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**Inventory of Mine Shafts and Collapse features Associated with
Abandoned Underground mines in the Picher Field
Northeastern Oklahoma**



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INVENTORY OF MINE SHAFTS AND COLLAPSE FEATURES ASSOCIATED WITH ABANDONED UNDERGROUND MINES IN THE PICHER FIELD NORTHEASTERN OKLAHOMA

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Abstract

Mine-workings maps and field surveys indicate that at least 1,193 shafts exist in the Oklahoma portion of the Picher Field. More than 50% of the shafts were concealed and/or filled. There were 511 shafts open and/or in some stage of collapse. Some of these shafts have reopened since 1982 because they were improperly plugged and/or sealed. One hundred-four non-shaft-related collapses were inventoried. An area west of Commerce and one west of Cardin have the highest concentrations of non-shaft collapses, 55. Many of the new non-shaft collapses appear related to upper level workings near the surface and/or large stopes in the upper level.

Introduction

Zinc and lead ores (principally sphalerite and galena) were mined in the Picher Field in northeastern Oklahoma and southeastern Kansas for more than 60 years. Oklahoma led the nation in zinc production almost every year from 1918 through 1945 (Southard and others, 1972). Lead and zinc production from the Picher Field ceased late in 1970. More than 1.3 million tons of metallic lead and 5.2 million tons of metallic zinc were produced in Oklahoma since mining started in 1891 (Southard and others, 1972). Minor quantities of zinc and/or lead concentrates were produced in 1974, 1976, and 1977 (Arndt and others, 1977, 1979, 1981). The concentrates were derived from ore mined by independent underground-mine operators as well as from reprocessed mill-waste materials.

Subsidence problems associated with abandoned underground zinc-lead mines either existed during mining and/or have developed since cessation of mining in the Picher Field. Some subsidence problems associated with abandoned underground mine workings were studied by U.S. Bureau of Mines (USBM) and U.S. Geological Survey (USGS) in the middle to late 1960s. Numerous unpublished reports resulted from these studies (e.g. Westfield and Blessing, 1967; Stroup and Stroud, 1967). Unfortunately, little effort or expenditure of funds was made to correct the problems.

In 1979, three U.S. Congressmen representing the citizens of their respective states in the Tri-State area (Kansas, Oklahoma, and Missouri) expressed concern for the safety of their constituents. As a result of the interest and concerns of Congressmen Whittaker, Synar, and Taylor, the USBM initiated a study to document existing mine-related problems and to determine what corrective actions might be needed. The results of these investigations were released as a series of open-file reports by the USBM (Luza, 1983; McCauley and others, 1983; and McFarland and Brown, 1983). In 1983, the Oklahoma portion of the Picher Field was added to

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the National Priorities List and became the Tar Creek Superfund Site. From 1984 to 1986, dikes were built to divert surface water around collapsed mine shafts and 88 abandoned deep well were plugged to prevent migration of acid mine water into the Roubidoux aquifer. However, most of the recommendations for the protection of the public from hazardous and potentially hazardous mine subsidence and/or shaft failures made to the USBM by the State Geological Surveys of Oklahoma, Kansas, and Missouri in their 1983 reports were not implemented.

In 2003, three federal agencies, the Environmental Protection Agency (EPA), Department of Interior (DOI) and the U.S. Army Corps of Engineers, signed a Memorandum of Understanding (MOU) to develop a comprehensive remediation plan for Tar Creek. Renewed interest in and concern with mine-subsidence problems led the Oklahoma Geological Survey to begin a program to update the Luza (1986) evaluation of mine shafts and cave-ins associated with the mine workings in March, 2004.

Mining History

McKnight and Fischer (1970) presented an excellent account of the mining history for the main part of the Picher Field. The following is a brief summary of their account.

In 1902, about 1.5 mi northeast of Lincolnton, ore was discovered on Abrams land (SE1/4 sec. 30, T29N, R24E) and on Julia Whitebird land (SW1/4SW1/4 sec. 29, T29N, R24E). The first recorded output of concentrates from the Lincolnton area was in 1904. Peak production of the Lincolnton deposits occurred in 1909.

The next major discovery was made in 1905 at the southwest side of the field near Commerce (formerly Hattenville). The early mines in this area were comparatively shallow, at depths of 90-130 ft; but as the ore was followed northwestward in succeeding years, the depth increased to as much as 250 ft by 1911, and eventually to more than 320 ft.

Exploration, stimulated by the richness of the Commerce ores and by the recognition of a northeasterly trend in some of these ore runs, led to the discovery of the main part of the field in 1912. In 1914, Picher Lead Co. (now Eagle Picher Industries, Inc.) discovered ore on the Crawfish land and on several adjacent Indian-land allotments (northwest Picher, Oklahoma). Near the close of 1917, the Oklahoma part of the field was fairly well defined by producing mines. It was estimated in 1918 that there were 230 mills built or under construction in the Oklahoma part of the field.

The 1920s marked the maturity of the field. In the latter half of the 1920s, zinc recovered from reworked tailings became an important factor in total zinc production. Zinc concentrates were derived from rerun tailings as early as 1909 in the Commerce area, and the practice was carried out to some extent elsewhere in the field. A flotation process was adopted at several of the mills during World War I, and by the mid-1920s the process was in wide use. The use of the flotation process as an adjunct to jigging and tabling was wide spread in the 1920s. This ensured the recovery of 80-85% of the metal contained in the crude ore, compared to the 58-70% recovery estimated for the older milling. By 1940 most of the tailings were retreated for the first time; the annual average grade was never lower than 0.71%. Peak production from tailings came in 1936. During World War II, tailings were reprocessed for a second time, and even for a third time. In 1946, average annual recovery of zinc from tailings dropped to a low of 0.19%.

The 1930s witnessed the growth of central milling in the field. The first mill built to treat ore from several tracts was the Bird Dog Mill of the Commerce Mining & Royalty Co., completed in 1930. This plant was designed to process 2,750 tons/day on a 24-hr basis. The sampling and

milling of ores from several different tracts proved economically feasible. The milling practice up to that time (largely at the landowner's and royalty owner's insistence) was to have separate mills on each 40- or 80-acre lease to ensure proper royalty distribution. In 1932, Eagle Picher completed a central mill near the southwest corner of the field. The initial capacity, rated at 3,600 tons, was shortly increased to 5,500 tons and later to 10,000 tons/day with an ultimate capacity of 18,000 tons/day.

By 1940, Eagle Picher dominated production in the field. The 1940's were characterized by increased mechanization of mining equipment. Introduction of slushers in sheet-ground (low grade ore) in the late 1930s and of track-mounted shovels in the early 1940s did away with the traditional method of hand shoveling ore into steel cans at the working face. Rubber-tired diesel trucks of 10-ton capacity were perfected for underground haulage in 1946. These technological developments contributed greatly to the recovery of lower grade ores.

Because of depressed metal markets, many operations were cut back or suspended in late 1957. By midyear of 1958, all major mining operations were closed. Mining was resumed at a reduced rate in 1960, and the last record of significant production occurred in 1970.

Underground Mine Workings

Approximately 2,540 acres are underlain by underground lead-zinc mines in northeastern Oklahoma (Luza, 1986). Underground mines are found in 51 sections north of Miami, Oklahoma. However, the greatest concentration of mining was in the vicinity of Picher, Oklahoma, in T29N, R23E.

The principal ore zones occurred in the Mississippian Boone Formation. Some ore was mined from Chesterian beds, especially in the eastern part of the district near Lincolnton. In the eastern part of the district the Pennsylvanian units are absent or very thin; therefore, mining depths were shallow compared to those in the main part of the field 5 mi west and northwest of Lincolnton. Mining depths in the Lincolnton were generally 80-100 ft, whereas mining depths at the Scammon Hill mines (north of Commerce) exceeded 300 ft. Typical mining depths in the main part of the field were 180-270 ft.

Ore bodies were intersected by vertical shafts usually having one compartment. Shaft dimensions were commonly 5 x 7 ft or 6 x 6 ft in cross section. Most shafts were sunk 5-12 ft below the level of the ore bodies to provide a drainage sump. A platform was constructed over the sump to permit handling of the ore buckets. From the collar down to a point below the shale, the shaft was close-cribbed with 2- x 6-in. pine timbers. Lagging, which was placed behind the cribbing, secured the cribbing and prevented misalignment. A common practice was to crib the shaft through the first shale zone unless deeper shale or broken strata were encountered. However, a number of shafts were continuously cribbed to guard against the possibility of hanging the bucket on the wall or overturning in the shaft. Men were raised or lowered in buckets, and machinery and supplies were handled either in buckets or with cables (Weidman and others, 1932).

Generally in the initial stages of mine development, an auxiliary shaft or field shaft was sunk about 300 ft from the first shaft. The first shaft usually was used to lift ore up to the surface for processing at a nearby mill. The two shafts were connected by a drift to improve ventilation and/or to provide an alternate route for egress.

Mining was done by a random room-and-pillar method. Rooms or open stopes were created with irregularly spaced pillars. The structure and lithology in the roof or *back* of the stope and the

width and height of the orebody controlled the size and spacing of the pillars. If the shaft was completed in the orebody, stopes were opened radially from the shaft to the full height of the ore. Pillars, 20-50 ft in diameter are commonly spaced 30-100 ft apart, supported the back. The minimum height of the working face was about 6 ft, the average about 25 ft, and the maximum more than 100 ft. About 15% of the orebody was initially left for the pillars. Later, when the reserves were depleted, as much as 50% of the tonnage left in the pillars was recovered by slabbing operations or by complete removal of certain pillars (Weidman and others, 1932).

The size of most mining tracts was 40 acres or some multiple of 40 acres, such as 80 or 160 acres. Some tracts, particularly in the earliest-worked fringe area, were subdivided into areas of 10 acres or less. The orebodies were nearly flat, and the operators mined to the vertical planes that marked the extension of the lease boundaries at depth. Mining rights were leased from the landowners, who were paid a percentage royalty of the gross mineral sales from the tract. A common practice in the history of the field was for holder of the first lease—whether an individual, royalty company, or mining company—to sublease at an increased royalty rate to the actual operator or middleman.

Because of the shallowness of the deposits, the relative ease with which they could be mined and milled, and the wide technical experience gained from earlier operations in adjacent subdistricts of the Tri-State region, numerous small but efficient mining companies were organized for operation on individual 40-acre tracts. A large turnover in operating companies occurred from year to year. Leases changed hands or were subdivided or regrouped into different operations, and the mine names were constantly changing. Orebodies commonly extended from one tract to the next.

In the main part of the field, an almost continuous underground network of mine workings extended from near Eagle Picher's central mill, 1.5 miles south of Cardin, northward into Kansas. Detailed mine maps were made for each tract to ensure proper royalty payments and to provide a guide for future development. Map scales varied from 1 in. = 40 ft to 1 in. = 100 ft. In the late 1950s or early 1960s, the U.S. Bureau of Mines began to compile underground-mine-workings data and drill-hole information for each section of land on maps at a scale of 1 in. = 200 ft (Brichta and Perkins, 1955; Brichta 1960). Two maps, a north half and a south half, were drafted for each section. These maps provide almost complete coverage for the Oklahoma portion of the Picher Field.

Shaft and Surface-Collapse Inventory

The half-section maps, detailed mine maps found at Missouri Southern State College library at Joplin, Missouri, detailed mine maps from the Picher Mining Museum, detailed mine maps from the Oklahoma Department of Mines, Eagle Picher's maps at a scale of 1 in. = 300 ft, Sanborn maps for Picher (1920; 1928), Commerce (1917; 1929), and Quapaw (1929), and the 1927 topographic maps for the Picher-Cardin area were the principal sources of information to locate mine shafts.

A field-inspection program was initiated in March 2004 to describe the present shaft-site conditions and ground-subsidence areas. A majority of the field work was completed in April 2005. Additional site visits were made through January 2006 to update earlier observations and add new data.

Mine-workings maps, Luza's report (1986), and high-resolution (1 pixel = 2 ft) aerial photographs in color taken in March 2004 were used to guide the field inspection. A description

of the present condition at each shaft was made. The presence or absence of water was noted, as well as water depth. Surface-collapse dimensions were either measured on the ground and/or aerial photographs or estimated. A hand-held Global Positioning Satellite (GPS) unit was used to determine longitude/latitude coordinates for each found shaft. These coordinates were originally recorded in meters, Universal Transverse Mercator (UTM), using the 1927 North American datum (NAD). These data were converted into decimal degrees and ArcView 3.2 was used to re-project the coordinates into Oklahoma State Plane NAD 83. Coordinates for most concealed and/or filled locations were determined from geo-referenced photographs and half-section mine maps. The site conditions for each shaft were recorded on note cards and numbered according to the 1981-1983 survey (Luza, 1986, Plate 1; Table 2). Where appropriate, new shafts were added to the end of the data set for each appropriate township, range, and section and assigned a new number.

The survey found at least 1,193 shafts were sunk in the Oklahoma portion of the Picher Field (Table 1, Appendix). More than 50% of the shafts (676) were concealed and/or filled. There were 6 shafts that had concrete caps and/or covers. Mill-waste piles cover over 58 shafts. Shafts that were indicated on mine maps but could not be found were classified as concealed. Several shafts were filled either by the mine operator, the landowner, the U.S. Geological Survey, or the U.S. Bureau of Indian Affairs. With several shafts, it was not possible to distinguish between the filled and/or concealed condition. Therefore these shafts were grouped into one category. The information for known filled shafts is included in Table 1's condition column.

There were 511 shafts open and/or in some stage of collapse. A shaft was considered open if the original cribbing was still intact and no apparent obstruction could be observed (Fig. 1).



Fig. 1. Open mine shaft on the Cortez lease (T29N, R23E, sec 16, no.12); wooden cribbing still intact.

Some of these open shafts may be partially filled and/or partially collapsed below the water line. Where shaft collars are undergoing minor collapse (<10 ft) and the cribbing is nearly intact, the shaft was classified as open. A shaft was considered dangerous when the walls of the collapse were nearly vertical, the depth to the bottom was greater than 15 feet, and the width to depth ratio was less than 2. Open and dangerous shafts (145) are shown in Table 2 (Appendix). The field data in 2004 was collected during a period of unusually high precipitation. Water levels in the mineshafts and collapse features were at and/or near the surface. Therefore, the number of shafts listed in Table 2 should be considered a minimum.

In the fall of 2004, the U.S. Army Corps of Engineers (Tulsa District) began a program to plug and/or cap open and dangerous mine shafts. The field data collected during this inventory was used to identify those shafts recommended for closure. In 2004-2005, 62 shafts were plugged and or capped (Table 3). The site conditions described in Tables 1 and 2 represent the condition at the shaft location prior to closure.

There were 20 shafts grouped into a category called phantom shafts (Table 4). These shafts, which were originally shown on Plate 1 (Luza, 1986), represent winzes and/or raises (underground chutes that connect different mine levels) that were shown as shafts on the USBM half-section maps and Eagle Picher's 1 in. = 300-ft scale maps. Some of these maps contained flaws that were misinterpreted for a mineshaft. All of these shafts were removed from Table 1 and are listed in Table 4.

One hundred-four non-shaft-related collapses were inventoried (Table 5). At least one fatality associated with an automobile accident can be attributed to a non-shaft collapse on east A Street, 2.5 mi east of Picher. On May 31, 1978, a cave-in was observed about 8 a.m. on the south side of east A Street, sec. 23, T29N, R23E (site 1553, Table 5). By noon the cave-in had reached the center of the road. The cave-in was about 90 ft long, 40 ft wide, and 50 ft deep. Approximately 20 surface acres are presently disturbed as a result of non-shaft-related collapses. Sec. 1, T28N, R22E, west of Commerce (Fig. 2), and sec. 19, T29N, R23E, west of Cardin, contain the largest concentration of non-shaft-related collapses.

Most of the non-shaft-related collapses appear to be related to mining of multiple ore zones. A high concentration of non-shaft-related collapses west of Cardin is associated with the Crystal and Central Mines. Detailed mine maps of this area indicate that at least three and possibly four ore zones were mined at some places. Large stopes were created during mining at some places.

Apparently, the pillars left for support were not sufficiently strong to support the overburden material, or they were subsequently removed, which ultimately led to ground failure above these workings.

Over 40,000 holes were drilled to explore for ore in the Oklahoma portion of the Picher Field. Some of these drill holes have collapsed in roads and yards. A partial list of drill-hole collapses in the vicinity of Picher was compiled during the shaft inventory (Table 6).

The original drill-hole diameters range from 6 to 12 in. Some drill-holes have produced 6-12 ft diameter and 8-18 ft deep collapses in and/or near Picher. Some drill-hole collapses could have a detrimental effect on public safety and need immediate remediation.

Table 3. Phantom Shafts

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Condition
Mary Ann	29N	23E	15	7	-94.8035159	36.9946851	6-Apr-04			Phantom shaft
Goodwin	29N	23E	17	14	-94.8324387	36.9955674	7-Apr-04			Phantom shaft
Piokee	29N	23E	17	39	-94.8437876	36.9892886	22-Apr-04	8	Circular	Phantom shaft; water level 1 ft
Pelican	29N	23E	18	3	-94.8617654	36.9980781	5-Apr-04			Phantom shaft
John Beaver	29N	23E	19	33	-94.8576217	36.9727943	17-Mar-04			Winze
Kenoyer	29N	23E	20	48	-94.8477940	36.9733345	23-Apr-04			Phantom shaft
North Bingham	29N	23E	21	3	-94.8272920	36.9851464	21-Apr-04			Winze
Royal	29N	23E	21	36	-94.8160173	36.9733651	16-Mar-04			Phantom shaft
Acme	29N	23E	21	44	-94.8232889	36.9797945	20-Apr-04			Winze
St. Louis No. 4	29N	23E	24	3	-94.7636637	36.9822710	21-Feb-05			No field evidence for a shaft; winze
St. Louis No. 4	29N	23E	24	4	-94.7633447	36.9822090	21-Feb-05			No field evidence for a shaft; winze
St. Louis No. 4	29N	23E	24	5	-94.7633372	36.9826713	21-Feb-05			No field evidence for a shaft; winze
St. Louis No. 4	29N	23E	24	6	-94.7632287	36.9831121	21-Feb-05			No field evidence for a shaft; winze
Barbara J.	29N	23E	29	24	-94.8395060	36.9720815	21-Apr-04			Phantom shaft
Barbara J.	29N	23E	29	28	-94.8322673	36.9707280	19-Apr-04			Phantom shaft
Admiralty No. 2	29N	23E	29	68	-94.8422799	36.9645995	6-Apr-04			Phantom shaft; no field evidence for a shaft
Ritz	29N	23E	30	12	-94.8608850	36.9707290	19-Mar-04			Winze
Ritz	29N	23E	30	17	-94.8616805	36.9721537	19-Apr-05			Winze
Ritz	29N	23E	30	20	-94.8570373	36.9710889	10-Feb-05			Phantom shaft; no field or map evidence for a shaft
Petersburg	29N	23E	36	19	-94.7691788	36.9442228	17-Mar-05			Phantom shaft

*Map/shaft number based on Oklahoma Geological Survey's Circular 88 and 2004-2005 field surveys

Table 4. Plugged and/or Capped Shafts by the U.S. Army Corps of Engineers and the Oklahoma Conservation Commission (OCC)

Shaft No.*	Section	Township	Range	Lease	Latitude	Longitude	Ownership	Program	Status	Date
1	13	29N	22E	Laura Jenny Zheka			BIA	Sec 111	Plugged	2005
2	13	29N	22E	Birddog			BIA	Sec 111	Plugged	2005
2	23	29N	22E	James Xavier			BIA	Sec 111	Plugged	2005
9	23	29N	22E	Xavier Mudd			Private	Sec 111	Plugged	2005
8	36	29N	22E	Scammon Hill	36.94636	94.87347	BIA	Sec 111	Plugged	2005
12	36	29N	22E	Scammon Hill	36.94510	94.87560	BIA	Sec 111	Plugged	2005
13	36	29N	22E	Scammon Hill	36.94783	94.87636	BIA	Sec 111	Plugged	2005
1	13	29N	23E	Scott	36.997	94.762	Private	Sec 111	Plugged	2005
2	13	29N	23E	Scott Yards	36.99612	94.76168	Private	Sec 111	Plugged	2005
15	14	29N	23E	W.M.W.	36.59.26.5	94.46.75.2	BIA	Sec 111	Plugged	2005
16	14	29N	23E	Blue Ribbon	36.59.25.8	94.46.74.6	BIA	Sec 111	Plugged	2005
9	16	29N	23E	Hunt	36.59.45.2	94.49.10.0	BIA	Sec 111	Plugged	2005
11	16	29N	23E	Cortez	36.59.37.4	94.49.11.1	BIA	Sec 111	Plugged	2005
12	16	29N	23E	Cortez	36.59.37.3	94.49.08.5	BIA	Sec 111	Plugged	2005
15	16	29N	23E	Considated No. 3	36.59.26.9	94.48.59.4	BIA	Sec 111	Plugged	2005
16	16	29N	23E	Considated No. 2			BIA	Sec 111	Plugged	2005
7	17	29N	23E	Ohimo	36.59.41.7	94.50.25.7	BIA	Sec 111	Plugged	2005
37	17	29N	23E	Piokee	36.59.21.4	94.50.30.1	BIA	Sec 111	Plugged	Dec-04
10	19	29N	23E	Tongaha			BIA	Sec 111	Plugged	2005
37	20	29N	23E	OKO	36.58.29.5	94.50.00.4	BIA	Sec 111	Plugged	2005
49	20	29N	23E	Kenoyer	36.58.28.7	94.50.50.5	Private	Sec 111	Plugged	2005
14	21	29N	23E	Eudora White Bird	36.59.04.0	94.49.25.0	BIA	Sec 111	Plugged	2005
15	22	29N	23E	Indiana			Private	Sec 111	Plugged	2005
16	22	29N	23E	Indiana			Private	Sec 111	Plugged	Sep-05
19	22	29N	23E	Ottawa			Private	Sec 111	Capped	Sep-05
22	22	29N	23E	Jo Buffalo			Private	Sec 111	Capped	Sep-05
22	23	29N	23E	Blue Bonnett	36.59.02.6	94.46.43.7	Private		Plugged by OCC	2005
23	23	29N	23E	Massel	36.59.00.1	94.46.48.5	Private		Plugged by OCC	2005
3	28	29N	23E	Birthday	36.58.201	94.49.730	BIA	Sec 111	Plugged	2005
5	28	29N	23E	Federal	36.58.092	94.49.710	BIA	Sec 111	Filled	2005
6	28	29N	23E	Federal	36.58.058	94.49.707	BIA	Sec 111	Capped	2005
10	28	29N	23E	Fort Worth	36.966	94.827	BIA	Sec 111	Plugged	2005
11	28	29N	23E	New Chicago No. 2	36.57.922	94.49.557	BIA	Sec 111	Plugged	2005
14	28	29N	23E	New Chicago No. 2	36.58.090	94.49.319	BIA	Sec 111	Plugged	2005
17	28	29N	23E	MoMule	36.971	94.827	BIA	Sec 111	Plugged	2005
41	28	29N	23E	Skelton			BIA	Sec 111	Plugged	Sep-05
3	29	29N	23E	Domado			Private	Sec 111	Plugged	2005
3	29	29N	23E	Domado	36.967	94.848	Private	Sec 111	Plugged	2005
9	29	29N	23E	Baby Jim	36.58.18.1	94.50.53.3	Private	RAMS	Capped	Aug-04
11	29	29N	23E	Baby Jim	36.58.19.2	94.50.41.9	Private	Sec 111	Capped	2005
14	29	29N	23E	Domado	36.57.51.6	94.50.46.8	Private	Sec 111	Capped	2005
15	29	29N	23E	Rialto	36.967	94.844	Private	Sec 111	Capped	Sep-05
17	29	29N	23E	Rialto			Private	Sec 111	Capped	Sep-05
18	29	29N	23E	Rialto	36.969	94.842	Private	Sec 111	Plugged	2005
25	29	29N	23E	Barbara J.	36.58.17.9	94.50.17.0	Private	Sec 111	Plugged	2005
43	29	29N	23E	Skelton			BIA	Sec 111	Plugged	2005
57	29	29N	23E	Admiralty No. 3			Private	Sec 111	Plugged	Nov-04
58	29	29N	23E	Admiralty No. 1	36.57.37.6	94.50.22.8	Private	RAMS	Capped	Aug-04
59	29	29N	23E	Skelton	36.57.46.2	94.50.21.2	Private	Sec 111	Plugged	2005
65	29	29N	23E	Admiralty No. 4	36.57.37.3	94.50.43.3	Private	Sec 111	Plugged	2005
69	29	29N	23E	Admiralty No. 4	36.57.50.3	94.50.43.8	Private	Sec 111	Plugged	2005
70	29	29N	23E	Admiralty No. 4	36.964	94.846	Private	Sec 111	Plugged	2005
72	29	29N	23E	Douthat	36.965	94.848	Private	Sec 111	Plugged	2005
27	30	29N	23E	Lucky Bill	36.58.17.4	94.51.02.2	BIA	Sec 111	Plugged	2005
4	32	29N	23E	Quebec	36.957	94.842	Private	Sec 111	Plugged	2005
20	33	29N	23E	Craig	36.57.11.0	94.48.46.6	Private	Sec 111	Plugged	2005
4	35	29N	23E	Harry Whitebird	36.955	94.778	BIA	Sec 111	Plugged	2005
5	35	29N	23E	Harry Whitebird	36.954	94.778	City	Sec 111	Plugged	2005
9	35	29N	23E	Julie Shapp	36.56.38.7	94.46.55.3	Private	Sec 111	Plugged	2005
2	17	29N	24E	Discard			Private	Sec 111	Plugged	2005
12	17	29N	24E	Discard			Private	Sec 111	Plugged	2005
3	19	29N	24E	Malsbury			Private	Sec 111	Plugged	Sep-05

* Shaft number based on Oklahoma Geological Survey's Circular 88 and 2004-2005 field surveys

Table 5. Non-Shaft Related Collapses

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition	
Prairie Mining Co.	28N	22E	1	1500	-94.8803370	36.9380212	9-Nov-04	50 x 25	Elliptical	982	3	City of Commerce dump site; in 1982, a 200- x 150-ft elliptical collapse 30 ft deep	
Prairie Mining Co.	28N	22E	1	1516	-94.8810231	36.9370199	9-Nov-04	128 x 100	Elliptical	10053	3	About the same size in July 1982; joined with 1528 and 1552 between 1952 and 1964	
Lennan & Co.	28N	22E	1	1524	-94.8778700	36.9414466	8-Nov-04					Concealed and/or filled; filled between 1979 and 1980; now a pasture; 130-ft circular collapse in 1979	
Carson Mining Co.	28N	22E	1	1525	-94.8819476	36.9402455	8-Nov-04	190 x 170	Elliptical	25368	2	irregular shape, beginning to merge with collapses 1526 and 1597	
OK Lead-Zinc Co.	28N	22E	1	1526	-94.8820146	36.9397463	8-Nov-04	75	Circular	4418	2	About the same size in June 1982; beginning to merge with collapse 1525 and 1597	
Prairie Mining Co.	28N	22E	1	1527	-94.8810160	36.9377446	9-Nov-04	74 x 50	Elliptical	2906	2	Appears to be partially filled; 90 x 80-ft collapse in June 1982	
OK Lead-Zinc Co.	28N	22E	1	1528	-94.8815419	36.9369104	8-Nov-04	150 x 140	Elliptical	16493	3	Irregular shape, merged with collapse 1516 between 1952 and 1964	
Little Maxine	28N	22E	1	1529	-94.8826915	36.9343495	9-Nov-04					Concealed and/or filled; filled; 275- x 125-ft collapse in June 1982	
Old Chief	28N	22E	1	1530	-94.8808800	36.9317917	9-Nov-04					Concealed and/or filled; 165- x 130-ft collapse in 1972; filled between 1972 and 1979	
Consolidated	28N	22E	1	1531	-94.8849012	36.9320577	10-Nov-04	40 x 25	Elliptical	785			Filled by June 1982; recollapse; large cracks developed beyond edges of collapse; 12 ft deep; unstable
Lennan & Co.	28N	22E	1	1532	-94.8803717	36.9389564	9-Nov-04	130	Circular	13273			About the same size in June 1982
Prairie Mining Co.	28N	22E	1	1552	-94.8808763	36.9373182	9-Nov-04	170 x 105	Elliptical	14019	2	Merged with collapse 1516 between 1952 and 1964	
Lennan & Co.	28N	22E	1	1554	-94.8807316	36.9383544	9-Nov-04					Concealed and/or filled; by 1982, 45-ft circular collapse	
Emma Gordon	28N	22E	1	1560	-94.8815586	36.9358947	9-Jun-05	26	Circular	531	4	Stable	
OK Lead-Zinc Co.	28N	22E	1	1566	-94.8813399	36.9371869	31-May-05	20	Circular	314	1	Stable	
OK Lead-Zinc Co.	28N	22E	1	1569	-94.8819497	36.9389772	8-Nov-04	95	Circular	7088	1	Stable	
OK Lead-Zinc Co.	28N	22E	1	1570	-94.8819048	36.9385330	8-Nov-04	85	Circular	5675	1	Stable	
Emma Gordon	28N	22E	1	1571	-94.8814000	36.9362987	9-Nov-04	100 x 85	Elliptical	3534	4	Stable	
Emma Gordon	28N	22E	1	1572	-94.8812600	36.9357856	9-Nov-04	115	Circular	10387	4	Stable	
Emma Gordon	28N	22E	1	1573	-94.8814018	36.9360027	9-Nov-04	15	Circular	177	4	Stable	
Emma Gordon	28N	22E	1	1574	-94.8818499	36.9361512	9-Nov-04	115 x 110	Elliptical	9032	3	Stable	
Emma Gordon	28N	22E	1	1575	-94.8816310	36.9362945	9-Nov-04	30 x 20	Elliptical	471	3	Stable	
Emma Gordon	28N	22E	1	1576	-94.8820040	36.9357484	9-Nov-04	80 x 70	Elliptical	4398	3	Stable	
Never Sweat	28N	22E	1	1577	-94.8818294	36.9340323	9-Nov-04	45 x 35	Elliptical	1237	2	Stable	
Emma Gordon	28N	22E	1	1578	-94.8817044	36.9335820	9-Nov-04	30 x 20	Elliptical	471	1	Stable	
Emma Gordon	28N	22E	1	1579	-94.8811131	36.9353186	8-Nov-04	100	Circular	7853	3	Irregular (pear) shaped; stable	
Carson Mining Co.	28N	22E	1	1597	-94.8821186	36.9399639	8-Nov-04	75 x 60	Elliptical	3534	1	Stable; occurred between 1972 and 1980; merged with collapse no. 1525	
Emma Gordon	28N	22E	1	1598	-94.8817159	36.9334268	8-Nov-04	57 x 40	Elliptical	1791	1	Stable; occurred between 1939 and 1952	
Emma Gordon	28N	22E	1	1599	-94.8818718	36.9333751	8-Nov-04	47 x 38	Elliptical	1403	1	Beginning to merge with collapse no. 1598; occurred between 1939 and 1952	

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Emma Gordon	28N	22E	1	1600	-94.8818968	36.9332258	8-Nov-04	42 x 34	Elliptical	1122	1	Beginning to merge with collapse no. 1599; occurred between 1939 and 1952
Emma Gordon	28N	22E	1	1601	-94.8816777	36.9332430	8-Nov-04	81 x 68	Elliptical	4326	1	Stable; occurred between 1939 and 1952
Queen City	28N	22E	1	1602	-94.8818323	36.9326221	8-Nov-04	85	Circular	5675	1	Occurred before 1939
Emma Gordon	28N	22E	1	1603	-94.8814944	36.9327432	8-Nov-04	46 x 30	Elliptical	1084	1	Southeast sided filled in since 1980; occurred between 1952 and 1964; 50-ft circular collapse in 1980
Never Sweat	28N	22E	1	1604	-94.8821285	36.9336289	8-Nov-04					Concealed and/or filled; filled with rocks, concrete and debris; occurred between 1939 and 1952
Miami Amalgamated	28N	22E	1	1605	-94.8792375	36.9314257	8-Nov-04	100 x 85	Elliptical	6676	4	Stable; occurred before 1939
Warner Fee	28N	23E	6	1568	-94.8772309	36.9421340	8-Nov-04	115	Circular	10387	1	Originally mapped as a shaft related collapses pond drained and filled in the fall of 2004 by the Oklahoma Conservation Commission
Commonwealth	28N	23E	7	1522	-94.8765020	36.9261045	9-Jun-05					Concealed and/or filled; 40-ft circular collapse in June 1982
Commonwealth	28N	23E	7	1523	-94.8763848	36.9269762	9-Jun-05	190 x 160	Rectangle	23876	1	In June 1982, 245- x 170-ft elliptical collapse
Romo	28N	24E	6	1521	-94.7603042	36.9409833	18-Mar-05	40 x 20	Elliptical	628		Possible sink hole; partially filled with debris and trash; 10 ft deep
Kitty	29N	22E	24	1561	-94.8713158	36.9783165	20-Oct-04	6	Circular	28		4-ft deep depression; appears active; debris in bottom
Childress-Heggem	29N	22E	25	1607	-94.8724013	36.9651327	20-Oct-04	220	Circular	38013	2	Stable; about same size in June 1981; originally associated with shaft no. 5 on Plate 2 (Luza, 1986)
Scammon Hill	29N	22E	36	1542	-94.8742366	36.9499376	21-Oct-04	140 x 115	Elliptical	12645	3	
Roanoke	29N	22E	36	1543	-94.8729790	36.9519691	21-Oct-04	45	Circular	1590	2	
Roanoke	29N	22E	36	1544	-94.8730585	36.9521751	21-Oct-04	100	Circular	7854	3	
Scammon Hill	29N	22E	36	1559	-94.8765388	36.9478979	21-Oct-04	45 x 40	Elliptical	1414		20 ft deep; immature trees growing on sides; 6-ft long black snake looking for a home
Scammon Hill	29N	22E	36	1584	-94.8731893	36.9458706	21-Oct-04	55	Circular	2376	5	Trees growing on sides
Scammon Hill	29N	22E	36	1590	-94.8787505	36.9444794	19-May-05	55	Circular	2376	1	May be part of a larger collapse; west end of a kidney-shaped pond
Scammon Hill	29N	22E	36	1593	-94.8735741	36.9464394	21-Oct-04	75	Circular	4418	25	
Scott	29N	23E	13	1519	-94.7620715	36.9924196	21-Feb-05	180	Circular	25447	1	Stable
Scott	29N	23E	13	1567	-94.7621669	36.9944093	8-Nov-04	22	Circular	380	15	Recent collapse; discovered in January 2003
Scott	29N	23E	13	1582	-94.7601366	36.9911206	21-Feb-05	115	Circular	10387		8 ft deep; originally mapped as a shaft-related collapse (Luza, 1986)
Farmington	29N	23E	14	1517	-94.7840924	36.9964608	7-Feb-05	230	Circular	41548	75	Unstable; extension cracks beyond the edge of the collapse
Lucky Jenny	29N	23E	14	1518	-94.7807973	36.9942596	8-Feb-05	190 x 160	Elliptical	23876	60	North end unstable
Howe	29N	23E	17	1556	-94.8470247	36.9894566	22-Apr-04	45	Circular	1590		22 ft deep; in chat pile
Gordon No. 2	29N	23E	18	1513	-94.8563669	36.9954338	16-Mar-04	130	Circular	13273		40 ft deep; appears to have enlarged since 1981
Gordon No. 2	29N	23E	18	1514	-94.8563336	36.9950141	16-Mar-04	100	Circular	7854	1	
John Beaver	29N	23E	19	1502	-94.8574366	36.9775480	17-Mar-04	100	Circular	7854	1	

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
John Beaver	29N	23E	19	1503	-94.8577994	36.9775389	17-Mar-04	90	Circular	6362	1	
Crystal	29N	23E	19	1504	-94.8623284	36.9755656	18-Mar-04	260 x 180	Elliptical	36757	50-60	
Crystal	29N	23E	19	1505	-94.8618767	36.9749260	18-Mar-04	75 x 60	Elliptical	3534	3	Mature trees growing on sides
Crystal	29N	23E	19	1506	-94.8622061	36.9748201	18-Mar-04	80	Circular	5027	25	
Crystal	29N	23E	19	1507	-94.8618782	36.9746034	19-Mar-04	173	Circular	23506	30	Mature trees growing on sides
Crystal	29N	23E	19	1508	-94.8612124	36.9735551	18-Mar-04	30	Circular	707	1	
Crystal	29N	23E	19	1509	-94.8618833	36.9741571	18-Mar-04	150 x 140	Elliptical	16493	30	Mature trees growing in bottom; appears stable
Crystal	29N	23E	19	1510	-94.8613370	36.9733954	18-Mar-04	40	Circular	1257	1	
Crystal	29N	23E	19	1533	-94.8610775	36.9737721	18-Mar-04	40	Circular	1257		12-15 ft deep
Central	29N	23E	19	1534	-94.8584408	36.9744113	17-Mar-04					Concealed and/or filled; filled with flotation fines; in June 1982, 45-ft circular collapse 10 ft to water
Central	29N	23E	19	1535	-94.8587392	36.9741175	17-Mar-04	65	Circular	3318	12	
Central	29N	23E	19	1536	-94.8583532	36.9738645	17-Mar-04	60 x 30	Elliptical	1414	10	Mature trees growing on sides
Central	29N	23E	19	1537	-94.8588582	36.9732735	17-Mar-04	120	Circular	11310	1	
Central	29N	23E	19	1538	-94.8593082	36.9735533	17-Mar-04	35	Circular	962	1	
Central	29N	23E	19	1539	-94.8596918	36.9737581	17-Mar-04	80 x 50	Elliptical	3141	1	
Central	29N	23E	19	1540	-94.8595000	36.9729706	17-Mar-04	75	Circular	4418	1	
Central	29N	23E	19	1541	-94.8600570	36.9730840	17-Mar-04	25	Circular	491	1	
Velie Lion	29N	23E	19	1585	-94.8593540	36.9796785	17-Mar-04	330 x 250	Elliptical	64795	30	
Crystal	29N	23E	19	1586	-94.8603539	36.9743249	30-Mar-05	25	Circular	491	1	
Dorothy Bill No. 2	29N	23E	20	1520	-94.8483327	36.9857464	22-Apr-04	100	Circular	7854	6	
Kenoyer	29N	23E	20	1550	-94.8429677	36.9834141	21-Apr-04	20 x 30	Rectangle	600		Filled except for west side; depth unknown
Barbara J.	29N	23E	20	1555	-94.8373251	36.9733401	21-Apr-04					Concealed and/or filled; chat has been redistributed since 1981; in March 1984, 75-ft circular collapse 25 ft deep in chat pile
South Bingham	29N	23E	21	1557	-94.8268776	36.9799972	20-Apr-04	3	Circular			1 ft deep; 5th and Ella, small collapse at southwest corner of a garage, north side of 5th St.
N-S Section Line Road	29N	23E	21	1588	-94.8128787	36.9839957	30-Mar-05	10 x 5	Elliptical			Filled by county; was 1 ft deep; between Dardene and Black Eagle No. 1
Santa Fe	29N	23E	23	1553	-94.7879996	36.9871274	8-Feb-05	90 x 40	Elliptical			Concealed and/or filled; 40-ft deep collapse that occurred May 31, 1978, on the south side and across East A Street
Massel	29N	23E	23	1581	-94.7795013	36.9821667	16-Dec-04	60	Circular	2827		Some brush and small trees growing on sides
Massel	29N	23E	23	1591	-94.7794260	36.9823963	29-Mar-05	90 x 40	Elliptical	2827		8 ft deep
Alice Greenback	29N	23E	26	1563	-94.7799472	36.9629599	8-Jul-04	6	Circular	28		6 ft deep; filled by ODOT fall of 2003
Bull Frog	29N	23E	28	1558	-94.8200000	36.9611506	8-Apr-04	10	Circular	79	1	
Skelton	29N	23E	28	1583	-94.8304989	36.9618368	29-Mar-05	12	Circular	113		6 ft deep; occurred in mid-March 2005
Bull Frog	29N	23E	28	1589	-94.8185118	36.9610933	27-Apr-05	30 x 25	Elliptical	589	2	

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Skelton	29N	23E	28	1592	-94.8306577	36.9618981	19-May-05	10	Circular	79		Concealed and/or filled; photographed by Westfield and Blessing in 1967; located in borrow ditch E. of Hwy 69; water would flow into the site during high rainfall events; ODOT poured concrete over the site in March 2005
Admiralty No. 1	29N	23E	29	1515	-94.8417617	36.9617103	7-Apr-04	350	Circular	96211	2	Stable; irregular shape; collapse occurs behind a berm within a pond; exact size is unknown
Admiralty No. 3	29N	23E	29	1545	-94.8367463	36.9600472	7-Apr-04	150 x 102	Elliptical	12017		
Admiralty No. 3	29N	23E	29	1546	-94.8368165	36.9603954	7-Apr-04	150	Circular	17671	25	Mature trees growing on sides and in bottom
Admiralty No. 3	29N	23E	29	1547	-94.8365343	36.9605716	7-Apr-04	80	Circular	5027	30-35	Mature trees growing in bottom
Admiralty No. 3	29N	23E	29	1548	-94.8364988	36.9608027	7-Apr-04	117 x 92	Elliptical	8454		35-40 ft deep; mature trees growing in bottom
Admiralty No. 3	29N	23E	29	1549	-94.8360064	36.9605691	7-Apr-04	75 x 45	Elliptical	2651	2	
Blue Goose No. 1	29N	23E	30	1511	-94.8657212	36.9673462	19-Mar-04	280 x 205	Elliptical	45082		30-35 ft deep; modified since 1981
Lottson	29N	23E	30	1512	-94.8659264	36.9721459	19-Mar-04	60 x 30	Rectangle	1800	1	
Shorthorn	29N	23E	30	1551	-94.8662338	36.9651507	5-Apr-04	70	Circular	3848	1	
Ritz	29N	23E	30	1562	-94.8611234	36.9706555	17-Jul-05	12	Circular	113		20 ft deep; in a chat pile; occurred in early July 2005
Ritz	29N	23E	30	1594	-94.8618887	36.9722691	28-Apr-05	100	Circular	7854	1	Sounded by U.S.A.C.E. in March 2005; 23 ft to bottom of pond
Ritz	29N	23E	30	1595	-94.8619272	36.9720107	28-Apr-05	45	Circular	1590	1	Sounded by U.S.A.C.E. in March 2005; 11 ft to bottom of pond
Ritz	29N	23E	30	1606	-94.8577341	36.9718054	10-Jan-06	20	Circular			Concealed and/or filled; occurred about 1960 in the road
Ruth Goodeagle	29N	23E	34	1607	-94.8117229	36.9519285	29-Apr-04	28	Circular	616		6 ft deep; occurred in 2003
Discard	29N	24E	17	1501	-94.7364143	36.9950357	31-Mar-04	375 x 225	Elliptical	66268	30	Unstable; stream eroding the north end; side unstable

*Map/collapse number based on Oklahoma Geological Survey's Circular 88 and 2004-2005 field surveys

Table 6. Partial List of Drill Hole Collapses in the Vicinity of Picher

Mine Name	T.	R.	Sec.	Map No.	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Condition
Ruth Goodeagle	29N	23E	34	1800	-94.8108593	36.9532200	29-Apr-04	4	Circular	13	3.5 ft deep; 10 in. diameter drill hole
Ruth Goodeagle	29N	23E	34	1801	-94.8119285	36.9523655	29-Apr-04	5	Circular	20	2 ft deep; collapsed in late 2003 and/or early 2004
Quebec	29N	23E	32	1802	-94.8427361	36.9561911	28-Apr-04	30	Circular	707	4 ft deep; berm around drill hole breached; discharging mine water
Quebec	29N	23E	32	1803	-94.8418865	36.9577546	28-Apr-04				Discharging mine water; berm breached
Quebec	29N	23E	32	1804	-94.8434922	36.9563416	27-Apr-04				Clear water discharging north of railroad tracks; 2 ft in diameter
Maxine	29N	23E	22	1805	-94.8125614	36.9752946	7-Jul-04	6	Circular	28	3 ft deep; dry
S 590 Road	29N	23E	22	1806	-94.8128050	36.9803563	8-Feb-05	2	Circular	3	3 ft deep in middle of road; possible drill hole
Dorothy Bill	29N	23E	20	1807	-94.8438830	36.9861453	8-Feb-06	6	Circular		Filled; 8 ft deep; occurred in 2004; drill hole H-68
Kenoyer	29N	23E	20	1808	-94.8307950	36.9786860	8-Feb-06	3	Circular		1-ft deep depression; filled at least once; corner of 6th and Oneida; drill no. 8194
Whitebird	29N	23E	16	1809	-94.8307950	36.9892575	8-Feb-06		Circular		Small holes 2 ft deep beneath walkway; drill hole no. 111; occurred in December 2005

*Map/shaft number based on Oklahoma Geological Survey's Circular 88 and 2004-2005 field surveys

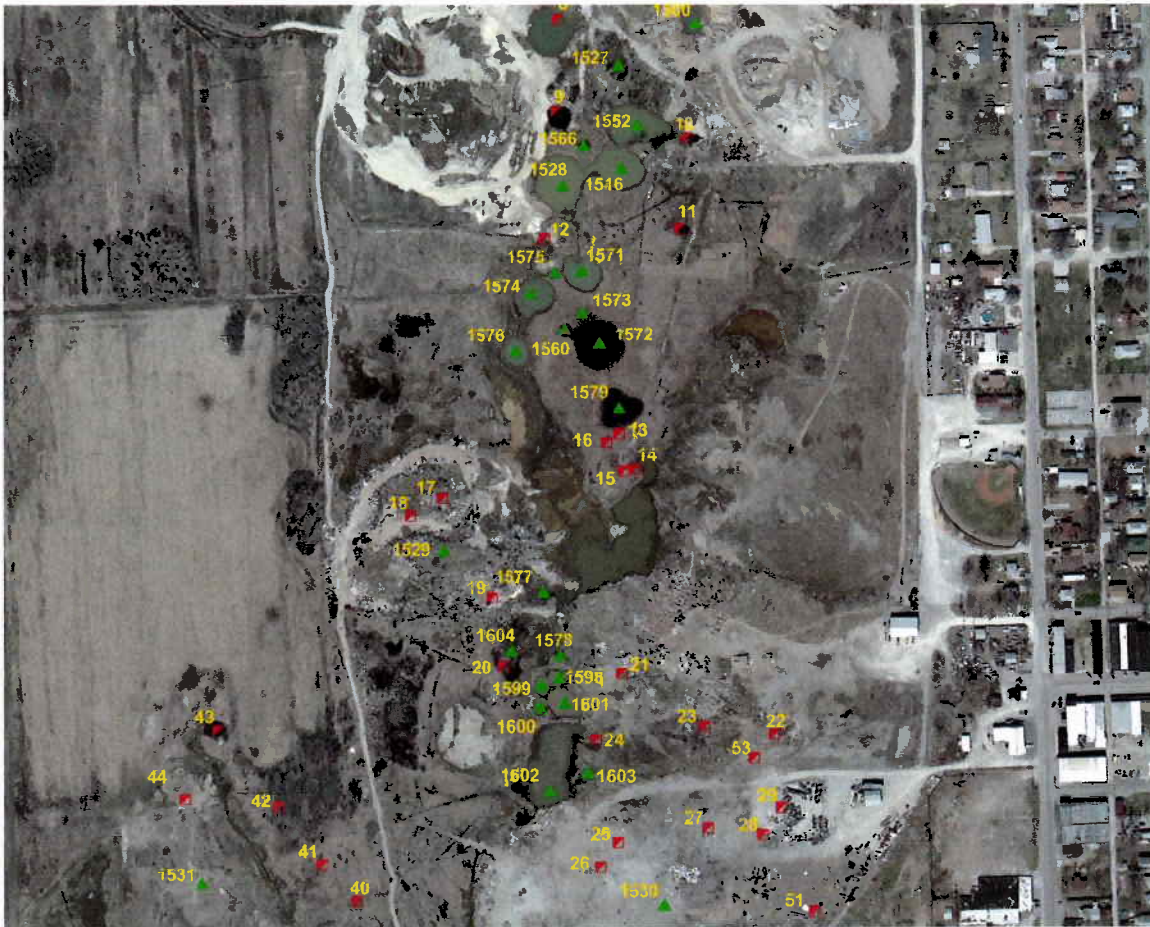


Fig. 2. Shaft locations (red boxes) and non-shaft collapses (green triangles) west of Commerce with identification numbers (see Tables 1 (shafts) and 5 (non shaft) for descriptions).

Discussion

Most surface-collapse sites in the Oklahoma portion of the Picher Field are associated with abandoned mine shafts. Many shaft collapses begin with the deterioration of the wooden cribbing near the shaft collar. Generally, a 40- to 60-ft-thick sequence of interbedded shale and sandstone occurs near the surface. This material is highly susceptible to erosion and will cave in toward the shaft opening. Many of the shaft collapses begin small, 20-30 ft in diameter, and can enlarge to over 80 ft in diameter with time. For example, shaft no. 43 on the Harrisburg lease, was a 30-ft circular depression 5 ft deep in November, 1981. In December, 2002, the collapse began to enlarge and by March 2004 the collapse was 120 ft wide and 30 ft deep (Fig 3). Collapses that extend into the underground workings are generally accompanied by spectacular surface collapses 200-400 ft in diameter (Fig. 4).

There are numerous examples of shaft collapses that have occurred since 1982. A partial list of shaft related collapses in the vicinity of the Picher-Cardin-Hockerville areas is given in Table 7. Many of these shafts were improperly plugged and/or sealed. The plug, cap, and/or seal failed which reopened the shaft and renewed the shaft-collapse process.

Table 7. Partial List of Shaft Collapses in the Vicinity of Picher-Cardin-Hockerville, 1982-2005

Mine Name	T.	R.	Sec.	Map No.	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Warner Fee (Eagle Picher)	28N	23E	6	1	-94.8774787	36.9429853	13-Jan-05	10	Circular			Concealed and/or filled; recollapsed 10-Jan-05; filled 13-Jan-05; 30 ft deep
Lucky Jenny	29N	23E	14	11	-94.7804432	36.9909435	11-Feb-05	100	Circular	7854		60 ft deep; former dump site; recollapsed in late 2004 or early 2005; 15-ft circular collapse in May 1981
Beck	29N	23E	15	34	-94.8104447	36.9876063	10-Feb-05	5 x 7	Rectangle	35	15	Open shaft; was previously filled and bermed; concealed and/or filled in May 1981
Swift	29N	23E	16	5	-94.8265667	36.9962824	5-Dec-01	15	Circular	177		20 ft deep; in chat pile; on December 5, 2001, 12-ft diameter circular collapse 80 ft deep; concealed and/or filled in November 1981
Velie Lion	29N	23E	19	37	-94.8583764	36.9771981	17-Mar-04	80	Circular	5027		Open shaft in collapse; 25 ft to cribbing; water running into shaft; concealed and/filled in March 1982
Harrisburg	29N	23E	19	43	-94.8627002	36.9750649	18-Mar-04	120	Circular	11310		Open shaft; 60-65 ft deep; enlarged December 2002; 30-ft circular depression 5 ft deep in March 1982
Fort Worth	29N	23E	28	10	-94.8275497	36.9657879	9-Apr-04	40	Circular	1257		20 ft deep; filled with debris and garbage; maybe partially open; collapsed in 2002; concealed and/or filled in May 1981
Mo Mule	29N	23E	28	17	-94.8267784	36.9708603	8-Apr-04	25	Circular	491	2	In May 1981, open shaft
Barbara J.	29N	23E	29	31	-94.8318334	36.9687636	6-Apr-04	8 x 12	Elliptical	75	1.5	Filled in 1980s, recollapsed in 2001; 30-ft circular collapse 20 ft deep in May 1981
Admiralty No. 1	29N	23E	29	64	-94.8419597	36.9609566	11-Jan-06	10 x 25	Rectangle	250		Collapsed in 2005; 5 ft deep; concealed and/or filled in April 2004; 10-ft circular collapse in May 1981
Ritz	29N	23E	30	19	-94.8565289	36.9717878	19-Mar-04	40	Circular			Concealed and/or filled; 20-ft deep collapse occurred in 1982
Beck	29N	23E	32	16	-94.8309549	36.9548914	28-Apr-04	15	Circular	177		3 ft deep; filled with a black hearse; began to recollapsed in 2001

Mine Name	T.	R.	Sec.	Map No.	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Craig	29N	23E	33	15	-94.8235931	36.9576802	28-Apr-04	20	Circular	314		4 ft deep; recollapsed early 2002; 15-ft circular collapse 12 ft deep in March 1982
Craig	29N	23E	33	20	-94.8129757	36.9530245	29-Apr-04	20	Circular	314	15	Filled and recollapsed December 2003; 25-ft circular collapse 20 ft deep in April 1982
Julia Shapp	29N	23E	35	11	-94.7879393	36.9462869	29-Apr-04	15	Circular			Collapsed in 2003, 30 ft deep; filled by ODOT and Ottawa Co. road crews; beginning to recollapse
J. E. McGuirk	29N	24E	30	41	-94.7514394	36.9583686	17-Mar-05	10	Circular			Concealed and/or filled; 2-foot deep depression; collapsed in early 1980's and broke rural water line
Velie Lion	29N	23E	19	39	-94.8584503	36.9794064	17-Mar-04	115	Circular	10387	40-50	In June 1981, 25-ft circular collapse

*Map/shaft number based on Oklahoma Geological Survey's Circular 88 and 2004-2005 field surveys



Fig. 3. Large shaft collapse on the Harrisburg lease (T29N, R23E, sec. 19, no. 43).

At 104 sites, surface collapse appears unrelated to shafts. An area west of Commerce and one west of Cardin have the highest concentrations of non-shaft collapses, 55. The west Commerce area gained 22 “new” non-shaft collapses because of the ability to correlate the mine-working maps to the surface expression of the collapse. All of these features, which were filled with water, existed during the 1981-1983 inventory (Luza, 1986) now can be linked to the mine workings.

It is almost impossible to predict where the next non-shaft-related collapse will occur. Most of the non-shaft-related collapses are related to multiple mine levels. However, large areas contain multiple mine levels that do not contain collapse features. For example, the Piokee lease,

T29N, R23E, sec. 17, northwest of Picher, contains the greatest concentration of multiple mine levels but has very few collapse sites. Perhaps Chesterian beds, mostly limestone, are sufficiently thick to provide good roof support.



Fig. 4. Large collapse on the Domado Lease (T29N, R23E, sec. 19, nos. 1 and 2).

Historically, most collapses took place prior to 1952, but have continued to enlarge. For example, Luza (1986) reported a collapse at the Goodeagle and Childress-Heggem Mines, T29N, R22E, sec. 25 (1607), increased four times in size during a period of about six months. Collapses on the Bluegoose No. 1 and the Netta White leases, which occurred in the mid to late 1960s, represent the last large collapses to have occurred in the Picher Field. Apparently, collapses associated with multiple mine levels and/or large stopes took place during and/or very soon after the workings were abandoned. Generally, stripping of the pillars prior to abandonment led to roof instability and subsequent collapse.

Slumping of the collapse walls continues around and near some of the smaller collapses and new non-shaft collapses have occurred since 1982 (Table 8). These new collapses, such as on the Howe (Fig. 5), Scott, and Ritz leases, appear related to upper level workings near the surface and/or large stopes in the upper level.

Table 8. Partial List of Non-Shaft Collapses, 1982-2005

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Consolidated	28N	22E	1	1531	-94.8849012	36.9320577	10-Nov-04	40 x 25	Elliptical	785		Filled by June 1982; recollapse; large cracks developed beyond edges of collapse; 12 ft deep; unstable
Scammon Hill	29N	22E	36	1559	-94.8765388	36.9478979	21-Oct-04	45 x 40	Elliptical	1414		20 ft deep; immature trees growing on sides; 6-ft long black snake looking for a home
Scammon Hill	29N	22E	36	1593	-94.8735741	36.9464394	21-Oct-04	75	Circular	4418	25	
Scott	29N	23E	13	1567	-94.7621669	36.9944093	8-Nov-04	22	Circular	380	15	Recent collapse; discovered in January 2003
Howe	29N	23E	17	1556	-94.8470247	36.9894566	22-Apr-04	45	Circular	1590		22 ft deep; in chat pile; occurred about 1997
N-S Section Line Road	29N	23E	21	1588	-94.8128787	36.9839957	30-Mar-05	10 x 5	Elliptical			Filled by county; was 1 ft deep; between Dardene and Black Eagle No. 1
Massel	29N	23E	23	1581	-94.7795013	36.9821667	16-Dec-04	60	Circular	2827		Some brush and small trees growing on sides
Massel	29N	23E	23	1591	-94.7794260	36.9823963	29-Mar-05	90 x 40	Elliptical	2827		8 ft deep
Alice Greenback	29N	23E	26	1563	-94.7799472	36.9629599	8-Jul-04	6	Circular	28		6 ft deep; filled by ODOT fall of 2003
Skelton	29N	23E	28	1583	-94.8304989	36.9618368	29-Mar-05	12	Circular	113		6 ft deep; occurred in mid-March 2005
Ritz	29N	23E	30	1562	-94.8611234	36.9706555	17-Jul-05	12	Circular	113		20 ft deep; in a chat pile; occurred in early July 2005
Ruth Goodeagle	29N	23E	34	1607	-94.8117229	36.9519285	29-Apr-04	28	Circular	616		6 ft deep; occurred in 2003

* Shaft number based on Oklahoma Geological Survey's Circular 88 and 2004-2005 field surveys

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APPENDIX

Table 1: Shaft Inventory

Table 2: Open and Dangerous Shafts

Table 1. Shaft Inventory

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Thirty Acre Mining Company	28N	22E	1	1	-94.8835178	36.9425657	8-Nov-04	60	Square	3600	2	Stable; about same size in June 1981
Thirty Acre Mining Company	28N	22E	1	2	-94.8832857	36.9421094	8-Nov-04	40	Circular	1257	2	Stable; about same size in June 1981
Carson Mining Company	28N	22E	1	3	-94.8827523	36.9412286	8-Nov-04	15	Circular	177	5	Partially filled with wood chips
Carson Mining Company	28N	22E	1	4	-94.8815807	36.9402082	8-Nov-04	20 x 12	Elliptical	189		6 ft deep; filled with trash
Lennan & Co.	28N	22E	1	5	-94.8789599	36.9403282	8-Nov-04	20 x 12	Elliptical	189		6 ft deep; concealed in February 1983
Oklahoma Lead & Zinc Mining Co.	28N	22E	1	6	-94.8819481	36.9394409	8-Nov-04	30	Circular	707	2	Stable; larger in February 1983
Lennan & Co.	28N	22E	1	7	-94.8806859	36.9386629	9-Nov-04					Concealed and/or filled; shaft filled with boulders; open shaft in June 1981
Oklahoma Lead & Zinc Mining Co.	28N	22E	1	8	-94.8815341	36.9380738	8-Nov-04	120	Circular	11310	1	In 1983, concealed and/or filled
Oklahoma Lead & Zinc Mining Co.	28N	22E	1	9	-94.8815766	36.9374290	8-Nov-04	65	Circular	3318	3	Enlarged since June 1981
Prairie Mining Company	28N	22E	1	10	-94.8804468	36.9372122	9-Nov-04	20 x 25	Rectangle	500	1	Stable; larger in June 1981
Prairie Mining Company	28N	22E	1	11	-94.8805393	36.9365714	9-Nov-04	20	Circular	314	4	Stable; about same size in June 1981
Oklahoma Lead & Zinc Mining Co.	28N	22E	1	12	-94.8817144	36.9365347	8-Nov-04					Concealed and/or filled; 45-ft circular collapse in June 1983
Emma Gordon	28N	22E	1	13	-94.8811195	36.9351338	9-Nov-04					Concealed and/or filled
Emma Gordon	28N	22E	1	14	-94.8809943	36.9348787	9-Nov-04					Concealed and/or filled
Emma Gordon	28N	22E	1	15	-94.8810905	36.9348692	9-Nov-04					Concealed and/or filled
Emma Gordon	28N	22E	1	16	-94.8812320	36.9350747	9-Nov-04					Concealed and/or filled
Little Maxine/Never Sweat	28N	22E	1	17	-94.8826865	36.9347213	9-Nov-04					Concealed and/or filled; former landfill site
Little Maxine/Never Sweat	28N	22E	1	18	-94.8829644	36.9346035	9-Nov-04					Concealed and/or filled; former landfill site
Little Maxine/Never Sweat	28N	22E	1	19	-94.8822813	36.9340033	9-Nov-04					Concealed and/or filled
Okmulgee	28N	22E	1	20	-94.8822039	36.9335163	9-Nov-04	40	Circular	1257	3	Stable; slightly larger in June 1981
Emma Gordon	28N	22E	1	21	-94.8811722	36.9334361	9-Nov-04					Concealed and/or filled
Emma Gordon	28N	22E	1	22	-94.8798600	36.9329722	9-Nov-04					Concealed and/or filled; open shaft in June 1981; miss located on plate 1 (Luza, 1986)
Emma Gordon	28N	22E	1	23	-94.8804687	36.9330419	9-Nov-04					Concealed and/or filled
Emma Gordon	28N	22E	1	24	-94.8814134	36.9329729	9-Nov-04	35 x 25	Elliptical	687	1	Mostly filled; 45-ft circular collapse in 1964
Queen City	28N	22E	1	25	-94.8812535	36.9322402	9-Nov-04					Concealed and/or filled
Queen City	28N	22E	1	26	-94.8814139	36.9320701	9-Nov-04					Concealed and/or filled
Old Chief	28N	22E	1	27	-94.8804680	36.9323232	9-Nov-04	40	Circular			Concealed and/or filled; filled with debris; rock; slight depression in junk yard; concealed in 1983
Old Chief	28N	22E	1	28	-94.8799907	36.9322612	9-Nov-04					Concealed and/or filled
Old Chief	28N	22E	1	29	-94.8798230	36.9324472	9-Nov-04					Concealed and/or filled
Miami Amalgamated	28N	22E	1	30	-94.8790686	36.9310287	9-Nov-04	160 x 130	Elliptical			Concealed and/or filled; by 1972, 160- x 130-ft elliptical collapse; filled by 1979
Miami Amalgamated	28N	22E	1	31	-94.8791784	36.9307046	9-Nov-04					Concealed and/or filled
Turkey-Fat	28N	22E	1	32	-94.8782290	36.9300717	9-Nov-04	275 x 210	Elliptical			Concealed and/or filled; 275- x 210-ft collapse in 1964; filled by 1972
Turkey-Fat	28N	22E	1	33	-94.8782241	36.9297768	9-Nov-04					Part of the same cave-in that included shaft no. 32
Miami Amalgamated	28N	22E	1	34	-94.8806838	36.9305175	9-Nov-04					Concealed and/or filled; open shaft in June 1981

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Miami Amalgamated	28N	22E	1	35	-94.8806765	36.9310917	9-Nov-04					Concealed and/or filled
Willow Branch	28N	22E	1	36	-94.8810358	36.9307168	9-Nov-04					Concealed and/or filled
Midas	28N	22E	1	37	-94.8829997	36.9300411	10-Nov-04					Concealed and/or filled
Midas	28N	22E	1	38	-94.8834606	36.9303338	10-Nov-04					Concealed and/or filled; 25-ft collapse 5 ft deep in June 1981
Midas	28N	22E	1	39	-94.8832921	36.9306082	10-Nov-04	200 x 160	Elliptical			Concealed and/or filled; by 1972 a 200- x 160-ft collapse; filled by 1972
Jeanette	28N	22E	1	40	-94.8835506	36.9318905	10-Nov-04					Concealed and/or filled
Jeanette	28N	22E	1	41	-94.8838417	36.9321575	10-Nov-04					Concealed and/or filled; shallow depression at location
Unknown	28N	22E	1	42	-94.8842098	36.9325700	10-Nov-04					Concealed and/or filled
Lolita	28N	22E	1	43	-94.8847161	36.9331319	10-Nov-04	50 x 35	Elliptical	4712	3	Stable; about same size in June 1981
Lolita	28N	22E	1	44	-94.8850211	36.9326510	10-Nov-04					Concealed and/or filled
Consolidated	28N	22E	1	45	-94.8846087	36.9315448	10-Nov-04					Concealed and/or filled
Consolidated	28N	22E	1	46	-94.8845813	36.9310273	10-Nov-04					Concealed and/or filled
Southern Queen	28N	22E	1	47	-94.8847838	36.9306381	10-Nov-04					Concealed and/or filled
Midas	28N	22E	1	48	-94.8839489	36.9296445	10-Nov-04	40	Circular	1257		12-15 ft deep; concealed in June 1981
Blue Bell	28N	22E	1	49	-94.8855590	36.9301520	10-Nov-04					Concealed and/or filled
Last Chance	28N	22E	1	50	-94.8867990	36.9293285	10-Nov-04	30	Circular	707	8	Stable; about same size in June 1981
Miami Amalgamated	28N	22E	1	51	-94.8795640	36.9317084	9-Nov-04					Concealed and/or filled
Joplin-Miami	28N	22E	1	52	-94.8789453	36.9299106	9-Nov-04					Concealed and/or filled
Emma Gordon	28N	22E	1	53	-94.8800457	36.9328067	9-Nov-04					Concealed and/or filled
Jennie May	28N	22E	12	1	-94.8873078	36.9286978	10-Nov-04	60	Circular	2827	3	Area serves as a drain for nearby wheat field; 35-ft collapse in June 1981
Jennie May	28N	22E	12	2	-94.8867450	36.9280776	10-Nov-04	35	Circular	962	3	Slightly smaller in June 1981
Jennie May	28N	22E	12	3	-94.8867075	36.9286823	10-Nov-04					Concealed and/or filled
Frosty Morning	28N	22E	12	4	-94.8862741	36.9288346	10-Nov-04					Concealed and/or filled
Frosty Morning	28N	22E	12	5	-94.8854294	36.9285877	10-Nov-04	90	Circular	6362	3	Actively being used as a dumpsite; 120-ft circular collapse in June 1981
Neill	28N	22E	12	6	-94.8840494	36.9282869	10-Nov-04					Concealed and/or filled; 40-foot circular collapse in June 1981
Neill	28N	22E	12	7	-94.8835466	36.9281721	10-Nov-04	40	Circular	1257		Actively being used as a trash dump; 1 ft deep; same use in June 1981
Neill	28N	22E	12	8	-94.8835715	36.9278002	10-Nov-04					Concealed and/or filled
Frosty Morning	28N	22E	12	9	-94.8829979	36.9266169	10-Nov-04					Concealed and/or filled
Edna Ray	28N	22E	12	10	-94.8776722	36.9288191	10-Nov-04					Concealed and/or filled; 18-foot circular collapse in June 1981
Airport Shaft/Green Zinc Co.?	28N	22E	13	1	-94.8931020	36.9039388	5-Oct-04					Concealed and/or filled; from 1927 topographic map; location approximate
Airport Shaft/Green Zinc Co.?	28N	22E	13	2	-94.8937088	36.9045413	5-Oct-04					Concealed and/or filled; from 1961 U.S.G.S. Miami Northwest 7.5" quadrangle; location approximate
Denver-Miami Mining Co./H. R. McBee Lease	28N	22E	23	1	-94.9020533	36.8933475	28-Mar-05					Concealed and/or filled; from map T-129, Missouri Southern University
Denver-Miami Mining Co./H. R. McBee Lease	28N	22E	23	2	-94.9016411	36.8947973	28-Mar-05					Concealed and/or filled; from map T-129, Missouri Southern University
McConnell & Barns Mines Co.	28N	22E	23	3	-94.9016960	36.8916366	28-Mar-05					Concealed; buried beneath a land fill; from 1917 Commerce Sanborn Map, sheet 8; location approximate

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Windbigler Mining Co.	28N	22E	23	4	-94.9009693	36.8912057	28-Mar-05					Concealed; buried beneath a land fill; from 1917 Commerce Sanborn Map, sheet 8; location approximate
Denver-Miami Mining Co./H. R. McBee Lease	28N	22E	23	5	-94.9016990	36.8932454	28-Mar-05					Concealed and/or filled; shaft no. 2; form map T-129, Missouri Southern University
Old Mission	28N	23E	1	1	-94.7719768	36.9423840	19-Mar-05					Concealed and/or filled; filled after February 1982
Old Mission	28N	23E	1	2	-94.7714911	36.9428114	19-Mar-05	10 x 6	Rectangle	60		Filled with tires and debris
Old Mission	28N	23E	1	3	-94.7713459	36.9420940	19-Mar-05					Concealed and/or filled; shaft filled with chatcrete; large erosional feature, 20- x 8- x 4-ft deep, southwest of shaft
Old Mission	28N	23E	1	4	-94.7707527	36.9425944	19-Mar-05					Concealed and/or filled; filled after February 1982
Old Mission	28N	23E	1	5	-94.7698154	36.9430363	19-Mar-05					Concealed and/or filled
Unknown	28N	23E	1	6	-94.7749723	36.9416746	19-Mar-05	10	Circular			Concealed and/or filled; 2-ft deep depression
Unknown	28N	23E	1	7	-94.7778589	36.9395256	19-Mar-05	30 x 20	Elliptical	471		Shaft filled with trash and garbage; 3 ft deep
Unknown	28N	23E	1	8	-94.7792438	36.9386038	19-Mar-05					Concealed and/or filled; from 1927 topographic map
Unknown	28N	23E	1	9	-94.7807462	36.9389759	19-Mar-05					Concealed and/or filled; from 1927 topographic map
Wolverine	28N	23E	2	1	-94.7978837	36.9433146	30-Mar-05	10	Circular			Concealed and/or filled; filled by landowner; shallow depression; on 1927 topographic map
Unknown	28N	23E	5	1	-94.8583932	36.9302908	1-Aug-05					Concealed and/or filled; discovered by Commerce City workers; contains boulders on top of a concrete lid
Warner Fee (Eagle Picher)	28N	23E	6	1	-94.8774787	36.9429853	13-Jan-05	10	Circular			Concealed and/or filled; recollapsed 10-Jan-05; filled 13-Jan-05; 30 ft deep
Warner Fee (Eagle Picher)	28N	23E	6	2	-94.8767420	36.9427225	8-Nov-04					Concealed and/or filled
Warner Fee (Eagle Picher)	28N	23E	6	3	-94.8763772	36.9430349	8-Nov-04					Concealed and/or filled
Warner Fee (Eagle Picher)	28N	23E	6	4	-94.8774157	36.9418280	8-Nov-04					Originally mapped as a collapse (Luza, 1986); area between shaft location and pond (non-shaft collapse) was filled prior to 1980
Tom Lawson	28N	23E	6	5	-94.8772384	36.9292801	8-Nov-04					Concealed and/or filled
Miami Royalty Company	28N	23E	6	6	-94.8759313	36.9343097	8-Nov-04					Concealed and/or filled; shaft identified by Snider (1912); location approximate
New State	28N	23E	7	1	-94.8771749	36.9285153	13-Jan-05					Concealed and/or filled
King Jack	28N	23E	7	2	-94.8769586	36.9279105	13-Jan-05	270 x 170	Elliptical	36050	1	Stable
Commonwealth/Morning Star	28N	23E	7	3	-94.8771064	36.9265013	13-Jan-05					Concealed and/or filled
Commonwealth/Morning Star	28N	23E	7	4	-94.8765104	36.9263960	13-Jan-05					Concealed and/or filled; filled after June 1981
Commonwealth/Morning Star	28N	23E	7	5	-94.8764725	36.9261779	13-Jan-05					Concealed and/or filled; filled after June 1981
Kenwood/Mizpah/Ind ex	28N	23E	7	6	-94.8758432	36.9253552	13-Jan-05					Concealed and/or filled
Swastika/Cactus	28N	23E	7	7	-94.8755100	36.9245127	13-Jan-05					Concealed and/or filled
Swastika/Cactus	28N	23E	7	8	-94.8757407	36.9243439	13-Jan-05					Concealed and/or filled
New State	28N	23E	7	9	-94.8765448	36.9287961	13-Jan-05					Concealed and/or filled
New State	28N	23E	7	10	-94.8766067	36.9286504	13-Jan-05					Concealed and/or filled
Ben Hur	28N	23E	7	11	-94.8749924	36.9254780	13-Jan-05					Concealed and/or filled; from Snider (1912); location approximate
Sunny Jim	28N	23E	7	12	-94.8751069	36.9233214	13-Jan-05					Concealed and/or filled; from Snider (1912); location approximate
Banner	28N	23E	7	13	-94.8746587	36.9220141	13-Jan-05					Concealed and/or filled; from Snider (1912); location approximate

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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King Jack	28N	23E	7	14	-94.8770164	36.9278147	13-Jan-05					Same as shaft no. 2
Joanna	28N	24E	5	1	-94.7518207	36.9374444	18-Mar-05					Concealed and/or filled
Lead Queen	28N	24E	5	2	-94.7518285	36.9392391	18-Mar-05	15	Circular	177		20 ft deep; open shaft in March 1983
Independence	28N	24E	5	3	-94.7484061	36.9422913	18-Mar-05	10x12	Rectangle			Concealed and/or filled; collar showing signs of collapse; collar being undermined
Heep-O-Brian	28N	24E	5	4	-94.7491719	36.9412699	18-Mar-05	10x12	Rectangle	120		5 ft deep; filled with tires
Irish Maid	28N	24E	5	5	-94.7476064	36.9419480	18-Mar-05					Concealed and/or filled
Spring (River) Riser	28N	24E	5	6	-94.7513953	36.9354083	18-Mar-05					Concealed and/or filled; open shaft in March 1982
Independence	28N	24E	5	7	-94.7487694	36.9423891	27-Sep-05	25	Circular	491	35	Open shaft
Romo	28N	24E	6	1	-94.7693064	36.9430377	19-Mar-05	6 x 6	Square	36		Shaft filled with debris and garbage
Rock Creek	28N	24E	6	2	-94.7606044	36.9407734	18-Mar-05	12	Circular	113	25	Open shaft; concealed in January 1983
Romo	28N	24E	6	3	-94.7602630	36.9413683	18-Mar-05					Concealed and/or filled; slight depression; nearby trash and chatcrete
Canterbury	28N	24E	6	4	-94.7566025	36.9432839	18-Mar-05					Concealed and/or filled; no field evidence for a shaft
Catholic Church	28N	24E	6	5	-94.7577080	36.9394226	18-Mar-05	20	Circular	314		8 ft deep; filled with chat; several prospect pits northeast of mill shaft
Shap	28N	24E	6	6	-94.7565743	36.9397598	18-Mar-05	12	Circular	113		3 ft deep
Syndicate	28N	24E	6	7	-94.7530341	36.9413844	18-Mar-05					Concealed and/or filled
Unknown	28N	24E	6	8	-94.7532459	36.9392940	18-Mar-05	25	Circular	491		3 ft deep; partially filled with sheet metal and trash
Widow Stafford	28N	24E	6	9	-94.7552872	36.9379307	18-Mar-05	15	Circular	177		Open shaft; 25 ft deep; 2-ft diameter mature trees growing on side; concealed and/or filled in 1983
Big Squaw	28N	24E	6	10	-94.7529189	36.9378061	18-Mar-05	15	Circular	177		2 ft deep; filled with trash
Farmer Boy	28N	24E	6	11	-94.7531879	36.9365866	18-Mar-05					Concealed and/or filled; several mounds of dirt, some rock, and chat
Bliss	28N	24E	6	12	-94.7555009	36.9371191	18-Mar-05	25	Circular	491		10 ft deep; concealed and/or filled in 1983
Carney Bro's	28N	24E	6	13	-94.7556492	36.9363989	18-Mar-05					Concealed and/or filled
JCL	28N	24E	6	14	-94.7532662	36.9354411	18-Mar-05					Concealed and/or filled; location approximate
Quapaw Tribal	28N	24E	6	15	-94.7541347	36.9344267	18-Mar-05					Concealed and/or filled; location approximate
McKinley	28N	24E	6	16	-94.7606968	36.9399218	18-Mar-05	12 x 12	Rectangle			Concealed and/or filled; shallow depression
Unknown	28N	24E	6	17	-94.7594077	36.9421946	18-Mar-05					Concealed and/or filled; filled by landowner about 2000
Unknown	28N	24E	6	18	-94.7598736	36.9430001	18-Mar-05	25	Circular	491		Filled with trash and debris; foundation pillars pushed into hole
Unknown (Glenda Nelson)	28N	24E	6	19	-94.7595446	36.9430172	18-Mar-05					Concealed and/or filled
Unknown	28N	24E	6	20	-94.7588190	36.9431875	18-Mar-05					Concealed and/or filled
Unknown	28N	24E	6	21	-94.7547288	36.9425137	18-Mar-05	20	Circular	314		Filled with household debris. i.e. dishwasher, washing machine, tires, etc.; took 28 years to fill
Unknown	28N	24E	6	22	-94.7563357	36.9406017	18-Mar-05	10	Circular	79		Appears to be filled with rock; 2 ft deep
Unknown	28N	24E	6	23	-94.7539852	36.9431177	19-Mar-05					Concealed and/or filled; filled by landowner; the shaft was approximately 75 ft deep
Unknown	28N	24E	6	24	-94.7524800	36.9423704	19-Mar-05					Concealed and/or filled; found boulders near site; landowner claims the site was a former shaft
Unknown	28N	24E	6	25	-94.7544468	36.9435345	19-Mar-05					Concealed and/or filled; shallow depression at site
Unknown	28N	24E	6	26	-94.7578457	36.9407086	26-Apr-05					Concealed and/or filled; filled in 1989 by Lloyd Buffalo

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Walton	29N	21E	13	1	-94.9813017	36.9975284	18-Oct-04	30 x 40	Elliptical	942		20 ft deep; mature trees growing on sides; filled with blocks of chatcrete
Walton	29N	21E	13	2	-94.9819019	36.9983499	18-Oct-04	20 x 25	Elliptical	393		10 ft deep; filled with debris (stove, garbage)
Laura Jenny Zheka	29N	22E	13	1	-94.8790387	36.9954711	18-Oct-04	75 x 66	Elliptical	3888	50	Can see cribbing; mature trees growing on sides; about the same size in March 1982
Bird Dog	29N	22E	13	2	-94.8689998	36.9964429	18-Oct-04	12 x 12	Rectangle	144	30	Open shaft; fenced by B.I.A.; fencing in good shape; about the same in June 1982
Mehunka Zheka Beaver	29N	22E	13	3	-94.8675434	36.9922476	18-Oct-04					Concealed and/or filled; shallow depression at location
Mehunka Zheka Beaver	29N	22E	13	4	-94.8701689	36.9879037	18-Oct-04					Concealed; covered with a concrete slab
Mehunka Zheka Beaver	29N	22E	13	5	-94.8699593	36.9873132	18-Oct-04					Concealed and/or filled
Stanley	29N	22E	13	6	-94.8703464	36.9986780	27-Apr-05					Concealed and/or filled; nearby boulder and chatcrete piles; location approximate
Bird Dog	29N	22E	13	7	-94.8671988	36.9965536	27-Apr-05					Concealed and/or filled; used as a garbage dump according to John Dalgran, BIA; location approximate
Bird Dog	29N	22E	13	8	-94.8696028	36.9962321	11-Nov-05	8	Circular	50		10 ft deep; partially filled with boards
Wild Bull	29N	22E	14	1	-94.8988025	36.9893281	18-Oct-04	10	Circular			Concealed and/or filled; slight depression; mined during WWII according to landowner
Tom L. Smith	29N	22E	16	1	-94.9388832	36.9889957	4-Oct-04					Concealed and/or filled; has settled in the past and refilled according to landowner
Alsbaugh Mine	29N	22E	21	1	-94.9382435	36.9848081	28-Mar-05					Concealed and/or filled; brush pile on top of shaft location; maybe a slight depression over shaft; in soybean field
James Xavier	29N	22E	23	1	-94.9009260	36.9803218	19-Oct-04	60	Circular	2827	8	Mostly stable; some instability on north side; fenced; open shaft in March 1982
James Xavier	29N	22E	23	2	-94.9005422	36.9821749	19-Oct-04	15	Circular	177	50-60	Open shaft; 30 ft down to cribbing; shale above cribbing; fenced with a gate
James Xavier	29N	22E	23	3	-94.8983148	36.9815345	19-Oct-04	60	Circular	2827	20	Stable; fenced; mature trees growing around perimeter; same as March 1982
Adams	29N	22E	23	4	-94.8914837	36.9807999	19-Oct-04	25	Circular	491		Filled with debris; recollapsed since March 1982
Adams	29N	22E	23	5	-94.8886994	36.9817268	19-Oct-04	25	Circular	491		About 6 ft deep; filled in 1981 and recollapsed by March 1982; in 1994 filled with a Halliburton tank and rock; recollapsed in 2004
Adams	29N	22E	23	6	-94.8880662	36.9809991	19-Oct-04	65	Circular	3318	2	Enlarged since March 1982
Adams	29N	22E	23	7	-94.8872485	36.9801649	19-Oct-04					Concealed and/or filled; 12-18-in. deep depression in corral; filled and recollapsed 2 or 3 times
Mudd	29N	22E	23	8	-94.8891703	36.9793837	19-Oct-04					Shaft filled with trash and debris; 5-ft high; open shaft in March 1982
Xavier-Mudd	29N	22E	23	9	-94.8932414	36.9781903	19-Oct-04	20	Circular	314	30-40	Mostly stable; mature vegetation growing around edges; enlarged since March 1982
Xavier-Mudd	29N	22E	23	10	-94.8940944	36.9778464	19-Oct-04	70	Circular	3848	10	Almost doubled in size since March 1982
Mudd	29N	22E	23	11	-94.8870883	36.9791630	19-Oct-04	40	Circular	1257		Open shaft; 20 ft to top of opening; used as a sewage depository
Garrett	29N	22E	24	1	-94.8780789	36.9804449	19-Oct-04					Concealed and/or filled; filled after March 1982
Little Greenback	29N	22E	24	2	-94.8722225	36.9809658	19-Oct-04					Covered with concrete slab
Little Greenback	29N	22E	24	3	-94.8715596	36.9830637	19-Oct-04	15	Circular	177		4 ft deep; stable; small trees and brush growing in bottom
Little Greenback	29N	22E	24	4	-94.8710851	36.9865231	19-Oct-04					Concealed and/or filled; pile of rubble over possible shaft location

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Little Greenback	29N	22E	24	5	-94.8707803	36.9863631	19-Oct-04					Concealed and/or filled; filled shaft; covered with concrete slab	
Kitty	29N	22E	24	6	-94.8689096	36.9820979	19-Oct-04					South end concrete being undercut; 4 ft hole developed on south end of shaft site	
Kitty	29N	22E	24	7	-94.8684654	36.9815364	19-Oct-04	24	Circular	452		15 ft deep; filled with debris, wooden pallets; concealed and/or filled in June 1981	
Kitty	29N	22E	24	8	-94.8680911	36.9794788	19-Oct-04					Concealed and/or filled	
Kitty	29N	22E	24	9	-94.8671443	36.9763555	19-Oct-04					Concealed and/or filled	
Kitty	29N	22E	24	10	-94.8710071	36.9782991	20-Oct-04	12 x 15	Rectangle	180			Filled with debris, tin, barrels, bricks, etc.; open shaft in June 1981
Wesa Greenback	29N	22E	24	11	-94.8720008	36.9771653	20-Oct-04					Concealed and/or filled; 20-foot circular berm in pasture	
Wesa Greenback	29N	22E	24	12	-94.8780043	36.9737980	20-Oct-04					Concealed and/or filled; concrete over possible shaft location	
Wesa Greenback	29N	22E	24	13	-94.8781138	36.9740972	20-Oct-04					Concealed and/or filled	
Pioneer	29N	22E	25	1	-94.8780550	36.9657401	20-Oct-04					Concealed and/or filled	
Goodeagle	29N	22E	25	2	-94.8746213	36.9671143	20-Oct-04					Concealed and/or filled; pile of rock over possible shaft location	
Goodeagle	29N	22E	25	3	-94.8745914	36.9665284	20-Oct-04	20	Circular	314			10 ft deep; filled with trash and debris; same size in June 1981
Goodeagle	29N	22E	25	4	-94.8741870	36.9653399	20-Oct-04	100 x 50	Elliptical	3927			20 ft deep; mature trees growing in bottom and on sides; almost doubled in size since June 1981
Goodeagle	29N	22E	25	5	-94.8719761	36.9654348	20-Oct-04						Concealed and/or filled; originally associated with collapse no. 1606
Goodeagle	29N	22E	25	6	-94.8701331	36.9669007	20-Oct-04	80	Circular	5027	3		30 ft smaller in June 1981
Goodeagle	29N	22E	25	7	-94.8705452	36.9677773	20-Oct-04	50 x 70	Elliptical	2788	2		Same size in June 1981
Goodeagle	29N	22E	25	8	-94.8716391	36.9691046	20-Oct-04						Concealed and/or filled
Goodeagle	29N	22E	25	9	-94.8687385	36.9701064	20-Oct-04						Concealed and/or filled; pile of rock debris over possible site
Goodeagle	29N	22E	25	10	-94.8679900	36.9700244	20-Oct-04	8 x 10	Rectangle				Concealed and/or filled; 2-ft deep funnel shaped feature; concrete slabs rotated into collapse; 3 small holes present; collapsed since June 1981
Goodeagle	29N	22E	25	11	-94.8682099	36.9654037	20-Oct-04						Concealed and/or filled
Wilson	29N	22E	25	12	-94.8692289	36.9636357	20-Oct-04	25	Circular	491	30		Open shaft; chatcrete blocks and large shaft pillar rotated in collapse; enlarged since June 1981
Wilson	29N	22E	25	13	-94.8670269	36.9637503	20-Oct-04						Concealed and/or filled
Wilson	29N	22E	25	14	-94.8678158	36.9626356	20-Oct-04						Concealed and/or filled
Wilson	29N	22E	25	15	-94.8688581	36.9625729	20-Oct-04	20 x 15	Elliptical	236	3		Partially filled with debris; about same size in June 1981
Blue Bird	29N	22E	25	16	-94.8682863	36.9599991	21-Oct-04	20 x 15	Rectangle	300			4 ft deep; filled with boulders; chatcrete foundation rotated into collapse; concealed in June 1981
Blue Bird	29N	22E	25	17	-94.8679556	36.9595185	21-Oct-04						Concealed and/or filled
Blue Bird	29N	22E	25	18	-94.8695706	36.9585227	21-Oct-04	40 x 50	Rectangle	2000	2		Doubled in size since June 1981
Blue Bird	29N	22E	25	19	-94.8696747	36.9584708	21-Oct-04						Concealed and/or filled
Blue Bird	29N	22E	25	20	-94.8699069	36.9628536	20-Oct-04						Concealed and/or filled
Wilson	29N	22E	25	21	-94.8698519	36.9630121	20-Oct-04						Concealed and/or filled
Wilson	29N	22E	25	22	-94.8708717	36.9648524	20-Oct-04	60	Circular	2827	2		Stable; same size in June 1981
Wilson	29N	22E	25	23	-94.8719763	36.9645845	20-Oct-04	20	Circular	314			Open shaft; at least 20 ft deep; concrete pad rotated into collapse; partially filled with chatcrete; same size in June 1981
Childress-Heggem	29N	22E	25	24	-94.8739209	36.9648220	20-Oct-04	60	Circular	2827	50		Severe erosion on 3 sides; slightly smaller in June 1981
Childress-Heggem	29N	22E	25	25	-94.8778420	36.9646268	20-Oct-04						Concealed; beneath chat pile
Pioneer	29N	22E	25	26	-94.8785399	36.9645621	20-Oct-04						Concealed; beneath chat pile

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Pioneer	29N	22E	25	27	-94.8795183	36.9641668	20-Oct-04					Concealed; beneath chat pile
Blue Bird	29N	22E	25	28	-94.8680643	36.9583862	20-Oct-04					Concealed and/or filled; from U.S.B.M. half-section map 436S
Grey Top	29N	22E	35	1	-94.8857018	36.9451039	21-Oct-04	40 x 20	Elliptical	628		6 ft deep; large block rotated into collapse
Grey Top	29N	22E	35	2	-94.8860146	36.9454359	21-Oct-04					Concealed and/or filled
S. S. & G.	29N	22E	35	1	-94.8697706	36.9577825	21-Oct-04	60	Circular	2827	2	Enlarged since June 1981
S. S. & G.	29N	22E	36	2	-94.8673291	36.9570727	21-Oct-04	10 x 15	Rectangle			Concealed and/or filled; slight depression over shaft location; filled with chat
S. S. & G.	29N	22E	36	3	-94.8679866	36.9554994	21-Oct-04	40	Circular	1257	2	Stable; about the same size in June 1981
S. S. & G.	29N	22E	36	4	-94.8738462	36.9516515	21-Oct-04	18	Circular	254		10 ft deep; about the same size in June 1981
Roanoke	29N	22E	36	5	-94.8732306	36.9514833	21-Oct-04					Concealed and/or filled; irregular 4-ft deep depression
Roanoke	29N	22E	36	6	-94.8739343	36.9503082	21-Oct-04	60 x 80	Elliptical	3770	4	Stable; about the same size in June 1981
Scammon Hill	29N	22E	36	7	-94.8736195	36.9470238	21-Oct-04	12	Circular	113		4-ft deep depression; concealed and/or filled in June 1981
Scammon Hill	29N	22E	36	8	-94.8734299	36.9463680	21-Oct-04	5 x 7	Rectangle	35	25	Open shaft; open shaft in June 1981
Scammon Hill	29N	22E	36	9	-94.8732659	36.9460843	28-Mar-05	15 x 8	Elliptical			Concealed and/or filled; 2-ft deep depression; filled since June 1981
Scammon Hill	29N	22E	36	10	-94.8748519	36.9440329	21-Oct-04					Concealed and/or filled; shallow depression at site
Scammon Hill	29N	22E	36	11	-94.8762162	36.9436715	21-Oct-04					Concealed and/or filled
Scammon Hill	29N	22E	36	12	-94.8757091	36.9449914	21-Oct-04	5 x 7	Rectangle	35	30	Open shaft; large concrete blocks pushed over shaft opening
Scammon Hill	29N	22E	36	13	-94.8764771	36.9477899	21-Oct-04	20	Circular	314		25 ft deep; concealed and/or filled in June 1981
Scammon Hill	29N	22E	36	14	-94.8762786	36.9479321	28-Mar-05	30	Circular	707	2	In June 1981, concealed and/or filled
Scammon Hill	29N	22E	36	15	-94.8784193	36.9453878	21-Oct-04					Concealed and/or filled; 45-ft circular collapse in June 1981
Scammon Hill	29N	22E	36	16	-94.8783351	36.9447332	21-Oct-04					Concealed and/or filled; 40-ft circular collapse in June 1981
Haymaker	29N	22E	36	17	-94.8842331	36.9440205	21-Oct-04					Concealed and/or filled
Scammon Hill	29N	22E	36	18	-94.8775301	36.9437959	28-Mar-05					Concealed and/or filled
S. S. & G.	29N	22E	36	19	-94.8672577	36.9564281	19-May-05					Concealed and/or filled
Haymaker	29N	22E	36	20	-94.8839644	36.9442083	21-Oct-04					Concealed and/or filled
Scott	29N	23E	13	1	-94.7621651	36.9969253	8-Nov-04	40	Circular	1257	15	In November 1981, concealed and/or filled
Scott	29N	23E	13	2	-94.7617012	36.9961992	8-Nov-04	15 x 20	Rectangle	300	20	Mature tree growing on side; open shaft in November 1981
Scott	29N	23E	13	3	-94.7603973	36.9910321	21-Feb-05	45	Circular	1590	2	Miss located on Plate 1 (Luza, 1986)
Scott	29N	23E	13	4	-94.7600429	36.9881419	21-Feb-05	45	Circular	1590	15	Mature trees and brush growing on sides; appears stable; double in size after November 1981
Niday No. 1	29N	23E	13	5	-94.7651214	36.9878589	21-Feb-05					Concealed and/or filled; plots in landowner's driveway
Scott	29N	23E	13	6	-94.7657452	36.9919843	21-Feb-05	6 x 6	Square	36	20	Open shaft; large concrete block covering shaft opening; open shaft in November 1981
Scott	29N	23E	13	7	-94.7647432	36.9928576	21-Feb-05					Concealed and/or filled
Scott	29N	23E	13	8	-94.7635795	36.9937973	21-Feb-05					Concealed and/or filled; open shaft in November 1981
Scott	29N	23E	13	9	-94.7643058	36.9911309	26-Apr-05					Concealed and/or filled; filled shaft; mine boulders and chatcrete heaped into pile; possible old mill site
W. M. W.	29N	23E	14	1	-94.7861518	36.9956070	8-Feb-05					Concealed and/or filled
Farmington	29N	23E	14	2	-94.7854313	36.9954242	8-Feb-05					Concealed and/or filled; 30-ft circular collapse in May 1981

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Farmington	29N	23E	14	3	-94.7841617	36.9968435	7-Feb-05	20	Circular	314	70	Open shaft with collapse at surface; concrete slab rotated into shaft; 40-ft circular collapse in May 1981
Farmington	29N	23E	14	4	-94.7842603	36.9978674	7-Feb-05					Concealed and/or filled
Farmington	29N	23E	14	5	-94.7836191	36.9968106	7-Feb-05	50	Circular	1964		25 ft deep; filled with debris and trash; same size in May 1981
Farmington	29N	23E	14	6	-94.7817025	36.9981362	8-Feb-05	25	Circular	491	1	About the same size in May 1981
Farmington	29N	23E	14	7	-94.7805540	36.9984762	8-Feb-05	50	Circular	1964	1	Stable, mature trees growing on sides; about the same size in May 1981
Farmington	29N	23E	14	8	-94.7820142	36.9955700	8-Feb-05	210 x 180	Elliptical	29688	50	Shaft is located within and/or on west side of collapse; about same size in May 1981
Lucky Jenny	29N	23E	14	9	-94.7819124	36.9934026	7-Feb-05					Concealed and/or filled
Lucky Jenny	29N	23E	14	10	-94.7812528	36.9914588	7-Feb-05					Concealed and/or filled; filled; slight depression over possible location; minor signs of possible settlement (small openings)
Lucky Jenny	29N	23E	14	11	-94.7804432	36.9909435	11-Feb-05	100	Circular	7854		60 ft deep; former dump site; recollapsed in late 2004 or early 2005; 15-ft circular collapse in May 1981
Blue Ribbon	29N	23E	14	12	-94.7798376	36.9904577	7-Feb-05	100 x 70	Elliptical	5498	1	About the same size in May 1981
Blue Ribbon	29N	23E	14	13	-94.7804835	36.9903163	7-Feb-05	80	Circular	5027	1	50-ft circular collapse in May 1981
Blue Ribbon	29N	23E	14	14	-94.7797858	36.9883863	7-Feb-05	25	Circular	491	1	About the same size in May 1981
Blue Ribbon	29N	23E	14	15	-94.7792436	36.9877457	7-Feb-05	70	Circular	3848	1	50-ft circular collapse in May 1981
Blue Ribbon	29N	23E	14	16	-94.7791052	36.9874529	7-Feb-05	160	Circular	20106	70 - 80	Open shaft; unstable; 100-ft circular collapse in May 1981
Blue Ribbon	29N	23E	14	17	-94.7818432	36.9895344	7-Feb-05					Shaft filled in November 2002; 40-ft circular collapse in May 1981
Lucky Jenny	29N	23E	14	18	-94.7825046	36.9913124	7-Feb-05				75	Open shaft; 6-ft x 6-ft x 6-ft cube wedged into shaft opening; open shaft in May 1981
Lucky Jenny	29N	23E	14	19	-94.7845074	36.9921903	7-Feb-05					Concealed and/or filled
Dobson	29N	23E	14	20	-94.7859211	36.9941421	8-Feb-05	25	Circular	491		12 ft deep; concealed and/or filled in May 1981
Dobson	29N	23E	14	21	-94.7877923	36.9874120	8-Feb-05	10	Circular	79		3 ft deep; shaft filled with debris; concealed and/or filled in May 1981
Dobson	29N	23E	14	22	-94.7894355	36.9879691	8-Feb-05					Concealed and/or filled
Dobson	29N	23E	14	23	-94.7939892	36.9889407	8-Feb-05					Concealed and/or filled
Dobson	29N	23E	14	24	-94.7937002	36.9894062	8-Feb-05					Concealed and/or filled
Dobson	29N	23E	14	25	-94.7927776	36.9903549	8-Feb-05	20	Circular	314		2 ft deep; filled with household garbage; 30-ft circular collapse in May 1981
Dobson	29N	23E	14	26	-94.7941725	36.9921850	8-Feb-05					Concealed and/or filled
Dobson	29N	23E	14	27	-94.7938773	36.9935588	8-Feb-05	8	Circular			Concealed and/or filled; filled shaft with 2-ft deep depression; concealed and/or filled in May 1981
Dobson	29N	23E	14	28	-94.7910717	36.9939627	8-Feb-05	8	Circular	50	3	Bottles and tire floating in water; a filled shaft that recollapsed before November 1981; in 1981, a 6-ft circular collapse 25 ft deep
Farmington	29N	23E	14	29	-94.7801773	36.9978783	8-Feb-05	5 x 7	Rectangle	35		Open shaft; water dripping into shaft; appears to have been filled and recollapsed
Farmington	29N	23E	14	30	-94.7843632	36.9965160	8-Feb-05					Concealed and/or filled; shaft is on west side and probably within non-shaft collapse no. 1517 (see Table 2)
Dobson	29N	23E	14	31	-94.7877716	36.9915647	8-Feb-05					Concealed and/or filled
Shaffer	29N	23E	15	1	-94.8107179	36.9958256	10-Feb-05	30	Circular	707	15	Filled shaft that recollapsed; concealed and/or filled in May 1981

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Mary Ann	29N	23E	15	2	-94.8065978	36.9972490	10-Feb-05	30	Circular	707	4	Same size in May 1981
Mary Ann	29N	23E	15	3	-94.8053247	36.9953589	11-Feb-05	12 x 25	Rectangle	300	25	Open shaft; large concrete collar, 12 ft x 12 ft, undercut on east side, water dripping into shaft; open shaft in May 1981
Mary Ann	29N	23E	15	4	-94.8042261	36.9968720	10-Feb-05	10 x 12	Rectangle	120	20	Open equipment shaft; open shaft in November 1981
Mary Ann	29N	23E	15	5	-94.8033705	36.9967209	10-Feb-05	25 x 30	Elliptical	589		8 ft deep; 12-in. pipe sticking up in middle; small trees growing on side; concealed and/or filled in May 1981
Mary Ann	29N	23E	15	6	-94.8025399	36.9957136	10-Feb-05	40	Circular	1257		Partially filled with tires; concrete slab rotated into collapse; concealed and/or filled in May 1981
Mary Ann	29N	23E	15	8	-94.8029412	36.9947300	10-Feb-05	30	Circular	707	30	Open shaft; mature trees growing on sides; open shaft in May 1981
W. M. W.	29N	23E	15	9	-94.8027574	36.9941430	10-Feb-05	20	Circular	314	1	Filled shaft that collapsed and/or subsided after May 1981
Mary Ann	29N	23E	15	10	-94.8006734	36.9949343	10-Feb-05	60	Circular	2827		20 ft deep; trees growing on sides; concealed and/or filled in May 1981
Mary Ann	29N	23E	15	11	-94.8007234	36.9970799	10-Feb-05	30	Circular	707	3	In May 1981, open shaft
Mary Ann	29N	23E	15	12	-94.7995903	36.9964238	10-Feb-05	55	Circular	2376	1	In May 1981, concealed and/or filled
W. M. W.	29N	23E	15	13	-94.7989510	36.9966602	10-Feb-05	20 x 6	Elliptical	94	30	Open shaft with concrete cap; failure occurring on north side; two Chevy Biscaynes stuck in opening; concealed and/or filled in May 1981
W. M. W.	29N	23E	15	14	-94.7987146	36.9962899	11-Feb-05					Concealed and/or filled
W. M. W.	29N	23E	15	15	-94.7977811	36.9956586	11-Feb-05	25	Circular	491	1	In May 1981, concealed and/or filled
W. M. W.	29N	23E	15	16	-94.7957906	36.9961526	11-Feb-05	55 x 40	Elliptical	1728		25 ft deep; unstable; more than double in size after May 1981
W. M. W.	29N	23E	15	17	-94.7953175	36.9940500	11-Feb-05	25	Circular			Concealed and/or filled; 1-foot deep depression; concealed and/or filled in May 1981
W. M. W.	29N	23E	15	18	-94.7961409	36.9936832	11-Feb-05					Concealed and/or filled; 1-foot deep depression; trees growing on sides; concealed and/or filled in May 1981
W. M. W.	29N	23E	15	19	-94.7986299	36.9942042	11-Feb-05	3	Circular			Concealed and/or filled; slight depression over location; concealed and/or filled in May 1981
W. M. W.	29N	23E	15	20	-94.8010565	36.9926982	11-Feb-05					Concealed; appears to have a concrete slab over top
W. M. W.	29N	23E	15	21	-94.7979688	36.9923759	11-Feb-05					Concealed and/or filled; filled shaft; large crushed metal tank over opening
W. M. W.	29N	23E	15	22	-94.7959998	36.9927342	11-Feb-05					Concealed and/or filled
W. M. W.	29N	23E	15	23	-94.7956709	36.9913341	11-Feb-05					Concealed; beneath chat pile
W. M. W.	29N	23E	15	24	-94.7980191	36.9918499	11-Feb-05	30 x 20	Elliptical	471		8 ft deep; filled with tires and trash; open shaft in May 1981
Brewster	29N	23E	15	25	-94.7981262	36.9899250	11-Feb-05					Concealed; beneath chat pile
Brewster	29N	23E	15	26	-94.7966269	36.9880489	10-Feb-05	90	Circular	6362	1	About the same size in May 1981
Brewster	29N	23E	15	27	-94.8010275	36.9883014	10-Feb-05	25	Circular	491	1	Water level drops 15 to 20 ft in summer; about the same size in November 1981
Brewster	29N	23E	15	28	-94.8012312	36.9889717	10-Feb-05	12 x 12	Rectangle	144	25	Open shaft; 12-ft x 12-ft concrete collar; material beneath collar collapsed into shaft; open shaft in November 1981
W. M. W.	29N	23E	15	29	-94.8033997	36.9909900	10-Feb-05					Concealed and/or filled; filled shaft; 30-ft circular collapse in May 1981
Golden Eagle	29N	23E	15	30	-94.8039028	36.9922320	10-Feb-05	30	Circular	707		15 ft deep; shaft filled with large blocks of chatcrete and car bodies; open shaft in May 1981
Golden Eagle	29N	23E	15	31	-94.8039438	36.9909462	10-Feb-05	45	Circular	1591	1	Open shaft in May 1981

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Beck	29N	23E	15	32	-94.8065658	36.9888053	10-Feb-05					Concealed and/or filled; open shaft in May 1981
Beck	29N	23E	15	33	-94.8077870	36.9899375	10-Feb-05					Concealed and/or filled
Beck	29N	23E	15	34	-94.8104447	36.9876063	10-Feb-05	5 x 7	Rectangle	35	15	Open shaft; was previously filled and bermed; concealed and/or filled in May 1981
Beck	29N	23E	15	35	-94.8124044	36.9886460	10-Feb-05	5 x 7	Rectangle	35		2 ft deep; shaft filled with trash; concealed and/or filled in May 1981
Wade	29N	23E	15	36	-94.8125733	36.9911298	11-Feb-05	30	Circular	707	1	Smaller in November 1981
Wade	29N	23E	15	37	-94.8107929	36.9918884	11-Feb-05	30 x 20	Rectangle	600	1	Foundation slab rotated into collapse; 9- x 18-ft rectangular collapse in November 1981
Wade	29N	23E	15	38	-94.8099779	36.9926030	11-Feb-05	40	Circular	1257	1	In the Lytle Creek floodplain; now underwater
Beck	29N	23E	15	39	-94.8107592	36.9881150	10-Feb-05					Concealed and/or filled
W. M. W.	29N	23E	15	40	-94.8031861	36.9930162	10-Feb-05					Concealed and/or filled; possible mill shaft
Golden Eagle	29N	23E	15	41	-94.8045161	36.9919577	10-Feb-05	30	Circular	707	15	
Mary Ann	29N	23E	15	42	-94.8034231	36.9954129	10-Feb-05					Concealed and/or filled
Shaffer	29N	23E	15	43	-94.8128007	36.9953934	11-Feb-05					Concealed and/or filled
W. M. W.	29N	23E	15	44	-94.8034086	36.9923259	10-Feb-05					Concealed and/or filled; from 1927 topographic map; location approximate
Swift	29N	23E	16	1	-94.8307990	36.9961517	27-Apr-04					Concealed and/or filled
Swift	29N	23E	16	2	-94.8304969	36.9947845	27-Apr-04	12 x 15	Rectangle	180	2	Appears stable; slightly smaller in November 1981
Swift	29N	23E	16	3	-94.8282752	36.9954923	26-Apr-04					Concealed; beneath chat pile
Swift	29N	23E	16	4	-94.8278453	36.9964192	26-Apr-04					Concealed; beneath chat pile
Swift	29N	23E	16	5	-94.8265667	36.9962824	26-Apr-04	15	Circular	177		20 ft deep; in chat pile; concealed and/or filled in November 1981
Swift	29N	23E	16	6	-94.8262014	36.9967176	26-Apr-04					Concealed; beneath chat pile
Swift	29N	23E	16	7	-94.8165860	36.9978563	26-Apr-04					Concealed and/or filled
Hunt	29N	23E	16	8	-94.8158464	36.9961604	26-Apr-04					Concealed and/or filled
Hunt	29N	23E	16	9	-94.8194636	36.9958593	26-Apr-04	20	Circular	314	35	Narrows down to the approximate size of shaft; open shaft in November 1981
Hunt	29N	23E	16	10	-94.8192308	36.9953371	26-Apr-04					Concealed and/or filled
Cortez	29N	23E	16	11	-94.8196696	36.9937377	26-Apr-04	5 x 7	Rectangle	35	25	Open shaft; damp; 35 feet to "fill material"; open shaft in November 1981
Cortez	29N	23E	16	12	-94.8190735	36.9937346	26-Apr-04	3	Circular	7		Open shaft; bullet shaft; open shaft in November 1981
Consolidated No. 3	29N	23E	16	13	-94.8164415	36.9930236	26-Apr-04	60	Circular	2827	1	About the same size in November 1981
Consolidated No. 3	29N	23E	16	14	-94.8162064	36.9911090	26-Apr-04					Concealed and/or filled
Consolidated No. 3	29N	23E	16	15	-94.8164772	36.9908472	26-Apr-04	5 x 7	Rectangle	35	26	Open shaft; at about 15 ft of wooden cribbing gone; collapse extends beyond cribbing to some unknown distance
Consolidated No. 2	29N	23E	16	16	-94.8135219	36.9905253	26-Apr-04	5 x 7	Rectangle	35	25	Open shaft; open shaft in November 1981
Consolidated No. 2	29N	23E	16	17	-94.8133418	36.9879221	26-Apr-04	55	Circular	2376	1.5	In November 1981, concealed and/or filled
Consolidated No. 2	29N	23E	16	18	-94.8136773	36.9879656	26-Apr-04	40	Circular	1257	1	In November 1981, concealed and/or filled
Consolidated No. 2	29N	23E	16	19	-94.8159006	36.9888422	26-Apr-04					Concealed and/or filled
Eudora Whitebird	29N	23E	16	20	-94.8179021	36.9894575	26-Apr-04	25	Circular	491	1	Filled with debris, i.e. logs, concrete blocks, child's swimming pool
Eudora Whitebird	29N	23E	16	21	-94.8251966	36.9897627	27-Apr-04	12 x 15	Rectangle			Shaft filled with debris; 1-ft deep depression; west end of C Street in Picher; concealed and/or filled in Feb 1982
Eudora Whitebird	29N	23E	16	22	-94.8258544	36.9880937	27-Apr-04	12	Circular	113		5 ft deep; concealed and/or filled in February 1982

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Eudora Whitebird	29N	23E	16	23	-94.8260814	36.9875302	27-Apr-04					Concealed and/or filled
Whitebird	29N	23E	16	24	-94.8303939	36.9875015	27-Apr-04					Concealed and/or filled
Whitebird	29N	23E	16	25	-94.8297505	36.9877237	27-Apr-04	5	Circular			Concealed and/or filled; 2-ft deep depression
Commonwealth	29N	23E	16	26	-94.8256008	36.9912631	27-Apr-04	35	Circular	962	0.5	In February 1982, concealed and/or filled
Commonwealth	29N	23E	16	27	-94.8267478	36.9918394	27-Apr-04	10 x 5	Rectangle	50	1.5	In February 1982, concealed and/or filled
Commonwealth	29N	23E	16	28	-94.8252816	36.9935422	26-Apr-04					Concealed and/or filled
Commonwealth	29N	23E	16	29	-94.8258429	36.9936061	26-Apr-04					Concealed; beneath chat pile; shaft pillar appears to be standing
Eudora Whitebird	29N	23E	16	30	-94.8194024	36.9875733	12-Apr-05					Concealed and/or filled; from 1927 topographic map; location approximate
Eudora Whitebird	29N	23E	16	31	-94.8260821	36.9877672	12-Apr-05					Concealed and/or filled; from 1927 topographic map; location approximate
Whitebird	29N	23E	16	32	-94.8307203	36.9899351	12-Apr-05					Concealed and/or filled
Slim Jim	29N	23E	17	1	-94.8485508	36.9956845	22-Apr-04					Concealed and/or filled
Slim Jim	29N	23E	17	2	-94.8464721	36.9945165	22-Apr-04					Concealed and/or filled
Slim Jim	29N	23E	17	3	-94.8464652	36.9948782	22-Apr-04					Concealed and/or filled
Slim Jim	29N	23E	17	4	-94.8456849	36.9967073	22-Apr-04	20 x 20	Square	400	1	About the same size in March 1982
Slim Jim	29N	23E	17	5	-94.8450200	36.9963728	22-Apr-04					Concealed and/or filled
Ohimo	29N	23E	17	6	-94.8416030	36.9947350	22-Apr-04	12 x 12	Square	440	4	Open shaft; filled with debris
Ohimo	29N	23E	17	7	-94.8403861	36.9948543	22-Apr-04	60	Circular	2827	50	Fenced; used as a source of water for chat operation; 40-ft circular collapse in March 1982
Ohimo	29N	23E	17	8	-94.8415216	36.9977094	23-Apr-04	30 x 20	Circular	471	15	Filled with debris and logs; 6- x 4-ft elliptical depression in March 1982
La Salle	29N	23E	17	9	-94.8401321	36.9980192	23-Apr-04	20	Circular	314	1	In March 1982, concealed and/or filled
La Salle	29N	23E	17	10	-94.8373720	36.9973121	22-Apr-04					Concealed; beneath a processed chat pile
Goodwin	29N	23E	17	11	-94.8345514	36.9965424	23-Apr-04					Concealed and/or filled; brush pile and debris over shaft; 40- x 30-ft elliptical collapse in March 1982
Goodwin	29N	23E	17	12	-94.8316410	36.9970237	23-Apr-04					Concealed and/or filled; shaft beneath soil from yard remediation project; concealed and/or filled in March 1982
Goodwin	29N	23E	17	13	-94.8312260	36.9961350	23-Apr-04					Concealed and/or filled
Goodwin	29N	23E	17	15	-94.8326656	36.9945704	23-Apr-04					Concealed and/or filled
La Salle	29N	23E	17	16	-94.8361688	36.9945127	22-Apr-04					Concealed; beneath processed chat pile
La Salle	29N	23E	17	17	-94.8396138	36.9952831	22-Apr-04					Concealed; beneath processed chat pile
Otis White	29N	23E	17	18	-94.8398795	36.9934494	22-Apr-04					Concealed; beneath chat pile
Otis White	29N	23E	17	19	-94.8375395	36.9936006	22-Apr-04					Concealed; beneath processed chat pile
Otis White	29N	23E	17	20	-94.8368580	36.9937205	22-Apr-04					Concealed; beneath processed chat pile
Big Chief	29N	23E	17	21	-94.8324491	36.9939866	23-Apr-04					Concealed and/or filled
Big Chief	29N	23E	17	22	-94.8322081	36.9934022	23-Apr-04					Concealed and/or filled
Crawfish	29N	23E	17	23	-94.8320893	36.9888952	23-Apr-04					Concealed and/or filled; Eagle Picher No.2 shaft; slight depression over location; concrete cap
Crawfish	29N	23E	17	24	-94.8330395	36.9888698	23-Apr-04					Concealed and/or filled; filled with concrete using a Halliburton tank; EP No.1 shaft; concealed and/or filled in March 1982
Crawfish	29N	23E	17	25	-94.8337202	36.9873260	23-Apr-04					Concealed and/or filled

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Netta White	29N	23E	17	26	-94.8384032	36.9877869	23-Apr-04					Concealed and/or filled
Netta White	29N	23E	17	27	-94.8395540	36.9879387	23-Apr-04					Concealed and/or filled; shaft miss located on Plate 1 (Luza, 1986)
Netta White	29N	23E	17	28	-94.8395291	36.9883365	23-Apr-04	205	Circular	33006	1	Possible 100-ft x 125-ft extension of the collapse to the southeast
Netta White	29N	23E	17	29	-94.8391199	36.9888463	23-Apr-04	10 x 10	Square	100	1	Logs floating in collapse; about the same size in March 1982
Otis White	29N	23E	17	30	-94.8383937	36.9908931	22-Apr-04					Concealed; beneath reprocessed chat pile
Otis White	29N	23E	17	31	-94.8392626	36.9908435	22-Apr-04					Concealed; beneath reprocessed chat pile
Lucky Syndicate	29N	23E	17	32	-94.8406816	36.9933787	22-Apr-04					Concealed and/or filled; slight depression over filled area
Lucky Syndicate	29N	23E	17	33	-94.8406931	36.9936748	22-Apr-04	60	Circular	2827		18 ft deep; trees growing on sides; 40-foot circular collapse in March 1982
Lucky Syndicate	29N	23E	17	34	-94.8415554	36.9939755	22-Apr-04					Concealed and/or filled; filled with fine tailings from chat washing operation; 60-foot circular collapse in March 1982
Lucky Syndicate	29N	23E	17	35	-94.8434323	36.9916099	22-Apr-04					Concealed and/or filled
Lucky Syndicate	29N	23E	17	36	-94.8434641	36.9911168	22-Apr-04					Concealed and/or filled
Piokee	29N	23E	17	37	-94.8416955	36.9892660	23-Apr-04	6 x 6	Square	36	25	Open shaft; open shaft in March 1982
Piokee	29N	23E	17	38	-94.8408697	36.9882533	23-Apr-04	45	Circular	1590		15 ft deep; filled with debris; mature tree growing in middle; concealed and/or filled in March 1982
Howe	29N	23E	17	40	-94.8454187	36.9879868	22-Apr-04					Concealed and/or filled
Howe	29N	23E	17	41	-94.8460793	36.9885214	22-Apr-04	30	Circular	707	1	In March 1982, a 20-ft circular collapse
Lucky Syndicate	29N	23E	17	42	-94.8479029	36.9911475	22-Apr-04					Concealed and/or filled
Lucky Syndicate	29N	23E	17	43	-94.8454952	36.9913221	22-Apr-04	10 x 12	Rectangle	120		3 ft deep; two 12-in. diameter trees growing in collapse
Lucky Syndicate	29N	23E	17	44	-94.8453144	36.9917170	22-Apr-04	10 x 12	Rectangle	120		10 ft deep; filled with debris, tires, doors, toilet
Crawfish	29N	23E	17	45	-94.8316771	36.9887798	16-Apr-05					Concealed and/or filled
Pelican	29N	23E	18	1	-94.8657548	36.9940290	16-Mar-04	16	Circular	201	3	Stable; small tree growing near south side; about the same size in March 1982
Pelican	29N	23E	18	2	-94.8646429	36.9978733	16-Mar-04	10	Circular	79		4 ft deep; small trees growing in bottom; no change since June 1981
Pelican	29N	23E	18	4	-94.8604858	36.9984634	16-Mar-04					Concealed and/or filled
Pelican	29N	23E	18	5	-94.8594382	36.9983425	16-Mar-04	20	Circular	314		15 ft deep; in March 1982, concealed and/or filled
Pelican	29N	23E	18	6	-94.8590775	36.9983737	16-Mar-04					Concealed and/or filled
Pelican	29N	23E	18	7	-94.8582121	36.9956772	16-Mar-04	45 x 30	Elliptical	1060	1	In June 1981, a 25-ft circular collapse 35 ft deep
Gordon No. 2	29N	23E	18	8	-94.8559199	36.9944503	16-Mar-04	93 x 135	Elliptical	9861	25	Used as a land fill; shaft location is filled; collapse substantially larger in June 1981
Gordon No. 2	29N	23E	18	9	-94.8565152	36.9984533	16-Mar-04	7	Circular	38		5 ft deep; open hole at bottom of collapse; concealed and/or filled in March 1982
Whisk Broom	29N	23E	18	10	-94.8529203	36.9979637	27-Apr-05					Concealed and/or filled
Gordon No. 3	29N	23E	18	11	-94.8526205	36.9974731	16-Mar-04					Concealed and/or filled; 3-ft deep depression
Gordon No. 3	29N	23E	18	12	-94.8522046	36.9953417	16-Mar-04	40	Circular	1257	1.5	Slightly larger in June 1981
Gordon No. 3	29N	23E	18	13	-94.8528099	36.9947796	16-Mar-04					Concealed and/or filled
Gordon No. 3	29N	23E	18	14	-94.8536956	36.9937329	16-Mar-04					Concealed and/or filled
Gordon No. 3	29N	23E	18	15	-94.8538548	36.9932747	16-Mar-04					Concealed and/or filled
Gordon No. 3	29N	23E	18	16	-94.8505001	36.9922616	16-Mar-04					Concealed; beneath Ottawa chat pile
Gordon No. 3	29N	23E	18	17	-94.8509929	36.9918119	16-Mar-04					Concealed; beneath Ottawa chat pile

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Gordon No. 3	29N	23E	18	18	-94.8504530	36.9900528	16-Mar-04					Concealed and/or filled
Gordon No. 3	29N	23E	18	19	-94.8500698	36.9898088	16-Mar-04					Concealed and/or filled
Gordon No. 3	29N	23E	18	20	-94.8495414	36.9875827	16-Mar-04					Concealed and/or filled; shaft may be covered with a concrete lid; concrete shows signs of distress
Gordon No. 3	29N	23E	18	21	-94.8521697	36.9883465	16-Mar-04	8 x 20	Elliptical	40		6 ft deep; recollapsed and/or settlement; partially filled with debris in June 1981
Gordon No. 3	29N	23E	18	22	-94.8525674	36.9883065	16-Mar-04					Concealed and/or filled
Gordon No. 3	29N	23E	18	23	-94.8542747	36.9878605	16-Mar-04					Concealed and/or filled; 75-ft x 50-ft elliptical collapse in June 1981
Gordon No. 3	29N	23E	18	24	-94.8558774	36.9877318	16-Mar-04	55	Circular	2376	1	Stable; 45-ft circular collapse in June 1981
Gordon No. 3	29N	23E	18	25	-94.8547307	36.9916158	16-Mar-04					Concealed and/or filled
Tongaha	29N	23E	18	26	-94.8644348	36.9901972	16-Mar-04	28	Circular	616		15 ft deep; filled with debris; mature trees on side; stable; slightly smaller in March 1982
Whisk Broom	29N	23E	18	27	-94.8526546	36.9982728	16-Mar-04					Concealed and/or filled
Gordon No. 3	29N	23E	18	28	-94.8530737	36.9956511	16-Mar-04					Concealed and/or filled; from 1927 topographic map; location approximate
Gordon No. 3	29N	23E	18	29	-94.8537474	36.9880985	16-Mar-04					Concealed and/or filled; slight depression; north of pond; fenced with drill steel posts
Gordon No. 3	29N	23E	18	30	-94.8522809	36.9952287	27-Apr-05					Concealed and/or filled
Tongaha	29N	23E	19	1	-94.8663866	36.9855748	18-Mar-04					Concealed and/or filled; 12-ft tall cedar tree growing on top of fill in about middle of former shaft; concealed and/or filled in March 1982
Tongaha	29N	23E	19	2	-94.8652012	36.9821362	18-Mar-04	30	Circular	707	1	Slightly larger in June 1981
Tongaha	29N	23E	19	3	-94.8629761	36.9800403	18-Mar-04	70	Circular	3848	1	Stable; slightly smaller in June 1981
Tongaha	29N	23E	19	4	-94.8629859	36.9804100	18-Mar-04	35	Circular	962	1	Slightly smaller in June 1981
Anna Beaver	29N	23E	19	5	-94.8619654	36.9807054	18-Mar-04	25	Circular	491	1	Perhaps merged with shaft no. 6; 15-ft circular collapse in June 1981
Anna Beaver	29N	23E	19	6	-94.8619940	36.9802304	18-Mar-04	240	Circular	45239	1	Perhaps merged with shaft no. 5
Anna Beaver	29N	23E	19	7	-94.8587203	36.9802588	27-Apr-05	40 x 20	Elliptical	628	20	Miss located on Plate 1 (Luza, 1986)
Anna Beaver	29N	23E	19	8	-94.8589256	36.9822097	18-Mar-04					Concealed and/or filled
Anna Beaver	29N	23E	19	9	-94.8608445	36.9820441	18-Mar-04					Concealed and/or filled
Tongaha	29N	23E	19	10	-94.8627426	36.9860470	18-Mar-04	25	Circular	491	over 50	10-12 ft deep adjacent to a 3-ft diameter concrete pipe in middle of collapse at ground level; possible bullet shaft
Tongaha	29N	23E	19	11	-94.8597095	36.9863892	18-Mar-04	90	Circular	6362	1	Appears to be stable; 70-foot circular collapse in March 1982
Tongaha	29N	23E	19	12	-94.8597457	36.9858575	18-Mar-04	35	Circular	962	1	Stable; about the same size in March 1982
Anna Beaver	29N	23E	19	13	-94.8560172	36.9867750	18-Mar-04	45	Circular	1590	4	Stable; fenced; about the same size in June 1981
Anna Beaver	29N	23E	19	14	-94.8535401	36.9858621	18-Mar-04	60	Circular	2827	6	Fenced; appears to be stable; 45-foot circular collapse in June 1981
Anna Beaver	29N	23E	19	15	-94.8504573	36.9859154	18-Mar-04					Concealed and/or filled
Anna Beaver	29N	23E	19	16	-94.8498245	36.9860168	18-Mar-04	65	Circular	3318	1	Stable; 55-ft circular collapse in June 1981
Anna Beaver	29N	23E	19	17	-94.8490266	36.9832231	18-Mar-04	4	Circular			Concealed and/or filled; 5-ft deep depression; 4-ft diameter tree growing in depression
Anna Beaver	29N	23E	19	18	-94.8515230	36.9843048	18-Mar-04	100	Circular	7854	1	Appears to be stable; 85-ft circular collapse in June 1981
Anna Beaver	29N	23E	19	19	-94.8553415	36.9844978	17-Mar-04	25	Circular	491		15 ft deep; filled with debris; about the same size in June 1981
Anna Beaver	29N	23E	19	20	-94.8556615	36.9830688	17-Mar-04					Concealed; beneath chat pile
Anna Beaver	29N	23E	19	21	-94.8564709	36.9811093	17-Mar-04					Concealed; beneath chat pile

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Anna Beaver	29N	23E	19	22	-94.8537897	36.9808618	17-Mar-04					Concealed; beneath chat pile
Anna Beaver	29N	23E	19	23	-94.8517848	36.9823428	17-Mar-04					Concealed and/or filled
Anna Beaver	29N	23E	19	24	-94.8518044	36.9820593	17-Mar-04	25	Circular	491	1	In June 1981, 45-ft circular collapse
Anna Beaver	29N	23E	19	25	-94.8498630	36.9812146	17-Mar-04	7	Circular	38	0.5	About the same size in March 1982
Anna Beaver	29N	23E	19	26	-94.8518013	36.9804129	17-Mar-04					Concealed; beneath chat pile
Anna Beaver	29N	23E	19	27	-94.8517564	36.9800161	17-Mar-04					Concealed; beneath chat pile
Cardin Townsite	29N	23E	19	28	-94.8507736	36.9756398	17-Mar-04					Concealed and/or filled
Cardin Townsite	29N	23E	19	29	-94.8517974	36.9730141	17-Mar-04					Concealed and/or filled
John Beaver	29N	23E	19	30	-94.8562697	36.9748358	17-Mar-04					Concealed and/or filled
John Beaver	29N	23E	19	31	-94.8568829	36.9747267	17-Mar-04	62	Circular	3019	1	In March 1982, 50-ft circular collapse
John Beaver	29N	23E	19	32	-94.8576177	36.9734701	17-Mar-04					Concealed and/or filled; slight depression over shaft
Central	29N	23E	19	34	-94.8584514	36.9735143	17-Mar-04	42	Circular	1385	1	In March 1982, 35-ft circular collapse
Central	29N	23E	19	35	-94.8594173	36.9738729	17-Mar-04	5 x 5	Rectangle	35		A 20-ft deep opening on west corner of filled shaft; tree growing in middle
Central	29N	23E	19	36	-94.8581900	36.9751472	17-Mar-04	20	Circular			Concealed and/or filled; filled shaft with a rotated concrete cube; same as in March 1982
Velie Lion	29N	23E	19	37	-94.8583764	36.9771981	17-Mar-04	80	Circular	5027		Open shaft in collapse; 25 ft to cribbing; water running into shaft; concealed and/filled in March 1982
Velie Lion	29N	23E	19	38	-94.8587913	36.9788901	17-Mar-04	20 x 30	Elliptical	471		12 ft deep; 10- x 15-ft rectangular collapse 20 ft deep in June 1981
Velie Lion	29N	23E	19	39	-94.8584503	36.9794064	17-Mar-04	115	Circular	10387	40-50	In June 1981, 25-ft circular collapse
Velie Lion	29N	23E	19	40	-94.8620246	36.9788603	18-Mar-04					Concealed and/or filled
Velie Lion	29N	23E	19	41	-94.8627774	36.9776389	18-Mar-04					Concealed and/or filled
Velie Lion	29N	23E	19	42	-94.8627396	36.9767248	18-Mar-04	80	Circular	5027	1.5	Stable; same size in March 1982
Harrisburg	29N	23E	19	43	-94.8627002	36.9750649	18-Mar-04	92 x 77	Elliptical	5564		Open shaft; 60-65 ft deep; enlarged December 2002; 30-ft circular depression 5 ft deep in March 1982
Harrisburg	29N	23E	19	44	-94.8627550	36.9747018	18-Mar-04	50 x 30	Elliptical	1178	1.5	Same size in March 1982
Crystal	29N	23E	19	45	-94.8621770	36.9743465	18-Mar-04	130 x 180	Elliptical	18378		25-30 ft deep; doubled in size after March 1982
Crystal	29N	23E	19	46	-94.8615262	36.9737437	18-Mar-04	40	Circular	1257	15	Trees growing in bottom; doubled in size after March 1982
Crystal	29N	23E	19	47	-94.8616360	36.9731988	18-Mar-04	220	Circular	38013	5	Same size in March 1982
Harrisburg	29N	23E	19	48	-94.8635388	36.9731877	18-Mar-04					Concealed and/or filled
Harrisburg	29N	23E	19	49	-94.8642367	36.9731931	18-Mar-04					Concealed and/or filled
Harrisburg	29N	23E	19	50	-94.8654350	36.9745236	19-Mar-04					Concealed and/or filled; boulders over shaft location;
Harrisburg	29N	23E	19	51	-94.8652418	36.9750845	19-Mar-04	60 x 30	Elliptical	1414		15 ft deep; about same size in March 1982
Velie Lion	29N	23E	19	52	-94.8645789	36.9781462	18-Mar-04	60	Circular	2827	30	Open shaft in middle of collapse; unstable; 30-ft circular collapse in March 1982
Dorothy Bill No. 2	29N	23E	20	1	-94.8484688	36.9866471	22-Apr-04					Concealed and/or filled
Dorothy Bill No. 2	29N	23E	20	2	-94.8481716	36.9860302	22-Apr-04					Concealed and/or filled
Dorothy Bill No. 2	29N	23E	20	3	-94.8476402	36.9845922	22-Apr-04					Concealed and/or filled
Dorothy Bill No. 2	29N	23E	20	4	-94.8458987	36.9869766	22-Apr-04					Concealed and/or filled
Dorothy Bill No. 2	29N	23E	20	5	-94.8458418	36.9843666	22-Apr-04	15	Circular	177	1	Cattails growing in middle; same size in March 1982
Dorothy Bill No. 2	29N	23E	20	6	-94.8459866	36.9837663	22-Apr-04	12 x 10	Rectangle	120		8 ft deep; concealed and/or filled in March 1982
Kenoyer	29N	23E	20	7	-94.8466644	36.9831430	22-Apr-04					Concealed and/or filled
Kenoyer	29N	23E	20	8	-94.8471712	36.9826135	22-Apr-04					Concealed and/or filled

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Kenoyer	29N	23E	20	9	-94.8477529	36.9803146	22-Apr-04	15	Circular	177		Filled with debris and trash; shallow depression filled with debris in March 1982
Kenoyer	29N	23E	20	10	-94.8457657	36.9816919	22-Apr-04					Concealed and/or filled
Kenoyer	29N	23E	20	11	-94.8447960	36.9817126	21-Apr-04					Concealed and/or filled
Kenoyer	29N	23E	20	12	-94.8439455	36.9819209	21-Apr-04	3	Circular			Concealed and/or filled; 2-ft deep depression; open shaft in March 1982
Kenoyer	29N	23E	20	13	-94.8430320	36.9820493	21-Apr-04					Concealed; beneath chat pile; 25-ft circular collapse 25 ft deep in March 1982
Kenoyer	29N	23E	20	14	-94.8439041	36.9828783	21-Apr-04	50	Circular	1964	1.5	Previously fenced; looks stable; 25-ft circular collapse in March 1982
Dorothy Bill No. 2	29N	23E	20	15	-94.8441684	36.9843471	22-Apr-04	20	Circular	314		6 ft deep; filled with debris
Dorothy Bill No. 2	29N	23E	20	16	-94.8429482	36.9853443	22-Apr-04					Concealed and/or filled
Dorothy Bill No. 2	29N	23E	20	17	-94.8426728	36.9836524	22-Apr-04					Concealed and/or filled; 25- x 20-ft elliptical collapse in March 1982
Kenoyer	29N	23E	20	18	-94.8414388	36.9830757	29-Mar-05	30 x 15	Elliptical	353		10 ft deep; 25- x 20-ft elliptical collapse in March 1982
Kenoyer	29N	23E	20	19	-94.8410383	36.9804231	21-Apr-04					Concealed and/or filled; possibly filled and capped; 18-in. opening beneath east side of cap
Vantage	29N	23E	20	20	-94.8384549	36.9800394	21-Apr-04	15	Circular	177		3 ft deep; filled with debris and trash; in residential area; mature trees growing in collapse
Vantage	29N	23E	20	21	-94.8389865	36.9814717	21-Apr-04					Concealed and/or filled
Vantage	29N	23E	20	22	-94.8373854	36.9825940	21-Apr-04					Concealed and/or filled
Vantage	29N	23E	20	23	-94.8374127	36.9830443	21-Apr-04					Concealed and/or filled
West Netta	29N	23E	20	24	-94.8377308	36.9848684	22-Apr-04					Concealed and/or filled
West Netta	29N	23E	20	25	-94.8381405	36.9851623	22-Apr-04					Concealed and/or filled
East Netta	29N	23E	20	26	-94.8343027	36.9865360	22-Apr-04					Concealed and/or filled
East Netta	29N	23E	20	27	-94.8337894	36.9865648	22-Apr-04					Concealed and/or filled
East Netta	29N	23E	20	28	-94.8315319	36.9867356	22-Apr-04					Concealed and/or filled
St. Joe	29N	23E	20	29	-94.8340201	36.9803940	21-Apr-04					Concealed and/or filled
St. Joe	29N	23E	20	30	-94.8348742	36.9801253	21-Apr-04					Concealed; beneath chat pile
Vantage	29N	23E	20	31	-94.8356755	36.9810037	21-Apr-04					Concealed; beneath chat pile
Vantage	29N	23E	20	32	-94.8363663	36.9800818	21-Apr-04					Concealed and/or filled; slight depression
Premier	29N	23E	20	33	-94.8326296	36.9773874	21-Apr-04					Concealed and/or filled
Premier	29N	23E	20	34	-94.8326056	36.9768448	21-Apr-04					Concealed and/or filled
Oko	29N	23E	20	35	-94.8322298	36.9752382	20-Apr-04					Concealed and/or filled
Oko	29N	23E	20	36	-94.8329841	36.9750154	21-Apr-04	10 x 10	Square	100	1	Contains some debris; about same size in March 1982
Oko	29N	23E	20	37	-94.8334454	36.9748443	21-Apr-04					Capped; water seeping into corners of shaft
Golden Hawk	29N	23E	20	38	-94.8365367	36.9767314	21-Apr-04					Concealed and/or filled
Golden Hawk	29N	23E	20	39	-94.8371169	36.9766876	21-Apr-04					Concealed; beneath chat pile
Barbara J.	29N	23E	20	40	-94.8380561	36.9752702	21-Apr-04					Concealed; beneath chat pile
Barbara J.	29N	23E	20	41	-94.8386898	36.9741721	21-Apr-04					Concealed; beneath chat pile
Barbara J.	29N	23E	20	42	-94.8390229	36.9734521	21-Apr-04					Concealed; beneath chat pile
Rialto	29N	23E	20	43	-94.8405169	36.9734767	20-Apr-04					Concealed and/or filled
Rialto	29N	23E	20	44	-94.8412206	36.9735565	21-Apr-04					Concealed and/or filled
Rialto	29N	23E	20	45	-94.8415758	36.9747643	20-Apr-04					Concealed and/or filled
Rialto	29N	23E	20	46	-94.8423247	36.9747077	20-Apr-04					Concealed and/or filled
Kenoyer	29N	23E	20	47	-94.8440517	36.9767147	21-Apr-04					Concealed and/or filled; some settlement; 10-foot circular collapse in March 1982

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Kenoyer	29N	23E	20	49	-94.8473431	36.9746144	21-Apr-04	15	Circular	177		3-ft deep depression on the edge of chat pile; appears to be actively subsiding; cracks in ground and hole on the side of depression; 25-ft circular collapse in March 1982
Kenoyer	29N	23E	20	50	-94.8474601	36.9757057	21-Apr-04	10 x 20	Rectangle	200		Filled to the surface with debris; 25-ft circular collapse in March 1982
Kenoyer	29N	23E	20	51	-94.8466495	36.9768084	21-Apr-04					Concealed and/or filled
Kenoyer	29N	23E	20	52	-94.8473123	36.9789217	21-Apr-04					Concealed and/or filled; open shaft in March 1982
West Netta	29N	23E	20	53	-94.8379888	36.9856382	18-Apr-05					Concealed and/or filled
North Bingham	29N	23E	21	1	-94.8305631	36.9867374	20-Apr-04					Concealed and/or filled
Eudora Whitebird	29N	23E	21	2	-94.8257239	36.9866839	20-Apr-04					Concealed and/or filled
Eudora Whitebird	29N	23E	21	4	-94.8256233	36.9844561	21-Apr-04					Concealed and/or filled
Eudora Whitebird	29N	23E	21	5	-94.8257638	36.9838773	29-Mar-05					Concealed and/or filled; shaft caved in early 1960's; in driveway in front of detached garage; settlement has occurred in northeast corner of garage
South Bingham	29N	23E	21	6	-94.8278692	36.9820405	21-Apr-04					Concealed and/or filled
South Bingham	29N	23E	21	7	-94.8283027	36.9820954	21-Apr-04					Concealed and/or filled; southwest corner of Emily and 4th Street
South Bingham	29N	23E	21	8	-94.8291316	36.9806769	21-Apr-04					Concealed and/or filled
South Bingham	29N	23E	21	9	-94.8267023	36.9811559	21-Apr-04					Concealed and/or filled; 10- x 15-ft elliptical collapse 5-10 ft deep filled with debris in January 1982
Mahutska	29N	23E	21	10	-94.8261102	36.9812516	20-Apr-04					Concealed; beneath chat pile; 60 ft circular depression about 10 ft deep
Mahutska	29N	23E	21	11	-94.8229160	36.9817530	20-Apr-04					Concealed and/or filled
Mahutska	29N	23E	21	12	-94.8223159	36.9821187	20-Apr-04					Concealed and/or filled; 5-ft deep depression on edge of tailings pile
Eudora Whitebird	29N	23E	21	13	-94.8235585	36.9843373	20-Apr-04	40 x 20	Rectangle	800		Filled to the surface with debris and trash; 20-ft circular collapse 15 ft deep in January 1982
Eudora Whitebird	29N	23E	21	14	-94.8216123	36.9837759	20-Apr-04					Concealed and/or filled
Eudora Whitebird	29N	23E	21	15	-94.8190317	36.9840573	20-Apr-04	12	Circular	113		6 ft deep; concealed and/or filled in February 1982
Eudora Whitebird	29N	23E	21	16	-94.8182112	36.9840518	21-Apr-04					Capped shaft
No. 1 Black Eagle	29N	23E	21	17	-94.8158630	36.9849169	20-Apr-04					Concealed and/or filled
No. 1 Black Eagle	29N	23E	21	18	-94.8150920	36.9846414	20-Apr-04					Concealed and/or filled
No. 1 Black Eagle	29N	23E	21	19	-94.8145094	36.9841598	19-Apr-04					Concealed and/or filled
Jeff City	29N	23E	21	20	-94.8148196	36.9830202	19-Apr-04	30 x 40	Elliptical	942	3	In February 1982, concealed and/or filled
Jeff City	29N	23E	21	21	-94.8144256	36.9825038	19-Apr-04					Concealed and/or filled
Jeff City	29N	23E	21	22	-94.8129992	36.9800302	19-Apr-04	20	Circular	314		5 ft deep; filled with garbage and junk; about the same size in November 1982
Jeff City	29N	23E	21	23	-94.8166323	36.9803695	19-Apr-04	70	Circular	3848	1.5	In November 1981, 40-ft circular collapse 40 feet deep
Jeff City	29N	23E	21	24	-94.8184232	36.9824263	19-Apr-04					Concealed and/or filled; 4 feet deep; concrete collar being undermined
Jeff City	29N	23E	21	25	-94.8214471	36.9826063	20-Apr-04					Concealed and/or filled
Jeff City	29N	23E	21	26	-94.8217728	36.9822855	20-Apr-04					Concealed and/or filled
Jeff City	29N	23E	21	27	-94.8213459	36.9814178	20-Apr-04					Concealed; small depression in middle of a small chat pile
Jeff City	29N	23E	21	28	-94.8211917	36.9809084	20-Apr-04					Concealed and/or filled
Grace Walker	29N	23E	21	29	-94.8206912	36.9787646	19-Apr-04	15 x 15	Rectangle	225		10 ft deep; irregularly shaped; partially filled with chat and boulders

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Grace Walker	29N	23E	21	30	-94.8177577	36.9785665	19-Apr-04					Concealed and/or filled
Jefferson	29N	23E	21	31	-94.8169792	36.9788320	19-Apr-04					Concealed and/or filled
Jefferson	29N	23E	21	32	-94.8163056	36.9785365	19-Apr-04	12 x 15	Rectangle	180		10 ft deep; concrete cube at the bottom; about same size in February 1982
Jefferson	29N	23E	21	33	-94.8136595	36.9765901	19-Apr-04	35	Circular	962	2	In February 1982, 25-ft circular collapse
Royal	29N	23E	21	34	-94.8146336	36.9761824	19-Apr-04					Concealed and/or filled
Royal	29N	23E	21	35	-94.8141732	36.9731763	19-Apr-04	60	Circular	2827	2	Looks stable; 40-ft circular collapse 15 ft deep in February 1982
Royal	29N	23E	21	37	-94.8161292	36.9746552	19-Apr-04					Concealed and/or filled
Royal	29N	23E	21	38	-94.8177828	36.9745416	19-Apr-04					Concealed and/or filled
Royal	29N	23E	21	39	-94.8176637	36.9754611	19-Apr-04	5 x 7	Rectangle	35	20-25	Open shaft; wooden cribbing; no collar; open shaft in February 1983
Grace Walker	29N	23E	21	40	-94.8207728	36.9770251	19-Apr-04					Concealed and/or filled
Grace Walker	29N	23E	21	41	-94.8205636	36.9774625	19-Apr-04	12	Circular	113		6 ft deep; large 8-ft cube rotated in bottom; same size in February 1982
Acme	29N	23E	21	42	-94.8234359	36.9774997	20-Apr-04	10 x 20	Elliptical	157	15	Open shaft; concrete collar severely undermined; very dangerous; concealed and/or filled in February 1982
Acme	29N	23E	21	43	-94.8234135	36.9786626	20-Apr-04					Concealed and/or filled
Acme	29N	23E	21	45	-94.8239019	36.9784564	20-Apr-04					Concealed and/or filled
Acme	29N	23E	21	46	-94.8250473	36.9781417	20-Apr-04					Concealed and/or filled
Acme	29N	23E	21	47	-94.8249170	36.9770282	20-Apr-04					Concealed and/or filled
Grace Walker	29N	23E	21	48	-94.8240164	36.9737273	19-Apr-04					Concealed and/or filled; filled in early 1950's; NW corner of Pearl and 11th St., west of house
Grace Walker	29N	23E	21	49	-94.8258255	36.9743688	19-Apr-04					Concealed and/or filled
New York	29N	23E	21	50	-94.8268339	36.9744360	19-Apr-04					Concealed and/or filled
New York	29N	23E	21	51	-94.8275476	36.9732964	19-Apr-04					Concealed and/or filled
New York	29N	23E	21	52	-94.8296603	36.9740314	20-Apr-04					Concealed and/or filled
Black Hawk	29N	23E	21	53	-94.8299500	36.9778596	20-Apr-04					Concealed and/or filled
Black Hawk	29N	23E	21	54	-94.8301427	36.9782294	20-Apr-04					Concealed and/or filled; filled shaft; shaft reopened in 1980's, filled and fenced; between 602 and 604 Francis St.; west side of street
Eudora Whitebird	29N	23E	21	55	-94.8250691	36.9844971	18-Apr-05					Concealed and/or filled
Eudora Whitebird	29N	23E	21	56	-94.8227452	36.9848519	18-Apr-05					Concealed and/or filled; slight depression over possible location
Dardene	29N	23E	22	1	-94.8120585	36.9855354	12-May-04	30 x 60	Elliptical	1414		25 ft deep; mature trees growing on sides; 40- x 20-ft elliptical collapse in November 1981
Dardene	29N	23E	22	2	-94.8118847	36.9864793	12-May-04					Concealed and/or filled
Hudson	29N	23E	22	3	-94.8065267	36.9869276	12-May-04					Concealed and/or filled; concrete cap over shaft
Hudson	29N	23E	22	4	-94.8057767	36.9849211	12-May-04					Concealed and/or filled
Tulsa	29N	23E	22	5	-94.8071743	36.9823654	12-May-04					Concealed and/or filled
Tulsa	29N	23E	22	6	-94.8062952	36.9823800	12-May-04					Concealed; under pond
Tulsa	29N	23E	22	7	-94.8047544	36.9804741	12-May-04					Concealed; beneath chat pile
Van Buren	29N	23E	22	8	-94.8033044	36.9801035	12-May-04					Concealed and/or filled
Van Buren	29N	23E	22	9	-94.8023882	36.9827526	15-Aug-04	40	Circular	1257		20 ft deep; stable; mature trees growing in bottom; 40- x 20-ft elliptical collapse in November 1981
Crutchfield	29N	23E	22	10	-94.8031483	36.9861984	16-Dec-04					Concealed and/or filled; 20-ft circular collapse in November 1981

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Crutchfield	29N	23E	22	11	-94.8011523	36.9869467	15-Aug-04					Concealed and/or filled; 20-ft circular collapse in November 1981
Indiana	29N	23E	22	12	-94.7972358	36.9865708	15-Aug-04	40	Circular	1257	2	In November 1981, 30-ft circular collapse
Indiana	29N	23E	22	13	-94.7955699	36.9864365	12-May-04	25	Circular	491	2	In November 1981, 20-ft circular collapse
Indiana	29N	23E	22	14	-94.7960490	36.9856518	12-May-04	20	Circular	314	2	Same size in November 1981
Indiana	29N	23E	22	16	-94.7972358	36.9817585	15-Dec-04	30 x 20	Elliptical	471	40	Open shaft with collapse at surface; open shaft in November 1981
Indiana	29N	23E	22	17	-94.7968327	36.9776274	13-Dec-04					Concealed and/or filled
Indiana	29N	23E	22	18	-94.7969945	36.9773047	13-Dec-04	30	Circular	707	1	In November 1981, 25-foot circular collapse
Ottawa	29N	23E	22	19	-94.7976947	36.9740783	12-May-04	8	Circular	50	40	Open shaft covered with brush; open shaft in November 1981
Ottawa	29N	23E	22	20	-94.7980542	36.9735159	12-May-04	40 x 20	Elliptical	628		12 ft deep; 40-ft circular collapse in November 1981
Jo Buffalo	29N	23E	22	21	-94.8020572	36.9732275	13-Dec-04					Concealed and/or filled
Jo Buffalo	29N	23E	22	22	-94.8002661	36.9748942	13-Dec-04					Concealed and/or filled; mill shaft; 15 x 30-ft rectangular collapse 30 ft deep in November 1981
Tulsa	29N	23E	22	23	-94.8011147	36.9769626	12-May-04					Concealed and/or filled
Tulsa	29N	23E	22	24	-94.8019536	36.9784218	12-May-04	60 x 30	Elliptical	1414	1.5	In November 1981, 15- x 30-ft rectangular collapse
Tulsa	29N	23E	22	25	-94.8028440	36.9794441	12-May-04					Concealed and/or filled
Tulsa	29N	23E	22	26	-94.8051094	36.9783586	14-Dec-05	20	Circular	314	20-25	Open shaft; on May 12, 2004 concealed beneath chat pile
Tulsa	29N	23E	22	27	-94.8070223	36.9784326	12-May-04	5 x 7	Rectangle			Concealed; beneath chat pile; exposed during chat removal operation; shaft cribbed about 15 ft above ground level
Walker	29N	23E	22	28	-94.8045375	36.9756427	13-Dec-04	45	Circular	1590	1	About the same size in November 1981
Walker	29N	23E	22	29	-94.8053721	36.9746297	13-Dec-04	20 x 35	Elliptical	550	2	In November 1981, 50-ft circular collapse 40 ft deep
Walker	29N	23E	22	30	-94.8062253	36.9751234	12-May-04	40 x 15	Elliptical	471	20	Collar has settled about 10 ft; filled with debris and chat; water seeping into shaft; concealed and/or filled in November 1981
Maxine	29N	23E	22	31	-94.8115811	36.9730416	7-Jul-04	20 x 15	Elliptical	236		4 to 6 ft deep; 20-ft circular collapse 50 ft deep in November 1981
Maxine	29N	23E	22	32	-94.8097856	36.9760067	12-May-04					Appears to be open; covered by large concrete block; open shaft in November 1981
Huttig-Beck	29N	23E	22	33	-94.8110418	36.9767728	12-May-04	20	Circular	314		20 ft to top of fill material; large concrete pad rotated into collapse; 20-ft circular collapse 40 ft deep in November 1981
Huttig-Beck	29N	23E	22	34	-94.8115795	36.9789819	12-May-04					Concealed and/or filled; 40- x 20-ft elliptical collapse 30 ft deep in November 1981
Tulsa	29N	23E	22	35	-94.8019456	36.9767240	13-Dec-04	50	Circular	1964	1	
Jo Buffalo	29N	23E	22	36	-94.8003376	36.9753585	13-Dec-04	5 x 7	Rectangle	35	25	Open shaft
Dardene	29N	23E	22	37	-94.8104901	36.9868960	12-May-04	6	Circular	28		4 ft deep; appears to be some undercutting of the collar on the north side
Indiana	29N	23E	22	38	-94.7968763	36.9774948	1-May-05					Concealed and/or filled
Tulsa	29N	23E	22	39	-94.8057961	36.9784556	1-May-05					Concealed and/or filled
Tulsa	29N	23E	22	40	-94.8072202	36.9784180	11-Jan-05	5 X 5	Square			Concealed; beneath chat pile; exposed during chat removal operation; wooden cribbing is 20 ft above chat pile base
Texas	29N	23E	23	1	-94.7932973	36.9867336	12-May-04					Concealed and/or filled; resealed by the Oklahoma Conservation Commission (OCC) in July 2003

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Texas	29N	23E	23	2	-94.7930429	36.9863611	12-May-04					Concealed and/or filled; resealed by the OCC in July 2003; open shaft in May 1981
Texas	29N	23E	23	3	-94.7912600	36.9844181	12-May-04					Concealed and/or filled; shaft located only on EP's 1954 1 in. = 300-ft scale map, Plate 6.
Texas	29N	23E	23	4	-94.7925294	36.9844282	12-May-04					Concealed and/or filled; open and resealed in July 2003
Kropp	29N	23E	23	5	-94.7935459	36.9823494	12-May-04					Concealed and/or filled; in July 2003 15-20-ft circular collapse; filled by OCC; concealed and/filled in May 1981
Kropp	29N	23E	23	6	-94.7923746	36.9817575	12-May-04					Concealed and/or filled; in July 2003, 6- x 4-ft rectangular collapse 4 ft deep; filled by OCC; 25-ft circular collapse in May 1981
Kropp	29N	23E	23	7	-94.7871390	36.9811847	16-Dec-04	40	Circular	1257		15 ft deep; mature trees growing in bottom; formerly fenced; 30-foot circular collapse in May 1981
Sante Fe	29N	23E	23	8	-94.7891958	36.9851224	12-May-04					Concealed and/or filled; open and resealed by OCC in July 2003
Santa Fe	29N	23E	23	9	-94.7900946	36.9857724	12-May-04					Concealed and/or filled
Santa Fe	29N	23E	23	10	-94.7885288	36.9861745	12-May-04					Concealed and/or filled
Santa Fe	29N	23E	23	11	-94.7882940	36.9865427	12-May-04					Concealed and/or filled
Santa Fe	29N	23E	23	12	-94.7880072	36.9869346	12-May-04					Concealed and/or filled
Santa Fe	29N	23E	23	13	-94.7863127	36.9852252	12-May-04					Concealed and/or filled; open and resealed by OCC in July 2003; 20-ft circular collapse 15 ft deep in May 1981
Santa Fe	29N	23E	23	14	-94.7861842	36.9841583	12-May-04					Concealed and/or filled; 50-ft circular collapse 30 ft deep in 2003; filled by the OCC in July 2003; former land fill site
Aztec	29N	23E	23	15	-94.7830157	36.9857872	17-Dec-04	5 x 7	Rectangle			Concealed and/or filled; filled shaft; 4 ft deep depression; filled with boulders
Blue Bonnet	29N	23E	23	16	-94.7808690	36.9866442	17-Dec-04					Concealed and/or filled; filled with car bodies as per Sonny Green; possible concrete slab over location.
Blue Bonnet	29N	23E	23	17	-94.7794710	36.9869689	17-Dec-04					Concealed and/or filled
Blue Bonnet	29N	23E	23	18	-94.7787504	36.9862234	16-Dec-04	20 x 15	Rectangle	300	1	In May 1981, open shaft
Blue Bonnet	29N	23E	23	19	-94.7785074	36.9857256	16-Dec-04	20 x 15	Elliptical	236		10 ft deep; possible open shaft; choked off with large boulders; open shaft in May 1981
Blue Bonnet	29N	23E	23	20	-94.7794623	36.9852154	16-Dec-04	50	Circular	1964	1	Filled with debris and garbage; same size in May 1981
Blue Bonnet	29N	23E	23	21	-94.7792288	36.9843855	16-Dec-04					Concealed and/or filled
Blue Bonnet	29N	23E	23	22	-94.7787999	36.9839351	16-Dec-04	90	Circular	6362	90	Very dangerous; 50-ft circular collapse in May 1981
Massel	29N	23E	23	23	-94.7801539	36.9834505	16-Dec-04	85	Circular	5675	80	In May 1981, 50-ft circular collapse
Massel	29N	23E	23	24	-94.7790299	36.9828416	16-Dec-04	50	Circular	1964	18	Small amount of water in bottom, mature trees growing on side; 40- x 15-foot elliptical collapse in May 1981
Massel	29N	23E	23	25	-94.7787388	36.9822958	16-Dec-04	185 x 175	Elliptical	25427	60	Mature trees growing in collapse; about the same size in May 1981
Massel	29N	23E	23	26	-94.7791420	36.9819769	16-Dec-04	50	Circular	1964	2	About same size in May 1981
Massel	29N	23E	23	27	-94.7805269	36.9827777	16-Dec-04	40	Circular	1257	2	In May 1981, 20- x 15-ft elliptical collapse
Meteor	29N	23E	23	28	-94.7816695	36.9822700	16-Dec-04	40	Circular	1257	3	In May 1981, concealed and/or filled
Meteor	29N	23E	23	29	-94.7832569	36.9831492	12-May-04					Concealed and/or filled; 5- x 7-ft open shaft filled July 2003; concealed and/or filled in May 1981

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Meteor	29N	23E	23	30	-94.7840542	36.9833119	12-May-04					Concealed and/or filled; a 225-ft circular collapse filled by OCC in July 2003	
Meteor	29N	23E	23	31	-94.7848740	36.9817568	16-Dec-04	40	Circular	1257	5	In May 1981, 95-ft circular collapse 30 ft deep	
Massel	29N	23E	23	32	-94.7795234	36.9800135	16-Dec-04	30	Circular	707	2	In May 1981, 20-ft circular collapse 100 ft deep	
Mission	29N	23E	23	33	-94.7792697	36.9792697	16-Dec-04	220	Circular	38013	80	Shaft maybe located on edge of collapse; about the same size in May 1981	
Mission	29N	23E	23	34	-94.7788466	36.9792152	16-Dec-04					Same as above	
Mission	29N	23E	23	35	-94.7782333	36.9780340	16-Dec-04	60 x 40	Elliptical	1885	2	In May 1981, 40-ft circular collapse 5 ft deep	
Mission	29N	23E	23	36	-94.7771116	36.9755796	16-Dec-04	20	Circular	314		8 ft depth; in May 1981, concealed and/or filled	
Mission	29N	23E	23	37	-94.7817213	36.9758936	16-Dec-04					Concealed and/or filled	
Mission	29N	23E	23	38	-94.7841074	36.9784394	16-Dec-04					Concealed and/or filled	
Kropp	29N	23E	23	39	-94.7863923	36.9788280	16-Dec-04	50	Circular	1964	2	8 feet deep; in May 1981, 40-ft circular collapse 15 ft deep	
Mission	29N	23E	23	40	-94.7865416	36.9735227	16-Dec-04					Concealed and/or filled	
Mission	29N	23E	23	41	-94.7887685	36.9750277	16-Dec-04					Concealed and/or filled; filled shaft; previously fenced	
Kropp	29N	23E	23	42	-94.7896617	36.9779552	16-Dec-04	50	Circular	1964	2	In May 1981, 30-ft circular collapse	
Kropp	29N	23E	23	43	-94.7925867	36.9772615	16-Dec-04	45	Circular	1590	5	In May 1981, 50-ft circular collapse	
Massel	29N	23E	23	44	-94.7803649	36.9819631	16-Dec-04					Concealed and/or filled	
Mission	29N	23E	23	45	-94.7786310	36.9770377	16-Dec-04					Concealed and/or filled	
Meteor	29N	23E	23	46	-94.7835905	36.9826872	26-Apr-05					Concealed and/or filled	
Meteor	29N	23E	23	47	-94.7841633	36.9819996	26-Apr-05					Concealed and/or filled	
Aztec	29N	23E	23	48	-94.7825345	36.9863140	26-Apr-05					Concealed and/or filled	
Massel	29N	23E	23	49	-94.7809928	36.9827019	5-May-05	12	Circular				Concealed and/or filled; 2-ft deep depression
Imbeau	29N	23E	24	1	-94.7713476	36.9807824	1-Mar-05	18	Circular	254	3	In January 1983, concealed and/or filled	
St. Louis No. 4	29N	23E	24	2	-94.7651885	36.9830061	21-Feb-05	25 x 20	Elliptical	393		Filled with debris; same size in January 1983	
St. Louis No. 4	29N	23E	24	7	-94.7600842	36.9837484	21-Feb-05					Concealed and/or filled	
St. Louis No. 4	29N	23E	24	8	-94.7600613	36.9824149	21-Feb-05	25	Circular	491	1	In January 1983, 18-ft circular collapse	
St. Louis No. 4	29N	23E	24	9	-94.7621475	36.9814668	21-Feb-05	30	Circular	707	1	In January 1983, 25- x 13-ft elliptical collapse	
Crane	29N	23E	24	10	-94.7639600	36.9782448	1-Mar-05	30	Circular	707	1	In January 1983, concealed and/or filled	
Crane	29N	23E	24	11	-94.7634575	36.9777032	1-Mar-05					Concealed and/or filled	
Crane	29N	23E	24	12	-94.7667256	36.9730426	1-Mar-05					Concealed and/or filled	
Eagle Picher Co.	29N	23E	25	1	-94.7747616	36.9671530	17-Dec-04					Concealed and/or filled	
Mary Jane	29N	23E	25	2	-94.7665867	36.9722334	1-Mar-05					Concealed and/or filled	
Mary Jane	29N	23E	25	3	-94.7668308	36.9715477	1-Mar-05					Concealed and/or filled	
W. W. Dobson	29N	23E	25	4	-94.7741205	36.9600787	17-Dec-04					Concealed and/or filled	
W. W. Dobson	29N	23E	25	5	-94.7735386	36.9623750	17-Dec-04	30	Circular	707		15 ft deep; large blocks in bottom of collapse	
W. W. Dobson	29N	23E	25	6	-94.7734676	36.9629369	17-Dec-04					Concealed and/or filled	
Mary Jane	29N	23E	25	7	-94.7668758	36.9700437	2-Mar-05					Concealed and/or filled	
W. W. Dobson	29N	23E	25	8	-94.7658406	36.9603607	2-May-05					Concealed and/or filled	
Fullerton & Dobson	29N	23E	25	9	-94.7614103	36.9687767	22-Feb-05	40	Circular	1257	2	Partially filled with debris and garbage	
Davenport	29N	23E	26	1	-94.7942129	36.9676982	10-May-04					Concealed and/or filled; Land owner filled shafts no. 1 and no.2	
Davenport	29N	23E	26	2	-94.7937801	36.9680311	10-May-04					Concealed and/or filled; Land owner filled shafts no. 1 and no.2	
Davenport	29N	23E	26	3	-94.7906265	36.9703841	10-May-04					Concealed and/or filled	

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition	
Alice Greenback	29N	23E	26	4	-94.7865340	36.9656821	7-Jul-04					Concealed and/or filled; no field evidence of mining; possibly coincides with a pond	
Hobart	29N	23E	26	5	-94.7850278	36.9683657	10-May-04	5 x 7	Rectangle	35	3	Open shaft partially filled with debris; bailing wire hanging over edge	
Hobart	29N	23E	26	6	-94.7843997	36.9683238	10-May-04					Concealed and/or filled; 1-ft deep depression	
Hope	29N	23E	26	7	-94.7819996	36.9696836	10-May-04	22	Circular	3801	1	In February 1982, 35- x 25-ft elliptical collapse	
Hope	29N	23E	26	8	-94.7831714	36.9700531	10-May-04					Concealed and/or filled; 20- x 15-ft elliptical collapse 15 ft deep in February 1982	
Hope	29N	23E	26	9	-94.7843676	36.9716556	10-May-04					Concealed and/or filled	
Hope	29N	23E	26	10	-94.7821195	36.9709716	10-May-04	80	Circular	5027			25 ft deep; appears stable; 12-18-in. diameter tree growing in collapse; 40- x 30-ft elliptical collapse 20 ft deep in February 1982
Longhunt	29N	23E	26	11	-94.7787840	36.9713379	10-May-04	50	Circular	1964	1		Filled with debris i.e. tires, chairs, household trash; 25-ft circular collapse 20 ft deep in February 1982
Longhunt	29N	23E	26	12	-94.7770515	36.9694170	10-May-04						Concealed and/or filled
Quajack	29N	23E	26	13	-94.7772299	36.9685639	10-May-04						Concealed and/or filled
Quajack	29N	23E	26	14	-94.7776929	36.9667759	10-May-04	30	Circular	707	1		Northeast corner of building; concealed and/or filled in February 1982
Alice Greenback	29N	23E	26	15	-94.7796922	36.9621622	10-May-04	25	Circular	491			12 ft deep; mature trees growing on sides; partially filled with old boards; about the same size in February 1982
Alice Greenback	29N	23E	26	16	-94.7768808	36.9591328	10-May-04	80 x 50	Elliptical	3142			12 ft deep; filled with debris i.e. refrigerator, washing machine, dryer, etc.; appears to be unstable; 30-ft circular collapse 15 ft deep in February 1982
Alice Greenback	29N	23E	26	17	-94.7796675	36.9588340	10-May-04						Concealed and/or filled; small depression in field
Betsy Greenback	29N	23E	26	18	-94.7921033	36.9633040	7-Jul-04	50	Circular	1964	2		Same size in February 1982
Longhunt	29N	23E	26	19	-94.7771860	36.9691990	2-May-05						Concealed and/or filled; from 1927 topographic map; location approximate
Betsy Greenback	29N	23E	26	20	-94.7866777	36.9611894	2-May-05						Concealed and/or filled; from 1927 topographic map; location approximate
Pat	29N	23E	27	1	-94.8115893	36.9670968	11-May-04						Concealed and/or filled
Pat	29N	23E	27	2	-94.8111408	36.9671609	11-May-04	60 x 30	Elliptical	5655	1		Irregular shape; was fenced at one time; 50-foot circular collapse 25 feet deep in February 1982
Pat	29N	23E	27	3	-94.8078848	36.9709841	11-May-04	30	Circular	707			15 ft deep; 20-ft circular collapse 25 ft
Pat	29N	23E	27	4	-94.8068392	36.9694790	11-May-04	30	Circular	707	3		In January 1982, 30-ft circular collapse 25 ft deep
Rainbow	29N	23E	27	5	-94.8023402	36.9715697	11-May-04						Concealed and/or filled
Rainbow	29N	23E	27	6	-94.8016543	36.9711703	5-May-05	30	Circular	707	3		In November 1981, 40-ft circular collapse 15 ft deep
Rainbow	29N	23E	27	7	-94.8009136	36.9697025	11-May-04	80	Circular	5027	2		In February 1982, concealed and/or filled
Arthur Buffalo	29N	23E	27	8	-94.7985326	36.9693198	11-May-04	40	Circular	1257	2		Looks stable; 25-ft circular collapse 15 ft deep in January 1982
Arthur Buffalo	29N	23E	27	9	-94.7954813	36.9699497	11-May-04	10	Circular				Concealed and/or filled; 2-ft deep depression; 40- x 20-ft elliptical collapse 10 ft deep in January 1982
Prairie Dog	29N	23E	27	10	-94.8004160	36.9663139	11-May-04	60	Circular	2827	3		In January 1982 40- x 25-ft elliptical collapse
Prairie Dog	29N	23E	27	11	-94.8007307	36.9665458	11-May-04						Concealed; beneath chat pile
Prairie Dog	29N	23E	27	12	-94.8016736	36.9663096	11-May-04						Concealed and/or filled

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition	
Doris	29N	23E	27	13	-94.8006068	36.9649521	11-May-04	60	Circular	2827	1	Stable; 30- x 25-ft elliptical collapse in January 1982	
Rose	29N	23E	27	14	-94.7976834	36.9645552	11-May-04					Concealed and/or filled; filled by the landowner, Mr. Morey; small mill at location; 30- x 20-ft elliptical collapse 3 ft deep in February 1982	
Rose	29N	23E	27	15	-94.7969342	36.9623707	11-May-04					Concealed and/or filled; filled by Mr. Morey; lived on the property for 44 years; used to work for Eagle-Picher	
Brinson Kirtley	29N	23E	27	16	-94.7963431	36.9586296	11-May-04					Concealed and/or filled; filled by Mr. Morey; drill pipe by the corner of shaft	
Doris	29N	23E	27	17	-94.8010824	36.9617064	11-May-04					Concealed and/or filled; filled by Mr. Morey; 15- x 10-ft elliptical collapse in January 1982	
Doris	29N	23E	27	18	-94.8021663	36.9621137	11-May-04	50	Circular	1964	1.5	Looks stable; concealed and/or filled in February 1982	
J. R. Randall	29N	23E	27	19	-94.8027529	36.9616059	11-May-04					Concealed and/or filled; formerly an open shaft; filled by Mr. Morey	
J. R. Randall	29N	23E	27	20	-94.8024687	36.9614599	11-May-04					Concealed and/or filled; filled by Mr. Morey	
J. R. Randall	29N	23E	27	21	-94.8034807	36.9608763	11-May-04					Concealed and/or filled; filled by Mr. Morey	
Beck	29N	23E	27	22	-94.8043499	36.9614813	29-Mar-05	30	Circular	707	3	In January 1982, 25-ft circular collapse 20 ft deep	
First National	29N	23E	27	23	-94.8044925	36.9618379	11-May-04	25 x 15	Rectangle	375	2	Being filled; partially filled with debris; concealed and/or filled in February 1982	
First National	29N	23E	27	24	-94.8047722	36.9618252	11-May-04	30	Circular	707	1	Debris floating on surface; 15-ft circular collapse in January 1982	
First National	29N	23E	27	25	-94.8055730	36.9639431	11-May-04	40 x 20	Elliptical	2513	20	15 ft deep; part of collapse is being expanded by erosion; 25-ft circular collapse 15 feet deep in January 1982	
First National	29N	23E	27	26	-94.8058641	36.9635757	11-May-04	40	Circular	1257	1	Filled with debris; 20-ft circular collapse in January 1982	
Beck	29N	23E	27	27	-94.8071632	36.9590515	29-Mar-05	25	Circular	491	2	Stable; large cottonwood tree growing on side; same size in February 1982	
Beck	29N	23E	27	28	-94.8083069	36.9586966	11-May-04	20	Circular	314	1.5	Same size in February 1982	
Beck	29N	23E	27	29	-94.8120285	36.9608034	11-May-04	40	Circular	1257	20	Brush and small trees growing on side; 20-ft circular collapse 25 ft deep in February 1982	
Beck	29N	23E	27	30	-94.8121704	36.9610344	11-May-04					Concealed and/or filled	
Pat	29N	23E	27	31	-94.8111050	36.9644397	11-May-04	50	Circular	1963			8 ft deep; being filled with large concrete blocks from mill; was fenced at one time; 50-ft circular collapse 25 ft deep in February 1982
Prairie Dog	29N	23E	27	32	-94.8003820	36.9663978	3-May-05					Concealed and/or filled	
Rainbow	29N	23E	27	33	-94.8009470	36.9702972	3-May-05					Concealed and/or filled; from 1927 topographic map; location approximate	
Rainbow	29N	23E	27	34	-94.8019566	36.9709706	3-May-05					Concealed and/or filled; from 1927 topographic map; location approximate	
Birthday	29N	23E	28	1	-94.8291693	36.9720064	8-Apr-04					Concealed; beneath chat pile	
Birthday	29N	23E	28	2	-94.8290226	36.9711196	8-Apr-04	40 x 30	Elliptical	942			20 ft deep; filled with debris and garbage; open shaft in May 1981
Birthday	29N	23E	28	3	-94.8289610	36.9699818	8-Apr-04	50	Circular	1964	25	In May 1981, 25-ft circular collapse 25 ft deep	
Federal	29N	23E	28	4	-94.8303373	36.9690621	9-Apr-04	75	Circular	4418	20	In May 1981, 50-ft circular collapse 30 ft deep	
Federal	29N	23E	28	5	-94.8284802	36.9681769	9-Apr-04	12	Circular	113	2	Cattails growing on side; appears stable; open shaft in May 1981	
Federal	29N	23E	28	6	-94.8284725	36.9676174	9-Apr-04	5 x 7	Rectangle	35	30	Open shaft; open shaft in May 1981	
Fort Worth	29N	23E	28	7	-94.8287257	36.9669216	9-Apr-04	30	Circular	707	1	In May 1981, concealed and/or filled	

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Fort Worth	29N	23E	28	8	-94.8292716	36.9664527	9-Apr-04	80	Circular	5027		35 ft deep; 30-ft circular collapse 20 ft deep in May 1981
Fort Worth	29N	23E	28	9	-94.8293242	36.9653960	9-Apr-04	180	Circular	25447	20	In February 1983, 160-ft circular collapse 30 ft deep
Fort Worth	29N	23E	28	10	-94.8275497	36.9657879	9-Apr-04	40	Circular	1257		20 ft deep; filled with debris and garbage; maybe partially open; collapsed in 2002; concealed and/or filled in May 1981
New Chicago No. 2	29N	23E	28	11	-94.8259727	36.9653217	9-Apr-04	5 x 7	Rectangle	35	22	Open shaft; water dripping into shaft; open shaft in May 1981
New Chicago No. 2	29N	23E	28	12	-94.8241428	36.9660285	9-Apr-04					Concealed; beneath chat pile
New Chicago No. 2	29N	23E	28	13	-94.8224415	36.9667453	8-Apr-04	32	Circular	804	3	In May 1981, concealed and/or filled
New Chicago No. 2	29N	23E	28	14	-94.8219472	36.9682204	8-Apr-04	50 x 30	Elliptical	1178		Open shaft with collapse at surface; shaft cribbing sticking above the ground; 30-ft circular collapse 20 ft deep in May 1981
New Chicago No. 2	29N	23E	28	15	-94.8234883	36.9679669	8-Apr-04	30	Circular	707	1.5	Same size in May 1981
New Chicago No. 2	29N	23E	28	16	-94.8249955	36.9681172	8-Apr-04	30	Circular	707		6-ft deep depression in chat pile; 25-ft circular collapse 10 ft deep in May 1981
Mo Mule	29N	23E	28	17	-94.8267784	36.9708603	8-Apr-04	25	Circular	491	2	In May 1981, open shaft
Midas	29N	23E	28	18	-94.8260122	36.9712491	8-Apr-04					Concealed and/or filled
Midas	29N	23E	28	19	-94.8225054	36.9712677	8-Apr-04	15 x 8	Rectangle	120		Shaft filled with garbage and debris; 4-ft deep; open shaft in May 1981
Midas	29N	23E	28	20	-94.8222195	36.9709544	27-Apr-05	20	Circular	314	30	Open shaft; 10-foot circular collapse 6 feet deep in May 1981
New Chicago No. 1	29N	23E	28	21	-94.8214511	36.9708433	8-Apr-04	20	Circular	314		Filled with logs, tin, and other debris; 20-ft circular collapse in March 1982
New Chicago No. 1	29N	23E	28	22	-94.8196748	36.9695401	8-Apr-04	40	Circular	1257	3	Tires and debris floating in water; 30-ft circular collapse 20 ft deep in May 1981
New Chicago No. 1	29N	23E	28	23	-94.8196485	36.9679606	8-Apr-04					Concealed and/or filled
New Chicago No. 1	29N	23E	28	24	-94.8168109	36.9717623	8-Apr-04	90	Circular	6362	1.5	In May 1981, 40-ft circular collapse 30 ft deep
New Chicago No. 1	29N	23E	28	25	-94.8144091	36.9682637	7-Apr-04	70 x 50	Elliptical	2749	1	In May 1981, open shaft
New Chicago No. 1	29N	23E	28	26	-94.8147493	36.9679206	8-Apr-04					Concealed and/or filled
Bull Frog	29N	23E	28	27	-94.8136628	36.9652839	8-Apr-04	60	Circular	2827	6	In February 1982, 30-ft circular collapse
Bull Frog	29N	23E	28	28	-94.8159539	36.9613551	8-Apr-04	45	Circular	1590	1.5	In May 1981, 40-ft circular collapse 25 ft deep
Bull Frog	29N	23E	28	29	-94.8184076	36.9612445	8-Apr-04	40	Circular	1257		Filled to the surface with debris; 20-ft circular collapse 20 ft deep in May 1981
Bull Frog	29N	23E	28	30	-94.8187567	36.9613584	8-Apr-04	45	Circular	1590		20 ft deep; mature cottonwood growing in bottom; concealed and/or filled in May 1981
Bull Frog	29N	23E	28	31	-94.8191966	36.9612794	8-Apr-04	95	Circular	7088		30 ft deep; 60-ft circular collapse 20 ft deep in May 1981
Bull Frog	29N	23E	28	32	-94.8204429	36.9610575	8-Apr-04	60	Circular	2827	2	Same size in May 1981
Bull Frog	29N	23E	28	33	-94.8214191	36.9625638	8-Apr-04					Concealed and/or filled
Bull Frog	29N	23E	28	34	-94.8214510	36.9631278	8-Apr-04					Concealed and/or filled
Indiana	29N	23E	22	15	-94.7974185	36.9841516	12-May-04	40	Circular	1257	30	Appears unstable; fenced at one time; 22-ft circular collapse 50 ft deep in November 1981
New Chicago No. 1	29N	23E	28	35	-94.8258505	36.9642573	9-Apr-04	50	Circular	1964	40	In May 1981, concealed and/or filled in May 1981
Skelton	29N	23E	28	36	-94.8276220	36.9648152	9-Apr-04	12 x 12	Square	144		6 ft deep; concealed and/or filled in May 1981
Skelton	29N	23E	28	37	-94.8283681	36.9634038	9-Apr-04					Concealed and/or filled
Skelton	29N	23E	28	38	-94.8277293	36.9585825	9-Apr-04					Concealed and/or filled
Skelton	29N	23E	28	39	-94.8296561	36.9591094	9-Apr-04	70	Circular	3848		25 ft deep; mature trees growing in collapse; 30-ft circular collapse 15 ft deep in May 1981

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Skelton	29N	23E	28	40	-94.8303691	36.9589770	9-Apr-04	30	Circular	707		10 ft deep; trees growing in collapse; concealed and/or filled in May 1981
Skelton	29N	23E	28	41	-94.8293218	36.9598168	9-Apr-04	15	Circular	177		Open shaft; partially filled with chat; concealed and/or filled in May 1981
Skelton	29N	23E	28	42	-94.8305139	36.9606436	9-Apr-04	40	Circular	1257	30	Partially filled with tires; concrete blocks; 30-ft circular collapse 12 ft deep in May 1981
Skelton	29N	23E	28	43	-94.8306449	36.9616040	9-Apr-04					Concealed and/or filled; open shaft in May 1981
Midas	29N	23E	28	44	-94.8245297	36.9714472	8-Apr-04					Concealed and/or filled; shaft filled with rock, debris, and tin; fenced
Midas	29N	23E	28	45	-94.8253629	36.9714314	27-Apr-05	4	Circular			Concealed and/or filled; a 12- x 12-ft concrete foundation filled with chat; 1 ft deep depression in middle
Federal	29N	23E	28	46	-94.8274537	36.9685160	27-Apr-05	30	Circular	707	2	From 1927 topographic map
Bull Frog	29N	23E	28	47	-94.8161934	36.9641010	19-Apr-05					Concealed and/or filled; from 1927 topographic map; location approximate
Bull Frog	29N	23E	28	48	-94.8168774	36.9643943	19-Apr-05					Concealed and/or filled; from 1927 topographic map; location approximate
Bull Frog	29N	23E	28	49	-94.8176490	36.9642219	19-Apr-05					Concealed and/or filled; from 1927 topographic map; location approximate
Bull Frog	29N	23E	28	50	-94.8176202	36.9614484	19-Apr-05					Concealed and/or filled; from 1927 topographic map; location approximate
Domado	29N	23E	29	1	-94.8481103	36.9664186	5-Apr-04	615 x 410	Elliptical	198038	2	Contains shaft no. 2
Domado	29N	23E	29	2	-94.8484022	36.9666229	5-Apr-04	615 x 410	Elliptical		2	Contains shaft no. 1
Domado	29N	23E	29	3	-94.8481351	36.9673313	5-Apr-04	6 x 6	Square	36	5	Open shaft; included in above collapse in May 1981
Domado	29N	23E	29	4	-94.8470988	36.9680982	6-Apr-04					Concealed; beneath chat pile
Baby Jim	29N	23E	29	5	-94.8480554	36.9692882	6-Apr-04					Concealed; beneath chat pile
Baby Jim	29N	23E	29	6	-94.8478577	36.9694797	6-Apr-04					Concealed; beneath chat pile
Baby Jim	29N	23E	29	7	-94.8476942	36.9703997	6-Apr-04					Concealed; beneath chat pile
Baby Jim	29N	23E	29	8	-94.8482562	36.9713500	6-Apr-04	5	Circular			Concealed and/or filled; 1-ft deep depression; berm around shaft
Baby Jim	29N	23E	29	9	-94.8481470	36.9716887	6-Apr-04	6 x 6	Square	36	10	Open shaft; some debris floating; open shaft in May 1981
Baby Jim	29N	23E	29	10	-94.8470668	36.9721791	6-Apr-04	10	Circular	79		5 ft deep; small trees growing on sides and in collapse; concealed and/or filled in May 1981
Baby Jim	29N	23E	29	11	-94.8449668	36.9720194	6-Apr-04	5 x 7	Rectangle	35		Open shaft; concrete collar; steel grate over shaft; concealed in May 1981
Baby Jim	29N	23E	29	12	-94.8450021	36.9691890	6-Apr-04					Concealed and/or filled
Domado	29N	23E	29	13	-94.8451987	36.9682699	6-Apr-04					Concealed and/or filled; depression at possible shaft location
Domado	29N	23E	29	14	-94.8456263	36.9699782	6-Apr-04	5 x 7	Rectangle	35	15	Open shaft; steel grate over shaft; open shaft in May 1981
Rialto	29N	23E	29	15	-94.8438779	36.9665538	6-Apr-04	6 x 6	Square	36	20-25	Open shaft; adjacent to chat pile; steel grate over shaft; open shaft in May 1981
Rialto	29N	23E	29	16	-94.8420900	36.9666711	6-Apr-04					Concealed; beneath chat pile
Rialto	29N	23E	29	17	-94.8400989	36.9665332	6-Apr-04	6 x 6	Square	36	12	Open shaft; cribbing gone; steel grate over shaft; open shaft in May 1981
Rialto	29N	23E	29	18	-94.8420231	36.9685115	6-Apr-04	5 x 7	Rectangle	35	30	Open shaft; steel grate over shaft; open shaft in May 1981
Rialto	29N	23E	29	19	-94.8428631	36.9684942	6-Apr-04	3	Circular			Concealed and/or filled; void in chat pile that periodically reseals itself; dangerous
Rialto	29N	23E	29	20	-94.8430696	36.9698241	6-Apr-04					Concealed; beneath chat pile
Rialto	29N	23E	29	21	-94.8437971	36.9697331	6-Apr-04					Concealed; beneath chat pile

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Rialto	29N	23E	29	22	-94.8431080	36.9713512	6-Apr-04					Concealed; in Cardin sewage lagoon
Rialto	29N	23E	29	23	-94.8423315	36.9711172	6-Apr-04	70	Circular	3848	1	In May 1981, concealed and/or filled
Barbara J.	29N	23E	29	25	-94.8381009	36.9716259	6-Apr-04	12 x 12	Rectangle	144	1.5	Open shaft; open shaft in May 1981
Barbara J.	29N	23E	29	26	-94.8374196	36.9703499	6-Apr-04					Concealed and/or filled; under water; in May 1981, open shaft
Barbara J.	29N	23E	29	27	-94.8342545	36.9708633	7-Apr-04	65	Circular	3318	2	Irregular shape; 70- x 40-ft elliptical collapse in March 1982
Barbara J.	29N	23E	29	29	-94.8316260	36.9698176	6-Apr-04					Concealed and/or filled; 25-ft circular collapse 15 ft deep in May 1981
Barbara J.	29N	23E	29	30	-94.8321552	36.9697245	6-Apr-04					Concealed and/or filled; 20-ft circular collapse 10 ft deep in May 1981
Barbara J.	29N	23E	29	31	-94.8318334	36.9687636	6-Apr-04	8 x 12	Elliptical	75	1.5	Filled in 1980's, recollapsed in 2001; 30-ft circular collapse 20 ft deep in May 1981
Barbara J.	29N	23E	29	32	-94.8322570	36.9688846	6-Apr-04					Concealed and/or filled; 40-ft circular collapse 25 ft deep in May 1981
Barbara J.	29N	23E	29	33	-94.8362068	36.9685437	6-Apr-04					Concealed and/or filled; filled with debris and boulders; slight depression; open shaft in May 1981
Barbara J.	29N	23E	29	34	-94.8367618	36.9683946	6-Apr-04	8 x 12	Rectangle	96	1	In May 1981, open shaft
Barbara J.	29N	23E	29	35	-94.8395376	36.9664505	6-Apr-04	25	Circular	491	3	In May 1981, 20-ft circular collapse 8 feet deep
Barbara J.	29N	23E	29	36	-94.8355878	36.9656903	7-Apr-04	6 x 12	Rectangle	72	6	Filled with debris; foundation rotated into collapse; open shaft in May 1981
Skelton	29N	23E	29	37	-94.8370825	36.9643598	7-Apr-04					Concealed and/or filled
Skelton	29N	23E	29	38	-94.8361244	36.9642970	7-Apr-04	5 x 7	Rectangle	35		8 ft deep; open shaft in May 1981
Skelton	29N	23E	29	39	-94.8336620	36.9636791	7-Apr-04	15 x 15	Rectangle	225	10	Concrete collar; partially filled with debris
Skelton	29N	23E	29	40	-94.8320780	36.9644458	7-Apr-04	60	Circular	2827	25	Concrete pads collapsed into shaft; open shaft in May 1981
Skelton	29N	23E	29	41	-94.8328015	36.9621240	19-Apr-04					Concealed; beneath chat pile
Skelton	29N	23E	29	42	-94.8340144	36.9624767	7-Apr-04					Concealed; beneath chat pile
Skelton	29N	23E	29	43	-94.8363829	36.9627592	7-Apr-04	40	Circular	1257	20	Signs of fresh collapse; same size in May 1981
Skelton	29N	23E	29	44	-94.8348621	36.9614870	7-Apr-04	18 x 22	Rectangle	396		5 ft deep; filled with debris, chatcrete; blocks rotated into collapse; in May 1981, 10-ft circular collapse 10 ft deep
Skelton	29N	23E	29	45	-94.8339054	36.9614891	7-Apr-04					Concealed; beneath chat pile
Skelton	29N	23E	29	46	-94.8318572	36.9607774	7-Apr-04	20	Circular	314		10 feet deep; mature cottonwood tree growing on side; concealed and/or filled in May 1981
Skelton	29N	23E	29	47	-94.8322037	36.9607411	7-Apr-04	40	Circular	1257		15-ft deep depression at shaft site; filled with chat and debris; about same size in May 1981
Skelton	29N	23E	29	48	-94.8335519	36.9599663	7-Apr-04					Concealed; beneath chat pile
Skelton	29N	23E	29	49	-94.8339519	36.9599642	7-Apr-04					Concealed; beneath chat pile
Skelton	29N	23E	29	50	-94.8335710	36.9591533	7-Apr-04					Concealed; beneath chat pile
Skelton	29N	23E	29	51	-94.8338417	36.9588161	7-Apr-04					Concealed; beneath chat pile
Skelton	29N	23E	29	52	-94.8347865	36.9589163	7-Apr-04					Concealed; beneath chat pile
Skelton	29N	23E	29	53	-94.8346520	36.9598487	7-Apr-04	70	Circular	3848	40	Fenced; appears unstable; 40-ft circular collapse 35 ft deep in May 1981
Skelton	29N	23E	29	54	-94.8350723	36.9600813	7-Apr-04	20	Circular	314		10 ft deep; same size in May 1981
Skelton	29N	23E	29	55	-94.8350043	36.9605200	7-Apr-04	12 x 12	Square	144		Filled shaft; concrete collar; 12 ft deep; open shaft in May 1981
Admiralty No. 3	29N	23E	29	56	-94.8361451	36.9603107	7-Apr-04	30 x 20	Elliptical	471		12 ft deep; large tree rotated in collapse; open shaft in May 1981

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Admiralty No. 3	29N	23E	29	57	-94.8391134	36.9601290	7-Apr-04	25 x 12	Rectangle	300	25	Water dripping into shaft; maybe partially filled; open shaft in May 1981
Admiralty No. 3	29N	23E	29	58	-94.8395728	36.9604028	7-Apr-04	5 x 7	Rectangle	35	25	Open shaft; concrete collar; open shaft in May 1981
Skelton	29N	23E	29	59	-94.8392306	36.9628078	7-Apr-04	15 x 15	Rectangle	225	10	Open shaft; concrete collar; fenced; open shaft in May 1981
Admiralty No. 1	29N	23E	29	60	-94.8414578	36.9609479	7-Apr-04	10 x 15	Rectangle	150	2	Partially filled shaft; about same size in May 1981
Lavrion	29N	23E	29	61	-94.8404045	36.9594630	7-Apr-04	30	Circular	707		15 ft deep; open shaft in May 1981
Lavrion	29N	23E	29	62	-94.8404416	36.9589354	7-Apr-04					Concealed and/or filled; possibly capped and filled
Lavrion	29N	23E	29	63	-94.8413960	36.9595317	28-Apr-05	20	Circular	314	1	In May 1981, concealed and/or filled
Admiralty No. 1	29N	23E	29	64	-94.8419597	36.9609566	11-Jan-06	25 x 10	Rectangle	250		5 ft deep; collapsed in 2005; concealed and/or filled, 7 April 2004; 10-ft circular collapse in May 1981
Admiralty No. 4	29N	23E	29	65	-94.8453674	36.9602694	6-Apr-04	6 x 6	Square	36	10	Open shaft; open shaft in March 1982
Admiralty No. 2	29N	23E	29	66	-94.8426846	36.9620221	6-Apr-04	80	Circular	5027	1	In May 1981, 40-ft circular collapse
Admiralty No. 2	29N	23E	29	67	-94.8433061	36.9624763	6-Apr-04					Concealed and/or filled; filled with concrete blocks from mill
Admiralty No. 4	29N	23E	29	69	-94.8455249	36.9639186	6-Apr-04	15 x 15	Elliptical	177	3	In May 1981, open shaft
Admiralty No. 4	29N	23E	29	70	-94.8462076	36.9643341	6-Apr-04	6 x 6	Square	36	4	Open shaft; open shaft in May 1981
Douthat	29N	23E	29	71	-94.8473368	36.9644894	6-Apr-04	65 x 140	Elliptical	7147	1.5	In May 1981, 60- x 40-ft elliptical collapse
Douthat	29N	23E	29	72	-94.8478479	36.9648047	6-Apr-04	5 x 7	Rectangle	35	4	Open shaft; reopened after May 1981
Skelton	29N	23E	29	73	-94.8329824	36.9625713	7-Apr-04	55	Circular	2376	1	
Admiralty No. 3	29N	23E	29	74	-94.8368739	36.9607476	7-Apr-04	15	Circular	177		10 ft deep; 18 ft mature tree growing on side
Admiralty No. 2	29N	23E	29	75	-94.8431084	36.9624407	19-Apr-05					Concealed and/or filled
Admiralty No. 4	29N	23E	29	76	-94.8458286	36.9637230	19-Apr-05					Concealed and/or filled
Barbara J	29N	23E	29	77	-94.8395019	36.9669591	30-Mar-05					Concealed and/or filled; from 1927 topographic map; location approximate
Barbara J	29N	23E	29	78	-94.8384310	36.9699151	30-Mar-05	6 X 6	Square		3	Concealed and/or filled; filled with chatcrete; landowner thinks this was a shaft; not on any mine maps
Lottson	29N	23E	30	1	-94.8651163	36.9721202	19-Mar-04	60	Circular	2827	1	Same size in June 1981
Lottson	29N	23E	30	2	-94.8647468	36.9699207	19-Mar-04	10 x 10	Rectangle	100		Filled to the surface with filled with logs and debris; about same size in June 1981
Lottson	29N	23E	30	3	-94.8644208	36.9692906	19-Mar-04	40	Circular	1257		In June 1981, concealed and/or filled
Blue Goose No. 1	29N	23E	30	4	-94.8646930	36.9685505	19-Mar-04					Concealed; beneath chat pile
Blue Goose No. 1	29N	23E	30	5	-94.8629015	36.9660004	19-Mar-04					Concealed and/or filled; depression over shaft location; open shaft in June 1981
Hum-Bah-Wat-Tah	29N	23E	30	6	-94.8616618	36.9656566	19-Mar-04					Concealed and/or filled
Hum-Bah-Wat-Tah	29N	23E	30	7	-94.8612453	36.9655343	19-Mar-04					Concealed and/or filled
Hum-Bah-Wat-Tah	29N	23E	30	8	-94.8594971	36.9656086	19-Mar-04					Concealed and/or filled; filled shaft with concrete collar; 5-foot deep depression at location
Hum-Bah-Wat-Tah	29N	23E	30	9	-94.8582709	36.9673417	19-Mar-04					Concealed and/or filled
Ritz	29N	23E	30	10	-94.8594887	36.9699848	5-Apr-04					Concealed and/or filled; 40-ft circular collapse in June 1981
Ritz	29N	23E	30	11	-94.8598565	36.9702224	5-Apr-04					Concealed and/or filled
Ritz	29N	23E	30	13	-94.8615170	36.9706156	19-Mar-04					Concealed; beneath chat pile
Ritz	29N	23E	30	14	-94.8619490	36.9702335	19-Mar-04					Concealed; beneath chat pile
Lottson	29N	23E	30	15	-94.8634395	36.9717052	19-Mar-04					Concealed and/or filled; 3-ft deep depression; trees growing in middle

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Lottson	29N	23E	30	16	-94.8636988	36.9719593	19-Mar-04					Concealed and/or filled
Ritz	29N	23E	30	18	-94.8609313	36.9721342	19-Mar-04					Concealed and/or filled
Ritz	29N	23E	30	19	-94.8565289	36.9717878	19-Mar-04					Concealed and/or filled; 20-ft deep collapse occurred in 1982
Ritz	29N	23E	30	21	-94.8569469	36.9703436	5-Apr-04	70 x 30	Irregular	2100		Open shaft; irregular shape due to erosion; 10 ft below ground level; water draining into shaft; concealed and/or filled in June 1981
Jay Bird	29N	23E	30	22	-94.8568297	36.9668891	5-Apr-04					Concealed and/or filled; small depression near location of shaft
Jay Bird	29N	23E	30	23	-94.8552495	36.9665738	5-Apr-04					Concealed and/or filled
Jay Bird	29N	23E	30	24	-94.8553100	36.9669095	5-Apr-04	25	Circular	491	1	Partially filled with garbage; concealed and/or filled in June 1981
Bennie	29N	23E	30	25	-94.8542376	36.9694283	5-Apr-04					Concealed and/or filled
Bennie	29N	23E	30	26	-94.8541645	36.9696427	5-Apr-04	8 x 12	Elliptical	75		10 ft deep; trees growing on side
Lucky Bill	29N	23E	30	27	-94.8505729	36.9714292	6-Apr-04	3	Circular	7		25 ft deep; vertical concrete pipe visible; bullet shaft
Lucky Bill	29N	23E	30	28	-94.8494376	36.9718073	5-Apr-04					Concealed and/or filled
Lucky Bill	29N	23E	30	29	-94.8515838	36.9699453	5-Aug-04					Concealed and/or filled
Lucky Bill	29N	23E	30	30	-94.8516299	36.9696554	5-Aug-04					Concealed and/or filled
Woodchuck	29N	23E	30	31	-94.8523279	36.9686353	5-Apr-04					Concealed and/or filled
Woodchuck	29N	23E	30	32	-94.8529508	36.9681402	5-Apr-04	55	Circular	2376	1	Edge of chat pile; 60-ft circular collapse 25 ft deep in June 1981
Woodchuck	29N	23E	30	33	-94.8528130	36.9665223	5-Apr-04					Concealed and/or filled; cattails growing in shaft; open shaft in June 1981
Woodchuck	29N	23E	30	34	-94.8497241	36.9675725	5-Apr-04	80	Circular	5027	6	In June 1981, 70-ft circular collapse
Woodchuck	29N	23E	30	35	-94.8495883	36.9672936	5-Apr-04	270 x 200	Elliptical	42412	6	In June 1981, 150-ft circular collapse
Woodchuck	29N	23E	30	36	-94.8492340	36.9664821	5-Aug-04					Concealed and/or filled; 1-ft deep depression filled with water
Woodchuck	29N	23E	30	37	-94.8491538	36.9662833	5-Aug-04					Concealed and/or filled
See-Sah	29N	23E	30	38	-94.8498111	36.9637244	5-Aug-04	6 x 6	Square	36	2	Appears to be collapsed below water surface; open shaft in June 1981
See-Sah	29N	23E	30	39	-94.8545162	36.9620258	5-Apr-04					Concealed; shafts plot in the middle of tailings pond; EPA is using the site to dispose of yard chat; site also used to dispose municipal/sewage lagoon sludge
See-Sah	29N	23E	30	40	-94.8552415	36.9627566	5-Apr-04					See above
Blue Goose No. 2	29N	23E	30	41	-94.8596361	36.9592070	5-Apr-04					Concealed and/or filled; 6-foot diameter depression near or at shaft location
Tom L.	29N	23E	30	42	-94.8646719	36.9611569	5-Apr-04					Concealed and/or filled
Shorthorn	29N	23E	30	43	-94.8654184	36.9622145	5-Apr-04	50	Circular	1964	1	Appears stable; 60- x 50-ft elliptical collapse in June 1981
Shorthorn	29N	23E	30	44	-94.8658639	36.9628357	5-Apr-04	25 x 40	Elliptical	785	5	Was fenced; fence breached; 25-ft circular collapse in June 1981
Shorthorn	29N	23E	30	45	-94.8642013	36.9635949	5-Apr-04					Concealed and/or filled; former site of large collapse in chat pile; chat removed; south side of collapse high wall remains; 190-ft circular collapse in June 1981
Shorthorn	29N	23E	30	46	-94.8634001	36.9647461	5-Apr-04					Concealed; beneath former chat pile
Shorthorn	29N	23E	30	47	-94.8657044	36.9650930	5-Apr-04					Concealed and/or filled; possibly filled with chat
Ritz	29N	23E	30	48	-94.8604300	36.9720465	19-Apr-05					Concealed and/or filled
Southside	29N	23E	31	1	-94.8660552	36.9569740	28-Apr-04					Concealed and/or filled; 10-ft high pile over center of shaft
Southside	29N	23E	31	2	-94.8643078	36.9574448	28-Apr-04					Concealed and/or filled
Southside	29N	23E	31	3	-94.8633338	36.9567085	28-Apr-04					Concealed and/or filled

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Southside	29N	23E	31	4	-94.8612359	36.9569121	28-Apr-04					Concealed and/or filled
Southside	29N	23E	31	5	-94.8651994	36.9567045	19-Apr-05					Concealed and/or filled; from 1927 topographic map; location approximate
Eagle-Picher	29N	23E	32	1	-94.8461496	36.9560021	28-Apr-04					Concealed and/or filled
Quebec	29N	23E	32	2	-94.8435381	36.9579113	28-Apr-04					Concealed and/or filled; bermed and filled; filled with debris in May 1981
Quebec	29N	23E	32	3	-94.8421655	36.9579242	28-Apr-04					Concealed and/or filled
Quebec	29N	23E	32	4	-94.8415938	36.9574401	28-Apr-04					Concealed and/or filled; filled; mine water discharging from shaft; berm breached; open shaft in May 1981
Quebec	29N	23E	32	5	-94.8409486	36.9569011	28-Apr-04					Concealed and/or filled; open shaft in May 1981
Montreal	29N	23E	32	6	-94.8380647	36.9574822	28-Apr-04					Concealed and/or filled; 15-ft circular collapse 15 ft deep in May 1981
Montreal	29N	23E	32	7	-94.8371847	36.9578819	28-Apr-04					Concealed and/or filled
Montreal	29N	23E	32	8	-94.8374081	36.9568600	28-Apr-04	20	Circular	314		10-ft deep depression in chat pile; concealed and/or filled in May 1981
Montreal	29N	23E	32	9	-94.8363862	36.9564608	28-Apr-04	15	Circular	177		8 ft deep; concealed and/or filled in May 1981
Beck	29N	23E	32	10	-94.8347281	36.9559693	28-Apr-04	20	Circular	314	15	Open shaft with collapse at surface; 15- x 12-ft elliptical collapse 30 ft deep in February 1983
Beck	29N	23E	32	11	-94.8346443	36.9566417	27-Apr-04	30	Circular	707	15	In May 1981, 40-ft circular collapse 30 ft deep in May 1981
Beck	29N	23E	32	12	-94.8323170	36.9576683	28-Apr-04	50	Circular	1964	25	In May 1981, 30-ft circular collapse
Beck	29N	23E	32	13	-94.8318980	36.9578493	28-Apr-04	65	Circular	3318	1	Plots in and/or on the edge of a pond
Beck	29N	23E	32	14	-94.8316409	36.9562233	28-Apr-04	45	Circular	1590	25	Large cottonwood trees growing on sides; minor collapse in May 1981
Beck	29N	23E	32	15	-94.8329686	36.9551983	28-Apr-04	30 x 30	Elliptical	707	20	Trees growing on sides; same size in May 1981
Beck	29N	23E	32	16	-94.8309549	36.9548914	28-Apr-04	15	Circular	177		3 ft deep; filled with a black hearse; began to recollapse on 2001
Wesley Smith	29N	23E	32	17	-94.8310737	36.9539230	28-Apr-04					Concealed and/or filled; has a concrete cap
Wesley Smith	29N	23E	32	18	-94.8329127	36.9530461	28-Apr-04	30	Circular	707	2	Some mill pillars rotated into collapse
Wesley Smith	29N	23E	32	19	-94.8336294	36.9530635	28-Apr-04					Concealed and/or filled
Wesley Smith	29N	23E	32	20	-94.8340314	36.9530489	28-Apr-04	15	Circular	177		2 ft deep; filled with debris and chatcrete
Van Pool	29N	23E	32	21	-94.8314198	36.9482087	27-Apr-04					Concealed and/or filled
Van Pool	29N	23E	32	22	-94.8313879	36.9475471	27-Apr-04					Concealed and/or filled
Craig	29N	23E	33	1	-94.8300710	36.9575827	28-Apr-04					Concealed; beneath former chat pile
Craig	29N	23E	33	2	-94.8296483	36.9572531	28-Apr-04	12 x 10	Rectangle	120		2 ft deep; concrete blocks rotated into collapse; concealed and/or filled in May 1981
Craig	29N	23E	33	3	-94.8296049	36.9537437	29-Apr-04					Concealed and/or filled; 15-ft circular collapse 8 feet deep in May 1981
Craig	29N	23E	33	4	-94.8292751	36.9532985	29-Apr-04					Concealed and/or filled
Craig	29N	23E	33	5	-94.8267592	36.9509395	29-Apr-04					Concealed and/or filled
Craig	29N	23E	33	6	-94.8249142	36.9532744	29-Apr-04	18	Circular	254	1	Filled with 5 ft or larger blocks of chatcrete from the mill; 40- x 20-ft elliptical collapse in May 1981
Craig	29N	23E	33	7	-94.8257381	36.9536723	29-Apr-04	45 x 20	Elliptical	707	1	Filled with piers from the mill; 20-ft circular collapse 30 ft deep in May 1981
Craig	29N	23E	33	8	-94.8269368	36.9535557	29-Apr-04					Concealed and/or filled; possibly under brush pile

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Craig	29N	23E	33	9	-94.8274906	36.9540383	29-Apr-04	6 x 15	Rectangle	90	1	Large blocks of chatcrete pushed into collapse; concealed and/or filled in May 1981
Craig	29N	23E	33	10	-94.8271585	36.9544907	29-Apr-04					Concealed and/or filled; 20- x 15-ft elliptical collapse 15 ft deep in February 1983; no mine maps show a shaft at this location
Craig	29N	23E	33	11	-94.8275154	36.9562381	28-Apr-04	10	Circular	79	1.5	In March 1982, 25-ft circular collapse 15 ft deep
Craig	29N	23E	33	12	-94.8286781	36.9576339	28-Apr-04	22	Circular	3801		10 ft deep; filled with chat and boulders; fresh signs of renewed collapse; open shaft in May 1981
Craig	29N	23E	33	13	-94.8257935	36.9567193	28-Apr-04					Concealed and/or filled; 20-ft circular collapse 12 ft deep in March 1982
Craig	29N	23E	33	14	-94.8255205	36.9557210	29-Apr-04					Concealed and/or filled; 20-ft circular collapse 12 ft deep in March 1982
Craig	29N	23E	33	15	-94.8235931	36.9576802	28-Apr-04	20	Circular	314		4 ft deep; recollapsed early 2002; 15-ft circular collapse 12 ft deep in March 1982
Craig	29N	23E	33	16	-94.8227661	36.9556979	29-Apr-04					Concealed and/or filled
Craig	29N	23E	33	17	-94.8206804	36.9571179	28-Apr-04					Concealed and/or filled
Wolverine	29N	23E	33	18	-94.8138679	36.9563022	29-Apr-04					Concealed and/or filled; filled with blocks of chatcrete; 50- x 20-ft elliptical collapse 20 ft deep in May 1981
Wolverine	29N	23E	33	19	-94.8136847	36.9559349	29-Apr-04	30 x 20	Elliptical	471		8 ft deep; large trees growing on sides; 50- x 40-ft elliptical collapse 25 ft deep in May 1981
Craig	29N	23E	33	20	-94.8129757	36.9530245	29-Apr-04	20	Circular	314	15	Filled and recollapsed December 2003; 25-ft circular collapse 20 ft deep in April 1982
Craig	29N	23E	33	21	-94.8190586	36.9512298	29-Apr-04					Concealed and/or filled; 13-ft circular collapse 12 ft deep in May 1981
Craig	29N	23E	33	22	-94.8187477	36.9511921	29-Apr-04					Concealed and/or filled; 20-ft circular collapse 12 ft deep in May 1981
John Hunt	29N	23E	33	23	-94.8176109	36.9500806	29-Apr-04	28 x 15	Elliptical	330		12 ft deep; filled shaft that recollapsed; concealed and/or filled in May 1981
John Hunt	29N	23E	33	24	-94.8205267	36.9496147	29-Apr-04	8 x 24	Rectangle	192		20 ft deep; filled shaft that recollapsed; 15-ft circular collapse 25 ft deep in May 1981
John Hunt	29N	23E	33	25	-94.8208266	36.9505340	29-Apr-04					Concealed and/or filled; open shaft in May 1981
Craig	29N	23E	33	26	-94.8209818	36.9511893	29-Apr-04	40 x 20	Elliptical	628		12 ft deep; shaft partially filled with large concrete blocks from mill and debris; looks stable; 30-ft circular collapse 15 ft deep in May 1981
John Hunt	29N	23E	33	27	-94.8246335	36.9504858	29-Apr-04	5 x 7	Rectangle		20	Open shaft; open shaft in May 1981
John Hunt	29N	23E	33	28	-94.8302475	36.9463842	27-Apr-04	40	Circular	1257	0.5	Mature trees growing on edges; same size in May 1981
John Hunt	29N	23E	33	29	-94.8301798	36.9480478	27-Apr-04	20	Circular	314	20	Trees growing on sides; some debris at bottom; same size in May 1981
John Hunt	29N	23E	33	30	-94.8295916	36.9492446	27-Apr-04	70 x 40	Elliptical	2199		20 ft deep; mature trees growing on sides; 50- x 40-ft elliptical collapse 15 ft deep in March 1982
John Hunt	29N	23E	33	31	-94.8291408	36.9500282	27-Apr-04	15	Circular	177		4 ft deep; filled with blocks of chatcrete
John Hunt	29N	23E	33	32	-94.8146322	36.9489583	29-Apr-04	15	Circular			Concealed and/or filled; filled shaft; 3 foot deep depression
John Hunt	29N	23E	33	33	-94.8155337	36.9482252	29-Apr-04					Concealed and/or filled; possible shaft; area bermed with large boulders in 1933; WPA project
John Hunt	29N	23E	33	34	-94.8294674	36.9503851	27-Apr-04					Concealed and/or filled
John Hunt	29N	23E	33	35	-94.8145691	36.9477812	12-Dec-05	20	Circular			Concealed and/or filled; 3-ft high mound; filled with brush and dirt

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Ruth Goodeagle	29N	23E	34	1	-94.8100349	36.9534585	29-Mar-05	25	Circular	491		12 ft deep; 20-ft circular collapse 10 ft deep in February 1982
Ruth Goodeagle	29N	23E	34	2	-94.8092764	36.9540778	30-Apr-04					Concealed and/or filled; large mill with thickner tank
Ruth Goodeagle	29N	23E	34	3	-94.8090447	36.9560683	30-Apr-04	30	Circular	707		20 ft deep; filled with some debris; overgrown with honeysuckle; same size in February 1982
Big Three	29N	23E	34	4	-94.8071544	36.9541988	30-Apr-04					Concealed and/or filled
Big Three	29N	23E	34	5	-94.8070257	36.9542308	30-Apr-04	75 x 35	Elliptical	1826		20 ft deep; concealed and/or filled in February 1982
Imperial	29N	23E	34	6	-94.8072201	36.9564227	30-Apr-04					Concealed and/or filled; 40- x 20-ft elliptical collapse in February 1982
Imperial	29N	23E	34	7	-94.8065483	36.9567354	30-Apr-04					Open shaft 210-215 ft deep; used as a source of water
Muskogee	29N	23E	34	8	-94.8031878	36.9571802	30-Apr-04	30	Circular	707		15 ft deep; shaft collar appears to have rotated into collapse; 20-ft circular collapse 25 ft deep in February 1982
Muskogee	29N	23E	34	9	-94.8029389	36.9568253	30-Apr-04	25	Circular	491		Filled with debris; small trees growing on sides; same size in February 1982
Springfield	29N	23E	34	10	-94.7969736	36.9568715	30-Apr-04					Being filled; filled with debris; mill south of collapse; owner burying mill pliers in trenches
Andrew Greenback	29N	23E	34	11	-94.8067529	36.9469327	30-Apr-04	20	Circular	314		4 ft deep; 12-in. diameter tree growing in bottom; same size in February 1982
Ruth Goodeagle	29N	23E	34	12	-94.8107354	36.9538132	30-Apr-04				20	Covered; open shaft; concrete collar 4 ft above ground; a 5 x 7-ft concrete lid over shaft; USGS brass marker inscribed station #43
Ruth Goodeagle	29N	23E	34	13	-94.8088694	36.9494507	30-Apr-05					Concealed and/or filled; from 1927 topographic map; location approximate
Harry Whitebird (Quapaw)	29N	23E	35	1	-94.7934994	36.9553464	29-Apr-04					Concealed and/or filled
Harry Whitebird (Quapaw)	29N	23E	35	2	-94.7935914	36.9556092	29-Apr-04					Concealed and/or filled; minor collapse associated with this feature in past (east side of Chestnut)
In Quapaw City limits	29N	23E	35	3	-94.7934052	36.9572848	29-Apr-04					Concealed and/or filled; history of reoccurring collapse
Harry Whitebird	29N	23E	35	4	-94.7780312	36.9548902	29-Apr-04	30 x 18	Elliptical	424	20	In February 1982, 15- x 12-ft elliptical collapse 12 ft deep
Harry Whitebird	29N	23E	35	5	-94.7779641	36.9541447	29-Apr-04	12	Circular	113	15	Extends 10 ft under a concrete pad; half of the collapse is concealed; concealed and/or filled in February 1982
Buckeye	29N	23E	35	6	-94.7791399	36.9443930	29-Apr-04					Concealed and/or filled
Buckeye	29N	23E	35	7	-94.7800067	36.9443815	29-Apr-04					Concealed and/or filled
Julia Shapp	29N	23E	35	8	-94.7813595	36.9440582	29-Apr-04					Concealed and/or filled
Julia Shapp	29N	23E	35	9	-94.7820034	36.9440631	29-Apr-04	12 x 6	Rectangle	72	20	Was fenced; 14- x 10-ft elliptical collapse 25 ft deep in February 1982
Quapaw	29N	23E	35	10	-94.7943390	36.9557037	29-Apr-04					Concealed and/or filled; northeast corner 3rd and Maple; shaft under brush pile
Julia Shapp	29N	23E	35	11	-94.7879393	36.9462869	29-Apr-04					Collapsed in 2003; 30 ft deep; filled by ODOT and Ottawa Co. road crews; beginning to recollapse
Julia Shapp	29N	23E	35	12	-94.7884896	36.9466495	29-Apr-04	40	Circular	1257		15 ft deep; filled with car bodies, at least 5 different automobile manufacturers
Harry Whitebird	29N	23E	35	13	-94.7813134	36.9537287	30-Mar-05	25	Circular	491		8 ft deep; from 1927 topographic map; ore bucket in bottom of collapse; stable; mature trees growing on sides

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Julia Shapp	29N	23E	35	14	-94.7849123	36.9499900	30-Mar-05					Concealed and/or filled; from 1927 topographic map; location approximate
In Quapaw City limits	29N	23E	35	15	-94.7930588	36.9570143	29-Apr-04					Concealed and/or filled; possible shaft
Crawford	29N	23E	36	1	-94.7724812	36.9511164	17-Mar-05	15	Circular	177	10	Concrete slab rotated into collapse; partially filled with debris; 30- x 12-ft elliptical collapse 15 ft deep in February 1982
Crawford	29N	23E	36	2	-94.7711327	36.9526966	17-Mar-05	30	Circular	707		Filled with pallets, tires, and some debris; 12-ft circular collapse in February 1982
Frank Buck	29N	23E	36	3	-94.7619109	36.9506753	17-Mar-05	40	Circular	1257		25 ft deep; large brush pile on top of opening; difficult to determine size; 25-ft circular collapse 20 ft deep in February 1982
Frank Buck	29N	23E	36	4	-94.7622936	36.9495811	17-Mar-05	10	Circular			Concealed and/or filled; 2-ft deep depression
Frank Buck	29N	23E	36	5	-94.7600604	36.9498304	17-Mar-05					Concealed and/or filled; 15- x 10-ft elliptical collapse 25 ft deep in February 1982
Frank Buck	29N	23E	36	6	-94.7595853	36.9495311	17-Mar-05					Concealed and/or filled; may be susceptible to future cave-ins; open shaft in February 1982
Frank Buck	29N	23E	36	7	-94.7603767	36.9484542	17-Mar-05	20	Circular	314	15	Partially filled with trash; 15-ft circular collapse 25 ft deep in February 1982
Frank Buck	29N	23E	36	8	-94.7605654	36.9458128	17-Mar-05	10 x 12	Rectangle	120		2 ft deep; filled with trash; recollapsed after February 1982
Frank Buck	29N	23E	36	9	-94.7611196	36.9459839	17-Mar-05					Concealed and/or filled; 15-ft circular collapse 15 ft deep in February 1982
Frank Buck	29N	23E	36	10	-94.7603075	36.9445592	17-Mar-05					Concealed and/or filled; 14-ft circular collapse 10 ft deep in February 1982
Silver Streak	29N	23E	36	11	-94.7634898	36.9449850	17-Mar-05					Concealed and/or filled
Silver Streak	29N	23E	36	12	-94.7636390	36.9445225	17-Mar-05					Concealed and/or filled; 20-ft circular collapse in February 1982
Silver Streak	29N	23E	36	13	-94.7649226	36.9440426	17-Mar-05	15	Circular	177		Filled with brush; 12-ft circular collapse 15 ft deep in February 1982
Silver Streak	29N	23E	36	14	-94.7666870	36.9443978	17-Mar-05					Concealed and/or filled; 10-ft circular collapse 20 ft deep in February 1982
Silver Streak	29N	23E	36	15	-94.7659719	36.9459201	17-Mar-05	20	Circular	314		4 ft deep; filled with trash; 15- x 8-ft elliptical collapse in February 1982
Silver Streak	29N	23E	36	16	-94.7663223	36.9459874	17-Mar-05	30	Circular	707		8 ft deep; filled with trash; 20- x 15-ft elliptical collapse 15 ft deep in February 1982
Petersburg	29N	23E	36	17	-94.7692386	36.9456967	17-Mar-05	18	Circular	254	2	Filled with debris i.e. shingles and trash; during high rainfall events water appears to discharge from shaft; concealed and/or filled in February 1982
Petersburg	29N	23E	36	18	-94.7690177	36.9442590	17-Mar-05					Concealed and/or filled; appears mine water is discharging from shaft; concealed and/or filled in February 1982
Petersburg	29N	23E	36	20	-94.7696417	36.9441634	17-Mar-05	10 x 15	Rectangle	150		Filled with boards and debris; 12-ft circular collapse in February 1982
Petersburg	29N	23E	36	21	-94.7702281	36.9444438	17-Mar-05	12	Circular	113	12	In February 1982, concealed and/or filled
Petersburg	29N	23E	36	22	-94.7706915	36.9439003	17-Mar-05	20 x 15	Rectangle	300		6 ft deep; open shaft in February 1982
Unknown	29N	23E	36	23	-94.7640681	36.9498867	17-Mar-05					Concealed and/or filled
Frank Buck	29N	23E	36	24	-94.7613610	36.9484706	17-Mar-05	30	Circular	707		15 ft deep; partially filled with brush
Frank Buck	29N	23E	36	25	-94.7610185	36.9488310	17-Mar-05					Concealed and/or filled; from 1927 topographic map; location approximate

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Frank Buck	29N	23E	36	26	-94.7600450	36.9486290	17-Mar-05					Concealed and/or filled	
M. W. Clark	29N	24E	17	1	-94.7393176	36.9938774	28-Apr-05	30	Circular	707		20 ft deep; partially filled with barbed wire, tin cans, and other debris; open shaft in November 1981	
Discard	29N	24E	17	2	-94.7371149	36.9947987	31-Mar-04	30	Circular	707	20	Open shaft; open in November 1981; miss located on Plate 1 (Luza, 1986)	
Discard	29N	24E	17	3	-94.7360045	36.9951171	31-Mar-04	100 x 75	Elliptical	5890	30	More than doubled in size after November 1981	
Discard	29N	24E	17	4	-94.7381714	36.9965469	31-Mar-04					Shaft covered with a concrete cap in January 2000; open shaft in November 1981	
Discard	29N	24E	17	5	-94.7385737	36.9980965	31-Mar-04	25	Circular	491		15 ft deep; minor debris in collapse; open shaft in November 1981	
Martha B.	29N	24E	17	6	-94.7355637	36.9975459	28-Apr-05	30	Circular	707	6	Numerous sink holes nearby	
Martha B.	29N	24E	17	7	-94.7341948	36.9981072	31-Mar-04					Concealed and/or filled; shaft sealed at bedrock with cement mixer cone; shaft filled with mill debris and sealed in January 2000	
Martha B.	29N	24E	17	8	-94.7325471	36.9979806	31-Mar-04					Concealed and/or filled; shaft filled with boulders in January 2000	
Weepah	29N	24E	17	9	-94.7311168	36.9983514	31-Mar-04					Concealed and/or filled	
Weepah	29N	24E	17	10	-94.7296502	36.9972214	31-Mar-04					Concealed and/or filled	
Discard	29N	24E	17	11	-94.7365189	36.9951598	18-May-05					Located in middle of non-shaft collapse no. 1501 (see Table 2)	
Discard	29N	24E	17	12	-94.7368599	36.9966245	10-Nov-04	6 X 6	Square	36	1	Open shaft	
Martha B.	29N	24E	17	13	-94.7361109	36.9977240	10-Nov-04	15	Circular	177			6 ft deep; mature tree growing on side
Discard	29N	24E	17	14	-94.7369139	36.9952806	18-May-05					Concealed and/or filled	
Discard	29N	24E	17	15	-94.7372997	36.9954358	18-May-05					Concealed and/or filled	
M.W. Clark	29N	24E	17	16	-94.7397976	36.9942850	28-Apr-05	20	Circular	314			Shaft filled to the surface with debris and garbage; from 1927 topographic map
Weepah	29N	24E	17	17	-94.7311176	36.9983512	31-Mar-04					Concealed and/or filled; located 20 ft south of chat pile according to owner; no field evidence for a shaft	
I. N. Bingham	29N	24E	18	1	-94.7455293	36.9953050	31-Mar-04	20	Circular	314			10 ft deep; concealed and/or filled in November 1981
I. N. Bingham	29N	24E	18	2	-94.7437174	36.9956010	31-Mar-04					Concealed and/or filled; concrete debris in shaft location; concealed and/or filled in November 1981	
Diamond Joe	29N	24E	18	3	-94.7473610	36.9882869	31-Mar-04	40 x 30	Elliptical	942	6	Doubled in size after November 1981	
Diamond Joe	29N	24E	18	4	-94.7480266	36.9881695	31-Mar-04	70 x 30	Elliptical	1649	2	In November 1981, concealed and/or filled	
R. E. George	29N	24E	18	5	-94.7455338	36.9939377	27-May-05					Concealed and/or filled; in wheat field	
Campbell	29N	24E	19	1	-94.7572723	36.9822977	31-Mar-04					Concealed and/or filled; 30-ft circular collapse in November 1981	
Campbell	29N	24E	19	2	-94.7543300	36.9818553	31-Mar-04					Concealed and/or filled; 40-ft circular collapse in November 1981	
Campbell	29N	24E	19	3	-94.7495790	36.9836457	31-Mar-04	30	Circular	707	20	Open shaft; 20-ft circular collapse in November 1981	
Malsbury	29N	24E	19	4	-94.7488075	36.9854840	31-Mar-04	40	Circular	1257	10	Doubled in size after November 1981	
Malsbury	29N	24E	19	5	-94.7470700	36.9850120	31-Mar-04					Shaft was recently filled again, shaft appears to be reopening in northeast corner; open shaft in November 1981	
Bendene	29N	24E	19	6	-94.7432276	36.9854853	22-Feb-05					Concealed and/or filled	
Bendene	29N	24E	19	7	-94.7427748	36.9848690	22-Feb-05					Concealed and/or filled	

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Bendene	29N	24E	19	8	-94.7433308	36.9847990	22-Feb-05					Concealed and/or filled
Campbell	29N	24E	19	9	-94.7466060	36.9825718	22-Feb-05	30	Circular	707	12	Collapsed after November 1981
V-1	29N	24E	19	10	-94.7443484	36.9814720	22-Feb-05					Concealed and/or filled; shaft filled with boulders
V-1	29N	24E	19	11	-94.7442701	36.9812814	22-Feb-05	15	Circular	177		Shaft filled with trash and debris; concealed and/or filled in November 1981
V-1	29N	24E	19	12	-94.7436938	36.9811370	22-Feb-05	15	Circular	177		Shaft filled with trash
Campbell	29N	24E	19	13	-94.7452543	36.9804461	22-Feb-05	20	Circular	314	12	Enlarged after November 1981
Sunnyside	29N	24E	19	14	-94.7448461	36.9799420	22-Feb-05	20	Circular	314		Shaft filled with debris and garbage; concealed and/or filled in November 1981
Sunnyside	29N	24E	19	15	-94.7458551	36.9754036	22-Feb-05	25	Circular	491	4	About the same size in November 1981
Sunnyside	29N	24E	19	16	-94.7466232	36.9741519	22-Feb-05					Concealed and/or filled
M. Sullivan	29N	24E	19	17	-94.7513186	36.9734631	22-Feb-05					Concealed and/or filled; 15-ft circular collapse in November 1981
M. Sullivan	29N	24E	19	18	-94.7519330	36.9741530	22-Feb-05					Concealed and/or filled; 10-ft circular collapse in November 1981
M. A. Foster	29N	24E	19	19	-94.7565202	36.9771110	31-Mar-04					Concealed and/or filled; daughter of man who filled shaft said that her father used car bodies and other debris to fill shaft in 1960's
Campbell	29N	24E	19	20	-94.7504086	36.9864367	22-Feb-05					Concealed and/or filled; location from 1927 topographic map
Malsbury	29N	24E	19	21	-94.7480890	36.9868495	22-Feb-05	25 x 20	Elliptical	393	5	
Majeska	29N	24E	29	1	-94.7389525	36.9636248	16-Mar-05					Concealed and/or; filled after April 1981
Dark Horse	29N	24E	29	2	-94.7399706	36.9620638	16-Mar-05					Concealed and/or filled; field evidence suggests the existence of a former shaft
Isley	29N	24E	29	3	-94.7388339	36.9616274	17-Mar-05	20	Circular	314		3 ft deep; filled with debris and trash; concealed in April 1981
Isley	29N	24E	29	4	-94.7388852	36.9614228	17-Mar-05	6	Circular			Concealed and/or filled; 1-ft deep depression
Unknown	29N	24E	29	5	-94.7382694	36.9612689	17-Mar-05					Concealed and/or filled
Tipton	29N	24E	29	6	-94.7377032	36.9611382	17-Mar-05	30	Circular	707		8 ft deep; filled shaft that recollapsed; concealed in April 1981
Sunburst No. 2	29N	24E	29	7	-94.7385413	36.9586766	17-Mar-05					Concealed and/or filled
Sunburst	29N	24E	29	8	-94.7395858	36.9584999	17-Mar-05					Concealed and/or filled
Sunburst	29N	24E	29	9	-94.7401131	36.9592183	17-Mar-05					Concealed and/or filled; no field evidence for a mine shaft
Unknown	29N	24E	29	10	-94.7401700	36.9598097	17-Mar-05					Concealed and/or filled; few boulders present
Unknown	29N	24E	29	11	-94.7402861	36.9616822	17-Mar-05					Concealed and/or filled; Larry Kropp filled this shaft
John L.	29N	24E	30	1	-94.7518293	36.9661403	16-Mar-05	75	Circular	4418	25	Mature trees growing on sides and near bottom; enlarged since February 1982
Pearl	29N	24E	30	2	-94.7498363	36.9680466	16-Mar-05					Concealed and/or filled
Pearl	29N	24E	30	3	-94.7516140	36.9686905	16-Mar-05					Concealed and/or filled; no field evidence for a mine shaft
John L.	29N	24E	30	4	-94.7516539	36.9691347	16-Mar-05	12	Circular	113		4 ft deep; larger in February 1982
John L.	29N	24E	30	5	-94.7507540	36.9695412	16-Mar-05					Concealed and/or filled; filled shaft; recurring collapse
John L./Pearl	29N	24E	30	6	-94.7503160	36.9709026	16-Mar-05					Concealed and/or filled
11th Hour	29N	24E	30	7	-94.7474051	36.9718729	16-Mar-05					Concealed and/or filled
Donna Jane	29N	24E	30	8	-94.7489242	36.9686525	16-Mar-05	20	Circular			Concealed and/or filled; 1-foot deep depression
Donna Jane	29N	24E	30	9	-94.7484518	36.9680870	16-Mar-05					Concealed and/or filled
Donna Jane	29N	24E	30	10	-94.7436524	36.9664635	16-Mar-05					Concealed and/or filled; no field evidence for a mine shaft
Donna Jane	29N	24E	30	11	-94.7422514	36.9662978	16-Mar-05					Concealed and/or filled; no field evidence for a mine shaft

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Donna Jane	29N	24E	30	12	-94.7422843	36.9656963	16-Mar-05	10	Circular			Concealed and/or filled; 2-ft deep depression
Sam Abrams	29N	24E	30	13	-94.7435941	36.9648796	16-Mar-05					Concealed and/or filled; no field evidence for a mine shaft
Sam Abrams	29N	24E	30	14	-94.7422729	36.9648534	16-Mar-05					Concealed and/or filled
Sam Abrams	29N	24E	30	15	-94.7426224	36.9640296	16-Mar-05					Concealed and/or filled; filled after February 1982
Sam Abrams	29N	24E	30	16	-94.7434726	36.9640650	16-Mar-05	25	Circular	491	2	Enlarged after February 1982
Sam Abrams	29N	24E	30	17	-94.7437142	36.9634036	16-Mar-05					Concealed and/or filled; no field evidence for a mine shaft
Sam Abrams	29N	24E	30	18	-94.7435758	36.9633655	16-Mar-05	20	Circular	314	1	Collapsed after February 1982
Sam Abrams	29N	24E	30	19	-94.7438739	36.9627463	16-Mar-05					Concealed and/or filled; no field evidence for a mine shaft
Sam Abrams	29N	24E	30	20	-94.7409701	36.9630536	16-Mar-05	25	Circular	491		Filled with trash and debris, enlarged since February 1982
Sam Abrams	29N	24E	30	21	-94.7411821	36.9622025	16-Mar-05					Concealed and/or filled
Sam Abrams	29N	24E	30	22	-94.7405426	36.9619637	16-Mar-05					Concealed and/or filled
Sam Abrams	29N	24E	30	23	-94.7409818	36.9613202	16-Mar-05	25	Circular	491		15 ft deep
Sam Abrams	29N	24E	30	24	-94.7417258	36.9612903	16-Mar-05					Concealed and/or filled
Sam Abrams	29N	24E	30	25	-94.7420659	36.9610623	16-Mar-05					Concealed and/or filled
Sam Abrams	29N	24E	30	26	-94.7410161	36.9607781	16-Mar-05					Concealed and/or filled; found possible foundation for shaft
Sam Abrams	29N	24E	30	27	-94.7410118	36.9606968	16-Mar-05	25	Circular			Concealed and/or filled; shallow depression; filled after February 1982
Sam Abrams	29N	24E	30	28	-94.7416809	36.9605058	16-Mar-05					Concealed and/or filled
Sunnyside	29N	24E	30	29	-94.7416029	36.9593958	16-Mar-05	35 x 25	Elliptical	687	1	About the same size in February 1982
Sam Abrams	29N	24E	30	30	-94.7419920	36.9588320	16-Mar-05					Concealed and/or filled
Sam Abrams	29N	24E	30	31	-94.7429224	36.9607608	16-Mar-05					Concealed and/or filled; in wheat field; no field evidence for a mine shaft
Unknown	29N	24E	30	32	-94.7438017	36.9611246	16-Mar-05	20	Circular	314	15	In February 1982, concealed and/or filled
Unknown	29N	24E	30	33	-94.7437115	36.9614218	16-Mar-05					Concealed and/or filled
Unknown	29N	24E	30	34	-94.7442140	36.9614010	16-Mar-05					Concealed; beneath chat pile
J. E. McGuirk	29N	24E	30	35	-94.7451343	36.9608765	16-Mar-05					Concealed and/or filled; no field evidence for a mine shaft
J. E. McGuirk	29N	24E	30	36	-94.7466412	36.9621342	16-Mar-05	25 x 15	Elliptical	295		6 ft deep; filled with debris and trash; about the same size in February 1982
J. E. McGuirk	29N	24E	30	37	-94.7463565	36.9601074	16-Mar-05	20	Circular	314	20	Enlarged since February 1982
J. E. McGuirk	29N	24E	30	38	-94.7482604	36.9598561	16-Mar-05	15	Circular	177		4 ft deep; concealed in February 1982
J. E. McGuirk	29N	24E	30	39	-94.7497555	36.9598970	17-Mar-05	12	Circular			Concealed and/or filled; 2-ft deep depression
J. E. McGuirk	29N	24E	30	40	-94.7507179	36.9585675	17-Mar-05	40	Circular	1257		Filled with debris and trash
J. E. McGuirk	29N	24E	30	41	-94.7514394	36.9583686	17-Mar-05	10	Circular			Concealed and/or filled; 2-foot deep depression; collapsed in early 1980's and broke rural water line
J. E. McGuirk	29N	24E	30	42	-94.7519988	36.9597441	17-Mar-05					Concealed and/or filled
Sam Abrams	29N	24E	30	43	-94.7558029	36.9596340	16-Mar-05					Concealed and/or filled
Sam Abrams	29N	24E	30	44	-94.7554370	36.9603888	16-Mar-05					Concealed and/or filled; filled in the 1960's
Ten O'clock	29N	24E	30	45	-94.7511802	36.9627743	16-Mar-05	25	Circular	491	20	Open shaft; 20 ft to top of cribbing; open shaft in February 1982
Sam Abrams	29N	24E	30	46	-94.7532189	36.9646203	16-Mar-05	40	Circular	1257		20 ft deep; about the same size in February 1982
Sam Abrams	29N	24E	30	47	-94.7516250	36.9646056	16-Mar-05	10 x 10	Elliptical	79	2	Stable
Sam Abrams	29N	24E	31	1	-94.7516243	36.9580020	15-Mar-05					Concealed and/or filled
Sam Abrams	29N	24E	31	2	-94.7516236	36.9581112	15-Mar-05					Concealed and/or filled
West Virginia	29N	24E	31	3	-94.7406747	36.9578790	15-Mar-05					Concealed and/or filled

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition	
West Virginia	29N	24E	31	4	-94.7413799	36.9573831	15-Mar-05					Concealed and/or filled	
Quivera	29N	24E	31	5	-94.7450515	36.9530878	14-Mar-05	35	Circular	962		15 ft deep; mature trees growing on sides; about the same size in February 1982	
McKibbon	29N	24E	31	6	-94.7453708	36.9516186	14-Mar-05	40	Circular	1257		Open shaft; partially filled with trash	
Waxahachie	29N	24E	31	7	-94.7430893	36.9515620	14-Mar-05	15 x 6	Elliptical			Concealed and/or filled; 2 ft deep; filled with boulders; filled since February 1982	
Waxahachie	29N	24E	31	8	-94.7425554	36.9515395	14-Mar-05					Concealed and/or filled; filled in 1982; mound of rock and chat over shaft location	
Waxahachie	29N	24E	31	9	-94.7409000	36.9513781	14-Mar-05					Concealed and/or filled	
Red Eagle	29N	24E	31	10	-94.7430587	36.9508059	14-Mar-05	15 x 20	Elliptical	236		15 ft deep; filled with trash and debris; open shaft in February 1982	
Red Eagle	29N	24E	31	11	-94.7436613	36.9508096	14-Mar-05	30	Circular	707		15 ft deep	
Red Eagle	29N	24E	31	12	-94.7436784	36.9501218	14-Mar-05	40	Circular	1257	2		Slightly smaller in February 1982
Red Eagle	29N	24E	31	13	-94.7438874	36.9490275	14-Mar-05	30	Circular	707			12 ft deep; filled with debris and garbage; doubled in size since February 1982
Red Eagle	29N	24E	31	14	-94.7432118	36.9489126	14-Mar-05	12	Circular	113			15 ft deep
Red Eagle	29N	24E	31	15	-94.7419869	36.9494725	14-Mar-05	20	Circular	314	3		About the same size in February 1982
Red Eagle	29N	24E	31	16	-94.7420616	36.9491703	14-Mar-05	15	Circular	177			8 ft deep
Red Eagle	29N	24E	31	17	-94.7413028	36.9491222	14-Mar-05	15 x 12	Rectangle	180			10 ft deep
Red Eagle	29N	24E	31	18	-94.7408693	36.9484874	14-Mar-05	10	Circular	79	50		Open shaft; open in February 1982
Red Eagle	29N	24E	31	19	-94.7414146	36.9477219	14-Mar-05	25 x 15	Elliptical	295			10 ft deep; open shaft in February 1982
Lena Whitebird	29N	24E	31	20	-94.7408950	36.9471306	14-Mar-05	15	Circular	177			8 ft deep; about the same size in February 1982
Lena Whitebird	29N	24E	31	21	-94.7430123	36.9461515	14-Mar-05	12	Circular	113			8 ft deep; stable; about the same size in February 1982
Lena Whitebird	29N	24E	31	22	-94.7434734	36.9455890	14-Mar-05					Covered; U.S.G.S. survey monument No.3 at location	
Lena Whitebird	29N	24E	31	23	-94.7434531	36.9451985	14-Mar-05					Concealed and/or filled	
Preston	29N	24E	31	24	-94.7487603	36.9488173	15-Mar-05	8 x 12	Elliptical	75	25		Open shaft
Preston	29N	24E	31	25	-94.7490543	36.9490311	15-Mar-05	30	Circular	707	25		In February 1982, open shaft
Preston	29N	24E	31	26	-94.7521971	36.9465046	15-Mar-05	8	Circular	50	25		Open shaft; 2-ft circular opening in northwest corner of collapse; filled and recollapsed; concealed in February 1982
Preston	29N	24E	31	27	-94.7512277	36.9455080	15-Mar-05					Concealed and/or filled	
Preston	29N	24E	31	28	-94.7513488	36.9443753	15-Mar-05					Concealed and/or filled	
Preston	29N	24E	31	29	-94.7522153	36.9455065	15-Mar-05					Concealed and/or filled; filled shaft	
Preston	29N	24E	31	30	-94.7528191	36.9466930	15-Mar-05	10 x 10	Rectangle	100			20 ft deep; shaft partially filled with debris and garbage; limestone at surface
Widow Crawfish	29N	24E	31	31	-94.7545184	36.9477361	15-Mar-05					Concealed and/or filled	
Widow Crawfish	29N	24E	31	32	-94.7562702	36.9477112	15-Mar-05	120	Circular	11310	20		
Old Abe	29N	24E	31	33	-94.7576695	36.9450630	15-Mar-05					Concealed and/or filled	
Old Abe	29N	24E	31	34	-94.7577908	36.9444827	14-Mar-05					A 25 ft long 2-ft deep trench filled with trash and debris; concealed in February 1982	
Waxahachie	29N	24E	31	35	-94.7417076	36.9525850	14-Mar-05	10	Circular				Concealed and/or filled; 1-ft deep depression; filled with boulders and chat
Waxahachie	29N	24E	31	36	-94.7447436	36.9531981	14-Mar-05					Concealed and/or filled; covered with a brush pile	
Widow Crawfish	29N	24E	31	37	-94.7451945	36.9464574	14-Mar-05	25	Circular	491			10 ft deep; from 1927 topographic map
Red Eagle	29N	24E	31	38	-94.7409663	36.9482855	14-Mar-05					Concealed and/or filled; filled by county early 1980's	
Red Eagle	29N	24E	31	39	-94.7411884	36.9479046	14-Mar-05	10	Circular	79			10 ft deep; looks recent

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
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Tom Crawfish	29N	24E	31	40	-94.7581516	36.9524478	15-Mar-05	25	Circular	491		10 ft deep
Tom Crawfish	29N	24E	31	41	-94.7515036	36.9519443	15-Mar-05	30	Circular	707		8 ft deep; filled with debris and garbage
Sam Abrams	29N	24E	31	42	-94.7511870	36.9580443	15-Mar-05					Concealed and/or filled; from 1927 topographic map
McKibbon	29N	24E	31	43	-94.7460087	36.9513035	14-Mar-05					Concealed and/or filled; from 1927 topographic map
West Virginia	29N	24E	31	44	-94.7418722	36.9581641	16-Mar-05	12	Circular			Concealed and/or filled; 2-ft deep depression
Blacksnake	29N	24E	32	1	-94.7401477	36.9516075	15-Mar-05	18	Circular	254		5 ft deep; filled with debris and chatcrete
Lancaster Min. Co.	29N	24E	32	2	-94.7402272	36.9525896	15-Mar-05					Concealed and/or filled; filled shaft; partially filled in February 1982
Hobo	29N	24E	32	3	-94.7400579	36.9573237	15-May-05	20	Circular	314		Filled with debris; tires; appears to be actively collapsing; slightly smaller in February 1982
Hobo	29N	24E	32	4	-94.7396859	36.9577182	15-Mar-05					Concealed and/or filled; filled shaft; open shaft in February 1982
Lead Boy	29N	24E	32	5	-94.7394847	36.9578800	15-Mar-05					Concealed and/or filled; small cave-in at location; filled with boulders
Lead Boy	29N	24E	32	6	-94.7388001	36.9576974	15-Mar-05					Concealed and/or filled
Good Luck	29N	24E	32	7	-94.7365369	36.9577893	15-Mar-05	30	Circular	707		10 ft deep; mature trees growing on sides; concealed in February 1982
Good Luck	29N	24E	32	8	-94.7357633	36.9575967	15-Mar-05					Concealed and/or filled; filled shaft
50-50	29N	24E	32	9	-94.7380451	36.9570622	15-Mar-05					Concealed and/or filled; filled; 10-foot circular collapse in February 1982
Unknown	29N	24E	32	10	-94.7382981	36.9569629	15-Mar-05					Concealed and/or filled
Unknown	29N	24E	32	11	-94.7380656	36.9567569	15-Mar-05	10	Circular	79		5 ft deep; concealed in February 1982
Unknown	29N	24E	32	12	-94.7383285	36.9565144	15-Mar-05					Concealed and/or filled
Unknown	29N	24E	32	13	-94.7386505	36.9562547	15-Mar-05					Concealed and/or filled
Unknown	29N	24E	32	14	-94.7379576	36.9563639	15-Mar-05	10	Circular			Concealed and/or filled; 3-ft deep depression; concealed in February 1982
Unknown	29N	24E	32	15	-94.7376474	36.9566208	15-Mar-05					Concealed and/or filled
Unknown	29N	24E	32	16	-94.7375197	36.9565144	15-Mar-05					Concealed and/or filled
Unknown	29N	24E	32	17	-94.7372198	36.9558759	15-Mar-05					Concealed and/or filled; location approximate
Unknown	29N	24E	32	18	-94.7366978	36.9548756	15-Mar-05					Concealed and/or filled
Unknown	29N	24E	32	19	-94.7368837	36.9547090	15-Mar-05	8	Circular			Concealed and/or filled; 2-ft deep depression
Star	29N	24E	32	20	-94.7384696	36.9540746	15-Mar-05					Concealed and/or filled; location approximate
Star	29N	24E	32	21	-94.7372952	36.9535186	15-Mar-05	10	Circular			Concealed and/or filled; 2-ft deep depression
Lancaster Min. Co.	29N	24E	32	22	-94.7386772	36.9530160	15-Mar-05					Concealed and/or filled; filled shaft; slight depression
Lancaster Min. Co.	29N	24E	32	23	-94.7372033	36.9527421	15-Mar-05	10 x 10	Rectangle	100		15 ft deep; filled and recollapsed
Unknown	29N	24E	32	24	-94.7386371	36.9520256	15-Mar-05	8	Circular			Concealed and/or filled; 2-ft deep depression; concealed in February 1982
Unknown	29N	24E	32	25	-94.7374661	36.9520377	15-Mar-05					Concealed and/or filled
Unknown	29N	24E	32	26	-94.7360921	36.9521737	15-Mar-05					Concealed and/or filled; filled shaft; open in February 1982
Blacksnake	29N	24E	32	27	-94.7373564	36.9501997	14-Mar-05	20	Circular	314		Filled with debris and trash
Scott Thompson	29N	24E	32	28	-94.7390719	36.9450747	14-Mar-05	20	Circular	314	20	Open shaft; 12-ft circular 6-ft deep collapse in February 1982
Scott Thompson	29N	24E	32	29	-94.7392372	36.9452133	28-Apr-05	30 x 20	Elliptical	471		12 ft deep; slightly smaller in February 1982
Scott Thompson	29N	24E	32	30	-94.7397783	36.9460331	14-Mar-05	10	Circular	79		15 ft deep; was fenced; open shaft 30 ft deep in February 1982
Blacksnake	29N	24E	32	31	-94.7401153	36.9486668	14-Mar-05	25	Circular	491		10 ft deep; looks stable; about same size in February 1982

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Blacksnake	29N	24E	32	32	-94.7397029	36.9507155	14-Mar-05	15	Circular			Concealed and/or filled; 2-ft deep depression
Unknown	29N	24E	32	33	-94.7373205	36.9561626	15-Mar-05					Concealed and/or filled
Good Luck	29N	24E	32	34	-94.7362504	36.9574788	15-Mar-05					Concealed and/or filled; filled shaft
Unknown	29N	24E	32	35	-94.7355273	36.9519447	15-Mar-05	12	Circular			Concealed and/or filled; possible exploratory shaft; 2 ft deep; filled with brush
Unknown	29N	24E	32	36	-94.7349531	36.9506716	15-Mar-05					Concealed and/or filled; filled by landowner; large mound of dirt over shaft
Unknown	29N	24E	32	37	-94.7348407	36.9501973	15-Mar-05					Concealed and/or filled; filled by landowner; large mound of dirt over shaft
W. E. Anderson/Jack Buttram	29N	24E	32	38	-94.7230444	36.9555663	19-Apr-05					Concealed and/or filled
W. E. Anderson/Jack Buttram	29N	24E	33	1	-94.7230444	36.9561153	19-Apr-05	15	Circular			Concealed and/or filled; filled shaft; 1 ft deep depression; land owner, Jack Buttram, filled shaft including burying two horses; located at the base of the hill east of the house

*Map/shaft number based on Oklahoma Geological Survey's Circular 88 and 2004-2005 field surveys

Table 2. Open and Dangerous Shafts

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Lead Queen	28N	24E	5	2	-94.7518285	36.9392391	18-Mar-05	15	Circular	177		20 ft deep; open shaft in March 1983
Independence	28N	24E	5	7	-94.7487694	36.9423891	27-Sep-05	25	Circular	491	35	Open shaft
Rock Creek	28N	24E	6	2	-94.7606044	36.9407734	18-Mar-05	12	Circular	113	25	Open shaft; concealed in January 1983
Widow Stafford	28N	24E	6	9	-94.7552872	36.9379307	18-Mar-05	15	Circular	177		Open shaft; 25 ft deep; 2-ft diameter mature trees growing on side; concealed and/or filled in 1983
Laura Jenny Zheka	29N	22E	13	1	-94.8790387	36.9954711	18-Oct-04	75 x 66	Elliptical	3888	50	Can see cribbing; mature trees growing on sides; about the same size in March 1982
Bird Dog	29N	22E	13	2	-94.8689998	36.9964429	18-Oct-04	12 x 12	Rectangle	144	30	Open shaft; fenced by B.I.A.; fencing in good shape; about the same in June 1982
James Xavier	29N	22E	23	2	-94.9005422	36.9821749	19-Oct-04	15	Circular	177	50-60	Open shaft; 30 ft down to cribbing; shale above cribbing; fenced with a gate
James Xavier	29N	22E	23	3	-94.8983148	36.9815345	19-Oct-04	60	Circular	2827	20	Stable; fenced; mature trees growing around perimeter; same as March 1982
Xavier-Mudd	29N	22E	23	9	-94.8932414	36.9781903	19-Oct-04	20	Circular	314	30-40	Mostly stable; mature vegetation growing around edges; enlarged since March 1982
Mudd	29N	22E	23	11	-94.8870883	36.9791630	19-Oct-04	40	Circular	1257		Open shaft; 20 ft to top of opening; used as a sewage depository
Kitty	29N	22E	24	7	-94.8684654	36.9815364	19-Oct-04	24	Circular	452		15 ft deep; filled with debris, wooden pallets; concealed and/or filled in June 1981
Wilson	29N	22E	25	12	-94.8692289	36.9636357	20-Oct-04	25	Circular	491	30	Open shaft; chatcrete blocks and large shaft pillar rotated in collapse; enlarged since June 1981
Wilson	29N	22E	25	23	-94.8719763	36.9645845	20-Oct-04	20	Circular	314		Open shaft; at least 20 ft deep; concrete pad rotated into collapse; partially filled with chatcrete; same size in June 1981
Childress-Heggem	29N	22E	25	24	-94.8739209	36.9648220	20-Oct-04	60	Circular	2827	50	Severe erosion on 3 sides; slightly smaller in June 1981
Scammon Hill	29N	22E	36	8	-94.8734299	36.9463680	21-Oct-04	5 x 7	Rectangle	35	25	Open shaft; open shaft in June 1981
Scammon Hill	29N	22E	36	12	-94.8757091	36.9449914	21-Oct-04	5 x 7	Rectangle	35	30	Open shaft; large concrete blocks pushed over shaft opening
Scammon Hill	29N	22E	36	13	-94.8764771	36.9477899	21-Oct-04	20	Circular	314		25 ft deep; concealed and/or filled in June 1981
Scott	29N	23E	13	1	-94.7621651	36.9969253	8-Nov-04	40	Circular	1257	15	in November 1981, concealed and/or filled
Scott	29N	23E	13	2	-94.7617012	36.9961992	8-Nov-04	15 x 20	Rectangle	300	20	Mature tree growing on side; open shaft in November 1981
Scott	29N	23E	13	6	-94.7657452	36.9919843	21-Feb-05	6 x 6	Square	36	20	Open shaft; large concrete block covering shaft opening; open shaft in November 1981
Farmington	29N	23E	14	3	-94.7841617	36.9968435	7-Feb-05	20	Circular	314	70	Open shaft with collapse at surface; concrete slab rotated into shaft; 40-ft circular collapse in May 1981
Farmington	29N	23E	14	5	-94.7836191	36.9968106	7-Feb-05	50	Circular	1964		25 ft deep; filled with debris and trash; same size in May 1981
Farmington	29N	23E	14	8	-94.7820142	36.9955700	8-Feb-05	210 x 180	Elliptical	29688	50	Shaft is located within and/or on west side of collapse; about same size in May 1981
Lucky Jenny	29N	23E	14	11	-94.7804432	36.9909435	11-Feb-05	100	Circular	7854		60 ft deep; former dump site; recollapsed in late 2004 or early 2005; 15-ft circular collapse in May 1981
Blue Ribbon	29N	23E	14	16	-94.7791052	36.9874529	7-Feb-05	160	Circular	20106	70 - 80	Open shaft; unstable; 100-ft circular collapse in May 1981

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Lucky Jenny	29N	23E	14	18	-94.7825046	36.9913124	7-Feb-05				75	Open shaft; 6-ft x 6-ft x 6-ft cube wedged into shaft opening; open shaft in May 1981
Farmington	29N	23E	14	29	-94.7801773	36.9978783	8-Feb-05	5 x 7	Rectangle	35		Open shaft; water dripping into shaft; appears to have been filled and recollapsed
Shaffer	29N	23E	15	1	-94.8107179	36.9958256	10-Feb-05	30	Circular	707	15	Filled shaft that recollapsed; concealed and/or filled in May 1981
Mary Ann	29N	23E	15	3	-94.8053247	36.9953589	11-Feb-05	12 x 25	Rectangle	300	25	Open shaft; large concrete collar, 12 ft x 12 ft, undercut on east side, water dripping into shaft; open shaft in May 1981
Mary Ann	29N	23E	15	4	-94.8042261	36.9968720	10-Feb-05	10 x 12	Rectangle	120	20	Open equipment shaft; open shaft in November 1981
Mary Ann	29N	23E	15	8	-94.8029412	36.9947300	10-Feb-05	30	Circular	707	30	Open shaft; mature trees growing on sides; open shaft in May 1981
W. M. W.	29N	23E	15	13	-94.7989510	36.9966602	10-Feb-05	20 x 6	Elliptical	94	30	Open shaft with concrete cap; failure occurring on north side; two Chevy Biscaynes stuck in opening; concealed and/or filled in May 1981
W. M. W.	29N	23E	15	16	-94.7957906	36.9961526	11-Feb-05	55 x 40	Elliptical	1728		25 ft deep; unstable; more than double in size after May 1981
Brewster	29N	23E	15	28	-94.8012312	36.9889717	10-Feb-05	12 x 12	Rectangle	144	25	Open shaft; 12-ft x 12-ft concrete collar; material beneath collar collapsed into shaft; open shaft in November 1981
Golden Eagle	29N	23E	15	30	-94.8039028	36.9922320	10-Feb-05	30	Circular	707		15 ft deep; shaft filled with large blocks of chatcrete and car bodies; open shaft in May 1981
Beck	29N	23E	15	34	-94.8104447	36.9876063	10-Feb-05	5 x 7	Rectangle	35	15	Open shaft; was previously filled and bermed; concealed and/or filled in May 1981
Swift	29N	23E	16	5	-94.8265667	36.9962824	26-Apr-04	15	Circular	177		20 ft deep; in chat pile; concealed and/or filled in November 1981
Hunt	29N	23E	16	9	-94.8194636	36.9958593	26-Apr-04	20	Circular	314	35	Narrows down to the approximate size of shaft; open shaft in November 1981
Cortez	29N	23E	16	11	-94.8196696	36.9937377	26-Apr-04	5 x 7	Rectangle	35	25	Open shaft; damp; 35 feet to "fill material"; open shaft in November 1981
Cortez	29N	23E	16	12	-94.8190735	36.9937346	26-Apr-04	3	Circular	7		Open shaft; bullet shaft; open shaft in November 1981
Consolidated No. 3	29N	23E	16	15	-94.8164772	36.9908472	26-Apr-04	5 x 7	Rectangle	35	26	Open shaft; at about 15 ft of wooden cribbing gone; collapse extends beyond cribbing to some unknown distance
Consolidated No. 2	29N	23E	16	16	-94.8135219	36.9905253	26-Apr-04	5 x 7	Rectangle	35	25	Open shaft; open shaft in November 1981
Ohimo	29N	23E	17	6	-94.8416030	36.9947350	22-Apr-04	12 x 12	Square	440	4	Open shaft; filled with debris
Ohimo	29N	23E	17	7	-94.8403861	36.9948543	22-Apr-04	60	Circular	2827	50	Fenced; used as a source of water for chat operation; 40-ft circular collapse in March 1982
Ohimo	29N	23E	17	8	-94.8415216	36.9977094	23-Apr-04	30 x 20	Circular	471	15	Filled with debris and logs; 6- x 4-ft elliptical depression in March 1982
Piokee	29N	23E	17	37	-94.8416955	36.9892660	23-Apr-04	6 x 6	Square	36	25	Open shaft; open shaft in March 1982
Pelican	29N	23E	18	5	-94.8594382	36.9983425	16-Mar-04	20	Circular	314		15 ft deep; in March 1982, concealed and/or filled
Anna Beaver	29N	23E	19	7	-94.8587203	36.9802588	27-Apr-05	40 x 20	Elliptical	628	20	Miss located on Plate 1 (Luza, 1986)
Anna Beaver	29N	23E	19	19	-94.8553415	36.9844978	17-Mar-04	25	Circular	491		15 ft deep; filled with debris; about the same size in June 1981
Central	29N	23E	19	35	-94.8594173	36.9738729	17-Mar-04	5 x 5	Rectangle	35		A 20-ft deep opening on west corner of filled shaft; tree growing in middle
Velie Lion	29N	23E	19	37	-94.8583764	36.9771981	17-Mar-04	80	Circular	5027		Open shaft in collapse; 25 ft to cribbing; water running into shaft; concealed and/filled in March 1982

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Velie Lion	29N	23E	19	39	-94.8584503	36.9794064	17-Mar-04	115	Circular	10387	40-50	In June 1981, 25-ft circular collapse
Harrisburg	29N	23E	19	43	-94.8627002	36.9750649	18-Mar-04	92 x 77	Elliptical	5564		Open shaft; 60-65 ft deep; enlarged December 2002; 30-ft circular depression 5 ft deep in March 1982
Crystal	29N	23E	19	46	-94.8615262	36.9737437	18-Mar-04	40	Circular	1257	15	Trees growing in bottom; doubled in size after March 1982
Harrisburg	29N	23E	19	51	-94.8652418	36.9750845	19-Mar-04	60 x 30	Elliptical	1414		15 ft deep; about same size in March 1982
Velie Lion	29N	23E	19	52	-94.8645789	36.9781462	18-Mar-04	60	Circular	2827	30	Open shaft in middle of collapse; unstable; 30-ft circular collapse in March 1982
Royal	29N	23E	21	39	-94.8176637	36.9754611	19-Apr-04	5 x 7	Rectangle	35	20-25	Open shaft; wooden cribbing; no collar; open shaft in February 1983
Acme	29N	23E	21	42	-94.8234359	36.9774997	20-Apr-04	10 x 20	Elliptical	157	15	Open shaft; concrete collar severely undermined; very dangerous; concealed and/or filled in February 1982
Indiana	29N	23E	22	16	-94.7972358	36.9817585	15-Dec-04	30 x 20	Elliptical	471	40	Open shaft with collapse at surface; open shaft in November 1981
Ottawa	29N	23E	22	19	-94.7976947	36.9740783	12-May-04	8	Circular	50	40	Open shaft covered with brush; open shaft in November 1981
Tulsa	29N	23E	22	26	-94.8051094	36.9783586	14-Dec-05	20	Circular	314	20-25	Open shaft; on May 12, 2004 concealed beneath chat pile
Walker	29N	23E	22	30	-94.8062253	36.9751234	12-May-04	40 x 15	Elliptical	471	20	Collar has settled about 10 ft; filled with debris and chat; water seeping into shaft; concealed and/or filled in November 1981
Maxine	29N	23E	22	32	-94.8097856	36.9760067	12-May-04					Appears to be open; covered by large concrete block; open shaft in November 1981
Huttig-Beck	29N	23E	22	33	-94.8110418	36.9767728	12-May-04	20	Circular	314		20 ft to top of fill material; large concrete pad rotated into collapse; 20-ft circular collapse 40 ft deep in November 1981
Jo Buffalo	29N	23E	22	36	-94.8003376	36.9753585	13-Dec-04	5 x 7	Rectangle	35	25	Open shaft
Blue Bonnet	29N	23E	23	22	-94.7787999	36.9839351	16-Dec-04	90	Circular	6362	90	Very dangerous; 50-ft circular collapse in May 1981
Massel	29N	23E	23	23	-94.7801539	36.9834505	16-Dec-04	85	Circular	5675	80	In May 1981, 50-ft circular collapse
Mission	29N	23E	23	33	-94.7792697	36.9792697	16-Dec-04	220	Circular	38013	80	Shaft maybe located on edge of collapse; about the same size in May 1981
W. W. Dobson	29N	23E	25	5	-94.7735386	36.9623750	17-Dec-04	30	Circular	707		15 ft deep; large blocks in bottom of collapse
Hobart	29N	23E	26	5	-94.7850278	36.9683657	10-May-04	5 x 7	Rectangle	35	3	Open shaft partially filled with debris; bailing wire hanging over edge
Pat	29N	23E	27	3	-94.8078848	36.9709841	11-May-04	30	Circular	707		15 ft deep; 20-ft circular collapse 25 ft deep in January 1982
First National	29N	23E	27	25	-94.8055730	36.9639431	11-May-04	40 x 20	Elliptical	2513	20	15 ft deep; part of collapse is being expanded by erosion; 25-ft circular collapse 15 feet deep in January 1982
Beck	29N	23E	27	29	-94.8120285	36.9608034	11-May-04	40	Circular	1257	20	Brush and small trees growing on side; 20-ft circular collapse 25 ft deep in February 1982
Birthday	29N	23E	28	2	-94.8290226	36.9711196	8-Apr-04	40 x 30	Elliptical	942		20 ft deep; filled with debris and garbage; open shaft in May 1981
Birthday	29N	23E	28	3	-94.8289610	36.9699818	8-Apr-04	50	Circular	1964	25	In May 1981, 25-ft circular collapse 25 ft deep
Federal	29N	23E	28	4	-94.8303373	36.9690621	9-Apr-04	75	Circular	4418	20	In May 1981, 50-ft circular collapse 30 ft deep
Federal	29N	23E	28	6	-94.8284725	36.9676174	9-Apr-04	5 x 7	Rectangle	35	30	Open shaft; open shaft in May 1981
Fort Worth	29N	23E	28	8	-94.8292716	36.9664527	9-Apr-04	80	Circular	5027		35 ft deep; 30-ft circular collapse 20 ft deep in May 1981
Fort Worth	29N	23E	28	9	-94.8293242	36.9653960	9-Apr-04	180	Circular	25447	20	In February 1983, 160-ft circular collapse 30 ft deep

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Fort Worth	29N	23E	28	10	-94.8275497	36.9657879	9-Apr-04	40	Circular	1257		20 ft deep; filled with debris and garbage; maybe partially open; collapsed in 2002; concealed and/or filled in May 1981
New Chicago No. 2	29N	23E	28	11	-94.8259727	36.9653217	9-Apr-04	5 x 7	Rectangle	35	22	Open shaft; water dripping into shaft; open shaft in May 1981
New Chicago No. 2	29N	23E	28	14	-94.8219472	36.9682204	8-Apr-04	50 x 30	Elliptical	1178		Open shaft with collapse at surface; shaft cribbing sticking above the ground; 30-ft circular collapse 20 ft deep in May 1981
Midas	29N	23E	28	20	-94.8222195	36.9709544	27-Apr-05	20	Circular	314	30	Open shaft; 10-foot circular collapse 6 feet deep in May 1981
Indiana	29N	23E	22	15	-94.7974185	36.9841516	12-May-04	40	Circular	1257	30	Appears unstable; fenced at one time; 22-ft circular collapse 50 ft deep in November 1981
New Chicago No. 1	29N	23E	28	35	-94.8258505	36.9642573	9-Apr-04	50	Circular	1964	40	In May 1981, concealed and/or filled in May 1981
Skelton	29N	23E	28	41	-94.8293218	36.9598168	9-Apr-04	15	Circular	177		Open shaft; partially filled with chat; concealed and/or filled in May 1981
Skelton	29N	23E	28	42	-94.8305139	36.9606436	9-Apr-04	40	Circular	1257	30	Partially filled with tires; concrete blocks; 30-ft circular collapse 12 ft deep in May 1981
Domado	29N	23E	29	3	-94.8481351	36.9673313	5-Apr-04	6 x 6	Square	36	5	Open shaft; included in above collapse in May 1981
Baby Jim	29N	23E	29	9	-94.8481470	36.9716887	6-Apr-04	6 x 6	Square	36	10	Open shaft; some debris floating; open shaft in May 1981
Baby Jim	29N	23E	29	11	-94.8449668	36.9720194	6-Apr-04	5 x 7	Rectangle	35		Open shaft; concrete collar; steel grate over shaft; concealed in May 1981
Domado	29N	23E	29	14	-94.8456263	36.9659782	6-Apr-04	5 x 7	Rectangle	35	15	Open shaft; steel grate over shaft; open shaft in May 1981
Rialto	29N	23E	29	15	-94.8438779	36.9665538	6-Apr-04	6 x 6	Square	36	20-25	Open shaft; adjacent to chat pile; steel grate over shaft; open shaft in May 1981
Rialto	29N	23E	29	17	-94.8400989	36.9665332	6-Apr-04	6 x 6	Square	36	12	Open shaft; cribbing gone; steel grate over shaft; open shaft in May 1981
Rialto	29N	23E	29	18	-94.8420231	36.9685115	6-Apr-04	5 x 7	Rectangle	35	30	Open shaft; steel grate over shaft; open shaft in May 1981
Barbara J.	29N	23E	29	25	-94.8381009	36.9716259	6-Apr-04	12 x 12	Rectangle	144	1.5	Open shaft; open shaft in May 1981
Skelton	29N	23E	29	40	-94.8320780	36.9644458	7-Apr-04	60	Circular	2827	25	Concrete pads collapsed into shaft; open shaft in May 1981
Skelton	29N	23E	29	43	-94.8363829	36.9627592	7-Apr-04	40	Circular	1257	20	Signs of fresh collapse; same size in May 1981
Skelton	29N	23E	29	53	-94.8346520	36.9598487	7-Apr-04	70	Circular	3848	40	Fenced; appears unstable; 40-ft circular collapse 35 ft deep in May 1981
Admiralty No. 3	29N	23E	29	57	-94.8391134	36.9601290	7-Apr-04	25 x 12	Rectangle	300	25	Water dripping into shaft; maybe partially filled; open shaft in May 1981
Admiralty No. 3	29N	23E	29	58	-94.8395728	36.9604028	7-Apr-04	5 x 7	Rectangle	35	25	Open shaft; concrete collar; open shaft in May 1981
Skelton	29N	23E	29	59	-94.8392306	36.9628078	7-Apr-04	15 x 15	Rectangle	225	10	Open shaft; concrete collar; fenced; open shaft in May 1981
Lavron	29N	23E	29	61	-94.8404045	36.9594630	7-Apr-04	30	Circular	707		15 ft deep; open shaft in May 1981
Admiralty No. 4	29N	23E	29	65	-94.8453674	36.9602694	6-Apr-04	6 x 6	Square	36	10	Open shaft; open shaft in March 1982
Admiralty No. 4	29N	23E	29	70	-94.8462076	36.9643341	6-Apr-04	6 x 6	Square	36	4	Open shaft; open shaft in May 1981
Douthat	29N	23E	29	72	-94.8478479	36.9648047	6-Apr-04	5 x 7	Rectangle	35	4	Open shaft; reopened after May 1981
Ritz	29N	23E	30	21	-94.8569469	36.9703436	5-Apr-04	70 x 30	Irregular	2100		Open shaft; irregular shape due to erosion; 10 ft below ground level; water draining into shaft; concealed and/or filled in June 1981
Beck	29N	23E	32	10	-94.8347281	36.9559693	28-Apr-04	20	Circular	314	15	Open shaft with collapse at surface; 15-x 12-ft elliptical collapse 30 ft deep in February 1983

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Beck	29N	23E	32	11	-94.8346443	36.9566417	27-Apr-04	30	Circular	707	15	In May 1981, 40-ft circular collapse 30 ft deep in May 1981
Beck	29N	23E	32	12	-94.8323170	36.9576683	28-Apr-04	50	Circular	1964	25	In May 1981, 30-ft circular collapse
Beck	29N	23E	32	14	-94.8316409	36.9562233	28-Apr-04	45	Circular	1590	25	Large cottonwood trees growing on sides; minor collapse in May 1981
Beck	29N	23E	32	15	-94.8329686	36.9551983	28-Apr-04	30 x 30	Elliptical	707	20	Trees growing on sides; same size in May 1981
Craig	29N	23E	33	20	-94.8129757	36.9530245	29-Apr-04	20	Circular	314	15	Filled and recollapsed December 2003; 25-ft circular collapse 20 ft deep in April 1982
John Hunt	29N	23E	33	24	-94.8205267	36.9496147	29-Apr-04	8 x 24	Rectangle	192		20 ft deep; filled shaft that recollapsed; 15-ft circular collapse 25 ft deep in May 1981
John Hunt	29N	23E	33	27	-94.8246335	36.9504858	29-Apr-04	5 x 7	Rectangle		20	Open shaft; open shaft in May 1981
John Hunt	29N	23E	33	29	-94.8301798	36.9480478	27-Apr-04	20	Circular	314	20	Trees growing on sides; some debris at bottom; same size in May 1981
Ruth Goodeagle	29N	23E	34	3	-94.8090447	36.9560683	30-Apr-04	30	Circular	707		20 ft deep; filled with some debris; overgrown with honeysuckle; same size in February 1982
Imperial	29N	23E	34	7	-94.8065483	36.9567354	30-Apr-04					Open shaft 210-215 ft deep; used as a source of water
Muskogee	29N	23E	34	8	-94.8031878	36.9571802	30-Apr-04	30	Circular	707		15 ft deep; shaft collar appears to have rotated into collapse; 20-ft circular collapse 25 ft deep in February 1982
Harry Whitebird	29N	23E	35	4	-94.7780312	36.9548902	29-Apr-04	30 x 18	Elliptical	424	20	In February 1982, 15- x 12-ft elliptical collapse 12 ft deep
Harry Whitebird	29N	23E	35	5	-94.7779641	36.9541447	29-Apr-04	12	Circular	113	15	Extends 10 ft under a concrete pad; half of the collapse is concealed; concealed and/or filled in February 1982
Julia Shapp	29N	23E	35	9	-94.7820034	36.9440631	29-Apr-04	12 x 6	Rectangle	72	20	Was fenced; 14- x 10-ft elliptical collapse 25 ft deep in February 1982
Frank Buck	29N	23E	36	3	-94.7619109	36.9506753	17-Mar-05	40	Circular	1257		25 ft deep; large brush pile on top of opening; difficult to determine size; 25-ft circular collapse 20 ft deep in February 1982
Frank Buck	29N	23E	36	7	-94.7603767	36.9484542	17-Mar-05	20	Circular	314	15	Partially filled with trash; 15-ft circular collapse 25 ft deep in February 1982
Frank Buck	29N	23E	36	24	-94.7613610	36.9484706	17-Mar-05	30	Circular	707		15 ft deep; partially filled with brush
M. W. Clark	29N	24E	17	1	-94.7393176	36.9938774	28-Apr-05	30	Circular	707		20 ft deep; partially filled with barbed wire, tin cans, and other debris; open shaft in November 1981
Discard	29N	24E	17	2	-94.7371149	36.9947987	31-Mar-04	30	Circular	707	20	Open shaft; open in November 1981; miss located on Plate 1 (Luza, 1986)
Discard	29N	24E	17	3	-94.7360045	36.9951171	31-Mar-04	100 x 75	Elliptical	5890	30	More than doubled in size after November 1981
Discard	29N	24E	17	5	-94.7385737	36.9980965	31-Mar-04	25	Circular	491		15 ft deep; minor debris in collapse; open shaft in November 1981
Discard	29N	24E	17	11	-94.7365189	36.9951598	18-May-05					Located in middle of non-shaft collapse no. 1501 (see Table 2)
Campbell	29N	24E	19	3	-94.7495790	36.9836457	31-Mar-04	30	Circular	707	20	Open shaft; 20-ft circular collapse in November 1981
Sam Abrams	29N	24E	30	23	-94.7409818	36.9613202	16-Mar-05	25	Circular	491		15 ft deep
Unknown	29N	24E	30	32	-94.7438017	36.9611246	16-Mar-05	20	Circular	314	15	In February 1982, concealed and/or filled
Ten O'clock	29N	24E	30	45	-94.7511802	36.9627743	16-Mar-05	25	Circular	491	20	Open shaft; 20 ft to top of cribbing; open shaft in February 1982
Sam Abrams	29N	24E	30	46	-94.7532189	36.9646203	16-Mar-05	40	Circular	1257		20 ft deep; about the same size in February 1982
McKibbon	29N	24E	31	6	-94.7453708	36.9516186	14-Mar-05	40	Circular	1257		Open shaft; partially filled with trash

Mine Name	T.	R.	Sec.	Map No.*	Longitude	Latitude	Date	Size (ft)	Shape	Area (ft ²)	Water Lvl (ft)	Condition
Red Eagle	29N	24E	31	10	-94.7430587	36.9508059	14-Mar-05	15 x 20	Elliptical	236		15 ft deep; filled with trash and debris; open shaft in February 1982
Red Eagle	29N	24E	31	11	-94.7436613	36.9508096	14-Mar-05	30	Circular	707		15 ft deep
Red Eagle	29N	24E	31	14	-94.7432118	36.9489126	14-Mar-05	12	Circular	113		15 ft deep
Red Eagle	29N	24E	31	18	-94.7408693	36.9484874	14-Mar-05	10	Circular	79	50	Open shaft; open in February 1982
Preston	29N	24E	31	24	-94.7487603	36.9488173	15-Mar-05	8 x 12	Elliptical	75	25	Open shaft
Preston	29N	24E	31	25	-94.7490543	36.9490311	15-Mar-05	30	Circular	707	25	In February 1982, open shaft
Preston	29N	24E	31	26	-94.7521971	36.9465046	15-Mar-05	8	Circular	50	25	Open shaft; 2-ft circular opening in northwest corner of collapse; filled and recollapsed; concealed in February 1982
Preston	29N	24E	31	30	-94.7528191	36.9466930	15-Mar-05	10 x 10	Rectangle	100		20 ft deep; shaft partially filled with debris and garbage; limestone at surface
Lancaster Min. Co.	29N	24E	32	23	-94.7372033	36.9527421	15-Mar-05	10 x 10	Rectangle	100		15 ft deep; filled and recollapsed
Scott Thompson	29N	24E	32	28	-94.7390719	36.9450747	14-Mar-05	20	Circular	314	20	Open shaft; 12-ft circular 6-ft deep collapse in February 1982
Scott Thompson	29N	24E	32	30	-94.7397783	36.9460331	14-Mar-05	10	Circular	79		15 ft deep; was fenced; open shaft 30 ft deep in February 1982