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ACTIVE AND RECENTLY ACTIVE CONSTRUCTION MATERIALS AND AGGREGATE OPERATIONS IN DOÑA ANA COUNTY, NEW MEXICO

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Abstract—Industrial minerals in Doña Ana County support the rapidly developing region and are the only minerals produced there today. In 1996, the total value of mineral products was approximately \$3,000,000. About 50 separate pits or quarries supply aggregate, building stone, cinders, shale, dirt, fill, and gypsum to citizens of southern New Mexico, west Texas, and beyond. With 32 active pits and quarries, the Bureau of Land Management is the largest holder of mining land in the county. Aggregate from 30 separate operations is used in the construction of buildings, roads, walls, and other needs of the Las Cruces–El Paso area. The Vado quarry is unique among the county’s aggregate producers in that it supplies both crushed stone aggregate and blocks of porphyritic andesite. Vado Andesite blocks are used in the construction of walls and walkways that are particularly common in Las Cruces and El Paso. Recently, yellow-weathered blocks of gray Permian Hueco Limestone also have been used for this purpose. Scoria is produced from five quarries and is used locally, but also is shipped to several states to the east. Shale for brick, gypsum, and adobe are each produced at single sites. Brick manufactured by the American Eagle Brick Company plant west of El Paso dominates the market in southern New Mexico and west Texas, but also is shipped as far away as Houston. Two producers use local soil for rammed-earth walls and adobe block. Occurrences that were mined in the past or heavily explored include travertine (calcite) and zeolite. Doña Ana County’s industrial mineral production continues to grow as its population grows. Both will likely continue to increase in the future.

INTRODUCTION

Las Cruces is Doña Ana County’s largest population center and is one of the fastest growing cities in the nation. Between 1980 and 1990, the growth rate was more than 40% (Austin and Barker, 1997). The county, and especially the Las Cruces area and along the major highways, has continued to grow rapidly. This has created a large market for construction materials, particularly for industrial minerals as is evident from the 1996 total of about \$3,000,000 for the county’s mineral products (New Mexico Energy, Minerals, and Natural Resources Department files).

According to the New Mexico Department of Energy, Minerals, and Natural Resources (Hatton et al., 1998), 37 mining operations, all producing industrial minerals, are currently registered on Federal, State, or private land in the county. Recently, we visited all active bedrock operations and many surficial materials pits and have refined the list of Hatton et al. (1998) to 32 active operations by eliminating several operations that appear to be permanently closed (Appendix 1). Of these, 25 produce aggregate (sand, gravel, or crushed stone), five produce scoria, volcanic cinder, or “lava rock,” one mines gypsum, and one mines shale in several pits as a source material for a brick plant. Appendix 1 lists 20 of the aggregate operations as active, four temporarily closed, and one as an intermittent operation. Exclusive of aggregate producers, six of seven mines are active; the gypsum operation is considered intermittent. Of the 30 active operations, 12 are on property administered by U.S. Bureau of Land Management (BLM), 14 are on privately owned land, and four are on State-owned land administered by the New Mexico State Land Office. Additional inactive deposits and mines are discussed in McLemore and Sutphin (1997), McLemore et al. (1996), and McLemore (this guidebook).

According to BLM, there are 32 active operations on BLM land in Doña Ana County (Appendix 2). Five are cinder (scoria) pits, two are for building stone, and one is for riprap. The remaining 25 are for aggregate, sand and gravel, fill, caliche, dirt, blow sand, and borrow. Of the total of 32 BLM quarries and pits, nine are leased to commercial producers or to the City of Las Cruces, six are leased to the Elephant Butte Irrigation District/Doña Ana County, two are

used only by the Elephant Butte Irrigation District, one is used only by Doña Ana County, and ten are either “common use areas” or “community pits.” The status of three of these 10 pits is under review. Four are used by the Federal Highway Administration.

The commercial producers and the Doña Ana County Transportation Department are required to report use of BLM material to the State of New Mexico, but other users of community pits and common use areas are not required to do so. Thus, Appendices 1 and 2 have cross listings, but many pits are on one list only.

CONSTRUCTION MATERIALS

Industrial mineral commodities from Doña Ana County that are suitable for construction are produced at about 50 pits and quarries of all categories (Fig. 1; Appendices 1 and 2).

Aggregate

The principal construction material in Doña Ana County is aggregate in both volume and value. Most of the 25 pits currently active within the county are within the Rio Grande valley. Al Chavez of BLM (personal commun., 1998) believes that there may be as many as 60 aggregate-producing, active or inactive pits in the county. Many of these additional locations are “community access” pits in which the BLM allows citizens to remove small amount of aggregate for a nominal fee (Appendix 2). Others are on state or private land.

Products listed in Hatton et al. (1998) include sand, gravel, fines or fill dirt (sand, silt, and clay), base course (compacted bottom layer of aggregate in a road), select borrow (aggregate) for highway construction, hot mix (blacktop) materials, rocks, crushed stone, and building stone. Scoria (volcanic cinder) is included as aggregate when used as ground cover or in cinder blocks.

BLM classifies leased pits as those for aggregates (sand and gravel), building stone, cinder (scoria), fill, riprap, caliche, dirt/blow sand, dirt, and borrow (Appendix 2). Most BLM pits are for a single use, but a few are classified as multiple use, including over-the-counter (sales), common use areas, and/or as community pits.

Much of the material west of the Rio Grande (Fig. 2) predomi-

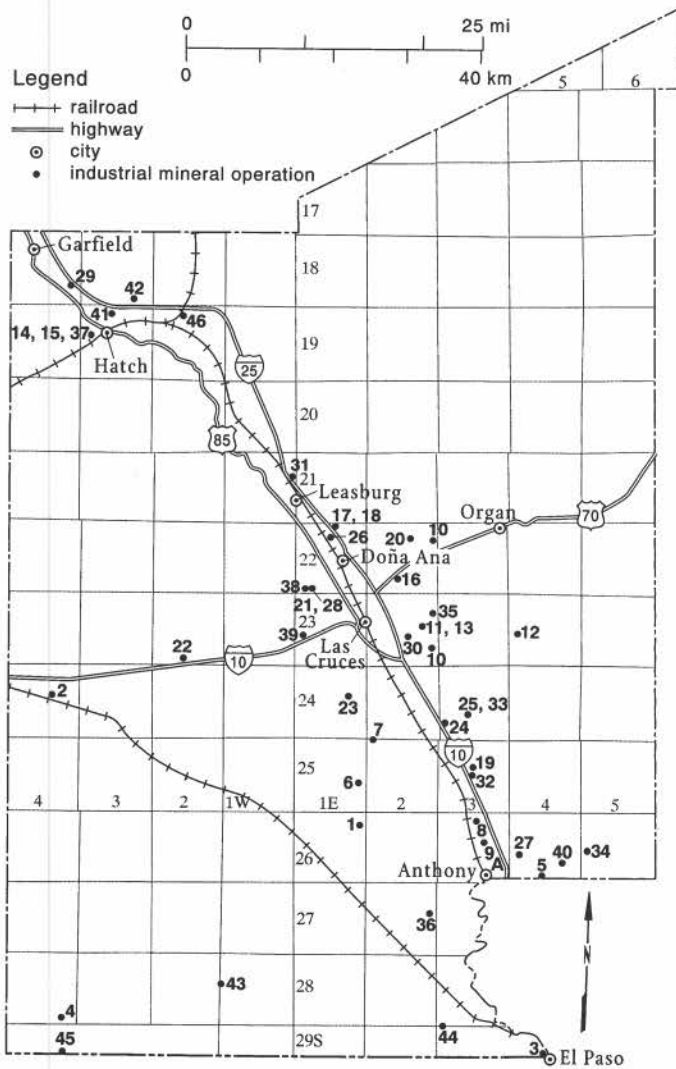


FIGURE 1. Map of Doña Ana County, New Mexico showing the active, intermittent or temporarily closed industrial mineral operations. "A" marks the location of the DeLaO Adobe Brick Manufacturing Company near Anthony, New Mexico. Numbers refer to operations that are described in Appendices 1 and 2.

nantly consists of smaller aggregate (sand-, granule-, and pebble-size) than the coarser material found to the east. Consequently, locations with a wider range of aggregate near Las Cruces lie east of the Rio Grande and closer to the Organ Mountain front. One of the county's largest available area for aggregate of all sizes, near population centers, and with adequate roads is near Mossman Arroyo (33 on Fig. 1 and Appendix 2) in T24N, R3E (A. Chavez, BLM, personal commun. 1998).

Vado quarry

The Vado Andesite is the tip of a large Eocene intrusion in southern Mesilla Valley (Garcia, 1970; Seager et al., 1987). The light gray andesite contains large pink-to-white plagioclase phenocrysts and sparse hornblende and biotite phenocrysts in a fine-grained, light-purple groundmass of mostly plagioclase (Hawley, 1975). Quartz grains and are locally abundant and a sheety jointing trends N40-87°E.

Of the 25 aggregate operations (Appendix 1), only the Vado quarry (Fig. 3) produces aggregate from other than the valley-fill material related to ancient Rio Grande stream sediments. The



FIGURE 2. La Union fine-grained aggregate pit (BLM) in SE 1/4 sec. 13, T27S, R3E. The small amount of larger-size aggregate is dominated by calcium carbonate-cemented soil derived from the caliche cap.

Daniel S. Guillen Construction Company of Las Cruces produces crushed stone from the Vado Andesite in the Vado Hills, about 10 mi southeast of Las Cruces, adjacent to I-10 (32 on Fig. 1 and Appendix 1; secs. 15 and 16, T25S, R3E). In addition to crushed stone, larger joint-bounded light-gray blocks are used in walls and walkways in the Mesilla Valley, particularly in Las Cruces and El Paso (Fig. 4). Numerous examples can be found in parts of both cities developed over the last 25 years.

Other aggregate producers

The 30 active, temporarily closed, and inactive registered aggregate producers (Hatton et al., 1998) use mainly ancient fluvial sediments or fanglomerates as source materials. Three are on the Las Cruces 7 1/2-min quadrangle (Fig. 5). Eight lie on the Tortugas Mountain 7 1/2-min quadrangle east of Las Cruces; five are in San Miguel and Black Mesa 7 1/2-min quadrangles south and southeast of Las Cruces; and five are in the Leasburg, Doña Ana, and Organ Peak NW 7 1/2-min quadrangles north of the city.

Based on Hatton et al. (1998, plate 1), only a few aggregate pits are available in other parts of Doña Ana County. In the northern part of the county near Hatch and adjacent to I-25, two pits are on the Hatch 7 1/2-min quadrangle. In the western part of the county and adjacent to I-10, one pit in the Sleeping Lady Hills 7 1/2-min quadrangle produces aggregate. In southern part of the county, the



FIGURE 3. Larger blocks of Eocene Vado Andesite ready for shipment from the Vado quarry. The andesite, which produces a tough gray aggregate, is used as large stones to build walls in southern New Mexico and west Texas.



FIGURE 4. A stone wall constructed of concrete and Vado Andesite in Las Cruces.

Newman SW and Anthony 7¹/₂-min quadrangles are adjacent to El Paso; the majority of their five operations chiefly benefit El Paso customers. The only pits not adjacent to large towns or interstate highways are present on the Good Site Peak NE 7¹/₂-min quadrangle in the northwestern part of the county.

Building stone

Two types of rock dominate the building stone market in Doña Ana County. Vado Andesite (described above under aggregate) sold as Vado Stone has been long used extensively in the construction of walls surrounding properties and on sloping surfaces. Recently, Permian Hueco Limestone in BLM Community Pit #1 (38 on Fig. 1 and Appendix 2; sec. 31, T22S, R1E) in the Robledo Mountains (Fig. 6) has been quarried for similar purposes.

In Community Pit #1, Hueco Limestone is gray with yellow-weathered joints that provide a color variation most consider pleasing. Many newer walls and slopes are blocks of this gray or yellow limestone set in a concrete matrix (Fig. 7). The Abo Tongue of the Hueco Formation consists of, in addition to limestone, reddish-brown siltstone, fine-grained sandstone, and arkosic sandstone, and red, green, and gray shale in addition to limestone (Seager et al., 1987). The Abo supplies some red siltstone and sandstone flagstones and green shale. The status of this pit has been changed to commercial with the general public excluded. Five commercial



FIGURE 6. Blocks of gray-to-yellow limestone of the Hueco Formation in the foreground were quarried at the BLM Community Pit Number 1 on the southeast flank of the Robledo Mountains. Light-colored cliffs above the Hueco Formation are flangomerates of the Plio-Pleistocene Camp Rice Formation.

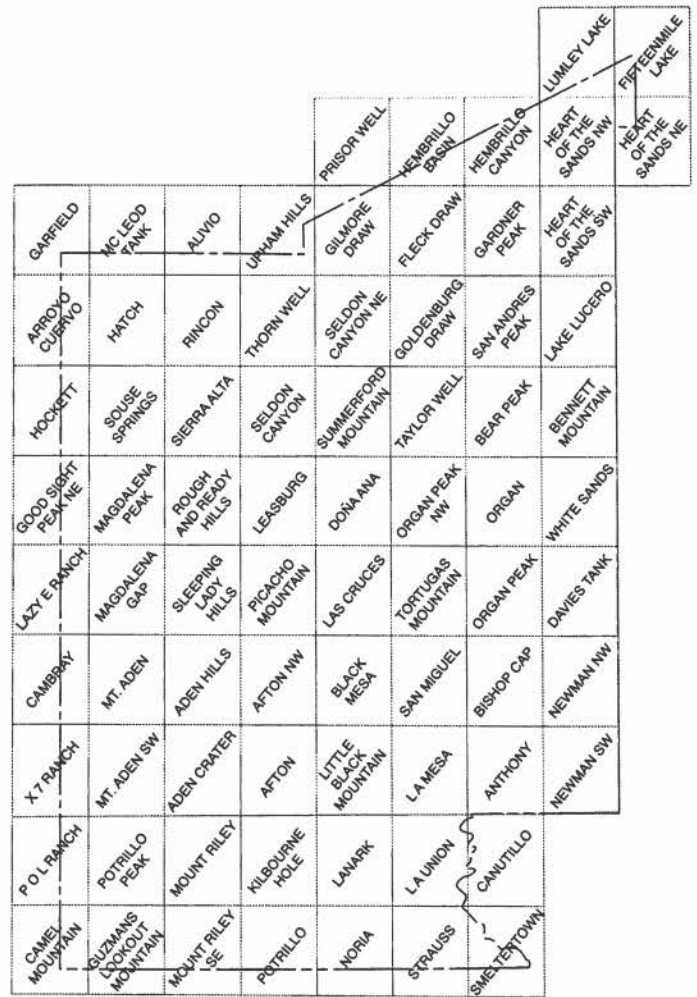


FIGURE 5. Coverage of Doña Ana County by 7.5-min quadrangles.

operators presently are engaged in removing stone.

A small amount of building stone comes from a second BLM building-stone quarry (46 on Fig. 1 and Appendix 2) north of Rincon in SW¹/₄ sec. 4, T19S, R2W. The BLM has assigned the Rincon Quarry to “over-the-counter” sales and “common use area” status. This quarry is in the upper part of the upper Oligocene and Miocene Hayner Ranch Formation (Fig. 8). The upper part of the unit consists of up to 375 ft of variably indurated, weak-red, reddish brown-to-gray sandstone, conglomeratic sandstone, and mudstone (Seager and Hawley, 1973). The red-and-white sandstone does not break into blocks with large flat surfaces (Fig. 9). It produces some small flagstones and when crushed yields red gravel used for decorative ground cover.

Scoria and volcanic rock

Three companies operate five scoria mines in Doña Ana County. The largest is Santa Fe Mining Company (formerly Big Chief Stone, Inc.), with three separate scoria mines. Their Donna Mountain (2 on Fig. 1 and Appendix 1; sec. 15, T24S, R4W) and Santo Tomas (7 on Fig. 1 and Appendices 1 and 2; sec. 31, T24S, R2E) mines have operated for many years. Both mines have crushing and screening facilities. The Donna Mountain mine produces both red and black, fine-to-coarse cinder (Figs. 10 and 11). Santo Tomas mine (Fig. 12) produces about 80 short tons (st) per day of heavy, brown-and-black, coarse-to-fine cinders. Santa Fe Mining’s recently opened pit on the northern side of Little Black Mountain



FIGURE 7. Two types of stone are commonly used in walls and hardened slopes in southern New Mexico and west Texas. In the background rock in the sloping surface is gray Vado Andesite. In the foreground and to the right are gray-to-yellow Hueco Limestone blocks. A yellow color (here as light gray) is developed on weathered joint surfaces.

(6 in Appendices 1 and 2; sec. 25, T25S, R1E) is expected to replace one or more of the older operations. It produces coarse-to-fine charcoal-to-russet cinder. About 1200 to 1400 st are produced daily; cinder from this mine averages 1000 lbs per yd³. In addition to Santa Fe Mining's operation at Little Black Mountain, a small BLM consumer access pit is on the southwest flank (Fig. 13). Santa Fe Mining reports an increase in sales, of which more than 50% goes outside New Mexico, mostly states to the east. Only about 10% is sold for local consumption.

Del Norte Masonry Products, Inc., El Paso, operates the Black Bear pit (1 on Fig. 1 and Appendix 1; sec. 1, T26N, R1E) on the east flank of Black Bear Mountain (Fig. 14) to supply aggregate for cinder blocks. In 1997, about 39,000 yds³ of cinder was produced for block primarily marketed in El Paso, Las Cruces, and Alamogordo. In January 1998, no crushing or screening facilities were present at the pit. Owner Tim Backer believes the reserves at the pit are adequate for more than 30 yrs at the current rate of production.

The Guzman pit (4 on Fig. 1 and Appendices 1 and 2; sec. 35, T28S, R4W) on the south flank of Guzman Lookout Mountain (Fig. 15), operated by Severo Garza of El Paso, supplies mostly fine-to-medium, black aggregate (Fig. 16) to southern New Mexico



FIGURE 9. Elongate and flat blocks of upper Oligocene and Miocene Hayner Ranch Formation sandstone exposed in the BLM's Rincon quarry.



FIGURE 8. Hayner Ranch Formation red-to-gray sandstone exposed in BLM's "over-the-counter" sales and "Community Use Area" Rincon quarry.

and west Texas. No crushing or screening facilities were present in January 1998 at the pit.

Shale

The American Eagle Brick Company (AEBC) mines from a number of pits on the east and north side of Cerro de Cristo Rey in secs. 8, 9, 15, and 16, T29S, R4E (3 on Fig. 1 and Appendix 1) just north of the New Mexico/Mexico border, just west of both the Rio Grande and of El Paso, Texas (Fig. 17). Marine shale and quartzose shaly siltstone of the Lower Cretaceous Mesilla Valley and Anapra Formations have been quarried for use in brick and tile manufacture since 1897, first by the El Paso Brick Company, and now by AEBC (Cudahy and Austin, 1996). Just south of the border in Ciudad Juarez, also on the east side of Cerro de Cristo Rey, Productos de Barro Industrializados, S.A., is producing brick that provide minor competition to AEBC products.

Beehive or periodic kilns were last used by AEBC in 1974 and have been replaced by a tunnel kiln (Fig. 18). The present tunnel kiln has been continually upgraded in the 1990s. Current energy use is about 750 BTUs per pound of clay. Company President George Cudahy anticipates that future improvements in the kiln for efficiency as outlined in Cudahy and Austin (1996) will lower this to 600 BTUs per pound of clay by the end of 1998.



FIGURE 10. Looking west in the Santa Fe Mining Company's Donna Mountain operation, past crushed and screened scoria and over processing equipment toward the crest of the cinder cone.

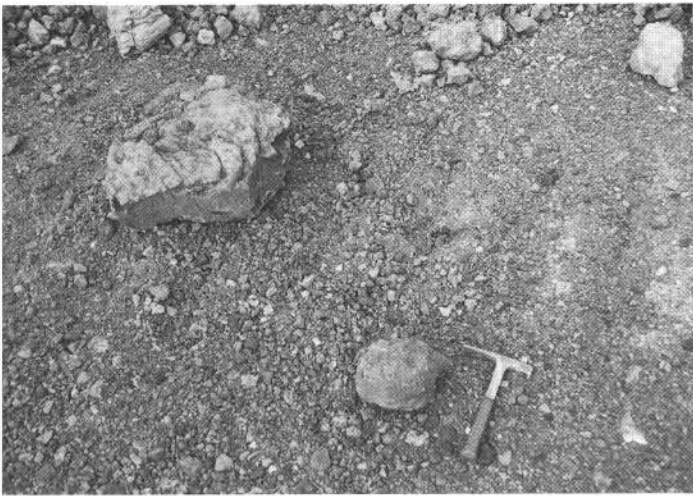


FIGURE 11. Scoria particle size at the Donna Mountain mine ranges from large bombs to ash; particle color ranges from dark gray to red to yellow (weathered).

At present AEBC's 35 employees use about 30,000 st of shale to produce 18,000,000 equivalent brick each year. About 35% is used locally in El Paso, 35% to Houston, Texas, 15% to Albuquerque, the remaining 15% to Colorado, Texas, and New Mexico. Less than 1% is sold as "cash and carry."

Geology

In AEBC pits on the east and north side of Cerro de Cristo Rey, Cretaceous sedimentary units have been folded and faulted during emplacement of the mid-Eocene Cerro de Cristo Rey andesite, locally known as the Muleros Andesite (Lovejoy, 1976). The underlying Mesilla Valley Formation is composed of two members: a lower black, shiny, carbonaceous shale, and an upper shale with interbeds of siltstone, fossiliferous limestone, and ironstone-ferruginous sandstone at the transitional zone with the overlying Anapra Formation. Only the lower member of the Mesilla Valley Formation is extensively quarried for use in brick production, especially when near the Muleros Andesite. The heat from the intrusion accelerated the conversion of smectite to illite-smectite mixed-layer clay (I/S) to illite, and produced additional kaolinite (Ntsimanyana, 1990). This process also reduced the concentrations of carbon fluxing agents (K, Na, Ca, and Fe), and smectite.



FIGURE 13. BLM's "over-the-counter" sales and Community Pit on the southwest flank of Little Black Mountain. Santa Fe Mining's newer Little Black Mountain mine occupies the north side of the cinder cone.

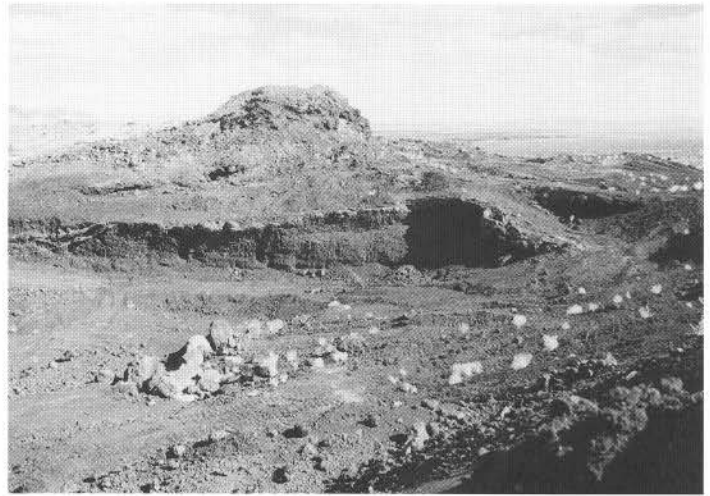


FIGURE 12. Looking southeast from near the crest of Santa Fe Mining Company's Santo Tomas mine.

These reactions improve the firing properties of the rocks, especially the Mesilla Valley shale. Where Mesilla Valley shale is not proximal to the intrusive, firing properties are noticeably poorer and less uniform.

The Anapra Formation lies conformably on the upper Mesilla Valley Formation, which consists of ferruginous sandstone-siltstone interbeds. The overlying lower shale-siltstone member is the thickest shale-siltstone horizon in the Anapra, and has been measured as 46 ft thick (Ntsimanyana, 1990). The middle sandstone member is a light pink, quartzose, medium- to coarse-grained, slightly indurated sandstone. The thickness is variously reported as 12.5 ft (Strain, 1976) to 36 ft (Lovejoy, 1976). Overlying the middle sandstone, the upper sandstone member is a medium- to fine-grained sandstone interlayered with siliceous siltstone and shale. Its thickness varies from 49 to 79 ft (Strain, 1976). Shale and siltstone of the lower sandstone member, the lower shale-siltstone member, and the upper sandstone member are sources of material for the brick-making process. Both AEBC and the nearby Asarco smelter that lies east of the Rio Grande near the AEBC plant also quarry the middle sandstone member for use as a flux. Of the four members, the lower shale-siltstone member is the chief source of brick material because of its thickness and lithologic character.



FIGURE 14. The cinder (scoria) pit of Del Norte Masonry Products, El Paso, on the east flank of Black Bear Mountain.



FIGURE 15. Looking toward the northeast and Guzman Lookout Mountain cinder cone.

Adobe soil

Doña Ana County has a long history of adobe production and use. Older homes and buildings are commonly constructed of this material. In recent years, frame (wood or metal) by far has become the dominant medium of building construction. Many of the relatively few newer homes use adobe bricks that were imported from Mexico where labor costs are less. Only two firms producing earthen building materials from local materials are present in the county (Smith and Austin, 1996). Annual production of the DeLaO Adobe Brick Manufacturing Company of Anthony (A on Fig. 1) is approximately 40,000 adobe brick. The source of soil is on private land near the Río Grande. Soledad Canyon Earth Builders of Mesilla builds rammed-earth houses, primarily from soil on the construction site (Fig. 19). In 1995 Soledad Canyon Earth Builders produced six rammed-earth homes.

Gypsum

Schneider Welding of Anthony, NM, operates the Keystone #1 (Fig. 20), a small gypsum mine in sec. 33, T26S, R4E (5 on Fig. 1 and in Appendix 1). The mine yields about 600 st of granular gypsum per year from the Permian Panther Seep Formation. The gypsum is mined intermittently for use in road base for highway con-



FIGURE 17. American Eagle Brick Company on the east and north flanks of the Cerro de Cristo Rey in south central New Mexico produces red brick for the west Texas and southern New Mexico market, but ships to cities as far away as Houston, Texas.



FIGURE 16. The Severo Garza operation on the southwest flank of Guzman Lookout Mountain primarily produces small-size black scoria.

struction. Total production through 1997 was probably less than 5000 st.

Travertine

The Rainbow mine is discussed here because it is listed as active by Hatton et al. (1996). We found the quarries devoid of equipment and apparently abandoned for many years, except for minor collecting by the public, so it is not plotted on Fig. 1. It is in secs. 25 and 26, T21S, R2W and was operated briefly in the late 1970s or early 1980s by the Apache Springs Company of Radium Springs and Las Cruces. Apache Springs produced travertine blocks (Barker et al., 1996) most of which remain stockpiled near the quarries but a few were apparently cut. Much of the equipment was sold to New Mexico Travertine of Belen about 1984.

Four travertine quarries (not including the Rainbow mine) were mapped by Clemons (1976) along the east side of the Cedar Hills fault zone on the Corralitos Ranch 7½-min quadrangle. The travertine is banded and its color varies between pink, orange, lavender, white brown, and gold (McLemore and Sutphin, 1997). Considerable black calcite, most without banding, is also present.

OTHER

Zeolite occurs at Foster Canyon in a collapse zone associated with the Cedar Hills and Selden Hills volcanic-vent zone (Seager

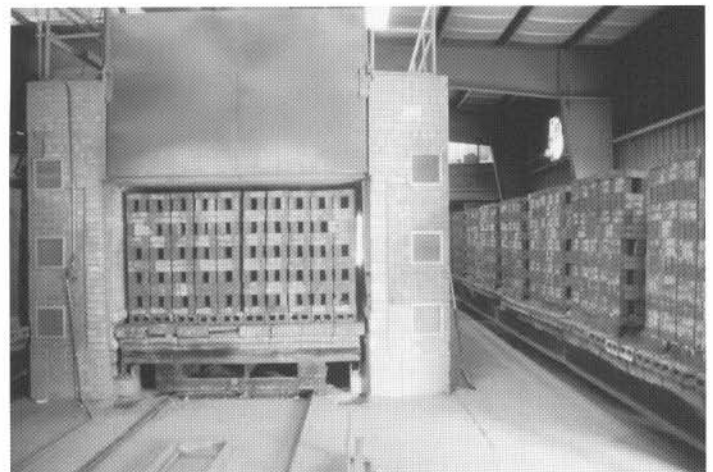


FIGURE 18. American Eagle Brick Company's tunnel kiln was constructed in 1974, but is continually upgraded to increase energy efficiency.

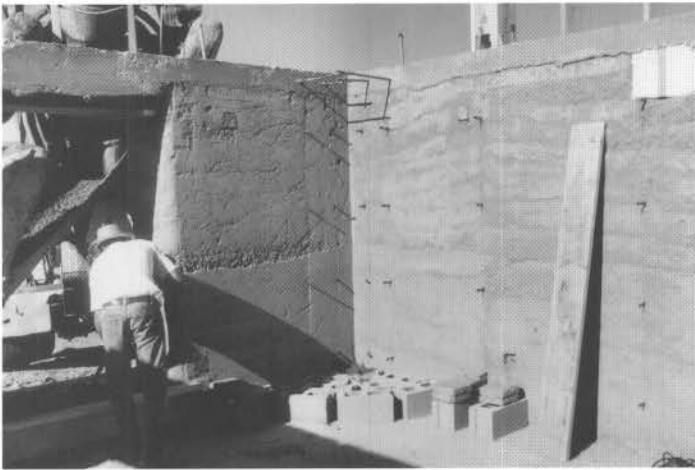


FIGURE 19. A rammed-earth home under construction east of Las Cruces by Soledad Canyon Earth Builders. Damp soil containing about 5% portland cement is compacted by tamping between forms. Note the layering in the wall after the forms have been removed. The workmen are pouring a concrete sill for a window.

and Clemons, 1975; Clemons, 1976). The zeolite deposit is mainly in the easternmost half of T21S, R2W and the westernmost sections of T21S, R1W (Bowie et al., 1987) in northern Doña Ana County. The Zeotech prospect pit and associated shallow drill holes (>300 were drilled) is at SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 14, T21S, R2W. The deposit is in the upper tuffaceous sedimentary member of Clemons (1976). This unit is extensively zeolitized and locally opalized and consists of up to 800 ft of white-to-tan, rhyolitic air-fall tuff, breccia, and interbedded epiclastic pebbly sandstone that were deposited as moat fill. The deposit consists of about 50% clinoptilolite with minor chabazite and some analcime with reserves estimated at 200,000–300,000 st (Bowie et al., 1987).

Previous production of industrial minerals was more broadly based than the current emphasis on construction materials. The industrial minerals produced in the past and not discussed above include barite, fluorite, silica, limestone, marble, clay, and talc (see McLemore, this guidebook, for a discussion of industrial minerals and rocks excluding aggregate).

CONCLUSIONS

The industrial mineral mines and markets of Doña Ana County are extremely active. Recent growth has stimulated the production of several different commodities. Thirty separate aggregate operations are active either near population centers such as Las Cruces or adjacent to major highways making it the leading commodity in the county. Scoria or volcanic cinders, shale for brick production, and building stone together are the second ranking industrial mineral commodities in both volume and value. They are followed by fill material, adobe soil, and gypsum.

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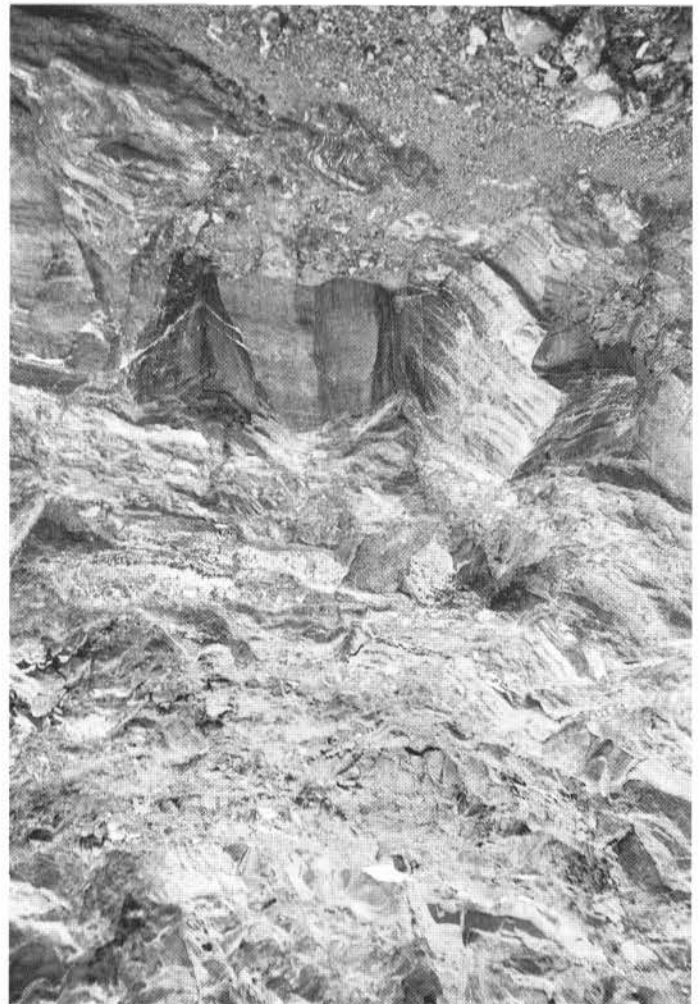


FIGURE 20. Schneider Welding of Anthony operates a small gypsum mine in the Permian Panther Seep Formation. The prominent layered gypsum bed above the talus varies from 4 to 5 ft thick. The gypsum, used in road base, varies from white to dark gray.

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APPENDIX 1: Active, intermittently active, and temporarily closed mines and pits in Doña Ana County, New Mexico (after Hatton et al., 1998). Numbers refer to locations on Figure 1.

DOÑA ANA COUNTY MINES

1 BLACK BEAR PIT

Scoria (Volcanic Cinders)

Del Norte Masonry Products Inc.
4560 Ripley, El Paso, TX 79922
(915) 584-4453
Type of Operation: Surface Mine
Status: Active
Production: 108 yds³/day; 39,000 yds³/yr
MSHA Number: 2900184
Location: secs. 1 and 12, T26S, R1E
USGS Quad: Little Black Mountain
Mineral Estate: Private

2 DONNA MOUNTAIN MINE

Scoria (Volcanic Cinder)

Santa Fe Mining Company, Inc.
490 North Valley Dr., Las Cruces, NM 88005
(505) 523-5750
Type of Operation: Surface Mine
Status: Active
Capacity: 80+ st/day
MSHA Number: 2901580
Location: SE¹/₄ NE¹/₄ sec. 15, T24S, R4W
USGS Quad: Mount Aden
Mineral Estate: Private; Volcanic Cinders,
Box 9977, El Paso, TX 79990

3 EAGLE MINE/MILL

Clay (Shale)

American Eagle Brick Company
P.O. Box 12786, El Paso, TX 79913
(505) 589-0700
Type of Operation: Surface Mine/Mill
Status: Active
Capacity: 20,000 st/yr
MSHA Number: 2900078
Location: T29S, R4E (proj.)
USGS Quad: Smelertown
Mineral Estate: Private; American Eagle Brick
Company, P.O. Box 12786, El Paso, TX 79913
(505) 589-0700
Surface Estate: Same
NOTE: Formerly known as Hortense and Alumina Placer

4 GUZMAN PIT

Red and Black Lava Rock

Severo Garza
210 Whittier, El Paso, TX 79907
(915) 859-0234
Type of Operation: Surface Mine
Status: Active
MSHA Number: 2902080, 2905501
Location: SW¹/₄ SW¹/₄ SW¹/₄ sec. 35, T28S, 4W
Directions: the southwest corner of Guzman
Lookout Mountain
USGS Quad: Guzman Lookout Mountain
Mineral Estate: Federal; BLM, 1800 Marquess,
Las Cruces, NM 88005, (505) 525-4300
Surface Estate: Private; Mike and Severo Garza,
210 Whittier, El Paso, TX 79907

5 KEYSTONE #1

Gypsum

Schneider Welding
Box 428, Anthony, NM 88021
(915) 877-3056
Type of Operation: Surface Mine/Mill
Status: Intermittent
Capacity: Approximately 600 st/yr
Location: NW4 sec. 33, T26S, R4E
USGS Quad: Anthony
Mineral Estate: Private; Karl Schneider, Box 428,
Anthony, NM 88021, (915) 877-3056
Surface Estate: Federal; BLM, 1800 Marquess,
Las Cruces, NM 88005, (505) 525-4300

6 LITTLE BLACK MOUNTIAN

Scoria (Volcanic Cinders)

Santa Fe Mining Company, Inc.
490 North Valley Dr., Las Cruces, NM 88005
(505) 523-5750
Type of Operation: Surface Mine
Status: Active
Capacity: 1200-1400 st/day
MSHA Number:
Location: sec. 24, T25S, R1E
USGS Quad: Little Black Mountain
Mineral Estate: Federal; BLM, 1800 Marquess,
Las Cruces, NM 88005, (505) 525-4300
Surface Estate: Same

7 SANTO TOMAS MINE**Scoria (Volcanic Cinders)**

Santa Fe Mining Company, Inc.
490 North Valley Dr., Las Cruces, NM 88005
(505) 523-5750

Type of Operation: Surface Mine

Status: Active

MSHA Number: 2900192

Location: S¹/₂ SW¹/₄ sec. 31, T24S, R2E

Directions: 12 mi S of Las Cruces, Hwy 28

USGS Quad: Black Mesa

Mineral Estate: Federal; BLM, 1800 Marquess,
Las Cruces, NM 88005, (505) 525-4300

Surface Estate: Same

DOÑA ANA COUNTY SAND & GRAVEL PITS**8 AMERICAN SAND & GRAVEL****Sand and Gravel**

American Sand & Gravel
P.O. Box 2569, Anthony, NM 88021
(505) 882-3949

Type of Operation: Quarry

Status: Active

Capacity: 60 yds³/month

MSHA Number: 2902096

Location: SW¹/₄ sec. 3, T26S, R3E

USGS Quad: Anthony

Mineral Estate: Private; Miguel Guillen,
P.O. Box 2569, Anthony, NM 88021

Surface Estate: Same

9 ANTHONY SAND & GRAVEL**Sand and Gravel**

Anthony Sand & Gravel
Rt. 1, Box 30W, Anthony, NM 88021
(505) 882-3474

Type of Operation: Quarry

Status: Active

MSHA Number: 2902094

Directions: 3 mi N of Anthony, NM

USGS Quad: Anthony

Mineral Estate: Felipe Gardea, Jr., and

Nick Holquin, Jr., Rt. 1, Box 30W,

Anthony NM 88021; (505) 882-3474

10 B&J SAND & GRAVEL PIT NO. 2**Fines, Gravel, and Base Coarse**

B&J Sand and Gravel
P.O. Box 198, Mesilla, NM 88046
(505) 526-7715

Type of Operation: Pit

Status: Active

Capacity: 2200 st/yr

MSHA Number: 2901819

Location: sec. 11, W¹/₂ NE¹/₄ sec. 12, T23S, R2E

USGS Quad: Tortugas Mountain

Mineral Estate: Federal; BLM, 1800 Marquess,

Las Cruces, NM 88005, (505) 525-4300

Surface Estate: Same

11 BILL INMAN #1**Sand and Gravel**

Rio Grande Rock, Inc.
1501 S. Don Roser, Las Cruces, NM 88001

(505) 522-2211

Type of Operation: Quarry

Status: Intermittent; temporarily closed

MSHA Number: 2901130

Location: SE¹/₄ sec. 14, T23S, R2E

Directions: 2 mi E of I-25 on Dripping Spring Rd.

USGS Quad: Tortugas Mountain

Mineral Estate: Private; Eddie Binns,

1501 S. Don Roser, Las Cruces, NM 88001

Surface Estate: Same

NOTE: Same location as Certified Sand Co. Pit

12 BURRIS PIT NO.1**Sand and Gravel**

James Hamilton Construction Co.
P.O. Box 1287, Silver City, NM 88062
(505) 388-1546

Type of Operation: Pit

Status: Intermittent; temporarily closed

MSHA Number: 2902016

Location: NE¹/₄ sec. 19, T23S, R4W

Directions: Interstate 10, Mile Marker 124

USGS Quad: Good Sight Peak NE

Mineral Estate: Private; G. W. Burris,

P.O. Box 345, Belen, NM 87002

Surface Estate: Same

13 CERTIFIED SAND CO. PIT (BILL INMAN #1)**Sand and Gravel**

Certified Sand Company
1501 S. Don Roser, Las Cruces, NM 88001
(505) 522-2211/522-6640

Type of Operation: Pit

Status: Active

MSHA Number: 2900437

Location: SE¹/₄ sec. 14, T23S, R2E

Directions: 2 mi E of I-25 on Dripping Spring Rd

USGS Quad: Tortugas Mountain

Mineral Estate: Private; Wayne Muncrief,

1501 S. Don Roser, Las Cruces, NM 88001

Surface Estate: Same

14 HATCH PIT**Sand and Gravel**

BLM Community Pit
1800 Marquess,
Las Cruces, NM 88005,
(505) 525-4300

Type of Operation: Pit

Status: Intermittent

Capacity: 3000 st/day

MSHA Number: 2902016

Location: sec. 18, T19S, R3W

USGS Quad: Hatch

Mineral Estate: Federal; BLM, 1800 Marquess,
Las Cruces, NM 88005, (505) 525-4300

Surface Estate: Same

15 HATCH WEST PIT**Fill dirt**

Doña Ana County Transportation Dept.
2025 East Griggs Ave., Las Cruces, NM 88001
(505) 647-7100

Type of Operation: Pit

Status: Active

Capacity: 7000 yds³/yr
 Location: NE¹/₄ NE¹/₄ sec.18, T19S, R3W
 Directions: North of NM 26
 USGS Quad: Hatch
 Mineral Estate: Federal; BLM, 1800 Marquess, Las Cruces, NM 88005, (505) 525-4300

16 HIGHWAY 70 PIT

Sand and Gravel

McNutt Construction
 227 E. Taylor Rd., Las Cruces, NM 88001
 (505) 526-5923
 Type of Operation: Pit
 Status: Active
 MSHA Number: 2900423
 Location: sec. 28, T22S, R2E
 USGS Quad: Tortugas Mountain
 Mineral Estate: Federal; BLM, 1800 Marquess, Las Cruces, NM 88005, (505) 525-4300
 Surface Estate: Same

17 HILL PIT

Sand and Gravel

Doña Ana County Transportation Dept.
 2025 East Griggs Ave., Las Cruces, NM 88001
 (505) 647-7100
 Type of Operation: Pit
 Status: Active
 Capacity: 80,326 yds³/yr
 Location: N¹/₂ NW¹/₄ sec. 3, T22S, R1E
 Directions: North of I-25
 USGS Quad: Doña Ana
 Mineral Estate: Federal; BLM, 1800 Marquess, Las Cruces, NM 88005, (505) 525-4300

18 HILL PIT

Sand and Gravel

Nevarez Bros.
 4100 Chavez Rd., Las Cruces, NM 88005
 (505) 526-6251
 Type of Operation: Pit
 Status: Active
 Location: sec. 3, T22S, R1E
 USGS Quad: Doña Ana
 Mineral Estate: Federal; BLM, 1800 Marquess, Las Cruces, NM 88005, (505) 525-4300

19 JOBE VADO FACILITY

Sand and Gravel

Jobe Concrete Products, Inc.
 1 McKelligon Canyon Rd., El Paso, TX 79930
 (915) 565-4681
 Type of Operation: Surface
 Status: Active
 Capacity: 2000 st/day
 MSHA Number: 2902128
 Location: secs. 9, 15, and 16, T25S, R3E
 USGS Quad: San Miguel, Bishop Cap
 Mineral Estate: Private; Jobe Concrete Products, Inc.
 Surface Estate: Same

20 JORNADA PIT

Fill dirt

BLM Community Pit and over-the-counter sales
 1800 Marquess,

Las Cruces, NM 88005

(505) 525-4300

Type of Operation: Pit

Status: Active

Capacity: 1500 yds³/yr

Location: S¹/₂ NE¹/₄ sec. 10, T22S, R2E

USGS Quad: Organ Peak NW

Mineral Estate: Federal; BLM, 1800 Marquess, Las Cruces, NM 88005, (505) 525-4300

21 LAS CRUCES WEST

Select borrow for highway construction

T. Brown Constructors, Inc.

P.O. Box 26508, Albuquerque, NM 87125

(505) 345-9051

Type of Operation: Quarry

Status: Intermittent; temporarily closed

Location: sec. 32, T22S, R1 E

Directions: Las Cruces, W on Picacho to Shalem Colony Rd., N 3.8 mi, W across dam.

USGS Quad: Las Cruces

Mineral Estate: State; New Mexico State Land Office, P.O. Box 1148, Santa Fe, NM 87501, (505) 827-5744

Surface Estate: Same

NOTE: Gravel removed and used at the jobsite on a one-time-only basis.

22 LAZY-E PIT

Sand and Gravel

James Hamilton Construction Co.

P.O. Box 1287, Silver City, NM 88062

(505) 399-1546

Type of Operation: Pit

Status: Intermittent; temporarily closed

MSHA Number: 2901968

Location: sec. 33, T23S, R2W

USGS Quad: Sleeping Lady Hills

Mineral Estate: State; New Mexico State Land Office, P.O. Box 1148, Santa Fe, NM 87501, (505) 827-5744

Surface Estate: Same

23 MESILLA DAM PIT

Sand and Gravel

Doña Ana County Transportation Dept.

2025 East Griggs Ave., Las Cruces, NM 88001

(505) 647-7100

Type of Operation: Pit

Status: Active

Capacity: 5000 yds³/yr

Location: SW¹/₄ NE¹/₄ sec. 14, T24S, R1E

USGS Quad: Black Mesa

Mineral Estate: Federal; BLM, 1800 Marquess, Las Cruces, NM 88005, (505) 525-4300

24 MESQUITE PIT

Sand and Gravel

Doña Ana County Transportation Dept.

2025 East Griggs Ave., Las Cruces, NM 88001

(505) 647-7100

Type of Operation: Pit

Status: Active

Capacity: 30,000 yds³/yr

MSHA Number:

Location: SW¹/₄ sec. 30, T24S, R3E

USGS Quad: San Miguel

Mineral Estate: Federal; BLM, 1800 Marquess,

Las Cruces, NM 88005, (505) 525-4300

25 MUNCRIEF PLACER #1

Sand and Gravel

Rio Grande Rock, Inc.
P.O. Box 128, Las Cruces, NM 88004-0128
(505) 522-2211/522-6640
Type of Operation: Quarry
Status: Active
Capacity: 3000 st/day
MSHA Number: 2900437
Location: secs. 21 and 28, T24S R3E
USGS Quad: San Miguel
Mineral Estate: Private; Wayne Muncrief and Eddie Binns,
1501 S. Don Roser, Las Cruces, NM 88001; (505) 522-2211
Surface Estate: Same

26 NEVAREZ BROS. PIT & PLANT

Gravel

Nevarez Bros.
4100 Chavez Rd., Las Cruces, NM 88005
(505) 526-6251
Type of Operation: Pit/Screening Plant
Status: Active
Capacity: 700 yds³/month
MSHA Number: 2901285
Location: secs. 3, 4, 8, 9, and 10, T22S R1E
USGS Quad: Doña Ana
Mineral Estate: Private; Henry H. Perez, General
Delivery, Doña Ana, NM; (505) 524-4989
Surface Estate: Same

27 NORTH O'HARA PIT

Sand and Gravel

Doña Ana County Transportation Dept.
2025 East Griggs Ave., Las Cruces, NM 88001
(505) 647-7100
Type of Operation: Pit
Status: Active
Capacity: 25,000 yds³/yr
MSHA Number:
Location: NE¹/₄ SW¹/₄ and NW¹/₄ SE¹/₄ sec. 19, T26S, R4E
USGS Quad: Anthony
Mineral Estate: Federal; BLM, 1800 Marquess,
Las Cruces, NM 88005, (505) 525-4300

28 PICACHO PEAK

Sand and Gravel

Burn Construction Company, Inc.
P.O. Drawer 1869, Las Cruces, NM 88004
(505) 526-4421
Type of Operation: Quarry
Status: Active
MSHA Number: 2900440
Location: sec. 32, T22S, R1E
Directions: Approximately 3/4 mi E of
Picacho Peak on Salem Colony Trail
USGS Quad: Las Cruces
Mineral Estate: State; New Mexico State Land Office,
P.O. Box 1148, Santa Fe, NM 87501, (505) 827-5744
Surface Estate: Same

29 SALEM PIT

Sand and Gravel

Doña Ana County Transportation Dept.
2025 East Griggs Ave., Las Cruces, NM 88001
(505) 647-7100
Type of Operation: Pit
Status: Active
Capacity: 5000 yds³/yr
MSHA Number:
Location: NE¹/₂ NW¹/₄, NW¹/₄ sec. 25, T18S R4W
USGS Quad: Hatch
Mineral Estate: Federal; BLM, 1800 Marquess,
Las Cruces, NM 88005, (505) 525-4300

30 SMITH & AGUIRRE CRUSHER

Sand and Gravel

Smith and Aguirre Construction Co.
P.O. Drawer 2276, Las Cruces, NM 88004
(505) 527-2500
Type of Operation: Quarry
Status: Active
Capacity: 65,000 st/yr
MSHA Number: 2901740
Location: sec. 22, T23S R2E
USGS Quad: Tortugas Mountain
Mineral Estate: State; New Mexico State Land Office,
P.O. Box 1148, Santa Fe, NM 87501, (505) 827-5744

31 SWPP FORT SELDON QUARRY

Sand, Gravel, and Rocks

Southwest Paving Products, Inc.
P.O. Box 1831, Las Cruces, NM 88004
(505) 526-6985
Type of Operation: Quarry
Status: Active
MSHA Number: 29020269
Location: sec. 13, T21S R1W
USGS Quad: Leasburg
Mineral Estate: Private; Southwest Paving Products,
P.O. Box 1831, Las Cruces, NM 88004; (505) 526-6985
Surface Estate: Same

32 VADO QUARRY

Crushed Stone, Building Stone

Daniel S. Guillen Construction Co.
4007 Mission Bell, Las Cruces, NM 88001
(505) 526-9754
Type of Operation: Quarry
Status: Active
Capacity: 25,000 st/yr
MSHA Number: 2900982
Location: sec. 15 and 16, T25S R3E
Directions: At 1-25 Vado Exit; 15 mi SE of Las Cruces
USGS Quad: San Miguel
Mineral Estate: Private
Surface Estate: Same

APPENDIX 2: BLM land activity in Doña Ana County in 1998 (source: Al Chavez, BLM, Las Cruces). Numbers refer to locations on Figure 1.

Nos.	Operator	Location	Commodity	Pit Name	Acreage
10	B&J Sand & Gravel	sec. 25, T23S R2E	Sand & gravel	East Mesa	14.590
18	Nevarez Bros.	sec. 3, T22S R1E	Sand & gravel	Hill	6.500
33	Fred's Excavating	sec. 28, T24S R3E	Sand & gravel	Mossman	23.000
34	Delores Wright	sec. 19, T26S R5E	Sand & gravel	Chapparral	3.592
16	Jim McNutt	sec. 28, T22S R2E	Sand & gravel	Highway 70	10.000
4	Severo Garza	sec. 35, T28S R4W	Cinder	Guzman	10.000
6	Santa Fe Mining	sec. 24, T25S R1E	Cinder	Little Black	10.000
35	City of Las Cruces	sec. 12, T23S R2E	Sand, gravel, & fill	East Mesa	10.000
7	Santa Fe Mining	sec. 31, T24S R2E	Cinder	Santo Tomas	40.000
		sec. 6, T25S R2E			
17	EBID/DAC	sec. 3, T22S R1E	Fill	Hill	18.600
29	EBID/DAC	sec. 25, T18S R4W	Fill	Salem	20.000
24	EBID/DAC	sec. 30, T24S R3E	Fill	Mesquite	60.000
23	EBID/DAC	sec. 14, T24S R1E	Fill	Mesilla Dam	4.600
36	EBID/DAC	sec. 13, T27S R2E	Fill	La Union	41.340
37	EBID/DAC	sec. 18, T19S R3W	Fill	Hatch	11.750
46	EBID	sec. 4, T19S R2W	Riprap	Rincon	5.000
6	EBID	sec. 24, T25S R1E	Cinder/fill	Little Black Mtn.	20.000
27	DAC	sec. 19, T26S R4E	Fill	North O'Hara	10.000
38	CP	sec. 31, T22S R1E	Building stone (status pending)	Community Pit #1	80.000
46	OCS/CUA	sec. 4, T19S R2W	Building stone	Rincon	4.000
6	OCS/CP	sec. 24, T25S R1E	Cinder	Little Black Mtn. Community Pit	20.000
39	CP	sec. 19, T23S R1E	Caliche (land status change pending; no sales made at present)	Community Pit #5	40.000
20	OCS/CP	sec. 10, T22S R2E	Red dirt/Blow sand (OCS and free use)	Jornada Red Dirt Community Pit	20.000
37	CP	sec. 17 & 18, T19S R3W	Sand, gravel, & reject (no sales at present, status pending)	Community Pit #2	21.000
40	CUA	sec. 26, T26S R4E	Caliche	O'Hara South	10.000
27	OCS/CUA	sec. 19, T26S R4E	Sand & gravel (OCS; status pending)	O'Hara North	10.000
36	OCS/CP	sec. 13, T27S R2E	Sand, gravel, caliche, & red dirt	La Union Community Pit	41.340
41	OCS/CUA	sec. 4, T19S R3W	Sand & gravel	Hatch Arroyo	4.200
42	FHWA	sec. 35, T18S R3W	Aggregate/borrow	Rincon FHWA19.040	
43	FHWA	sec. 18, T28S R1W	Aggregate	East Potriclo	43.840
		sec. 13, T28S R2W			
44	FHWA	sec. 31, T28S R3E	Borrow	Santa Teresa	37.170
		sec. 6, T29S R3E			
45	FHWA	sec. 14, T29S R4W	Borrow	Columbus Borrow	36.529

Abbreviations

EBID	=	Elephant Butte Irrigation District
DAC	=	Doña Ana County (used by)
CP	=	Community Pit
CUA	=	Common use area (larger than community pits with more users)
OCS	=	Over-the-counter sales
FHWA	=	Federal Highway Administration (right of use given to)