	0	12	County Totals	39	13	52
Port Arthur South	0	0	0	LAMAR			
Sabine Pass	5	6	11	Biardstown	0	1	1
South of Star Lake	0	0	0	Blossom	1	0	1
Star Lake	0	0	0	Bluff	0	0	0
Texas Point	0	0	0	Deport	0	0	0
West of Greens Bayou	0	0	0	Detroit	1	0	1
Whites Ranch	0	0	0	Direct	1	0	1
County Totals	31	7	38	Frogville	0	0	0
JOHNSON				Grant	0	0	0
Alvarado	0	0	0	New Oberlin	0	0	0
Blum	9	10	19	Paris	5	0	5
Bono	2	3	5	Pat Mayse Lake East	6	2	8
Brazos Point	8	2	10	Pat Mayse Lake West	4	0	4
Burleson	5	17	22	Pattonville	0	0	0
Cleburne East	2	0	2	Petty	4	8	12
Cleburne West	3	9	12	Roxton	4	10	14

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Shoals	0	0	0	Spring Seat	0	0	0
Slate Shoals	0	0	0	County Totals	15	26	41
Tigertown	0	0	0				
Toco	0	0	0	LIBERTY			
Woodland	0	0	0	Arizona Creek	0	0	0
County Totals	26	21	47	Capers Ridge	10	3	13
				Cleveland	13	1	14
LEE				Daisetta	0	0	0
Alcoa Lake	1	4	5	Davis Hill	6	1	7
Beaukiss	2	0	2	Dayton	0	0	0
Deanville	0	0	0	Devers	0	0	0
Dime Box	5	4	9	Hardin	3	1	4
Fedor	0	0	0	Huffman	1	0	1
Giddings	0	5	5	Liberty	28	7	35
Hicks	4	3	7	Moss Bluff	0	0	0
Ledbetter	7	0	7	Nome	0	0	0
Lexington	0	2	2	Plum Grove	0	0	0
Lincoln	23	7	30	Rayburn	7	1	8
McDade	0	0	0	Romayor	7	1	8
Nechanitz	1	0	1	Sheeks	1	0	1
Paige	0	0	0	Shiloh	5	1	6
Tanglewood	2	0	2	Simmons Bottom	0	0	0
Warda	2	6	8	Tarkington Prairie	0	0	0
Winchester	0	0	0	Whites Bayou	0	0	0
County Totals	47	31	78	Winnie NW	0	0	0
				County Totals	81	16	97
LEON							
Buffalo	0	0	0	LIMESTONE		0	
Centerville	3	1	4	Ben Hur	2		2
Donie	2	3	5	Box Church	3	0	3
Eunice	0	1	1	Echols	0	0	0
Flo	1	1	2	Fallon	0	2	2
Hilltop Lakes	1	0	1	Farrar	0	0	0
Jewett	2	7	9	Groesbeck	6	3	9
Lake Leon	1	0	1	Kosse East	6	3	9
Leona	5	3	8	Mart	0	1	1
Margie	0	4	4	Mexia	0	0	0
Middleton	0	2	2	Odds	2	0	2
Oakwood	0	4	4	Oletha	0	2	2
Robbins	0	0	0	Otto	0	0	0

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Prairie Hill	0	0	0	Robinson	4	0	4
Teague South	2	1	3	South Bosque	4	1	5
Tehuacana	10	0	10	Speegleville	14	28	42
Thornton	0	0	0	Valley Mills	4	3	7
County Totals	31	12	43	Waco East	25	7	32
				Waco West	13	17	30
MADISON				County Totals	81	98	179
Baker Lake	0	6	6				
Connor	0	0	0	MILAM			
Elwood	1	2	3	Ben Arnold	5	4	9
Leona SW	2	0	2	Cameron	13	15	28
Madisonville	0	2	2	Chriesman	3	1	4
Normangee	2	0	2	Hanover	0	2	2
North Zulch	0	0	0	Maysfield	8	4	12
Sand Ridge	1	3	4	Milamo	0	0	0
County Totals	6	13	19	Pettibone	15	5	20
				Rockdale East	15	0	15
MARION				Rockdale West	2	6	8
Harleton	0	0	0	San Gabriel	1	13	14
Jefferson	0	0	0	Sharp	0	15	15
Karnack	1	2	3	Thorndale	0	0	0
Kellyville	0	0	0	Yarrelton	0	0	0
Lassater	1	1	2	County Totals	62	65	127
Marshall NW	1	0	1				
Ore City	0	1	1	MONTAGUE			
Potterspoint	0	0	0	Belcherville	0	4	4
Smithland	0	0	0	Bonita	0	0	0
Trees	0	0	0	Bowie	4	4	8
Woodlawn	1	5	6	Brushy Mound	7	3	10
County Totals	4	9	13	Buzzard Roost Knob	0	3	3
				Fleetwood	0	0	0
MCLENNAN				Forestburg	8	10	18
Axtell	0	0	0	Montague	0	0	0
China Springs	5	10	15	New Harp	0	0	0
Crawford	1	2	3	Nocona	4	4	8
Eagle Springs	0	16	16	Prairie Valley School	0	3	3
Elk	0	0	0	Ringgold	0	0	0
Elm Mott	0	0	0	Ryan	0	0	0
Gholson	10	1	11	Saint Jo	8	15	23
Lorena	1	0	1	Salona	0	0	0
McGregor	0	2	2	Selma	1	0	1
Moody	0	2	2	Smyrna	0	0	0
Riesel	0	9	9				

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Spanish Fort	0	0	0	Nacagdoches North	1	10	11
Stoneburg	0	0	0	Nacagdoches South	9	1	10
Sunset	0	4	4	Reklaw	0	0	0
Terral	0	0	0	Trawick	0	0	0
County Totals	32	50	82	Woden	0	0	0
				County Totals	20	27	47
MONTGOMERY				NAVARRO			
Conroe	7	0	7	Bazette	0	0	0
Conroe NE	57	9	66	Blooming Grove	0	0	0
Cowl Spur	0	3	3	Chatfield	0	0	0
Cut and Shoot	21	3	24	Coolidge	0	0	0
Fostoria	3	2	5	Corbet	0	0	0
Keenan	5	0	5	Corsicana	6	5	11
Magnolia East	1	1	2	Dawson	0	0	0
Magnolia West	13	6	19	Emhouse	2	3	5
Montgomery	0	0	0	Frost	0	0	0
Oklahoma	15	0	15	Goodlow Park	0	0	0
Outlaw Pond	7	0	7	Kerens	2	0	2
Shepard Hill	0	0	0	Powell	0	0	0
Splendora	0	0	0	Purdon	1	0	1
Tamina	13	2	15	Richland	7	1	8
Willis	0	0	0	Rosser SW	2	1	3
County Totals	142	26	168	Streetman	15	1	16
				Styx	8	3	11
MORRIS				UNION HIGH			
Daingerfield	5	3	8	Union High	0	0	0
LaFayette	7	6	13	Wortham	3	0	3
Lone Star	12	3	15	County Totals	46	14	60
Naples	0	0	0				
County Totals	24	12	36	NEWTON			
				Bancroft	0	0	0
NACOGDOCHES				Bleakwood	0	3	3
Appleby	0	0	0	Bon Weir	1	0	1
Cushing	3	5	8	Evans	0	0	0
Douglass	0	0	0	Fairdale	0	0	0
Durst Lakes	0	2	2	Haddens	0	0	0
Etoile North	0	0	0	Hartburg	1	0	1
Garrison West	1	4	5	Hurricane Creek	0	0	0
Lake Nacagdoches North	0	0	0	Jamestown	0	0	0
Lake Nacagdoches South	6	5	11	Merryville North	3	0	3
Melrose	0	0	0	Merryville South	1	0	1
				Newton East	4	0	4

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Newton West	5	4	9	Anneta	8	9	17
Shankleville	0	0	0	Brazos East	3	3	6
Shoats Creek	0	0	0	Brock	5	1	6
Starks	0	0	0	Garner	5	4	9
Sudduth Bluff	0	1	1	Lake Weatherford	5	10	15
Trout Creek	2	0	2	Lipan	0	0	0
Weeks Settlement	0	1	1	Mineral Wells East	12	12	24
Wiergate	0	3	3	Poolville	3	1	4
Wiergate SE	0	0	0	Springtown	11	14	25
County Totals	17	12	29	Weatherford North	8	4	12
				Weatherford South	6	3	9
ORANGE				Whitt	2	2	4
Beaumont East	14	4	18	County Totals	71	67	138
Echo	4	1	5				
Mauriceville	10	7	17	POLK			
Orange	0	0	0	Camden	3	7	10
Orangefield	20	8	28	Carmona	0	2	2
Pine Forest	7	0	7	Corrigan	4	1	5
Terry	4	0	4	Dallardsville	2	2	4
Texla	11	26	37	Goodrich	1	1	2
County Totals	70	46	116	Hortense	0	0	0
				Leggett	0	0	0
PANOLA				Livingston	5	5	10
Beckville	0	4	4	New Willard	1	1	2
Carthage	9	0	9	Onalaska	3	1	4
DeBerry	0	0	0	Pluck	0	0	0
Fair Play	1	0	1	Schwab City	0	0	0
Gary	0	0	0	Segno	1	4	5
Grand Bluff	0	0	0	Soda	5	1	6
Harris Chapel	3	1	4	Wakefield	4	3	7
Lake Murvaul	0	0	0	County Totals	29	28	57
Logan	0	0	0				
Long Branch	0	0	0	RAINS			
Old Center	0	0	0	Alba	3	0	3
Old Panola	0	0	0	Arbala	2	2	4
Panola	0	0	0	Emory North	0	0	0
River Hill	0	4	4	Emory South	2	1	3
Tatum	0	0	0	Iron Bridge Dam	0	0	0
County Totals	13	9	22	Lone Oak South	0	0	0
				County Totals	7	3	10
PARKER							
Adell	3	4	7				

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
RED RIVER				Rockwall	3	2	5
Acworth	0	0	0	Royse City	0	0	0
Annona	0	0	0	Terrell North	0	0	0
Avery	0	0	0	County Totals	3	2	5
Bagwell	0	0	0	RUSK			
Bogata	4	0	4	Berryhill Creek	0	0	0
Boxelder	1	0	1	Caledonia	1	0	1
Clarksville	0	1	1	Church Hill	4	0	4
Cuthand	0	0	0	Elderville	0	0	0
Dimple	0	2	2	Gumsprings	0	0	0
English	0	0	0	Henderson	6	1	7
Idabel SE	0	0	0	Kilgore SE	0	0	0
Kiomatia	0	0	0	Kilgore SW	0	0	0
Line Branch	0	1	1	Laneville	0	0	0
Lydia	0	0	0	Minden	1	0	1
Manchester	0	0	0	Mount Enterprise	0	0	0
Millerton	0	0	0	New Salem	0	0	0
Negley	0	0	0	Price	0	0	0
White Rock	0	1	1	County Totals	12	1	13
County Totals	5	5	10	SABINE			
ROBERTSON				Beech Bayou	0	0	0
Baileyville	0	0	0	East Hamilton	0	0	0
Bald Prairie	0	0	0	Geneva	0	0	0
Calvert	7	1	8	Hemphill	3	3	6
Camp Creek Lake	0	3	3	Milam	3	2	5
Dunn Creek	6	14	20	Negreet SW	0	0	0
Edge	0	0	0	Patroon South	0	0	0
Franklin	1	10	11	Pineland North	0	0	0
Gause	4	3	7	Pineland South	0	2	2
Hammond	1	1	2	Salter Creek	2	0	2
Hearne North	17	0	17	Toro	0	0	0
Hearne South	20	14	34	Zwolle	0	0	0
Marquez	8	1	9	County Totals	8	7	15
Owensville	3	5	8	SAN AUGUSTINE			
Petteway	0	0	0	Broaddus	0		0
Round Prairie	0	0	0	Bronson	1	0	1
Wheelock	6	4	10	Buck Bay	1	0	1
County Totals	73	56	129	Chinguapin	0	0	0
ROCKWALL				Chireno North	0	0	0
Forney North	0	0	0				

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Chireno South	0	0	0	SMITH			
Harvey Creek	0	0	0	Bascom	0	0	0
Norwood	0	0	0	Bullard	0	0	0
San Augustine East	0	0	0	Chandler	0	1	1
San Augustine West	0	0	0	Crow	1	0	1
Veach	0	0	0	Hawkins	1	1	2
County Totals	2	0	2	Hope Pond	0	0	0
				Lindale	0	1	1
SAN JACINTO				Mount Sylvan	5	0	5
Bear Creek	35	1	36	Saline Bay	0	0	0
Blanchard	0	0	0	Starrville	0	0	0
Camilla	5	4	9	Troup East	0	1	1
Carlisle	0	0	0	Troup West	1	2	3
Coldspring	17	6	23	Tyler North	4	0	4
Maynard	12	2	14	Tyler South	1	1	2
Oakhurst	0	0	0	Winona	0	0	0
Staley	7	2	9	County Totals	13	7	20
Stephen Creek	0	3	3				
Westcott	17	0	17	SOMERVELL			
County Totals	93	18	111	Chalk Mountain	0	5	5
				Glen Rose East	5	7	12
SHELBY				Glen Rose West	5	10	15
Arcadia	0	0	0	Hill City	6	5	11
Brushy Creek	0	0	0	Nemo	7	7	14
Center	0	0	0	Paluxy	7	1	8
Garrison East	0	0	0	Walnut Springs West	0	8	8
Hurstown	0	0	0	County Totals	30	43	73
Huxley	0	1	1				
Logansport East	0	0	0	TARRANT			
Logansport West	3	1	4	Aledo	5	5	10
Martinsville	0	0	0	Arlington	0	1	1
Mount Herman	0	1	1	Avondale	11	5	16
Neuville	0	0	0	Azle	1	1	2
Patroon	0	0	0	Benbrook	5	2	7
Shelbyville	0	0	0	Colleyville	1	0	1
Tenaha East	0	0	0	Euless	51	17	68
Tenaha West	0	0	0	Fort Worth	0	2	2
Timpson	1	1	2	Grapevine	13	7	20
Union Springs	0	0	0	Haltom City	16	5	21
County Totals	4	4	8	Hurst	30	1	31
				Keller	2	4	6

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Kennedale	7	9	16	Jacks Creek North	8	1	9
Lake Worth	11	12	23	Jacks Creek South	0	0	0
Springtown SE	14	10	24	Kirkpatrick Lake	5	1	6
County Totals	167	81	248	Spurger	3	1	4
TITUS				Town Bluff	0	0	0
Cason	0	0	0	Warren	0	1	1
Cookville	3	2	5	Woodville	0	0	0
Coopers Chapel	0	0	0	County Totals	20	6	26
Harvard	4	2	6	UPSHUR			
Monticello	2	2	4	Bettie	0	1	1
Mount Pleasant	0	0	0	Big Sandy	3	1	4
Talco	0	0	0	Coffeeville	4	2	6
Wilkinson	0	0	0	Gilmer	10	8	18
Winfield	0	0	0	Gladewater	0	2	2
County Totals	9	6	15	Glenwood	0	0	0
TRINITY				Pritchett	3	3	6
Apple Springs	0	1	1	Thomas	2	5	7
Centralia	0	0	0	White Oak	6	8	14
Chita	3	0	3	County Totals	28	30	58
Colita	0	0	0	VAN ZANDT			
Crecy	0	1	1	Ben Wheeler	0	0	0
Glendale	0	5	5	Canton	0	2	2
Groveton East	3	8	11	Carroll	0	5	5
Groveton West	3	3	6	Edgewood	3	2	5
Lovelady South	0	0	0	Fruitvale	0	1	1
Pennington	0	0	0	Grand Saline	1	0	1
Trevat	0	1	1	Martins Mill	2	2	4
Trinity East	7	0	7	Myrtle Springs	0	1	1
Wells SW	0	0	0	Phalba	0	0	0
County Totals	16	19	35	Van	0	0	0
TYLER				Van Lake	0	0	0
Birdwell Lake	0	1	1	County Totals	6	13	19
Boggy Lake	0	0	0	WALKER			
Chambliss Hill	0	1	1	Crabbs Prairie	3	0	3
Chester	3	0	3	Galilee	1	0	1
Colmesneil	0	0	0	Huntsville	1	3	4
Fred	1	0	1	Loma	0	0	0
Hicksbaugh	0	0	0	Moore Grove	1	1	2
Hillister	0	0	0	New Waverly	2	2	4

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Phelps	0	0	0	Hutto	0	0	0
Pine Prairie	8	0	8	Jarrell	3	22	25
Richards	2	1	3	Jollyville	1	2	3
Riverside	9	2	11	Leander	4	25	29
San Jacinto	0	0	0	Leander NE	1	10	11
Steep Branch	0	0	0	Liberty Hill	2	20	22
Trinity West	3	2	5	Mahomet	1	15	16
Wyser Bottom	1	3	4	Nameless	0	7	7
County Totals	31	14	45	Pflugerville East	0	1	1
				Pflugerville West	2	0	2
WALLER				Round Rock	4	2	6
Brookshire	2	1	3	Structure	0	0	0
Hempstead	0	1	1	Taylor	4	10	14
Hockley Mound	0	0	0	Thrall	0	10	10
Waller	1	0	1	Travis Peak	0	2	2
County Totals	3	2	5	Weir	3	2	5
				County Totals	81	244	325
WASHINGTON							
Brenham	3	39	42	WISE			
Buckhorn	2	6	8	Alvord	1	5	6
Burton	4	5	9	Boonsville	0	0	0
Carmine	1	3	4	Bluett	6	15	21
Chappell Hill	2	8	10	Boyd	11	22	33
Daniels	2	2	4	Bridgeport East	10	2	12
Greenvine	0	17	17	Bridgeport West	19	9	28
Independence	3	3	6	Chico	8	0	8
Kenney	0	9	9	Cottondale	3	3	6
Round Top	0	0	0	Crafton	0	0	0
Washington	1	5	6	Decatur	8	10	18
Welcome	0	23	23	Gibtown	1	0	1
County Totals	18	120	138	Pecan Creek	9	14	23
				Rhome	0	3	3
WILLIAMSON				Slidell	2	23	25
Bartlett	4	0	4	Wizard Wells	0	0	0
Bertram	1	1	2	County Totals	78	106	184
Cobbs Cavern	3	19	22				
Coupland	0	0	0	WOOD			
Davilla	13	9	22	Calvary	16	2	18
Florence	7	39	46	Cartwright	0	0	0
Georgetown	8	3	11	Golden	0	0	0
Granger	14	17	31	Hainesville	0	1	1
Granger Lake	6	28	34	Mineola	0	0	0

Table 4 (cont.)

County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits	County/ Quadrangle	Numbered pits	Below Threshold pits	Total pits
Newsome	0	2	2	Winnsboro	0	0	0
Pleasant Grove	2	7	9	Yantis	0	0	0
Quitman	0	0	0	County Totals	20	16	36
Rhonesboro	0	2	2	TOTALS	6760	6224	12984
Shady Grove	2	2	4				

Table 5. Alphabetical list of quadrangles in the East Texas study area.

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
Abbott	Hill	Austonio	Houston	Bettie	Upshur
Ables Springs	Kaufman	Avalon	Ellis	Bevil Oaks	Hardin
Achille	Grayson	Avery	Red River	Biardstown	Lamar
Acton	Hood	Avinger	Cass	Big Hill Bayou	Jefferson
Acworth	Red River	Avondale	Tarrant	Big Sandy	Upshur
Addicks	Harris	Axtell	McLennan	Birdwell Lake	Tyler
Addison	Dallas	Azle	Tarrant	Blackfoot	Anderson
Adell	Parker	Bacliff	Chambers	Blanchard	San Jacinto
Alba	Rains	Bagwell	Red River	Bland	Bell
Alcoa Lake	Lee	Baileyville	Robertson	Blanton	Hill
Aldine	Harris	Baker Lake	Madison	Bleakwood	Newton
Aledo	Tarrant	Bald Hill	Angelina	Bloomburg	Cass
Algoa	Galveston	Bald Prairie	Robertson	Blooming Grove	Navarro
Alief	Harris	Bancroft	Newton	Blossom	Lamar
Allen Bend	Bosque	Barkman	Bowie	Blue Ridge	Collin
Alligator Hole Marsh	Jefferson	Bartlett	Williamson	Bluett	Wise
Almeda	Harris	Bascom	Smith	Bluff	Lamar
Alto	Cherokee	Bassett	Bowie	Bluff Dale	Hood
Alvarado	Johnson	Bay City NE	Brazoria	Bluff Dale NE	Hood
Alvord	Wise	Bazette	Navarro	Blum	Johnson
Ambrose	Grayson	Bear Creek	San Jacinto	Bogata	Red River
Anahuac	Chambers	Beaukiss	Lee	Boggy Lake	Tyler
Anderson	Grimes	Beaumont East	Orange	Boling	Fort Bend
Angleton	Brazoria	Beaumont West	Jefferson	Bon Weir	Newton
Anna	Collin	Beckville	Panola	Bonham	Fannin
Anneta	Parker	Bedias	Grimes	Bonita	Montague
Annona	Red River	Beech Bayou	Sabine	Bono	Johnson
Apple Springs	Trinity	Beech Grove	Jasper	Boonsville	Wise
Appleby	Nacogdoches	Belcherville	Montague	Bowie	Montague
Aquilla	Hill	Belfalls	Bell	Box Church	Limestone
Arbala	Rains	Bellaire	Harris	Boxelder	Red River
Arcadia	Shelby	Bellville	Austin	Boyd	Wise
Argyle	Denton	Belton	Bell	Boykin Spring	Angelina
Arizona Creek	Liberty	Ben Arnold	Milam	Boz	Ellis
Arlington	Tarrant	Ben Hur	Limestone	Bragg	Hardin
Ashland	Harrison	Ben Wheeler	Van Zandt	Brashear	Hopkins
Ashwood	Brazoria	Benbrook	Tarrant	Brazoria	Brazoria
Ater	Coryell	Bennington	Fannin	Brazos East	Parker
Athens	Henderson	South		Brazos Point	Johnson
Atlanta North	Cass	Berea	Houston	Bremond	Falls
Atlanta South	Cass	Bernardo	Austin	Brenham	Washington
Atoy	Cherokee	Berryhill Creek	Rusk	Bridgeport East	Wise
Aubrey	Denton	Berryville	Cherokee	Bridgeport West	Wise
Augusta	Anderson	Bertram	Williamson		

Table 5 (cont.)

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
Briggs	Bell	Carmine	Washington	Chriesman	Milam
Bristol	Ellis	Carmona	Polk	Christmas Point	Brazoria
Britton	Ellis	Carroll	Van Zandt	Church Hill	Rusk
Broaddus	San Augustine	Carrollton	Dallas	Clairette	Bosque
Brock	Parker	Carterville	Cass	Clam Lake	Jefferson
Bronson	San Augustine	Carthage	Panola	Clarksville	Red River
Brookshire	Waller	Cartwright	Wood	Clawson	Angelina
Brownsboro	Henderson	Cason	Titus	Clay	Burleson
Bruceville	Falls	Cassells-Boykin Park	Angelina	Clear Lake	Brazos
Brushy Creek	Shelby	Cat Spring	Austin	Cleburne East	Johnson
Brushy Mound	Montague	Cayuga	Anderson	Cleburne West	Johnson
Bryan East	Brazos	Cedar Hill	Ellis	Cleveland	Liberty
Bryan West	Brazos	Cedar Lakes East	Brazoria	Clifton	Bosque
Bryans Mill	Cass	Cedar Lakes West	Brazoria	Clodine	Fort Bend
Buck Bay	San Augustine	Cedar Lane	Brazoria	Cobbs Cavern	Williamson
Buckhorn	Washington	Cedar Lane NE	Brazoria	Coffeerville	Upshur
Buffalo	Leon	Cedar Springs	Falls	Coldspring	San Jacinto
Bullard	Smith	Cedarvale	Kaufman	Colita	Trinity
Buna	Jasper	Celeste	Hunt	Colleyville	Tarrant
Burleigh	Austin	Celina	Collin	Colliers Creek	Harrison
Burleson	Johnson	Center	Shelby	Collinsville	Grayson
Burton	Washington	Centerville	Leon	Colmesneil	Tyler
Butler	Freestone	Centralia	Trinity	Commerce North	Hunt
Buzzard Roost Knob	Montague	Chalk Mountain	Somervell	Commerce South	Hunt
Caldwell	Burleson	Chambliss Hill	Tyler	Como	Hopkins
Caledonia	Rusk	Chances Store	Burleson	Connor	Madison
Call Junction	Jasper	Chandler	Smith	Conroe	Montgomery
Callisburg	Cooke	Chapin	Hood	Conroe NE	Montgomery
Calvary	Wood	Chappell Hill	Washington	Cookville	Titus
Calvert	Robertson	Charleston	Delta	Coolidge	Navarro
Camden	Polk	Chatfield	Navarro	Coon Creek Lake	Henderson
Cameron	Milam	Chester	Tyler	Cooper North	Delta
Camilla	San Jacinto	Chico	Wise	Cooper South	Delta
Camp Branch	Bosque	Chilton	Falls	Coopers Chapel	Titus
Camp Creek Lake	Robertson	China	Jefferson	Copperas Cove	Bell
Canary	Brazos	China Springs	McLennan	Corbet	Navarro
Canton	Van Zandt	Chinguapin	San Augustine	Corley	Bowie
Capers Ridge	Liberty	Chireno North	San Augustine	Corrigan	Polk
Caplen	Galveston	Chireno South	San Augustine	Corsicana	Navarro
Carlisle	San Jacinto	Chita	Trinity	Coryell	Coryell
Carlos	Grimes			Cottdondale	Wise

Table 5 (cont.)

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
Coupland	Williamson	Decatur	Wise	Elm Mott	McLennan
Courtney	Grimes	DeKalb	Bowie	Elmo	Kaufman
Cove	Chambers	DeKalb NW	Bowie	Elwood	Madison
Covington	Hill	Denison Dam	Grayson	Emhouse	Navarro
Cowl Spur	Montgomery	Dennis	Hood	Emory North	Rains
Crabbs Prairie	Walker	Denson Springs	Cherokee	Emory South	Rains
Crafton	Wise	Denton East	Denton	English	Red River
Cranfills Gap	Bosque	Denton West	Denton	Ennis East	Ellis
Crawford	McLennan	Deport	Lamar	Ennis West	Ellis
Crecy	Trinity	Deserter Baygall	Hardin	Era	Cooke
Creslenn Ranch	Henderson	Detroit	Lamar	Era SE	Denton
Cresson	Johnson	Devers	Liberty	Ethel	Grayson
Crockett	Houston	Dew	Freestone	Etoile North	Nacogdoches
Crockett NE	Houston	Dexter	Grayson	Etoile South	Angelina
Crosby	Harris	Diboll	Angelina	Eules	Tarrant
Cross Roads	Henderson	Dickinson	Galveston	Eunice	Leon
Crow	Smith	Dike	Hopkins	Evadale	Jasper
Cryer Creek	Ellis	Dime Box	Lee	Evans	Newton
Culleoka	Collin	Dimple	Red River	Evant	Coryell
Cumby	Hopkins	Ding Dong	Bell	Fairdale	Newton
Cunningham	Delta	Direct	Lamar	Fairfield	Freestone
Cunningham Creek	Cass	Dodd City	Fannin	Fair Play	Panola
Cushing	Nacogdoches	Domino	Bowie	Fairy	Bosque
Cut and Shoot	Montgomery	Donie	Leon	Fallon	Limestone
Cuthand	Red River	Dorchester	Grayson	Fannett East	Jefferson
Cypress	Harris	Douglass	Nacogdoches	Fannett West	Jefferson
Dacus	Grimes	Douglasville	Cass	Farmersville	Collin
Daingerfield	Morris	Duncanville	Dallas	Farrar	Limestone
Daisetta	Liberty	Dunn Creek	Robertson	Fedor	Lee
Dalby Springs	Bowie	Durst Lakes	Nacogdoches	Ferguson	Brazos
Dallardsville	Polk	Eagle Lake NE	Austin	Crossing	
Dallas	Dallas	Eagle Springs	McLennan	Ferris	Ellis
Damon	Fort Bend	East Bernard	Fort Bend	Files Valley	Ellis
Danbury	Brazoria	East Columbia	Brazoria	Flag Pond	Burleson
Danciger	Brazoria	East Hamilton	Sabine	Flake	Galveston
Daniels	Washington	Easton	Harrison	Fleetwood	Montague
Daniels Chapel	Bowie	Ebenezer	Jasper	Flo	Leon
Darco	Harrison	Echo	Orange	Florence	Williamson
Davilla	Williamson	Echols	Limestone	Fodice	Houston
Davis Hill	Liberty	Ector	Fannin	Foreman	Bowie
Dawson	Navarro	Edge	Robertson	Forest	Cherokee
Dayton	Liberty	Edgewood	Van Zandt	Forestburg	Montague
Deanville	Lee	Elderville	Rusk	Forney North	Rockwall
DeBerry	Panola	Elk	McLennan	Forney South	Kaufman
		Elkhart Creek	Anderson	Forreston	Ellis

Table 5 (cont.)

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
Fort Hood	Coryell	Golden	Wood	Harvey Creek	San Augustine
Fort Worth	Tarrant	Goodlow Park	Navarro	Hawkins	Smith
Fostoria	Montgomery	Goodrich	Polk	Hays Spring	Houston
Franklin	Robertson	Goodwill	Burleson	Hearne North	Robertson
Franklin Lake	Jasper	Gordonville	Grayson	Hearne South	Robertson
Fred	Tyler	Granbury	Hood	Hebron	Collin
Freemound	Cooke	Grand Bluff	Panola	Hedwig Village	Harris
Freeport	Brazoria	Grand Saline	Van Zandt	Hemphill	Sabine
Frenstat	Burleson	Grandview	Johnson	Hempstead	Waller
Friendswood	Galveston	Granger	Williamson	Henderson	Rusk
Frisco	Collin	Granger Lake	Williamson	Hicks	Lee
Frogville	Lamar	Grant	Lamar	Hicksbaugh	Tyler
Frost	Navarro	Grapeland	Houston	High Island	Chambers
Frozen Point	Chambers	Grapevine	Tarrant	Highlands	Harris
Fruitvale	Van Zandt	Grays Prairie	Kaufman	Hill City	Somervell
Fulshear	Fort Bend	Green Valley	Denton	Hillister	Tyler
Gafford Chapel	Hopkins	Greenville NE	Hunt	Hillsboro East	Hill
Gainsville North	Cooke	Greenville NW	Hunt	Hillsboro West	Hill
Gainsville South	Cooke	Greenville SE	Hunt	Hilltop Lakes	Leon
Galilee	Walker	Greenville SW	Hunt	Hitchcock	Galveston
Galveston	Galveston	Greenvine	Washington	Hockley	Harris
Garland	Dallas	Greenwood	Cooke	Hockley Mound	Waller
Garner	Parker	Griffin	Cherokee	Hodgson	Bowie
Garrison East	Shelby	Groesbeck	Limestone	Holland	Bell
Garrison West	Nacogdoches	Groveton East	Trinity	Honey Grove	Fannin
Gary	Panola	Groveton West	Trinity	Hood	Cooke
Gatesville East	Coryell	Gumsprings	Rusk	Hooks	Bowie
Gatesville West	Coryell	Gunter	Grayson	Hope Pond	Smith
Gause	Robertson	Guy	Fort Bend	Horseshoe Bend	Cooke
Gay Hill	Burleson	Haddens	Newton	Hortense	Polk
Geneva	Sabine	Hagensport	Franklin	Hoskins Mound	Brazoria
Georgetown	Williamson	Hainesville	Wood	Houston	Harris
German Valley	Coryell	Halls Bluff	Houston	Houston Heights	Grayson
Gholson	McLennan	Hallsville	Harrison	Howe	Grimes
Gibtown	Wise	Haltom City	Tarrant	Howth	Hill
Giddings	Lee	Hammond	Robertson	Hubband	Liberty
Gilmer	Upshur	Hamshire	Jefferson	Huffman	Harris
Gist	Jasper	Hanover	Milam	Humble	Harris
Gladewater	Upshur	Hardin	Liberty	Hungerford	Fort Bend
Glen Rose East	Somervell	Harleton	Marion	Huntington	Angelina
Glen Rose West	Somervell	Harmaston	Harris	Huntsville	Walker
Glendale	Trinity	Harris Chapel	Panola	Hurricane Creek	Newton
Glenwood	Upshur	Harrisburg	Jasper		
Gober	Fannin	Hartburg	Newton		
Godley	Johnson	Harvard	Titus		

Table 5 (cont.)

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
Hurst	Tarrant	Keenan	Montgomery	Lake	Nacogdoches
Hurst Spring	Bosque	Keene	Johnson	Nacagdoches	
Hurstown	Shelby	Keith	Grimes	North	
Hutchins	Dallas	Keller	Tarrant	Lake	Nacogdoches
Hutto	Williamson	Kellyville	Marion	Nacagdoches	
Huxley	Shelby	Keltys	Angelina	South	
Idabel SE	Red River	Kemp	Fannin	Lake	Chambers
Independence	Washington	Kemp	Kaufman	Stephenson	
India	Ellis	Kendleton	Fort Bend	Lake	Parker
Indian Lake	Anderson	Kennard	Houston	Weatherford	
Industry	Austin	Kennard NE	Houston	Lake West	Fannin
Iola	Grimes	Kennedale	Tarrant	Lake Worth	Tarrant
Iredell	Bosque	Kenney	Washington	Lakeport	Gregg
Irene	Hill	Kerens	Navarro	Lakeside Village	Bosque
Iron Bridge Dam	Rains	Kildare	Cass	Lamasco	Fannin
Irving	Dallas	Kilgore NE	Gregg	Lancaster	Ellis
Italy	Ellis	Kilgore NW	Gregg	Lanely	Freestone
Itasca	Hill	Kilgore SE	Rusk	Laneville	Rusk
Izoro	Coryell	Kilgore SW	Rusk	Lanier	Cass
Jacinto City	Harris	Killeen	Bell	LaRue	Henderson
Jacks Creek	Tyler	Kingston	Grayson	Lassater	Marion
North		South		Latex	Harrison
Jacks Creek	Tyler	Kiomatia	Red River	Lavon	Collin
South		Kirbyville	Jasper	League City	Galveston
Jacksonville	Cherokee	Kirkpatrick	Tyler	Leagueville	Henderson
East		Lake		Leander	Williamson
Jacksonville	Cherokee	Kirvin	Freestone	Leander NE	Williamson
West		Klondike	Delta	Leary	Bowie
Jamestown	Newton	Kosse East	Limestone	Lebanon	Grayson
Jarrell	Williamson	Kosse West	Falls	Ledbetter	Lee
Jasper East	Jasper	Kountze North	Hardin	Leesburg	Camp
Jasper West	Jasper	Kountze South	Hardin	Leggett	Polk
Jefferson	Marion	Kountze SW	Hardin	Leon Junction	Coryell
Jewett	Leon	Kurten	Brazos	Leon North	Cooke
Jollyville	Williamson	La Porte	Harris	Leon South	Cooke
Jones Creek	Brazoria	Ladonia	Fannin	Leona	Leon
Jonesboro	Coryell	LaFayette	Morris	Leona SW	Madison
Josephine	Collin	Laguna Park	Bosque	Leonard	Fannin
Joshua	Johnson	Lake Bonham	Fannin	Lewisville East	Denton
Juliff	Brazoria	Lake Como	Galveston	Lewisville West	Denton
Justin	Denton	Lake Jackson	Brazoria	Lexington	Lee
Karnack	Marion	Lake Leon	Leon	Liberty	Liberty
Katy	Harris	Lake Murvaul	Panola	Liberty Hill	Williamson
Kaufman	Kaufman			Lincoln	Lee
Keechi	Freestone			Lindale	Smith
				Linden	Cass

Table 5 (cont.)

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
Line Branch	Red River	Marshall East	Harrison	Monroe City	Chambers
Lipan	Parker	Marshall NW	Marion	Mont Belvieu	Chambers
Little Elm	Denton	Marshall West	Harrison	Montague	Montague
Little River	Bell	Mart	Limestone	Montgomery	Montgomery
Liverpool	Brazoria	Martins Mill	Van Zandt	Monticello	Titus
Livingston	Polk	Martinsville	Shelby	Moody	McLennan
Logan	Panola	Marysville	Cooke	Moonshine Hill	Harris
Logansport East	Shelby	Maud	Bowie	Moore Grove	Walker
Logansport West	Shelby	Mauriceville	Orange	Moore Station	Henderson
Loma	Walker	Maydelle	Cherokee	Morgan	Bosque
Lone Oak North	Hunt	Maynard	San Jacinto	Morgans Point	Chambers
Lone Oak South	Rains	Maypearl	Ellis	Mosheim	Bosque
Lone Star	Morris	Maysfield	Milam	Moss Bluff	Liberty
Long Branch	Panola	McClanahan	Falls	Mount Enterprise	Rusk
Long Lake	Anderson	McDade	Lee	Mount Herman	Shelby
Longview Heights	Harrison	McGee Bend	Jasper	Mount Pleasant	Titus
Lorena	McLennan	McGregor	McLennan	Mount Selman	Cherokee
Lott	Falls	McKinney East	Collin	Mount Sylvan	Smith
Lovelady North	Houston	McKinney West	Collin	Mount Vernon	Franklin
Lovelady South	Trinity	McLeod	Cass	Mountain Springs	Denton
Lufkin	Angelina	McMillan	Bell	Mud Lake	Jefferson
Lydia	Red River	Mountains		Muenster East	Cooke
Lyons	Burleson	Melrose	Nacogdoches	Muenster West	Cooke
Mabank	Henderson	Meridian	Bosque	Mulberry	Fannin
Madisonville	Madison	Merryville North	Newton	Mumford	Burleson
Maedan	Harris	Merryville South	Newton	Murchinson East	Henderson
Magnolia East	Montgomery	Mertens	Ellis	Murchison West	Henderson
Magnolia Springs	Jasper	Mesquite	Dallas	Mustang Bayou	Galveston
Magnolia West	Montgomery	Mexia	Limestone	Myrtle Springs	Van Zandt
Mahomet	Williamson	Middleton	Leon	Nacagdoches	Nacogdoches
Malakoff	Henderson	Midlothian	Ellis	North	
Mallard Hill	Henderson	Milam	Sabine	Nacagdoches	Nacogdoches
Malone	Hill	Milano	Milam	South	
Malta	Bowie	Miller Grove	Hopkins	Nameless	Williamson
Manchester	Red River	Millerton	Red River	Naples	Morris
Manning	Angelina	Millican	Brazos	Navasota	Grimes
Mansfield	Johnson	Minden	Rusk	Nechanitz	Lee
Manvel	Brazoria	Mineola	Wood	Neches	Cherokee
Margie	Leon	Mineral Wells	Parker	Needville	Fort Bend
Marietta	Cass	East		Negley	Red River
Marietta West	Cooke	Minter	Delta	Negreet SW	Sabine
Marilee	Grayson	Missouri City	Fort Bend	Nemo	Somervell
Marlin	Falls	Mitchell Creek	Hopkins	Neuville	Shelby
Marquez	Robertson	Moffat	Bell	New Boston	Bowie
		Monkstown	Fannin	New Harp	Montague

Table 5 (cont.)

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
New Hope	Franklin	Oyster Bayou	Chambers	Plantersville	Grimes
New Oberlin	Lamar	Oyster Creek	Brazoria	Platt	Angelina
New Salem	Rusk	Pace Hill	Jasper	Platter	Grayson
New Summerfield	Cherokee	Paige	Lee	Pleasant Grove	Wood
New Ulm	Austin	Palmer	Ellis	Pluck	Polk
New Waverly	Walker	Paluxy	Somervell	Plum Grove	Liberty
New Willard	Polk	Panola	Panola	Poetry	Kaufman
Newsome	Wood	Paris	Lamar	Ponder	Denton
Newton East	Newton	Park Place	Harris	Poolville	Parker
Newton West	Newton	Pasadena	Harris	Port Acres	Jefferson
Nocona	Montague	Pat Mayse Lake	Lamar	Port Arthur North	Jefferson
Nolanville	Bell	East		Port Arthur South	Jefferson
Nome	Liberty	Pat Mayse Lake	Lamar	Port Bolivar	Galveston
Normangee	Madison	West		Porter Springs	Houston
North Fort Hood	Coryell	Patroon	Shelby	Post Oak	Coryell
North Zulch	Madison	Patroon South	Sabine	Mountain	
Northeast	Anderson	Pattonville	Lamar	Potato Patch	Jasper
Palestine		Pearl	Coryell	Lake	
Northwest	Anderson	Pearland	Harris	Potterspoint	Marion
Palestine		Pearsons Chapel	Houston	Pottsboro	Grayson
Norwood	San	Pecan Creek	Wise	Powell	Navarro
	Augustine	Pecan Gap	Delta	Poynor	Henderson
Oak Cliff	Dallas	Penelope	Hill	Prairie Hill	Limestone
Oak Grove	Bowie	Pennington	Trinity	Prairie Valley	Montague
Oak Island	Chambers	Peoria	Hill	School	
Oakhurst	San Jacinto	Percilla	Anderson	Prairieville	Kaufman
Oakwood	Leon	Pert	Anderson	Price	Rusk
Odds	Limestone	Petteway	Robertson	Primrose	Johnson
Ogden	Bowie	Pettibone	Milam	Pritchett	Upshur
Oglesby	Coryell	Petty	Lamar	Pryor Mountain	Cherokee
Ohio	Coryell	Pflugerville East	Williamson	Purdon	Navarro
Oklahoma	Montgomery	Pflugerville West	Williamson	Purley	Hopkins
Ola	Kaufman	Phalba	Van Zandt	Purmela	Coryell
Old Center	Panola	Phelps	Walker	Quinlan	Hunt
Old Panola	Panola	Pidcoke	Coryell	Quitman	Wood
Oletha	Limestone	Pike	Collin	Ratcliff	Houston
Onalaska	Polk	Pilot Grove	Grayson	Ravanna	Cass
Orange	Orange	Pilot Knob	Bosque	Rayburn	Liberty
Orangefield	Orange	Pilot Point	Denton	Reagan	Falls
Orchard	Fort Bend	Pine Forest	Orange	Redbank	Bowie
Ore City	Marion	Pine Prairie	Walker	Redland	Angelina
Otey	Brazoria	Pineland North	Sabine	Reklaw	Nacogdoches
Otto	Limestone	Pineland South	Sabine	Reliance	Brazos
Outlaw Pond	Montgomery	Pittsburg	Camp	Rexville	Austin
Owensville	Robertson	Plano	Collin	Rhome	Wise

Table 5 (cont.)

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
Rhonesboro	Wood	San Augustine	San	Soda	Polk
Richards	Walker	West	Augustine	Somerville	Burleson
Richland	Navarro	San Felipe	Austin	Sour Lake	Hardin
Richmond	Fort Bend	San Gabriel	Milam	South Bosque	McLennan
Richmond NE	Fort Bend	San Jacinto	Walker	South of Star	Jefferson
Riesel	McLennan	San Luis Pass	Galveston	Lake	
Ringgold	Montague	Sand Ridge	Madison	Southeast	Anderson
River Hill	Panola	Sanger	Denton	Palestine	
Riverside	Walker	Saratoga	Hardin	Southwest	Anderson
Roans Prairie	Grimes	Sardis	Cass	Palestine	
Robbins	Leon	Satsuma	Harris	Spanish Fort	Montague
Robinson	McLennan	Schwab City	Polk	Speegleville	McLennan
Rockdale East	Milam	Scottsville	Harrison	Splendora	Montgomery
Rockdale West	Milam	Scurry	Kaufman	Spring	Harris
Rockland	Angelina	Sea Isle	Galveston	Spring Creek	Bosque
Rockwall	Rockwall	Seagoville	Dallas	Gap	
Roganville	Jasper	Sealy	Austin	Spring Seat	Leon
Rogers	Bell	Seaton	Bell	Springtown	Parker
Romayor	Liberty	Segno	Polk	Springtown SE	Tarrant
Rose Hill	Harris	Selms	Fannin	Spurger	Tyler
Rosebud	Falls	Selma	Montague	Staley	San Jacinto
Rosharon	Brazoria	Settegast	Harris	Stanmire Lake	Houston
Rosser	Kaufman	Shady Grove	Wood	Stanolind	Chambers
Rosser SW	Navarro	Shankleville	Newton	Reservoir	
Round Prairie	Robertson	Sharp	Milam	Star Lake	Jefferson
Round Rock	Williamson	Sheeks	Liberty	Starks	Newton
Round Top	Washington	Shelbyville	Shelby	Starrville	Smith
Roustabout	Freestone	Shell Mountains	Coryell	Steep Branch	Walker
Camp		Shepard Hill	Montgomery	Stephen Creek	San Jacinto
Rowlett	Dallas	Sherman	Grayson	Stewards Mill	Freestone
Roxton	Lamar	Sherman NW	Grayson	Stockard	Henderson
Royse City	Rockwall	Shiloh	Liberty	Stoneburg	Montague
Rumley	Coryell	Shoals	Lamar	Stoneham	Grimes
Rusk	Cherokee	Shoats Creek	Newton	Stowell	Chambers
Ryan	Montague	Silsbee	Hardin	Streetman	Navarro
Sabine Pass	Jefferson	Simmons Bottom	Liberty	Stricklin Springs	Harrison
Sadler	Grayson	Singleton	Grimes	Structure	Williamson
Saint Jo	Montague	Slate Shoals	Lamar	Styx	Navarro
Salado	Bell	Slidell	Wise	Sudduth Bluff	Newton
Saline Bay	Smith	Slocum	Anderson	Sugar Land	Fort Bend
Salona	Montague	Smith Point	Chambers	Sugarloaf	Bosque
Salter Creek	Sabine	Smithers Lake	Fort Bend	Mountain	
Saltillo	Hopkins	Smiths Bend	Hill	Sulphur Bluff	Hopkins
San Augustine	San	Smyrna	Montague	Sulphur Springs	Hopkins
East	Augustine	Snook	Burleson	SE	

Table 5 (cont.)

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
Sunny Side	Austin	Tool	Henderson	Warda	Lee
Sunset	Montague	Toro	Sabine	Warren	Tyler
Sweeny	Brazoria	Town Bluff	Tyler	Warren Lake	Harris
Talco	Titus	Travis Peak	Williamson	Washington	Washington
Tamina	Montgomery	Trawick	Nacogdoches	Waskom	Harrison
Tanglewood	Lee	Trees	Marion	Waxahachie	Ellis
Tarkington	Liberty	Trenton	Fannin	Weatherford	Parker
Prairie		Trevat	Trinity	North	
Tatum	Panola	Trinity East	Trinity	Weatherford	Parker
Taylor	Williamson	Trinity West	Walker	South	
Teague North	Freestone	Troup East	Smith	Weches	Cherokee
Teague South	Limestone	Troup West	Smith	Weeks	Newton
Tecula	Cherokee	Trout Creek	Newton	Settlement	
Tehuacana	Limestone	Troy	Bell	Weir	Williamson
Telephone	Fannin	Tunis	Burleson	Welcome	Washington
Temple	Bell	Turlington	Freestone	Weldon	Houston
Tenaha East	Shelby	Turnersville	Coryell	Wellborn	Brazos
Tenaha West	Shelby	Twin Mountains	Coryell	Wells	Angelina
Tennessee	Anderson	Tyler North	Smith	Wells SW	Trinity
Colony		Tyler South	Smith	West	Hill
Terral	Montague	Umbrella Point	Chambers	West Columbia	Brazoria
Terrell North	Rockwall	Union High	Navarro	West of Greens	Jefferson
Terrell South	Kaufman	Union Springs	Shelby	Bayou	
Terry	Orange	Valley Mills	McLennan	West Tawakoni	Hunt
Texarkana	Bowie	Valley View	Denton	Westcott	San Jacinto
Texas City	Galveston	Van	Van Zandt	Weston	Collin
Texas Point	Jefferson	Van Alstyne	Grayson	Westphalia	Falls
Texla	Orange	Van Lake	Van Zandt	Wheelock	Robertson
Thackerville	Cooke	Veach	San	White Oak	Upshur
The Jetties	Galveston		Augustine	White Rock	Red River
Thomas	Upshur	Venus	Ellis	White Rock Lake	Dallas
Thompsons	Fort Bend	Village Mills	Hardin	Whites Bayou	Liberty
Thorndale	Milam	Virginia Point	Galveston	Whites Ranch	Jefferson
Thornton	Limestone	Votaw	Hardin	Whitesboro	Grayson
Thorsen Gully	Hardin	Voth	Hardin	Whitewright	Grayson
Thrall	Williamson	Waco East	McLennan	Whitney	Hill
Tigertown	Lamar	Waco West	McLennan	Whitt	Parker
Timpson	Shelby	Wakefield	Polk	Wiergate	Newton
Tin Top	Hood	Waller	Waller	Wiergate SE	Newton
Tira	Delta	Waller NW	Grimes	Wilkerson	Anderson
Toco	Lamar	Wallis	Austin	Mountain	
Todd City	Cherokee	Walnut Springs	Bosque	Wilkinson	Titus
Tolar	Hood	East		Willis	Montgomery
Tom	Bowie	Walnut Springs	Somervell	Wills Point	Kaufman
Tomball	Harris	West		Winchester	Lee
				Winfield	Titus

Table 5 (cont.)

QUADRANGLE	COUNTY	QUADRANGLE	COUNTY	QUADRANGLE	COUNTY
Winkler	Freestone				
Winnie NW	Liberty	Woodland	Lamar	Yantis	Wood
Winnsboro	Wood	Woodlawn	Marion	Yard	Anderson
Winona	Smith	Woodville	Tyler	Yarrelton	Milam
Wizard Wells	Wise	Wortham	Navarro	Young	Freestone
Woden	Nacogdoches	Wright Patman	Bowie	Youngsport	Bell
Wolf Hill	Angelina	Dam		Yuba	Fannin
Wolfe City	Hunt	Wylie	Collin	Zavalla	Angelina
Woodbine	Cooke	Wyser Bottom	Walker	Zwolle	Sabine

Table 6. Acreage estimates for inventoried sites. Coal, sandstone, halite, gold, and tuff commodities were not included.

<u>Size Category</u>	<u>Commodity</u>	<u>No. Sites</u>	<u>Size (ac.)</u>
Small	Sand & Gravel	1,197	8,379
	Limestone	233	1,631
	Clay	122	854
	Iron ore	7	49
	Total	1,559	10,913
Medium	Sand & Gravel	1,298	82,250
	Limestone	186	11,780
	Clay	103	6,610
	Iron ore	18	1,140
	Total	1,605	101,780
Large	Sand & Gravel	72	15,840
	Limestone	23	5,060
	Clay	2	440
	Iron ore	5	1,100
	Total	102	22,440
	TOTAL	3,266	135,133

	<u>Size (ac.)</u>		<u>Size (ac.)</u>
Total numbered sites	135,133	Total sand and gravel	106,469
Total below threshold sites	4,686	Total limestone	18,471
Total all sites	139,819	Total clay	7,904
		Total iron ore	2,289

Table 7. Mined sites by geologic unit.

<u>Formation Name</u>	<u>Number of Pits</u>
Fluvial terrace deposits	636
Alluvium	527
Beaumont Formation	272
Willis Formation	271
Austin Chalk	143
Queen City Sand	113
Deweyville Formation	109
Wilcox Group	75
Sparta Sand	64
Carrizo Sand	63
Other	1,013

Table 8. Densest areas of mine development by quadrangle sector.
 For explanation of sector area, see appendix 2, figure 1.

<u>County</u>	<u>Quadrangle</u>	<u>Sector</u>	<u>Number of sites per sector (>2 ac.)</u>
Dallas	Irving	3	29
Dallas	Seagoville	7	20
San Jacinto	Bear Creek	4	19
Dallas	Hutchins	5	18
Dallas	Irving	7	16
Dallas	Carrollton	2	15
San Jacinto	Conroe NE	6	15
Montgomery	Cut and Shoot	3	15
Dallas	Carrollton	1	14
Wise	Bridgeport	3	13
Dallas	Carrollton	9	13
Williamson	Granger	8	12
Lee	Lincoln	5	12
San Jacinto	Bear Creek	7	11
Montgomery	Conroe NE	8	11
Dallas	Grapevine	3	11
Harris	Highlands	1	11
Montgomery	Oklahoma	4	11
Freestone	Turlington	6	11
Dallas	Dallas	8	10
Tarrant	Euless	5	10
Harris	Humble	9	10
Dallas	Hutchins	8	10
Dallas	Irving	8	10
Montgomery	Spring	2	10

Table 9. Distribution of reclaimed sites by county.

<u>County</u>	<u>Number of Sites</u>	<u>Percent of total Reclaimed</u>
Dallas	130	23
Tarrant	36	6
Harris	35	6
Montgomery	31	5
Cherokee	26	5
Galveston	19	3
San Jacinto	14	2
Grayson	14	2
Cass	14	2
Robertson	13	2
Orange	13	2
Jefferson	12	2
Denton	12	2
Collin	12	2
Upshur	11	2
Bell	11	2
Wise	10	2
Brazoria	10	2
Total for listed counties	423	74
Total reclaimed sites	573	

Table 10. Types of reclamation occurring in East Texas.

<u>Reclamation Type</u>	<u>Number of Sites</u>
Natural	251
Residential	74
Industrial	46
Recreational	43
Reservoir	40
Agricultural	36
Commercial	29
Landfill	21
Transitional	13
Transportational	13
Utilities	4
Institutional	2
Superfund Site	1
Total	573

Appendix 1

EAST TEXAS MINED LANDS INVENTORY FORM PART 1

A. GENERAL INFORMATION

- | | | | | | |
|---|-----------------------------------|--------------------------------------|---|-------------------|------------|
| 1. County | 2. Site No. | 3. Congressional Dist. | 4. Mine Status: | | |
| | | | a. Active (Y/N) acres | | |
| 5. USGS 7.5 Quad. Name | | 6. No. of Quads | b. Abandoned (Y/N) acres | | |
| 7. USGS Quad. No. - | 8. Lat.-Long. of Site N - - W - - | | c. Reclaimed (Y/N) | | |
| 9. Location | | | d. Type of Reclamation | | |
| | | | e. Size Category | | |
| | | | f. Existence of Highwall (Y/N) | | |
| 10. Site Name | | 11. Operator | g. Existence of Wetlands (Y/N) | | |
| | | | h. Within 1/2 mi. Public Road (Y/N) | | |
| 12. Home Office Address | | 13. Field Office Address | | | |
| 14. Home Office Telephone No. () - | | 15. Field Office Telephone No. () - | | | |
| 16. Previous Operator | | | 17. Type of Mine | | |
| 18. Commodity | | | 19. End-Use | | |
| 20. Rock/Sediment Type: | (1) Lithology | (2) Formation | (3) Consolidated (Y/N) | (4) Aquifer (Y/N) | |
| a. Mined Material | | | | | |
| b. Overburden | | | | | |
| c. Mine Floor | | | | | |
| 21. Mined Area acres | | | 22. Verification of Mine Status: | | |
| a. Air Photo / / | | | a. Air Photo / / | | |
| b. Topo Map / / | | | b. Site Visit / / | | |
| c. Site Visit / / | | | c. Flyover / / | | |
| d. Flyover / / | | | d. Interview / / | | |
| e. Soil Survey Photo Map / / | | | e. / / | | |
| f. / / | | | | | |
| 23. Aerial Photos Used: | (1) Date | (2) Frame I. D. | (3) Scale | (4) Type | (5) Agency |
| a. Historical / / | | | 1: 000 | | |
| b. Historical / / | | | 1: 000 | | |
| c. Most Recent / / | | | 1: 000 | | |

24. Comments:

B. REMARKS

25. a. Preparer(s)

b. Date Completed

Level 1A	/	/
Level 1B	/	/
Level 2	/	/
	/	/
	/	/
	/	/

c. Priority Pit (Y/N)

EAST TEXAS MINED LANDS INVENTORY FORM
PART 2

Site No.

C. HEALTH AND SAFETY CONSIDERATIONS

26. Disturbed Area:
- | | (1) Spoil Pile | (2) Highwall | (3) Pit | (4) Shaft |
|--------------------------------|----------------|--------------|---------|-----------|
| a. Area | acres | N/A | acres | sq-yd |
| b. Slope Range (degrees) | - | - | - | - |
| c. Height (Depth) Range (ft) | - | - | (-) | (-) |
| d. Length (ft) | N/A | - | - | N/A |
| e. Volume | cu-yd | N/A | N/A | N/A |
| f. Unstable (Y/N) | | | | |
| g. Density of Vegetation | | | | |
| h. Types of Vegetation | | | | |
| i. Existence of Highwall (Y/N) | | | | |
27. Wetlands:
- | | (1) | (2) | (3) |
|--------------------------------|-------|-------|-------|
| a. Classification | | | |
| b. Area | acres | acres | acres |
| c. Turbid (Y/N) | | | |
| d. Color (natural or IR) | | | |
| e. pH | | | |
| f. Conductance (micromhos) | | | |
| g. Temperature (degs F) | | | |
| h. Sample No. | | | |
| i. Current use | | | |
| j. Existence of Wetlands (Y/N) | | | |
28. Site Condition:
- | | |
|-------------------------------------|---------------|
| a. Waste Dumping (Y/N) | (1) Type(s) |
| b. Facilities (Y/N) | (1) Condition |
| c. Equipment (Y/N) | (1) Condition |
| d. Susceptibility to flooding (Y/N) | |
| e. Ground Saturated (Y/N) | |
| f. Springs from Highwall (Y/N) | |
29. Personal Injury or Accident:
- | | |
|-----------------------------------|---------------------------------|
| a. Known Injury or Accident (Y/N) | b. Nature of Injury or Accident |
| c. Number of Fatal Accidents | d. Number of Nonfatal Accidents |
| e. Verifying Evidence | |
30. Human Visitation:
- | | | |
|-----------------------|---|-----------|
| a. Evidence | (1=trails, 2=roads, 3=gabbage/trash, 4=other) | (1) Other |
| b. Total area covered | (1=0-25%, 2=26-50%, 3=51-75%, 4=76-100%) | |
31. Accessibility:
- | | | |
|----------------------------|-----------------------------|---|
| a. roads to site (Y/N) | b. roads gated (Y/N) | c. site less than or equal to 0.5 mile from public road (Y/N) |
| d. railroads to site (Y/N) | e. footpaths to site (Y/N) | f. site fenced (Y/N) |
| h. access maintained (Y/N) | i. reasonable warning (Y/N) | g. shaft sealed (Y/N) |
32. Visibility:
- | | | |
|---------------------------|-------------------------------------|----------------------------|
| a. from public road (Y/N) | b. from residences/businesses (Y/N) | c. from public lands (Y/N) |
|---------------------------|-------------------------------------|----------------------------|

33. Nearest resident:
a. Within 1 mile (Y/N) b. Distance . miles

34. Priority Feature(s) Closest to Public Road:
a. Type
b. Distance ft.

D. ENVIRONMENTAL CONSIDERATIONS

35. Environmental Conditions:
a. Surface Runoff (Y/N) (1) Disturbed Area (2) Impact on Adjacent Property
b. Runoff received by a water body (Y/N)
c. Name of water body
d. Physical changes in water body
e. Existence of sheet wash (Y/N)
f. Vegetation Stress (Y/N)
g. Evidence of Stress

36. Erosion:
a. Agent(s)
b. Extent N/A
(1=0-25%, 2=26-50%, 3=51-75%, 4=76-100%)
c. Severity
d. Susceptibility N/A

37. Nearest Public Water Supply:
a. Surface Source (1) Distance from site . miles
b. Well Field (1) Distance from site . miles

38. Surrounding Land-Use:
a. Land-Uses (enter land-use codes)

39. Nearest Aquifer:
a. Name
b. Mine in recharge area (Y/N)
c. Mine in downdip portion of aquifer (Y/N)

40. Priority Site? (Y/N)

Appendix 2

EAST TEXAS MINED LANDS DATA BASE MANUAL

The Texas Mined Lands Data Base (TMLDB) manual was prepared by The University of Texas at Austin, Bureau of Economic Geology (BEG), under interagency cooperation contracts (IAC 88-89-0979, IAC 90-91-0492) with the Railroad Commission of Texas, Surface Mining and Reclamation Division (SMRD). The manual explains in detail each field on the TMLDB.

Records in the TMLDB are divided into two parts, following the format of the Mined Lands Inventory Form (MLIF) (appendix 2). Part 1 contains general information and remarks, and part 2 provides information on health, safety, and environmental aspects. Most mined sites are inventoried only in part 1 of the data base. Together, parts 1 and 2 contain 40 consecutively numbered subdivisions. Each data entry in a subdivision is referred to as a field. Some subdivisions contain only one field, whereas others have multiple fields. Fields are identified in this manual by a combination of numbers and letters. Data entries in fields include proper names, alphanumeric codes, numerical measurements, dates, or key words. The following text describes the source(s) for the data in each field and defines codes and key words.

A. General Information

1. County. Field 1 contains the name of the county in which the site is located. The location of a site is specified by the latitude and longitude in Field 8.
2. Site No. Field 2 contains a unique sequence of three digits, three letters, and three digits that identifies the area where a site is located and the specific number assigned to the site. The first three digits of this code are the Federal Information Processing Standards (FIPS) code for the county specified in Field 1. The FIPS county code is used in both the Railroad Commission of Texas (RRC) and U.S. Bureau of Mines (USBM) data bases.

The second part of the site designation is a three-letter abbreviation for the U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle in which the site is located. The abbreviation selected is unique within each county and usually represents the first three letters of the quadrangle name. If the quadrangle name contains two words, the abbreviation usually represents the first two letters of the first word and the first letter of the second word.

The third portion of the site designation is a three-digit code for the site within a USGS 7.5-minute quadrangle. This code is derived from the well numbering system of the Texas Water Development Board (TWDB). In this system, each 7.5-minute quadrangle is subdivided into nine 2.5-minute sectors. Each 2.5-minute sector is numbered consecutively starting in the northwest corner of a 7.5-minute quadrangle (fig. 1). Sites are then numbered consecutively within each 2.5-minute quadrangle. Thus, for the last three digits of the site designation, the first digit represents the 2.5-minute sector in which the site is located, and the last two digits are the individual site number within the 2.5-minute sector. For example, the Beckman Quarry northwest of San Antonio (fig. 1) has a site designation of 029CAH101: 029 is the FIPS code for Bexar County, CAH is the abbreviation for the Castle Hills 7.5-minute quadrangle, and 101 indicates that the site is the first one numbered (01) in the northwestern (1) 2.5-minute sector of the Castle Hills 7.5-minute quadrangle.

1 Beckman Quarry x 01 x 02	2	3
4	5	6
7	8	9 x 01 x 02 x 03

Figure 1. Sectors of a USGS 7.5-minute quadrangle used in the last three digits of the site designator (Field 2). Each sector is 2.5 minutes of latitude by 2.5 minutes of longitude. Site locations (shown here by the letter X) are numbered consecutively within each 2.5-minute sector. Site 101 is the Beckman Quarry northwest of San Antonio, Bexar County.

3. Congressional Dist. The two-digit number in Field 3 gives the U.S. Congressional District in which the site is located. Congressional District boundaries are those established on June 19, 1983.

4. Mine Status. Mined land is classified as active, abandoned, and/or reclaimed, on the basis of interpretation of aerial photographs, a site visit, an aerial overflight, or a telephone interview with the site operator. A site is designated as active if there is evidence that mining activity, such as excavation, milling or processing, has taken place in any portion of the site during the recent past. A "Y" is placed in Field 4a if a site is active. Sites that are not active are considered abandoned; for abandoned sites an "N" is placed in Field 4a and a "Y" in Field 4b. Active sites may contain abandoned portions where mining has ceased.

Field 4a may also contain the total acreage that is being actively mined, and Field 4b the total acreage that has been abandoned on the site.

Each abandoned site is examined for evidence of reclamation, and a "Y" or "N" appears in Field 4c to indicate whether a site has been reclaimed. A "U" appears in Field 4c if the mined area was not determined because the mine is underground. The type of reclamation is indicated in Field 4d with one of the following key words:

Agricultural - Includes orchards, vineyards, stock ponds, feed lots, crop storage, rangeland, and cropland.

Cemetery

Commercial - Includes landscaped ponds adjacent to commercial buildings and shopping centers, as well as other commercial and service uses.

Industrial - Includes cooling ponds, sludge pits, stock piles, storage yards, as well as other heavy and light industrial uses.

Institutional - Includes public and private schools, hospitals, clinics, religious centers, museums, zoos, botanical gardens, arboreta, aquariums, and libraries.

Landfill - Includes sanitary landfills, salvage yards, and waste dumps.

Military - Includes all Federal and state military installations and reservations.

Natural - Includes revegetated land that has a gentle slope. Vegetation density on the site equals or exceeds the plant density in the surrounding unmined land.

Recreational - Includes parks, recreation areas, golf courses, swimming pools, campgrounds, racetracks, theaters, marinas, and fairgrounds.

Reservoir - Includes standing bodies of water impounded for irrigation, flood control, and/or recreation.

Residential - Includes apartment complexes, public housing projects, subdivisions, trailer parks, motels, and hotels.

Superfund site - Includes sites that are under EPA jurisdiction.

Transitional - Includes areas in the process of being reclaimed but for which the type of reclamation could not be ascertained, for example, buildings under construction.

Transportation - Includes roads, streets, highways, railroads, airports, subways, bus terminals, railroad depots, and public parking lots.

Utilities - Includes all communications, natural gas distribution, power and water supply facilities.

Government - Includes all non-military Federal, State, and local governmental facilities not used for education, health care, utilities, recreation, housing, or transportation.

The overall area of each mined site is indicated by a size category in Field 4e: sites less than or equal to 10 acres are indicated by "S" for small; sites greater than 10 acres and less than 200 acres are designated "M" for medium; and sites greater than or equal to 200 acres are designated "L" for large. The size category is determined with a template after site boundaries have been drawn on a USGS 7.5-minute quadrangle. A "U" is entered in Field 4e for the sites (for example, underground mines) where the extent of the mined land is unknown.

Each site is examined for the presence of a highwall or wetland. A highwall is defined as an excavated face of a mining operation that has a slope greater than 45 degrees. Excavated faces that cast a shadow in aerial photographs are considered highwalls.

Wetlands in this investigation encompass both wetlands and deepwater habitats of the U.S. Fish and Wildlife Service classification (Cowardin and others, 1979). This includes all land where the water table is at or near the surface and land that is permanently flooded. The presence(Y) or absence(N) of a highwall is indicated in Field 4f and of a wetland in Field 4g.

The proximity (less than or equal to 0.5 mile) of a site to a public road, street or highway is shown by a "Y" in Field 4h. Public roads, streets and highways are those indicated on the current State Department of Highways and Public Transportation (TXHWY) county map.

5. USGS 7.5 Quad. Name. Field 5 contains the name of the USGS 7.5-minute quadrangle in which a site is located. Cardinal directions (that is, north, south, etc.) may be abbreviated in the quadrangle names.
6. No. of Quads. Field 6 indicates the number of USGS 7.5-minute quadrangles which contain acreage for the site.
7. USGS Quad. No. The number in Field 7 is the seven-digit code assigned by the USGS to 7.5-minute topographic quadrangles. The first four digits indicate the latitude and longitude of the southeast corner of the 1-degree quadrangle that includes the 7.5-minute quadrangle. The last three digits describe the location of the 7.5-minute quadrangle within the 1-degree quadrangle. This code is used by the RRC and the Texas Natural Resources Information System (TNRIS).
8. Lat.-Long. of Site. The latitude and longitude of each site (Field 8) is the approximate geographic center of the mined area. Latitude and longitude are measured in degrees, minutes, and seconds accurate to the nearest 5 seconds. Measurements are made with a clear mylar template (Campbell and VanTrump, 1981) on a USGS 7.5-minute topographic quadrangle. The values are based on the 1927 North American Datum (NAD 27).
9. Location. Field 9 gives directions to the site in tenths of miles from a road intersection, community, or other point of geographic reference. Names of these reference points are taken primarily from USGS 7.5-minute topographic quadrangles, and secondarily from the TDHPT general highway

maps. A tertiary source for geographic place names in urban areas is street/road atlases. Common abbreviations used in this field are the following:

N = North
E = East
S = South
W = West

Co = County
Hwy or H = Highway
I = Interstate
Rd = Road

St = Street
US = United States
RM = Ranch-to-Market road
FM = Farm-to-Market road

10. Site Name. This field contains a unique site name assigned by the BEG. For many active sites this designation will coincide with the name given to the mine, pit, or quarry by the operator. For other sites, the assigned name will refer to a geographic place name that appears on a USGS 7.5-minute topographic quadrangle or on a TDHPT general highway map.
11. Operator. Field 11 contains the name of the person(s), company, corporation, or governmental agency extracting raw materials from the site. This information comes from an on-site visit, a telephone interview with the mine operator, or from BEG records. The site operator is not necessarily the owner of the land on which the mine, pit, or quarry is located.
12. Home Office Address. This field contains a street or postal address of the site operator whose name appears in Field 11. An address will appear in this field if the operator has an office that is not located at or near the mine site.
13. Field Office Address. A street or postal address will appear in Field 13 if the operator has an office at or near the mine site.
14. Home Office Telephone No. This field contains the area code and telephone number of an operator's office that is not located at or near the mine site.
15. Field Office Telephone No. Field 15 contains the area code and telephone number of an operator's office located at or near the mine site.

16. Previous Operator. This field contains the name or names (if known) of the individual(s), firm, or governmental agency extracting raw materials from the site prior to the present operator shown in Field 11 or prior to abandonment or reclamation. This information comes from a variety of sources, including published reports, the BEG Mineral Industry Location System (MILS) data base, the Texas Air Control Board (TACB) data base, and from on-site visits.

17. Type of Mine. One of the following key words appears in Field 17 to indicate the primary mining method used at each site:

Pit - A surface mine in unconsolidated or loosely consolidated earth material that is not refilled during the mining process.

Quarry - A surface mine in rock that is not refilled during the mining process.

Strip - A surface mine in which spoil banks are piled immediately behind the advancing highwall, or a surface mine in which excavation selectively parallels topographic contours.

Dredge - A surface mine in which an earth resource is removed from below the surface of a body of water. Removal of earth materials from below the water surface may be land-based (that is, by dragline, bulldozer, power shovel, scraper, front-end loader, or bucket wheel) or water-based (that is, by floating suction or bucket-line dredge).

UM-shaft - An underground mine with a vertical access shaft and with lateral mining (drifts) at depth.

UM-slope - An underground mine with an inclined access tunnel and with lateral mining (drifts) at depth.

UM-adit - An underground mine with a horizontal access tunnel and with lateral and/or vertical mining at depth.

UM - An underground mine with the type of access shaft not determined.

18. Commodity. Field 18 contains key words for one of the following commodities. These commodity designations generally follow those utilized by the USBM in the MILS data base:

Caliche	Limestone-crushed, or limestone
Clay-common, or clay	Limestone-dimension
Clay-kaolin	Oyster shell
Clay-bentonite	Halite
Coal-bituminous, or coal	Iron ore
Coal-cannel	Sand-industrial

Coal-lignite
Dolomite-crushed
Gold
Gypsum

Sand & gravel
Sandstone
Tuff
Uranium

Only the first word of compound key words describing commodities is used for sites where detailed information is not available. Other key words, such as barite, basalt, diatomite, fluorspar, granite, graphite, lead ore, marble, mercury ore, potash, slate, silver ore and tuff, may be used for sites in South or West Texas. Commodity designations have been field checked for all priority sites.

19. End Use. A key word designating the most common end-use will appear in Field 19. Most of these key words are also utilized by the USBM:

Aggregate
Agricultural
Cement
Ceramics
Chemical/metallurgical
Construction sand
Dimension stone
Energy

Flagstone
Industrial sand
Riprap
Road metal
Rock asphalt
Specialty clay
Structural clay

20. Rock/Sediment Type. These fields characterize the lithology and stratigraphy of the mine site. Fields in this subdivision refer to the mineral resource being extracted (Fields 20a[1]-a[4]), the overlying soil, sediment, or rock (Fields 20b[1]-b[4]), and the underlying sediment or rock (Fields 20c[1]-c[4]). Overburden (Field 20b[1]-[4]) is only indicated if it is greater than 5 feet in thickness.

Common rock and sediment names appear as key words under lithology (Fields 20a[1]-c[1]). The column "formation" (Fields 20a[2]-c[2]) refers to lithostratigraphic units mapped on the BEG Geologic Atlas of Texas. A formation name appears in this column unless a group was used as the mapping unit on the BEG Geologic Atlas of Texas. A member name will be indicated in Fields 20a[2]-c[2] if space allows, otherwise it may be indicated in Field 24, Comments. In some cases Geologic Atlas of Texas information is not detailed enough to include sand and gravel deposits that have been mined. Therefore, commodity and formation name do not always have the same lithology. Abbreviations in Fields 20a[2]-c[2] include:

Member - Mbr.
Formation - Fm.

Limestone - Ls.
Sandstone - Ss.

Group - Gp.
Deposit - Dep.

Shale - Sh.

The column "consolidated" (Fields 20a[3]-c[3]) refers to the degree of lithification of the earth material. A basic test indicating lithification is whether a rock hammer is required to break apart a hand sample of the earth material. A "Y" appears in Fields 20a(3)-c(3) if the earth material is consolidated. The column "aquifer" (Fields 20a[4]-c[4]) refers to the water-holding capacity of the earth material. A "Y" in this column indicates that the earth material contains significant quantities of extractable ground-water suitable for domestic, agricultural or industrial consumption and is designated an aquifer in reports of the Texas Water Commission (TWC), TWDB, BEG, or USGS.

21. Mined Area. The total mined area, in acres, refers to the sum of the abandoned and active portions (Fields 4a and 4b) of a site. This includes all disturbed land (pits, shafts, spoil piles, etc.) related to the mining operation.

The basis for calculating the mined area is listed in Fields 21a-21f. Mine sites are first accurately outlined on 7.5-minute topographic quadrangles. Acreage measurements are then made by counting squares using a grid overlay that has the smallest square equal to 0.23 ac.

Field 21e contains the published date of soil survey reports. The aerial photography and interpretations contained in the soil survey reports generally precede their publication date by several years. The blank subdivision (Field 21f) may contain citation information for USGS U.S./Mexico Border Color Image Maps (BCIM), an abbreviation for a BEG Research Document Inventory (RDI) file, or the author and date of a published report (for example, St. Clair, 1978). The date of a BCIM generally coincides with the date of the CIR imagery used for its preparation. Commonly used RDI files, such as TSMI (Groat, 1973) and ACMR (Finley and others, 1979), may be examined in the BEG Reading Room/Data Center.

22. Verification of Mine Status. The date and method of confirming the mine status shown in Fields 4(a-c) are indicated in Fields 22a-22e. For remotely sensed images, the date indicated is the one

on which the image was taken. The blank subdivision (Field 22e) may include BCIM, soil survey reports, and other sources of verification.

23. Aerial Photos Used. This subdivision contains information on the vertical aerial photography used to delineate the extent of each mine site. Dates in Fields 23a(1)-c(1) are those on which the photographs were taken. The "Frame I.D." in Fields 23a(2)-c(2) is the unique code assigned by the agency or firm that took the aerial photographs. This code generally includes the flight line and frame number and is unique for each image. Images from the National High Altitude Photography (NHAP) program are designated with the contract year, flight line, and frame numbers (for example, NHAP81/229-200). Frame identification codes for TDHPT aerial photographs refer to the county indicated in Field 1 unless another county is indicated in the Comments subdivision (Field 24).

Scales for the aerial photography are given as representative fractions in Fields 23a(3)-c(3). The type of aerial photograph is coded as BW for black and white, CIR for color infrared, or COL for color in Fields 23a(4)-c(4).

Agency codes in Fields 23a(5)-c(5) are the acronyms the USGS Aerial Photography Summary Record System (APSR) assigns to the agency or firm that holds the original photographs.

Commonly used codes are the following:

ASCS = Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture

NASAAM = National Aeronautics and Space Administration, Ames Research Center

NASAJS = National Aeronautics and Space Administration, Johnson Space Center

SCS = Soil Conservation Service, U. S. Department of Agriculture

TOBIN = Tobin Research, San Antonio, Texas

TXHWY = State Department of Highways and Public Transportation

USGS = U.S. Geological Survey, Department of Interior

B. Remarks

24. Comments. This field contains additional descriptive information not found elsewhere on the form.

Comments may include site numbers assigned in previous BEG studies (Groat, 1973; Finley and others, 1979) which are preceded with a BEG RDI code (see description of Field 21).

25. Preparer/Reviser. Field 25a contains the initials of the individual(s) who prepared or revised the site report. The date on which the site report was completed at each level or was revised is given in Field 25b.

Field 25c indicates if a mined site meets the criteria for priority consideration. These criteria are:

a. Site is abandoned, not reclaimed, and is > 2 acres,

and

1. There is evidence of significant waste dumping,

and/or

2. There is evidence of fatal or nonfatal accidents by persons not connected with the mining operation,

and/or

3. The site is \geq 200 acres,

and/or

4. The site is \leq 0.5 mile from a public street, road, or

highway and \leq 0.5 mile from one or more of the following:

(a) Residential area, an educational institution, a recreational area,

and

(1) Site has a highwall and/or wetland,

and/or

(2) Site has an open shaft, adit, and/or subsidence opening > 10 feet deep,

and/or

- (3) Site is an underground mine with dangerous surface facilities.

C. Health and Safety Considerations

26. Disturbed Area. Each mined site is described in one or more of the following categories: spoil pile (Fields 26a[1]-h[1]), highwall (Fields 26a[2]-h[2]), pit (Fields 26a[3]-h[3]), and shaft (Fields 26a[4]-h[4]).

A spoil pile is a mound or mounds of: excavated material not removed from the site (for example, overburden, low-grade ore, and/or unsold mined material), waste material from milling and processing, and/or fill or construction debris (as defined in subdivision 28).

The highwall is one or more steep excavated face(s) (as defined in subdivision 4). A highwall covered with spoil or talus must retain its steep slope to be considered in this category. A "Y" is placed in Field 26i if there is evidence of a highwall within the mined site.

The "pit" category encompasses excavations for mineral resources where the width exceeds the depth, as well as those portions of the site that are not spoil piles, shafts, adits, or highwalls.

A shaft is a mining excavation where the depth exceeds the width. Adits are included in this category.

The acreage of the spoil pile (Field 26a[1]) and pit (Field 26a[3]) is obtained from maps or aerial photographs by counting squares using a grid overlay that has the smallest square equal to 0.23 ac. For underground mines, the area of the main access shaft (Field 26a[4]) is given in square yards.

Slopes have been visually estimated in degrees and an average range in values is given in Fields 26b(1)-b(4). The average range in height of spoil piles and highwalls is estimated in feet and indicated in Fields 26c(1) and 26c(2). The average range in depth of pits and shafts is also given in feet in Fields 26c(3) and 26c(4). Field 26d contains the total length of highwall(s) and the length of

the longest dimension of the pit in feet. Field 26e contains an estimate of the total volume of the spoil piles in cubic yards.

A spoil pile, highwall, pit, or shaft is considered unstable ["Y" in Fields 26f(1)-f(4)] if it contains one or more of the features listed in Table 1

The density of vegetation growing on the disturbed area is indicated by one of following key words in Fields 26g(1)-g(4). For shafts, Field 26g(4) refers to vegetation surrounding and/or covering the shaft opening. Definitions for the key words are modified from Finley and others (1979):

Barren - Living vascular plants are widely scattered or entirely absent; essentially barren ground with only isolated plants.

Sparse - Isolated plants or small clusters of plants interspersed with areas of barren ground; normally, only low ground-cover species (grasses, herbs, etc.) are represented.

Moderate - Incomplete but widespread vegetative cover, some barren ground, low ground-cover species and woody plants are common.

Complete - Vegetative cover complete, to the extent that it appears to have existed at the site prior to disturbance, and consistent with coverage of adjacent areas not affected by mining. Both low ground cover and larger woody species may be represented.

Types of plants are indicated in Fields 26h(1) and 26h(2) by one or more of the following key words:

Aquatics (floating or anchored vascular plants)

Grass

Shrubs (includes scrubs)

Trees (woody plants that are at least 20 feet tall)

Cacti

Algae (includes significant blooms of all floating, microscopic plants)

27. Wetlands. This subdivision describes wetlands and deepwater habitats on the mined site. These areas are classified (fig. 2) according to the U.S. Fish and Wildlife Service system (Cowardin and others, 1979) as modified

Table 1. Evidence for Instability in the Disturbed Area

A. Spoil pile

1. Slopes close to the angle of repose
2. Excavated toe slopes
3. Evidence of slumps, slides, and/or extension cracks

B. Highwall

1. Overhanging ledges
2. Evidence of slumps or slides
3. Evidence of rockfalls
4. Tension cracks or fissures near the edge of the pit or quarry
5. Weakly consolidated sediment close to the angle of repose

C. Pit

1. Evidence of slumping
2. Evidence of liquefaction

D. Underground mine

1. Failed pillars, beams, ribs, or roof bolts
2. Evidence of rockfalls
3. Surface subsidence over underground workings and/or shaft

for photointerpretation (U.S. Fish and Wildlife, 1987). A "Y" is placed in Field 27j if there is a wetland on the mined site. An alphanumeric code for the wetland classification appears in Field 27a. The level of this classification is commensurate with the type of information obtained from photointerpretation and/or field observation. A wetland area is subdivided into multiple classifications if an individual wetland type comprises over 30% of the total wetland area. Commonly used wetland classifications appear in Figure 2.

The area of the wetland is shown in acres in Field 27b. A "Y" in Field 27c indicates that there is abundant suspended sediment and/or particulate organic matter in the water. An "N" in Field 27c indicates that the water is clear. Field 27d contains the field observation for color of the water.

Field 27e contains the hydrogen ion activity of the water to the nearest 0.1 pH unit. Field 27f gives the specific conductance of the water measured in micromhos. This measurement provides an estimate of the total dissolved solids in the water. Temperature of the water is measured to the nearest degree Fahrenheit and is indicated in Field 27g.

Water samples taken for chemical analysis are assigned a sample number. This sample number appears in Field 27h, and can be used to locate a separate laboratory report.

Any cultural use of wetlands is described in Field 27i by one of the following key words:

Recreation	Industrial
Irrigation	Mine operations
Drinking water	Landfill
Stock pond	Other
Waste disposal	

For those wetlands that have been named, the geographic place name appears in the Comments (Field 24).

28. Site Condition. Fields under this subdivision designate factors at the mine site that can be used to evaluate hazards to health and/or safety. Waste dumping at the mine site is shown by a "Y" in Field 28a. The type of waste is indicated in Field 28a(1) by one or more of the following Roman numerals that represent classes of solid waste established by the TWC and EPA (TDWR, 1981; Groundwater Protection Unit Staff, 1989):

Figure 2. Commonly Used Wetland Classifications (after Cowardin and others, 1979).

WETLANDS AND DEEP-WATER HABITATS

(after Cowardin and others, 1979, and
U.S. Fish and Wildlife Service, 1987)

FRESH (<0.5 ppt ocean derived salts)

PALUSTRINE (P)			LACUSTRINE (L)	
OPEN WATER (OW) (< 20 acres)		POWx*	OPEN WATER (OW) (> 20 acres) < 6 ft deep > 6 ft deep	L2OWx L1OWx
EMERGENT VEGETATION (EM) (all acreages)			EMERGENT VEGETATION -- GO TO PALUSTRINE	
Persistent grasses, rushes, sedges, etc,		PEMx		
AQUATIC BED (AB) (< 20 acres)			AQUATIC BED (AB) (> 20 acres)	
Submergents, floating plants, algae		PABx	Submergents, floating plants, algae	L2ABx
SCRUBS & SHRUBS (SS) (< 20 FT Tall)		PSSx		
FORESTED AREAS (F0) (>20 FT Tall)		PFOx		
BARREN FLATS (< 20 acres)			BARREN FLATS (> 20 acres)	
UNCONSOLIDATED BOTTOM (UB)		PUBx	UNCONSOLIDATED BOTTOM (UB)	L2UBx
ROCKY BOTTOM (RB)		PRBx	ROCKY BOTTOM (RB)	L2RBx
MIXTURES WHERE EACH UNIT > 30 %				
Vegetation listed first		PEM/OWx	<u>SALT/BRACKISH (>0.5 ppt ocean derived salts)</u>	
Tallest vegetation listed first		PSS/EMx	ESTUARINE (E)	
		PFO/SS/EMx	OPEN WATER (OW) 1=subtidal	E1OWx
RIVERINE (R)			VEGETATION 2=intertidal Persistent (Cordgrasses, etc)	E2EMx
OPEN WATER (OW)			AQUATIC BED (AB) 1=subtidal, 2=intertidal Submerged (marine grasses)	E1ABx
TIDAL 1		R1OWx	SCRUBS & SHRUBS	E2SSx
PERENNIAL 2		R2OWx		
INTERMITTENT 4		R4OWx	BARREN FLATS	
AQUATIC BEDS		--ABx		
BARREN FLATS			UNCONSOLIDATED (UB)	E2UBx
UNCONSOLIDATED BOTTOM (UB)		--UBx		
ROCKY BOTTOM (RB)		--RBx		
BEACHES & BARS		--BBx		

* x = excavated

Class I - Solid waste which, because of its concentration or physical or chemical characteristics is toxic, corrosive, flammable, a strong irritant, and/or a generator of sudden pressure, may pose a substantial danger to human health or the environment (Groundwater Protection Unit Staff, 1989). This includes wastes listed as hazardous by the EPA and those having characteristics of ignitability, corrosivity, reactivity, or toxicity (Title 40 Code of Federal Regulations, Part 261; TDWR 1981, Appendix A).

Class II - Solid wastes which present a relatively low level of hazard with respect to acute toxicity, and are generally degradable (Groundwater Protection Unit Staff, 1989). Environmental problems may result when accumulated in large quantities. This class can include paper, wood, grease, plant debris, fabric waste, and garbage.

Class III - Solid wastes which are inert, essentially insoluble, and are not readily decomposable. This includes most forms of noncombustible rubbish and certain plastics (TDWR, 1981, Appendix A). Rock, brick, dirt, and many forms of construction debris fall into this category as long as the object of the fill was not to make the land suitable for surface improvements (TDWR, 1981, Appendix A).

or by the following key words:

Garbage - Domestic or commercial waste containing food products

Trash - Plastic, metal, wood, ceramic and/or glass products or plant parts not used for food

Fill - Stone, dirt, and/or brush

Construction Debris - Brick, concrete, wallboard, lumber, and/or metal supports

Chemical - Contained or uncontained chemicals

Medical - Materials used in the practice of medicine other than containers of chemical or radioactive substances

Radioactive - Contained or uncontained concentrated radioactive substances

Animal - Manure and/or animal parts not used for food

Other

Some Class II and III wastes present a safety hazard (for example, old refrigerators with attached doors, broken glass, protruding rebars, and wood with exposed rusty nails). These wastes may be indicated with an "S" following the applicable Roman numeral.

The presence of fixed mine facilities at the site is indicated by a "Y" in Field 28b. These facilities may include buildings, processing plants, rail lines, power plants, fixed scales, loading platforms, fixed conveyors, head frames, storage tanks, and fixed pump stations.

The presence of vehicles or mobile mining equipment at the site is indicated by a "Y" in Field 28c. This field indicates such equipment as dump trucks, mobile conveyors and excavating equipment, drilling equipment, tank trucks, railroad rolling stock, mobile processing equipment and pumps, cables, and utility vehicles.

The condition of the fixed mine-facilities (Field 28b[1]) and mobile equipment (Field 28c[1]) at the site is indicated by one of the following key words:

In use - Used by the current operator in mining.

Abandoned - No indication of recent use, yet appears to be operative

Degraded - Inactive and damaged by wind, water, fire, corrosion and/or vandalism.

Susceptibility of the mined site to flooding is indicated by a "Y" in Field 28d and was determined using the current Flood Hazard Boundary or Flood Insurance Rate Map published by the Federal Emergency Management Agency (FEMA), if available.

Fields 28e and 28f indicate ground-water conditions at the site that are determined from on-site visits. A near-surface water table is indicated by a "Y" in Field 28e, and evidence of active or recently active springs issuing from the highwall is denoted by a "Y" in Field 28f.

29. Personal Injury or Accident. A "Y" in Field 29a indicates that evidence of a personal injury or accident at the mine site was encountered during this investigation. This field refers to incidents involving persons not connected with the mining operation. The nature of the accident is indicated in Field 29b unless the description(s) exceeds the space allotted. For lengthy descriptions or multiple incidents, the words "See Remarks" will appear in this field. The number of known fatal and nonfatal accidents is indicated in Fields 29c and 29d, respectively. Any verifying evidence, such as newspaper records or reports from governmental agencies, is noted in Field 29e.

30. Human Visitation. The type of evidence of human visitation is indicated by four codes in Field 30a:

- 0 = No evidence for visitation
- 1 = Trail(s)
- 2 = Road(s)
- 3 = Garbage/rubbish dumping
- 4 = Other

More than one of these codes may be listed in Field 30a. If a code 4 appears in Field 30a, then a description of the other type of evidence will be found in Field 30a(1).

The area covered by the evidence of human visitation is indicated in Field 30b. The following codes appear in Field 30b as estimates of the percentage of the total area showing evidence of human visitation:

- 1 = 0-25%
- 2 = 26-50%
- 3 = 51-75%
- 4 = 76-100%

31. Accessibility. A "Y" indicates that the mine site is accessible via roads (Field 31a), railroads (Field 31d), and/or footpaths (Field 31e). If barriers to accessibility are present, a "Y" indicates the presence of gates on roads (Field 31b), fencing around the site (Field 31f), and coverings of mine shaft entrances (Field 31g). The proximity (less than or equal to 0.5 mile) of a site to a public road is shown by a "Y" in Field 31c. Public roads are indicated on the current TDHPT county map. A "Y" appears in Field 31h if there is evidence of a conscious effort to maintain an access road to the site. Evidence for access-road maintenance can include: grading, paving, clearing or cutting of plants, repair of potholes, filling of gullies, and/or installation of culverts. Field 31i contains a "Y" if reasonable warning of mining operations is posted at the site. Reasonable warning is defined here as a visible "no trespassing" or "posted" sign at probable entry points to the site.

32. Visibility. The visibility of a mine site to the general public is a factor in assessing aesthetic impact and influencing visitation. A "Y" indicates that the site is visible from a public road (Field 32a), a

residence or business (Field 32b), and/or public property, such as a park or recreation area (Field 32c).

33. Nearest Resident. The proximity (one mile or less) of a site to a private residence is indicated by a "Y" in Field 33a. Distance to the nearest residence (Field 33b) is shown in tenths of a mile for residences within a mile or less of the boundaries of the mined site.

34. Priority Features(s) Closest to Public Road. This subdivision provides information on the nature of selected features and their proximity to public roads, streets, or highways. Key words for priority features in Field 34a include highwall, wetland (water body), shaft, adit, facility, and/or equipment. The distance (≤ 0.5 mile) of the closest feature(s) to the public road, street, or highway is indicated in feet in Field 34b.

D. Environmental Considerations

35. Environmental Conditions. Subdivision 35 describes the environment of the disturbed land on the mined property and any impact that mining has had on the adjacent property.

Devegetation of the landscape during mining operations commonly results in increased surface runoff (Toy and Hadley, 1987). A "Y" in Field 35a(1) indicates that surface runoff is leaving the mine site. A "Y" is shown in Field 35a(2) if surface runoff from the mine site appears to have caused a physical, biological, or chemical change on the adjacent property. This cause/effect relationship is inferred from observations listed in subdivisions 26, 27, 35, or 36. A "Y" in Field 35b(1) indicates that significant runoff from the site is received by a water body in the disturbed area and a "Y" in Field 35b(2) indicates that significant runoff from the site is received by a water body on adjacent property. The name of the water body or bodies receiving the runoff is shown in Fields 35c(1) and 35c(2).

Physical changes in a flowing or standing body of water can occur when there are changes in sediment load or discharge (Toy and Hadley, 1987). Fields 35d(1) and 35d(2) contain key words describing physical changes to the water body or bodies noted in Fields 35c(1) and 35c(2). These key words may be:

Siltation	Channel shifting	
Delta growth		Bank erosion
Bar formation		Scour
Channel aggradation		Other

Category 35e contains a "Y" if there is evidence of sheet wash in the disturbed area (Field 35e[1]) or of sheet wash that has drained from the disturbed area onto adjacent property (Field 35e[2]).

A "Y" in category 35f indicates that plants in the disturbed area (Field 35f[1]) show signs of stress or that plants on adjacent property (Field 35f[2]) have been lost or show signs of stress.

Evidence for plant stress or plant loss is indicated in Field 35g by one of the following key words:

- Dusting (from fugitive dust)
- Turf compaction
- Color change
- CIR change (change in the color infrared signature)
- Wilt
- Defoliation
- Devegetation
- Other

36. Erosion. Subdivision 36 indicates the nature and extent of physical erosion that has occurred on the mined site and the susceptibility of the site to future erosion. It also indicates the nature and severity of erosion on adjacent property that may have resulted from mining operations on the mined site.

Erosional agents are indicated in Fields 36a(1) and 36a(2) by the key words:

- Water
- Mass wasting
- Wind
- Other

The areal extent of eroded area on the site (Field 36b[1]) is expressed as a percentage of the total site acreage and is shown by the codes:

- 1 = 0-25%
- 2 = 26-50%

3 = 51-75%
4 = 76-100%

Severity of erosion is assessed by the abundance and scale of features produced by erosion and by the areal extent of denudation. The first step in this assessment is to classify the degree of denudation experienced by portions of the site and the adjacent property. The degree of denudation is determined by identifying the highest ranked category of feature produced by water erosion, wind erosion, and/or mass wasting (Table 2). Distribution and abundance of these erosional features are observed in the field or on aerial photographs. The second step in this assessment is to estimate the area that has experienced minimal, substantial, or advanced denudation. Table 3 is then used to assign a key word to the severity of erosion in the disturbed area (Field 36c[1]) and the adjacent property (Field 36c[2]). Note that in most instances slight erosion is not detectable on aerial photographs.

Determining the susceptibility of a disturbed area to future erosion (Field 36d[1]) is based on information in subdivisions 20 and 26, and on wind(W) and precipitation(R) erosion factors determined by the Soil Conservation Service (USDA, 1976). This information is entered on a worksheet (fig. 3) from which an erosion susceptibility statistic is calculated. The erosion susceptibility statistic is then used to assign the verbal classification recorded in Field 36d[1].

37. Nearest Public Water Supply. Field 37a contains information on public surface water supplies. This includes rivers, streams, reservoirs, and/or lakes within one mile of the mined site which have been classified as public water supplies by the Texas Water Commission (1988); it also includes unclassified water bodies within one mile of the mined site with public water-supply intakes which have been permitted by the TWC. The information in Field 37a consists of the river basin name and segment number (for example, Red R. - 0203) and/or intake owner and permit number (for example, Houston -TDWR 2621). River basin and segment numbers are taken from the most recent Texas Water Quality Inventory (Texas Water Commission, 1988). Municipal intake owners and permit numbers are taken from the TWC Spill Response Logistical Information Data Base

Table 2. Criteria for Establishing the Degree of Denudation.

Advanced

3. Multiple, closely spaced gullies
3. Multiple landslides
3. Eolian dunes downwind of the eroded area

Substantial

2. Isolated gullies
2. Isolated landslides
2. Numerous wind ripples in and downwind of the eroded area

Minimal

1. Rills on slopes
1. Evidence of creep
1. Evidence of wind deflation and/or isolated wind ripples

Note 1: Erosional features are ranked in categories 1 through 3. The degree of denudation is determined by the highest ranked category of feature present in the eroded area. All features listed under each degree need not be present.

Note 2: A rill is defined as a channel that is less than 0.5 m wide and deep. A gully is defined as a channel that is greater than or equal to 0.5 m in width and depth.

Table 3. Key Words for the Severity of Erosion.

Severe - Advanced denudation covers more than 25% of the area.

Moderate - Advanced denudation covers less than 25% of the area and substantial denudation covers the remainder of the area.

Slight - Substantial denudation covers less than 25% of the area and/or minimal denudation covers 75 to 100% of the area.

Undetermined - Slight erosion may be present but the features cannot be observed on aerial photographs because of inadequate resolution or because they are hidden by foliage.

PIT NUMBER: _____

EROSION SUSCEPTIBILITY: _____

25

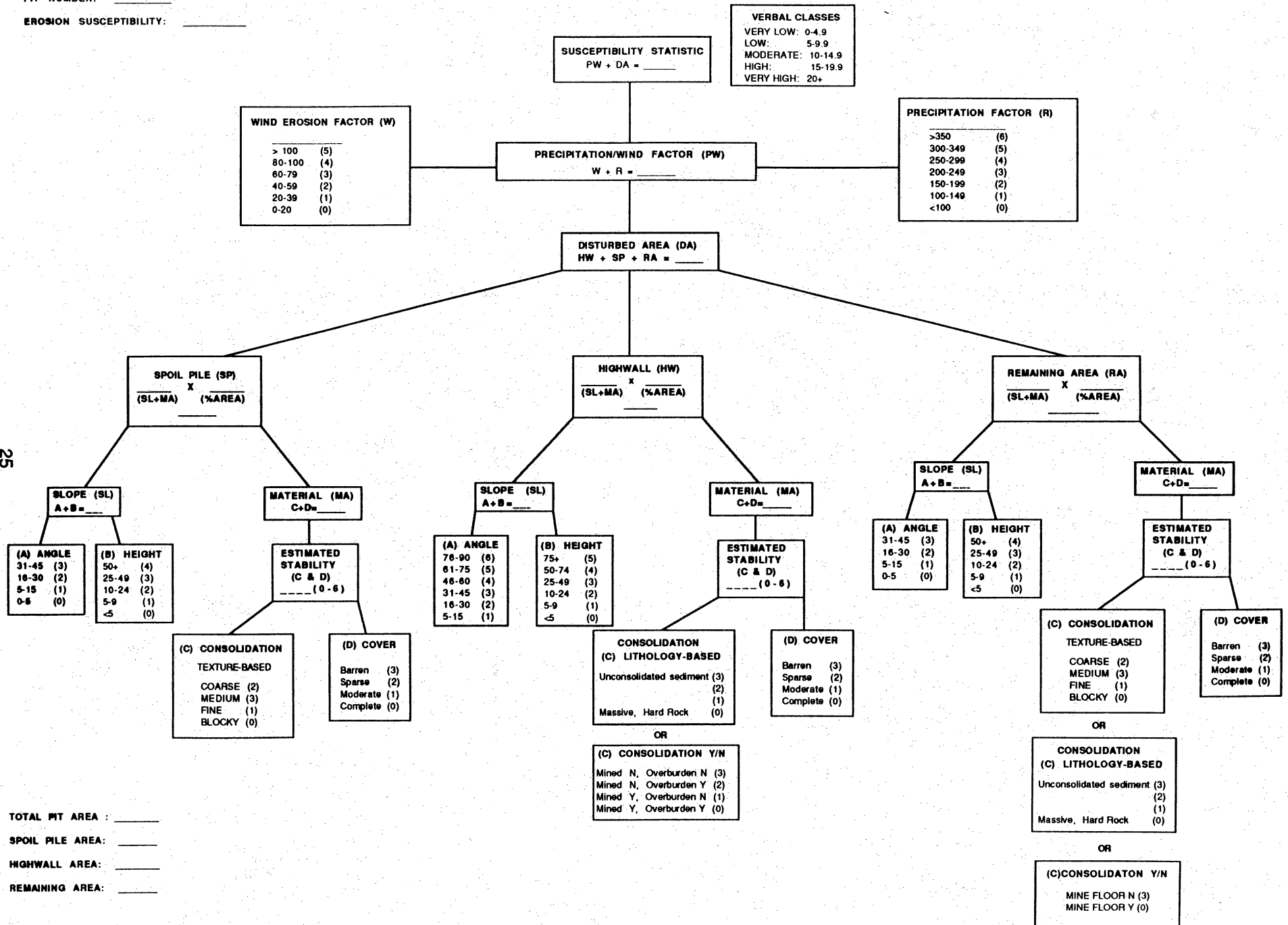


Figure 3. Flow chart form for determining mined-site erosion susceptibility.

maintained by the TWC Field Operations Division. The first two digits of the segment number identify the basin and the last two digits refer to the portion of the basin in which a segment is located (Texas Water Commission, 1989b).

Field 37b contains the name and/or number of any public water supply well within one mile of the site. Well names and numbers are taken for published reports, when available. Public water wells were located with current TWD county maps of located wells or with recent reports of the TWC, TWDB, and/or USGS.

38. Surrounding Land Use. The land-use classification for land within 0.5 mile of the mined site is indicated by two-digit codes in Field 38. These codes are taken, with two modifications, from the USGS Land-Use and Land-Cover Classification System (Table 4). In the first modification, all public and private schools are indicated by Code 18 rather than as part of Code 12 in the USGS system. The second modification classifies all parks, recreational areas, playgrounds, golf courses, fairgrounds, public gardens, and zoos as Code 19 rather than as part of Code 17 in the USGS system. Definitions for the USGS land-use classification codes are found in Anderson and others (1976).
39. Nearest Aquifer. Fields 39a-c indicate the relation of the mined site to the nearest aquifer. Aquifer designations (Field 39a) are taken from reports of the TWDB, TWC, and USGS. A "Y" in Field 39b indicates that a mined site is an aquifer recharge area. A "Y" in Field 39c indicates that the mined site is in the downdip portion of an aquifer.
40. Priority Site. This field duplicates the information in Field 25(c) so that Part II of the data base may be sorted independently from Part I.

Table 4. Land-Use and Land-Cover Classification for Use with Remote Sensor Data.
(after Anderson and others, 1976)

Level I		Level II	
10	Urban or built-up land	11	Residential
		12	Commercial and services
		13	Industrial
		14	Transportation, communications, and utilities
		15	Industrial and commercial complexes
		16	Mixed urban or built-up land
		17	Other urban or built-up land
		18	Public and private schools
		19	Parks, recreation areas, playgrounds, golf courses, fairgrounds, public gardens and zoos
20	Agricultural land	21	Cropland and pasture
		22	Orchards, groves, vineyards, nurseries, and ornamental horticultural areas
		23	Confined feeding operations
		24	Other agricultural land
30	Rangeland	31	Herbaceous rangeland
		32	Shrub and brush rangeland
		33	Mixed rangeland
40	Forest land	41	Deciduous forest land
		42	Evergreen forest land
		43	Mixed forest land
50	Water	51	Streams and canals
		52	Lakes
		53	Reservoirs
		54	Bays and estuaries
60	Wetland	61	Forested wetland
		62	Nonforested wetland
70	Barren land	71	Dry salt flats
		72	Beaches
		73	Sandy areas other than beaches
		74	Bare exposed rock
		75	Strip mines, quarries, and gravel pits
		76	Transitional areas
		77	Mixed barren land

Appendix 5

BRAZORIA	039ALG701	Frank Taylor Webster 6018 Deerwood Houston, TX 77057
BRAZORIA	039ALG702	B. K. Richards Abstract 161
BRAZORIA	039ALG704	Teresa Ann Williams P. O. Box 5152 Alvin, TX 77512
BRAZORIA	039ALM601	Hackenbush, Inc. (no address available)
BRAZORIA	039ANG201	Joe Heim Estate Rt. 2, Box 15 Angleton, TX 77515
BRAZORIA	039ANG203	Mary G. Holland Thornton Rt. 2, Box 15 Angleton, TX 77515
BRAZORIA	039HOM201	Monsanto Co. c/o MCRP P. O. Box 60723 Houston, TX 77205
BRAZORIA	039LAJ902	C. E. McNeese c/o James E. Faust, Inc. P. O. Box 12637 Houston, TX 77217
BRAZORIA	039MAN602	William I. Wofford, et ux Rt. 5, Box 811 Alvin, TX 77512
BRAZORIA	039PEA401	J. W. & W. S. Harrington P. O. Box 2686 Morgan City, LA 70381
BRAZORIA	039PEA403	J. W. & W. S. Harrington P. O. Box 2686 Morgan City, LA 70381
		E. E. Martin Estate 1802 Cripple Creek Pearland, TX 77581
BRAZORIA	039PEA501	Spradley Bros. 5422 Smith-Miller Road Pearland, TX 77581

BRAZORIA	039PEA504	Ross Rogers Rt. 2, Box 2900 Pearland, TX 77581
DALLAS	113CAR807	Mike Weir, et al. 16475 N. Dallas Parkway #350 Dallas, TX 75248
DALLAS	113CAR809	Elm Fork Park City of Dallas Dallas, TX
		Oliver Bode, et al. P. O. Box 925 Canton, TX 75103
DALLAS	113CAR901	Centre Consolidated P. O. Box 802087 Properties, Ltd. Dallas, TX 75380
DALLAS	113CAR903	Centre Consolidated P. O. Box 802087 Properties, Ltd. Dallas, TX 75380
DALLAS	113CAR911	Placer Properties, Inc. 2400 Thanksgiving Tower Dallas, TX 75201
DALLAS	113HUT104	Joe Simpkins, et al. 9666 Olive Boulevard #750 St. Louis, MO 63132
DALLAS	113HUT105	Geneva Anderson P. O. Box 290 Seagoville, TX 75159
		Wilmer Hutchins, ISD 3820 E. Illinois Ave. Dallas, TX 75216
DALLAS	113HUT106	Joe Simpkins, et al. 9666 Olive Boulevard, #750 St. Louis, MO 63132
DALLAS	113HUT401	Joe T. Simpkins, et al. 9666 Olive Boulevard #750 St. Louis, MO 63132
		Texas Utilities Electric Co. 2001 Bryan Tower #2035 Dallas, TX 75201

DALLAS	113HUT503	Dallas School District Dallas, TX
DALLAS	113HUT605	J. T. Simmons 2616 Bruton Rd. Mesquite, TX 75149
		T. A. Greer 6324 Churchill Way Dallas, TX 75230
DALLAS	113HUT606	Helen Reynolds Box 53579 Dallas, TX 75253
		Katherine Mada 8600 Skyline Rd. Apt. 2109 Dallas, TX 75243
DALLAS	113HUT803	Orleanne Reynolds P. O. Box 186 Wilmer, TX 75172
DALLAS	113HUT810	Dallas Hunting & Fishing 7777 Forest Lane #214 Dallas, TX 75230
		T. H. Campbell 608 Thad Dr. Irving, TX 75061
DALLAS	113IRV204	Dallas School District Dallas, TX
DALLAS	113IRV205	Dallas School District Dallas, TX
DALLAS	113IRV304	Bell Ed Construction Co. Box 540787 Dallas, TX 75354
DALLAS	113IRV309	Dallas School District Dallas, TX
DALLAS	113IRV314	City of Dallas 1500 Marilla Street Dallas, TX 75201
DALLAS	113IRV327	Dallas School District Dallas, TX
DALLAS	113IRV707	Martin B. Christenson 9423 Park Ford Dr. Dallas, TX 75238

DALLAS	113IRV712	Tracer Investments 4809 Cole Avenue Suite 250 Dallas, TX 75205
		Burl Swafford 4715 Interfirst One Building Dallas, TX 75202
DALLAS	113IRV715	Gifco P. O. Box 190999 Dallas, TX 75219-0999
DALLAS	113IRV804	Shannon P. Bennett 1130 S. Edgefield Dallas, TX 75208
DALLAS	113IRV806	Carlisle Outdoors, Inc. 12340 Inwood Rd. Dallas, TX 75244
DALLAS	113IRV807	Loyd Horton et al. Rt. 1, Box 3-C Viola, AR 72583
		State of Texas
DALLAS	113IRV903	Texas Industries, Inc. 8100 Carpenter Freeway Dallas, TX 75247
		General Concrete 8100 Carpenter Freeway Dallas, TX 75247
DALLAS	113OAK303	(Okons?) Iron & Metal Co. 5521 Royal Crest Dallas, TX 75229
DALLAS	113OAK307	E. J. Seely 9711 Faircrest Dr. Dallas, TX 75238
		City of Dallas 1500 Marilla Dallas, TX 75201
DALLAS	113SEA401	Virgil Baker 11928 Garden Grove Dr. Dallas, TX 75253
		Helen McDonald 11942 Garden Grove Dr. Dallas, TX 75253

DALLAS 113SEA408 American Federal Bank
14001 N. Dallas Parkway
Dallas, TX 75240

DALLAS 113SEA409 Hickory Cemetery
Dallas, TX 75205

Jerry Lane
2215 Woody Road
Dallas, TX 75253

DALLAS 113SEA702 Paul Chambless
P. O. Box 53417
Dallas, TX 75253

DALLAS 113SEA706 Lola Hood Estate
614 Kay Ct.
Longview, TX 75601

DALLAS 113SEA707 Helen Reynolds
P. O. Box 53579
Dallas, TX 75253

DALLAS 113SEA707 James Lemon
10440 Sewell Road
Dallas, TX 75253

Sylvia Sewell
1500 Republic Bank Tower
Dallas, TX 75204

Geneva Parish
1500 Republic Bank Tower
Dallas, TX 75204

DALLAS 113SEA708 Beltline Salvage
Beltline Road
Dallas, TX 75253

DALLAS 113SEA716 Agnes McCaughy
2450 S. Beltline
Dallas, TX 75253

DALLAS 113SEA717 Don Poteet
14830 Kleberg Road
Dallas, TX 75253

Charles Walton
14550 Kleberg Road
Dallas, TX 75253

FORT BEND 157ALM801 R. F. Petty
3823 Kansas St.
Fresno, TX 77545

GALVESTON 167ALG901

Bernard H. Goodman
5529 Katy Freeway
Houston, TX 77007

GALVESTON 167GAL702

M Bank Houston
910 Travis
Houston, TX 77002

Guardian Savings & Loan Association
Attn: Rebeka Jedinak, 15th Floor
17011 Beach Boulevard
Huntington Beach, CA 92647

Duke Houston Developers, Inc.
c/o Boudreaux & Harkness
16420 Park Ten Place, #240
Houston, TX 77004

Campache Isle Apartments LP
P. O. Box 460429
Houston, TX 77056

Realty Alliance Texas LTD
c/o R. E. McElroy, Inc.
3609 Smith Barry Road
Arlington, TX 76013

GALVESTON 167HII601

M. Dunman
A-53
no abstract map available

GALVESTON 167LAC301

Andrew J. & W. F. Auzston
Rt. 3, Box 198
Galveston, TX 77554

Estate of Loise Auzston
c/o R. L. Auzston
Rt. 3, Box 200/Steward Rd.
Galveston, TX 77554

Otto L. Auzston, Jr.
Rt. 3, Box 199-A
Galveston, TX 77554

Mary L. Auzston Dabney
Rt. 3, Box 199B
Galveston, TX 77554

GALVESTON 167LAC302

Dr. Stephen R. Lewis
2902 Dominique
Galveston, TX 77554

GALVESTON	167LAC303	Stanford A. Elbert Rt. 3, Box 80 Galveston, TX 77554
		John Trustee Eckel Adelle Eggers Roosevelt P. O. Box 1943 Galveston, TX 77553
		Dr. Stephen R. Lewis 2902 Dominique Galveston, TX 77554
GALVESTON	167LAC304	John Rinendo 7603 Pagewood Houston, TX 77063
GALVESTON	167LAC306	Stanford A. Elbert Rt. 3, Box 80 Galveston, TX 77554
		Vic A. Maceo 1504 Bayou Homes Dr. Galveston, TX 77551
GALVESTON	167LEC902	Nan K. Payne 4700 Illinois Dickinson, TX 77539
GALVESTON	167LEC905	Reba & Fowler Barton 4602 Inverness Tyler, TX 75703
		Iris Gaddis 710 E. Main La Porte, TX 77571
GALVESTON	167LEC908	Bay Shore Investors c/o Tax Pro., Inc. 4151 SW Freeway, Suite 512 Houston, TX 77027
		Pathfinder Group 5 Post Oak Park Suite 1835 Houston, TX 77027
GALVESTON	167VIP101	County of Galveston
GALVESTON	167VIP104	Roy D. Hemter P. O. Box 2429 Texas City, TX 77592-2429
GALVESTON	167VIP201	City of Texas City, TX

GALVESTON	167VIP402	Don O. Chapoton c/o L. B. Walker & Associates P. O. Box 16290 Houston, TX 77222
GRAYSON	181POT201	Shirley Ann Fiore Rt. 3, Box 249 S Pottsboro, TX 75076 James H. Castleberry Rt. 2, Box 271-A Pottsboro, TX 75076 William A. McKenzie 4517 Beverly Dr. Dallas, TX 75205 William L. & Kirby Robert Pearson, Jr. 3969 Davila Dallas, TX 75220 William L. Fitzgerald P. O. Box 22 Sherman, TX 75091 Sunbelt Savings FSB c/o Real Estate Tax Service P. O. Box 832310 Richardson, TX 75083
GRAYSON	181POT301	John Munson P. O. Box 357 Denison, TX 75021 Mr. Jack Dophied 514 W. Woodard Denison, TX 75020
GRAYSON	181POT601	Norman E. Prather 11207 Cold Spring Dr. Houston, TX 77043
GRAYSON	181SHN603	Coffman Bryam & Coryell 35 E. Broadoaks Houston, TX 77056
GRAYSON	181WHI705	Ellen Copley Irrev Trust c/o Linda J. Sneed, Trustee P. O. Box 285 Tom Bean, TX 75489
HARRIS	201ALM301	R. H. Martini 1303 East Anderson Road Houston, TX 77047

Commerical Sand Co.
1306 East Anderson Road
Houston, TX 77047

HARRIS 201CRO701 Arthur B. Keckley
c/o L. B. Walker & Associates
P. O. Box 16290
Houston, TX 77222

HARRIS 201CRO703 Jimmy and Edna Love
211 Highway 90
Crosby, TX 77532

HARRIS 201CRO801 Thelma S. Waitkus
P. O. Box 622
Crosby, TX 77532

Johnson Brothers Corporation
P. O. Box 1002
Litchfield, MN 55355

HARRIS 201CRO803 Eugene Murphy
19222 Ramsey Rd.
Crosby, TX 77532

HARRIS 201HAR801 Arline Galager
c/o Lou Debes
Rt. 5, Box 570-A
Houston, TX 77044

Elaine Farrell
c/o Lou Debes
Rt. 5, Box 570-A
Houston, TX 77044

Ronald W. Tomlinson
P. O. Box 23326
Houston, TX 77228

HARRIS 201HEV701 Memorial Oaks Cemetery
P. O. Box 13548
Houston, TX 77219

HARRIS 201HIG103 J & R Contractors, Inc.
P. O. Box 9787
Houston, TX 77213

Lyondell Petrochemical Co.
Property Tax Dept.
P. O. Box 3646
Houston, TX 77253

HARRIS	201HIG104	<p>Thelma S. Waitkus P. O. Box 622 Crosby, TX 77532</p> <p>Ben Taub c/o Texas Building 333 W. Loop North, 4th Floor Houston, TX 77008</p>
HARRIS	201HIG107	<p>Ben Taub c/o Texas Building 333 W. Loop N., 4th Floor Houston, TX 77008</p> <p>James Mills Box 3303 BRS Crosby, TX 77532</p> <p>A. Colma 3508 University Blvd Houston, TX 77005</p> <p>Harris County R.O.W. Dept.</p> <p>Leroy White P. O. Box 825 Highlands, TX 77562</p> <p>Eliza Miller BRS Box 3301 Crosby, TX 77532</p>
HARRIS	201HIG201	<p>John Bros. Corporation P. O. Box 1002 Litchfield, MN 55355</p>
HARRIS	201HIG202	<p>A. W. Vila, Trustee 510 W. Tidwell Houston, TX 77091</p>
HARRIS	201HIG205	<p>Ezell Barrett P. O. Box 3140 Crosby, TX 77532</p>
HARRIS	201HIG401	<p>Coy Edwards 18803 Wallisville Road Houston, TX 77049</p> <p>Leslie L. Langdon 18803-B Wallisville Road Houston, TX 77049</p>
HARRIS	201HIG501	<p>Lisman W. Kirksey 802 Steele Highlands, TX 77562</p>

		Vassili Tsissiringos 3040 Post Oak Road Suite 1800 Houston, TX 77056
HARRIS	201HIG504	W. A. Sanders Box 44 Highlands, TX 77562
HARRIS	201HIG601	James L. Seamons 3403 Cobblestone Baytown, TX 77520
HARRIS	201HUM201	C. C. Shelby Abstract 693
HARRIS	201HUM301	John Jackson B. L. Fields Helen Basch
HARRIS	210HUM901	Rene Hinojosa 11902 Suburban Houston, TX 77050
		Archie M. & David J. 8627 E. Mt. Houston Rd. Houston, TX 77050
HARRIS	201HUM906	Rene Hinojosa 11902 Suburban Houston, TX 77050
HARRIS	201HUM910	Rene Hinojosa 11902 Suburban Houston, TX 77050
HARRIS	201LEC601	William L. Lane 6015 San Felipe Houston, TX 77057
		Leslie Charles Gale, Sr. 3601 North Meyer Seabrook, TX 77586
		Pauline S. Gardiner 2220 Pecan Orchard League City, TX 77573
HARRIS	201LEC602	Stewart & Cornelia Miller 4521 Albatross Seabrook, TX 77586

		Larry J. & Cynthia Riley 1017 East Meyer Road Seabrook, TX 77586
HARRIS	201MAE903	E. E. Alley 1902 N. Houston Ave. Humble, TX 77338
		Aneta F. Smith P. O. Box 782 Humble, TX 77347
		Ralph B. & Kelly Horton 309 Main St. Humble, TX 77338
		A. C. Vick P. O. Box 32 Humble, TX 77347
HARRIS	201MOB702	Pam Leola McGhee 7407 Washington Baytown, TX 77521
		Max A. Anderson, Jr. 5318 FM 565 S Baytown, TX 77520
HARRIS	201PAS801	City of Pasadena City Hall 1211 E. Southmore Pasadena, TX 77503
		Alma A. Stewart P. O. Box 230365 Houston, TX 77223
HARRIS	201PEA301	Waco Financial Corporation P. O. Box 959 Waco, TX 76703
HARRIS	201SAT202	Eddy Willrich 5925 Gardendale Houston, TX 77092
HARRIS	201SAT901	Reid Lake Civic Club c/o Jean Malone 9003 Elsie Lane Houston, TX 77064-7705
HARRIS	201SPR208	State of Texas
HARRIS	201SPR503	State Dept. Hwy & Public Trans.

ORANGE	361BEE201	J. M. Fulton 1195 Sparrow Dr. Vidor, TX 77662
ORANGE	361BEE202	Taliaferro Heirs c/o Frank Boushall 74 Tubac Dr. Conroe, TX 77304
ORANGE	361BEE207	J. H. & K. D. Heflin 505 Meadowlark Vidor, TX 77662
		J. U. Wilson 655 Archie Vidor, TX 77662
ORANGE	361BEE302	H. P. Dubuisson, Mayor 120 Westwood Dr. Rose City, TX 77662
ORANGE	361BEE303	Cascio, C. et al 1270 Old Spanish Trail Vidor, TX 77662
ORANGE	361BEE305	W. D. Rodgers Lumber Co. Rt. 9, Box 1174 Orange, TX 77630
ORANGE	361BEE306	G. N. Bridges 1950 Old Highway 90 Vidor, TX 77662
ORANGE	361ECH501	Paul Wickliff, Jr. 1202 Burton Orange, TX 77630
ORANGE	361MAU101	Robert D. Plagens Rt. 4, Box 1210 Orange, TX 77630
ORANGE	361MAU102	J. D. Bilbo Rt. 3, Box 1570 Orange, TX 77630
		A. G. Snow HCR77, Box 22 Thornfield, MO 65762
ORANGE	361MAU602	Donald Mark Coleman 1807 S. Duhon Orange, TX 77630

ORANGE	361MAU901	Kilimanjaro Corporation 14425 IH-10 East Orange, TX 77630
ORANGE	361ORA101	Paul Michell Rt. 1, Box 273 Bridge City, TX 77630
ORANGE	361ORA201	Oliver Mann 10031 Hempstead Highway Houston, TX 77055
ORANGE	361ORA205	Del Roy Armstrong Rt. 11, Box 754 Orange, TX 77630
ORANGE	361ORA206	Marian Peveto Oakleaf Trailer Park Orange, TX 77630
ORANGE	361ORA207	Faye Marie Peveto and Melviadine Dorman Gray Rt. 9, Box 1242 Orange, TX 77630
ORANGE	361ORA301	State of Texas
ORANGE	361ORA302	Lawrence Ray Bean 3313 Evergreen Orange, TX 77630
ORANGE	361ORA303	F. S. Avant 1509 - 14th St. Orange, TX 77630
ORANGE	361ORA304	Antonio Dal Sasso 2500 Ector Orange, TX 77630
ORANGE	361ORA401	Paul Cormier P. O. Box 226 Orangefield, TX 77639
ORANGE	361ORA501	Browning-Ferris, Inc. P. O. Box 16290 Houston, TX 77222
ORANGE	361ORA502	Dr. James B. Jones 2607 Western Ave. P. O. Box C Orange, TX 77630
ORANGE	361PIF902	K. W. Wagner 1300 N. Tram Road Vidor, TX 77662

ORANGE	361PIF903	Curtis Smith P. O. Box 3903 Beaumont, TX 77704
ORANGE	361PIF904	Curtis Smith P. O. Box 3903 Beaumont, TX 77704
ORANGE	361TER601	R. P. Cormier P. O. Box 226 Orangefield, TX 77639
ORANGE	361TEX701	Lyle W. Amy, Jr. 1415 E. Railroad Vidor, TX 77662
ORANGE	361TEX702	Phelma Dunn (owners, but dropped from tax roll) R. T. Matise
ORANGE	361TEX703	Phelma Dunn R. T. Matise (owners, but dropped from tax roll)
ORANGE	361TEX704	Phelma Dunn R. T. Matise (owners, but dropped from tax roll)
ORANGE	361TEX706	LEN-DAL Corporation Earl Williams 807 Sandalwood Dr. Orange, TX 77630
ORANGE	361TEX802	James G. Aubin 790 Lost Lake Lane Vidor, TX 77662
ORANGE	361TEX803	Joe McLendon 1915 Avenue E. Nederland, TX 77627
ORANGE	361TEX901	David, et al., Inc. P. O. Box 226 Orangefield, TX 77639
		or
		Houseman Development Co., Inc. 14425 IH-10 E. Orange, TX 77630
ROCKWALL	397ROC501	Leonard A. Thomas 4757 Frank Lake Addison, TX 75240
		William Nonuc #15 Taber Road Rockwall, TX 75087