HIGH-CALCIUM LIMESTONE RESOURCES OF UTAH

by

Bryce T. Tripp

SPECIAL STUDY 116
UTAH GEOLOGICAL SURVEY
a division of
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Cover photograph: Ash Grove Cement's Leamington cement plant, Juab County, Utah. The view is to the northwest from Ash Grove's limestone quarry and the Gilson Mountains are in the background. Photograph taken October 2002.

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HIGH-CALCIUM LIMESTONE RESOURCES OF UTAH

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ABSTRACT

Utah contains large resources of high-calcium limestone (> 95% $CaCO_3$) that provide raw material for diverse mining and mineral-processing operations. The most important deposits are in Cambrian, Devonian, and Mississippian-age shallow marine rocks, primarily in the western half of the state. Tertiary lacustrine sediments of central and northeast Utah contain large volumes of limestone but they are generally less pure than the lower Paleozoic limestone. There are some Mesozoic formations that probably contain small amounts of high-calcium limestone. Quaternary travertine, tufa, and oolite deposits in Utah sometimes contain small deposits of high-calcium limestone that are important for local use. Although all carbonate rocks in Utah have not yet been systematically evaluated, 387 available chemical analyses from 46 stratigraphic formations show that large tonnages of high-calcium limestone are present in Utah.

About 84 high-calcium limestone quarries have been developed in Utah during the past 150 years. Most of these probably contain high-calcium limestone but chemical analyses are not available for all of the quarries. Of these, 14 moderate- to large-sized operations produced high-calcium limestone in 2004 for (1) Portland cement raw material, (2) manufacture of masonry lime and quicklime, (3) flue-gas desulfurization, (4) smelter flux, (5) coal-mine rock dust, and (6) crushed stone and riprap. Utah's above-average population growth rate and recent large infrastructure developments, such as the Interstate Highway 15 reconstruction, have increased demand for high-calcium limestone. A major trend in Utah is increasing production of high-calcium limestone primarily for construction aggregate and crushed stone, but with additional potential for by-product high-calcium limestone for chemical and other uses.

INTRODUCTION

Definition

High-calcium limestone (HI-CAL) is a sedimentary rock containing 95% or more calcium carbonate ($CaCO_3$). It has thousands of global applications as a raw material in construction, chemical, metallurgical, and other industries. Globally, most large, economically important deposits formed by precipitation of calcium carbonate from sea water by marine plants and animals. HI-CAL can also precipitate in springs, in both fresh and saltwater lakes, as cave and vein-filling deposits, and in other settings, but the volumes formed are small and the limestone is commonly impure. Limestone is an abundant rock forming 0.25% of the earth's crust and 15% of the earth's sedimentary rocks (Parker, 1967). Average limestone has the chemical composition listed in table 1.

HI-CAL is a high-purity form of limestone that is much less common. Even in a state like Utah, that has abundant limestone, the percentage of HI-CAL that is economically exploitable is surprisingly small. To be commercially viable, HI-CAL deposits must be (1) readily minable (large surface minable deposits in areas of moderate topographic relief are ideal), (2) close to transportation corridors and customers (this is a low-unit value commodity that cannot be economically shipped great distances), (3) located on land that is available for mining (land status and zoning often preclude the possibility of development), and (4) sufficiently large to support a mining operation for a long period of time (lime or cement plants, major users of HI-CAL, have very long life spans and need reliable supplies of uniform material). Urbanization and changes in land use, such as protective federal mineral withdrawals, will reduce the available HI-CAL resources of Utah.

Table 1. *Major oxide composition of average limestone in weight-percent (from Carmichael, 1982).*

SiO_2	Al_2O_3	Fe_2O_3	CaO ($CaCO_3$)	MgO ($MgCO_3$)	SO_2	Na_2O	K_2O	TiO_2	P_2O_5	H_2O	CO_2
5.19	0.81	0.54	42.57 (75.77)	7.89 (16.49)	0.05	0.05	0.33	0.06	0.04	0.77	41.54

Uses for High-Calcium Limestone

HI-CAL has more uses than most other geologically derived materials and is used in the manufacture of most of our material possessions. There is a voluminous body of literature dealing with these uses; good basic descriptions are contained in Buie and Robinson (1958), Stowell (1963), Rooney and Carr (1971), Boynton (1980), Carr and Rooney (1983), Boynton and others (1983), Carr and others (1994), Ciullo (1996), and Oates (1998). Most of Utah's HI-CAL has been mined for the major industrial uses listed below.

Aggregate and construction stone

Crushed HI-CAL is typically suitable for use as construction material such as concrete aggregate, bituminous aggregate, or road base. In these applications the mechanical properties are the most important; chemical composition of the HI-CAL is important only if it affects the mechanical properties.

Chemical lime

Chemical lime is the result of processing HI-CAL at high temperature to remove CO_2. Chemical lime is used in thousands of industrial processes such as water treatment, pollution abatement, petroleum refining, and gold hydrometallurgy.

Portland cement

HI-CAL is ground in the proper proportions with geological materials containing silica, alumina, and iron and the resulting material is fused at very high temperature, creating a granular material consisting of a complex of calcium silicate, calcium aluminate, and alumino-ferrite. This granular material or "clinker" is further ground with a small amount of gypsum (that slows the hardening time) to make cement. Concrete is cement mixed with aggregate (sand and gravel, or crushed stone); the aggregate acts as a strong, inexpensive filler. As performance specifications for Portland cement have become more stringent, some cement companies have switched from using naturally occurring cement rock (an argillaceous limestone having the correct chemistry for Portland cement) to mixing HI-CAL with raw materials containing silica, alumina, and iron.

Coal-mine rock dusting

Coal miners spray pulverized HI-CAL powder and slurry onto walls and floors of coal mines to dilute explosive airborne coal dust in the event of an underground explosion. HI-CAL used in this application must contain low amounts of silica because of the health risk of inhaling the silica-laden HI-CAL dust. The U.S. Mine Safety and Health Administration regulation 30CFR75.2(d) states that HI-CAL be light colored and pulverized so that 70% of the HI-CAL passes a 200-mesh screen. It should not cohere so it can be dispersed by a light blast of air. It should contain less than 5% combustible matter and 4% or less free and combined silica except where the Secretary finds that rock dust with such silica concentrations is not available and then silica can be 5% or less (MSHA, 2003).

Flue-gas desulfurization

Either HI-CAL or high-calcium lime is used as a dry powder or in a slurry in scrubbers at coal-fired electric power plants to capture SO_2 from combustion exhaust. The calcium in the lime or HI-CAL reacts with the SO_2 to yield $CaSO_4$ (gypsum). This waste product has been historically disposed of by burial but it is increasingly being used in fabrication of wallboard and as an additive in Portland cement.

Masonry mortar

Masonry mortar is high-calcium lime that may be partially rehydrated, and mixed with sand and water to be used as mortar by masons to lay clay bricks and concrete blocks. Mortar can also be made from hydrated dolomitic lime but nationwide hydrated dolomitic lime mortar is used in much smaller quantities than hydrated high-calcium lime mortar.

Metallurgical flux

Both HI-CAL and high-calcium lime have been used as flux in steel and copper smelting in Utah. The role of flux is to facilitate the separation of the molten slag from the liquid metal and to scavenge deleterious impurities from the liquid metal.

Sugar processing

Lime made from HI-CAL was historically used in processing sugar beets into sugar. The lime was used to remove phosphatic and organic acid compounds from the beet juice. About 0.2 st (0.18 mt) of lime was required for each ton (0.9 mt) of sugar produced (Boynton and others, 1983). The Utah beet sugar industry was on the decline in the last half of the 20th century (due to an increase in foreign, cane sugar production) and ceased altogether in the 1980s when the Garland, Box Elder County plant, the last sugar plant operating in Utah, closed.

Standard Industry Tests and Specifications

Potential for development of a HI-CAL deposit in Utah depends in part if it meets specifications for a particular use. The American Society for Testing and Materials (ASTM) is a good source of widely accepted, detailed information on HI-CAL specifications. ASTM publishes industrial standards adopted by HI-CAL-based companies to assure uniform products. A selected list of ASTM standards pertaining to lime and HI-CAL is tabulated in table 2.

Industrial Users

Users of HI-CAL in Utah are listed in table 3 and their locations are plotted on plate 1.

Purpose and Scope

The Utah Geological Survey (UGS) compiled information on the HI-CAL resources of Utah because: 1) little information is published, 2) the published information is scattered

Table 2. *ASTM standards pertaining to industrial uses of HI-CAL (from ASTM, 2003).*

Standard No.	Descriptive Title
C25-99	Standard Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime
C50-99	Standard Practice for Sampling, Sample Preparation, Packing, and Marking of Lime and Limestone Products
C51-00a	Standard Terminology Relating to Lime and Limestone (as used by the Industry)
C110-02a	Standard Test Methods for Physical Testing of Quicklime, Hydrated Lime, and Limestone
C400-98	Standard Test Methods for Quicklime and Hydrated Lime for Neutralization of Waste Acid
C602-95a	Standard Specification for Agricultural Liming Materials
C706-98	Standard Specification for Limestone for Animal Feed Use
C737-97	Standard Specifications for Limestone for Dusting of Coal Mines
C911-99e1	Standard Specification for Quicklime, Hydrated Lime, and Limestone for Chemical Uses
C1164-92(1997)e1	Standard Practice for Evaluation of Limestone or Lime Uniformity From a Single Source
C1271-99	Standard Test Method for X-ray Spectrographic Analysis of Lime and Limestone
C1301-95	Standard Test Method for Major and Trace Elements in Limestone and Lime by Inductively Coupled Plasma-Atomic Emissions Spectroscopy (ICP) and Atomic Absorption

throughout obscure data sources, 3) a growing demand exists for HI-CAL, and 4) federal, state, and local officials need up-to-date resource information for land-use planning. HI-CAL production has been an important part of Utah's industrial sector almost since the arrival of the pioneers in 1847 and yet very little published information is available on this commodity. As part of its mission, the UGS seeks to encourage prudent economic development of Utah's HI-CAL resources to help meet the needs of the rapidly increasing population in the western United States. Previously, geologists who sought new HI-CAL deposits spent weeks reviewing large volumes of geologic literature. This compilation will shorten library research and improve results. Also, the State of Utah owns large HI-CAL resources distributed across the state on School Trust Lands and receives substantial revenue from these resources. This compilation will aid the Utah School and Institutional Trust Lands Administration in maximizing its income from HI-CAL resources for the benefit of Utah schools. Finally, federal, state, and local governments are making important land-use decisions without adequate information on potential HI-CAL resources areas; more information will help them write more realistic plans.

This project compiles basic information on the most important geologic and infrastructural factors that would be considered when planning a new HI-CAL quarry such as: (1) data on existing pits and prospects, (2) chemical analyses of HI-CAL, (3) the extent and spatial distribution of geologic formations having good potential for HI-CAL production, (4) references for geologic maps covering existing pits and prospects, and analytical data points, (5) locations of transportation corridors, and (6) locations of cement and lime plants, electric power plants, coal mines, and metal smelters that are large consumers of HI-CAL.

Considering the enormous volume of carbonate rocks in the state, some limits on the study's scope were necessary. I compiled information only on rock units that were thought to have potential for HI-CAL. Cement rock, calcite-vein deposits, and dolomite were not included in the study. Some information on cement rock, calcite veins, and dolomite is contained in the following references: Eckel (1913), Dennis (1930), Buranek (1945), Crawford and Buranek (1948), Okerlund (1951), Bullock and Okerlund (1951), Nackowski and Levy (1959), Bullock (1962), Norman and Thompson (1963), Morris (1969), Doelling (1971), Minobras (1974), and Tripp (2001).

Most of the data for report and associated map were compiled before 1997, so a small amount of data released later may not be included.

Methods

Data were gathered from publications, geologic maps, UGS databases and files, unpublished company data and reports, field investigations, and communications with industry personnel. Most of the HI-CAL quarry and prospect data listed in appendix A and shown on plate 1 were extracted from the Utah Mineral Occurrence System database compiled by the UGS in cooperation with the U.S. Bureau of Land Management and the U.S. Geological Survey. Additional data were added from the Utah Division of Oil, Gas and Mining permitted mines database. The analytical data in appendices B and C were compiled from published and unpublished reports and UGS field sampling. The Universal Transverse Mercator (UTM) locations for the sample points were determined by examining geologic and topographic maps. UTM coordinates facilitate accurate reporting of analytical data locations and use of these data in GIS systems. The geologic map coverage for each analytical location was then determined using the UGS MAPBIB geological map database. Plate 1 was compiled using ArcView® software and the following information: (1) themes from the Utah Automated Geographical Reference System, (2) the digital

Table 3. *Utah industrial operations that are current large users of HI-CAL or high-calcium lime. Operations are arranged by location from north to south.*

Facility	Owner	Section[1]	Twn.[2]	Rng.[3]	Utm.n[4]	Utm.e[5]	Fac. Type[6]	7.5′ Topo. map
Nucor	Nucor	NW¼NW¼NE¼; 09	013S	003W	4637450	400840	Steel mini mill	Portage
Devil's Slide	Holcim Inc.	NW¼SE¼SE¼; 19	004N	004E	4545420	455330	Cement plant	Devils Slide
Kennecott	Kennecott Utah Copper Co.	NE¼NE¼NE¼; 20	001S	003W	4508650	399050	Copper smelter	Farnsworth Peak
Stansbury Mountains	Chemical Lime of Arizona	NW¼NE¼SE¼; 25	001S	007W	4506560	366960	Dolomitic lime plant	Flux
Bonanza	Deseret Generation and Trans.	01	011S	024E	4417000	656000	Coal-fired power plant	Southam Canyon
Willow Creek	Cyprus Plateau Mining Co.	31	012S	010E	4398230	513120	Coal mine	Helper
Carbon	Pacificorp	NE¼SE¼NW¼; 01	013S	009E	4397300	511700	Coal-fired power plant	Helper
Centennial	Andalex	07	013S	011E	4395100	523390	Coal mine	Deadman Canyon
Horizon	Horizon Coal Co.	17	013S	008E	4393600	495570	Coal mine	Jump Creek
Skyline	Canyon Fuel LLC	13	013S	006E	4392440	482340	Coal mine	Scofield
Dugout	Canyon Fuel LLC	23	013S	012E	4392380	539100	Coal mine	Pine Canyon
West Ridge	West Ridge Resources, Inc.	NW¼NW¼SE¼; 14	014S	013E	4384100	549100	Coal mine	Sunnyside
Leamington	Ash Grove Cement West	N2¼SW¼NW¼; 33	014S	003W	4379850	397300	Cement plant	Champlin Peak
Sunnyside	Sunnyside	NW¼NE¼SW¼; 06	015S	014E	4377600	552090	Coal waste cogeneration	Sunnyside
IPP	Consortium	NW¼NE¼; 24	015S	007W	4374040	364090	Coal-fired power plant	Rain Lake
Crandall Canyon	Genwal Resource inc.	05	016S	007E	4367700	485680	Coal mine	Rilda Canyon
Horse Canyon	Utah American Energy, Inc.	NW¼SW¼; 03	016S	014E	4368200	555500	Coal mine	Lila Pint
Bear Canyon	Co op Mining Co.	24	016S	007E	4362130	491810	Coal mine	Hiawatha
Huntington	Pacificorp	NE¼NE¼NE¼; 01	017S	007E	4358700	493320	Coal-fired power plant	Hiawatha
Deer Creek	Pacificorp	10	017S	007E	4356260	490020	Coal mine	Red Point
Hunter	Pacificorp	NE¼NW¼; 16	019S	008E	4335960	497520	Coal-fired power plant	Castle Dale
Cricket Mountains	Graymont Western U.S.	W½NE¼; 01	022S	009W	4310750	343090	High-calcium lime plant	Borden
Sufco	Canyon Fuel LLC	12	022S	004E	4307280	463880	Coal mine	Acord Lakes
Emery Deep	Consolidation Coal Co.	33	022S	006E	4301110	477870	Coal mine	Walker Flat

[1] Section = cadastral survey section. Coal mine locations are from the Utah Division of Oil, Gas and Mining (UDOGM, 2003).
[2] Twn. = cadastral survey township referenced to the Salt Lake Baseline and Meridian.
[3] Rng. = cadastral survey range referenced to the Salt Lake Baseline and Meridian.
[4] Utm.n = northing coordinate in meters relative to the origin of Universal Transverse Mercator zone +12.
[5] Utm.e = easting coordinate in meters relative to the origin of Universal Transverse Mercator zone +12.
[6] Fac.Type = type of mine or processing plant.

geological map of Utah (Hintze and others, 2000), (3) analytical data from appendices B and C, and (4) locations of coal mines, smelters, and power plants from UGS files (table 3).

Most of the analytical data included in the study were gleaned from published reports, file data, and unpublished company reports; the UGS also collected and analyzed some samples. No information is available for data from most sources concerning data accuracy, analytical methods used, and the accuracy of those methods, so these data should be verified by resampling before use in development projects. This report includes analytical information for some samples below HI-CAL grade (as low as 85.0% calcium carbonate). The rationale for including these analyses is that more detailed sampling around the original sample location could result in discovery of HI-CAL, and in areas where HI-CAL is rare, lower quality stone might be useable. A few samples containing less than 85% $CaCO_3$ were left in the database where they were part of a sampled stratigraphic section that had other samples exceeding 85% $CaCO_3$. The available assay data include a wide range of different major oxides and trace elements; however, each source of analytical data reported a different suite of analyses; in some cases only the percentage of acid-insoluble minerals in the sample was reported. Acid-insoluble data are inadequate to determine whether the HI-CAL would be useable in a specific process, but they can help in HI-CAL exploration. Some elemental analyses were reported on different chemical bases in different reports so some conversion was necessary so that results are uniform and comparable. The conversion factors used in this report are (1) CaO x 1.78 = $CaCO_3$, (2) MgO x 2.09 = $MgCO_3$, (3) Fe x 1.43 = Fe_2O_3, (4) Na x 1.35 = Na_2O, (5) Mn x 1.29 = MnO, (6) P x 2.29 = P_2O_5, and (7) Ti x 1.67 = TiO_2. Some of the analyses reported are weighted averages of incremental samples of HI-CAL beds that together would be a logical minable unit. All the incremental data used in averaging are included in the "Notes" data field of appendix C.

Previous Work

Prospectors and private companies collected most of the specific data on HI-CAL in Utah; unfortunately, much of this information has been lost or is held confidential. Available company and prospector information is contained in, U.S. Steel (USX) (1950, 1953, and 1957), Gin (1958), Hodgson (1974), Minobras (1974), Amodt and Sharps (1978), and Madsen (1986). Federal and state government agencies and universities have published other data. Federal government reports published by the U.S. Bureau of Mines for wilderness evaluation and other land-use planning include: Satkoski and Sokaski (1980), Almquist (1987), Brown (1987), Tuftin (1987), Wood (1987), Zelten (1987), Kness (1989), Munts (1989), Neumann (1989), and Hannigan (1990). Other federal government reports containing HI-CAL information are Morris (1969) and Smith and others (1963). State publications that report on HI-CAL include Buranek (1945), Crawford and Buranek (1948), Kaliser (1969), Pratt and Callaghan (1970), Tripp (1985, 1991, 1997, 2001), Willis (1994), and UGS file material. A few university theses and publications that discuss HI-CAL are Clark (1954), Kiersch (1955), and Eliason (1969).

RESULTS OF INVESTIGATION

High-Calcium Limestone Quarries in Utah

Appendix A documents 84 HI-CAL workings in Utah. They range in size from small pits that were prospected but that never commercially produced, to large quarries that have been mined for decades. A substantial number of obscure, abandoned HI-CAL prospects are not included in appendix A.

Current High-Calcium Limestone Production

Fourteen Utah quarries produced HI-CAL in 2004 from Cambrian to Tertiary-age geologic units for a wide variety of uses. Location, development and production history, and geological map coverage of the 14 quarries are briefly described in appendix A and some of the larger producers are described in more detail below.

1) Graymont Western U.S., Inc. (Graymont), in central Millard County, produces about 900,000 short tons per year (stpy) [820,000 metric tons per year (mtpy)] of high-calcium quicklime in four rotary kilns at a lime plant on the Bloom railroad siding east of the Cricket Mountains. Graymont mines the Cambrian Dome Limestone, at a quarry in the Cricket Mountains, about 6.5 miles west of its plant.

   The early exploration history of the Cricket Mountain HI-CAL and dolomite deposits is poorly known. Prospectors explored the property in the 1930s, Buranek (1945) briefly described the resource present, and the Cricket Limestone and Development Co. staked claims (Morris, 1969). Subsequently, U.S. Steel drilled, purchased, and test mined the site in the 1950s as a source of flux for the Geneva steel mill in Utah County to augment or replace HI-CAL and dolomite from their Keigley quarry near Santaquin in southern Utah County. The drilling delineated 31 million tons of surface minable, HI-CAL averaging 98.1% $CaCO_3$, 1.0% $MgCO_3$, 0.8% SiO_2, 0.3% Al_2O_3, and 0.004% S (U.S. Steel, 1950). U.S. Steel delineated a much larger resource of similar HI-CAL on the property but it would have to be mined by underground methods. No significant quantities of HI-CAL were mined or shipped by U.S. Steel. Continental Lime, Inc. (now Graymont Western U.S., Inc. since 1999) later purchased the property and constructed a lime plant. This plant opened in July 1980 with one 500 stpd (450 mtpd) rotary kiln, but added a second kiln in 1987, a third in 1992, and a fourth kiln (1,200 stpd capacity [1,090 mtpd]) in February 1998 (Graymont Western U.S., Inc., 1999). Cambrian Dome Limestone was mined and crushed at Graymont's Poison Mountain quarry from 1980 to 2001. Graymont developed a new pit, the Flatiron pit, in the Dome Limestone about 0.75 mi (1.2 km) northwest of their Poison Mountain pit. Flatiron has become their main source of HI-CAL because the Poison Mountain quarry is nearly mined out. Graymont is also evaluating their extensive HI-CAL resources to the north (around the Agnes and Betty pit) and south of the

Poison Mountain pit. They will additionally begin production of dolomite from the newly opened B.B. Claims quarry that is 1.2 miles (2 km) east of the Poison Mountain quarry (Vic Kastner, Graymont, verbal communication, 2000). The B.B. Claims quarry is in the Cambrian Limestone of the Cricket Mountains (Hintze, 1984).

2) Ash Grove Cement Company mines HI-CAL at their Leamington quarry in eastern Juab County. Ash Grove mined about one million st (910,000 mt) of Cambrian Swasey Limestone in 2004 from a quarry .75 mile (1.2 km) southeast of their cement plant to produce Types I, II, and V Portland cement. The Leamington plant opened in 1980 with a capacity of 650,000 st (590,000 mt) per year; capacity was increased to 850,000 st in 1995-1996. The quarry contains ample reserves for several decades of additional HI-CAL production on the Hank group of claims (Abbay, 1990). The quarry is several thousand feet long. Ash Grove blasts five or six times per year; each blast produces about 250,000 st (228,000 mt) of broken rock that is hauled by truck to a hammer mill that reduces the rock to softball size. The rock is then moved to a stacker/reclaimer and then to the cement plant. The finished cement is distributed through terminals in Murray, Utah; Elko and Las Vegas, Nevada; and Farmington, New Mexico (Godek, 2003).

3) Pelican Point Rock Products produces HI-CAL from the Mississippian Deseret Limestone from their Pelican Point quarry in western Utah County. Pelican Point processed 300,000 st (270,000 mt) of HI-CAL in 2003; most was sold for road base and for other construction uses. Some higher calcium carbonate content material in the quarry was selectively mined for use in flue-gas desulfurization.

4) Staker Parsons Co. (a division of the international firm Oldcastle, Inc.) quarries HI-CAL and dolomite from a Cambrian carbonate section in Utah County, primarily for crushed stone. In 1999, Staker Parsons bought the Keigley quarry from Geneva Steel of Utah (Geneva). Geneva had long quarried dolomite and HI-CAL at the Keigley quarry for use as flux in its Orem steel mill. Geneva also shipped HI-CAL powder to the coal mines of central Utah for rock dust, and sold crushed stone for aggregate (Hawes, 1992). In 2000, Staker produced 368,571 st (335,400 mt) of crushed stone. In a classified advertisement (Rock Products Magazine, 1999), Geneva gave the following resource information for the Keigley quarry: 1,500 acre area, 15 million st (14 million mt) reject aggregate, 100 million st (90 million mt) HI-CAL reserves, 35 million st (32 million mt) dolomite reserves, and that its crushed aggregate meets Department of Transportation specifications for bituminous aggregate.

5) Cotter Corporation mines HI-CAL from the Papoose quarry in the Pennsylvanian Honaker Trail Formation of the Hermosa Group in northern San Juan County for flue-gas desulfurization at the TriState Generation and Transmission power plant at Nucla, Colorado. The quarry opened in 1994, producing about 25,000 stpy (23,000 mtpy) of HI-CAL assaying more than 95% $CaCO_3$ with one to two percent silica (Reed, 1996). Production has steadily increased to 111,747 st (101,747 mt) in 2004.

6) Diamond Mountain Resources opened a HI-CAL quarry in 1999 in Mississippian limestone in northern Uintah County to provide, 1) HI-CAL for flue-gas desulfurization at the Bonanza power plant of Deseret Generation and Transmission, 2) railroad ballast for its own use, and 3) crushed stone for sale. In 2004 they produced 72,591 st (65,872 mt) of HI-CAL.

7) Round Valley Rock mined HI-CAL from the Mississippian Doughnut Formation to supply the nearby Holcim cement plant at Devils Slide in Morgan County. Round Valley produced 260,000 st (236,000 mt) of limestone in 2004.

Geologic Units Having High-Calcium Limestone Resource Potential

Due to the tectonic and depositional history of Utah, abundance of HI-CAL resources is roughly correlated with geologic age. Paleozoic marine rocks, particularly Cambrian, Devonian, and Mississippian-age units, contain most of the HI-CAL resources in Utah. These units are exposed on the surface primarily in western Utah and on the flanks of the Uinta Mountains of northeast Utah. Many of these units have hundreds of feet of strata that assay more than 95% $CaCO_3$ and minable thicknesses that exceed 97% $CaCO_3$. Pennsylvanian and Permian marine limestones are generally less pure and contain smaller HI-CAL resources. They are best exposed in western Utah but occur in all parts of the state. In eastern Utah where better, lower Paleozoic HI-CAL resources are deeply buried, shallower Pennsylvanian and Permian limestones can be important units. An example is the Papoose quarry in Lisbon Valley that exploits a unit in the Pennsylvanian Honaker Trail Formation of the Hermosa Group. This deposit has limited reserves, but scarcity of HI-CAL in the area and proximity of the deposit to a point of use, the Nucla, Colorado electric power plant, make it economically viable.

Mesozoic rocks contain a few limestones such as the Triassic Virgin Limestone and Sinbad Limestone Members of the Moenkopi Formation, parts of the Jurassic Carmel and Curtis Formations, and the upper part of the Cretaceous North Horn Formation. Careful sampling and analysis of these units may reveal a small HI-CAL resource.

Cenozoic sedimentary rocks have substantial potential for HI-CAL in lacustrine and other non-marine rocks. Tertiary-age lacustrine sediments contain large volumes of limestone in western and northeastern Utah, including some HI-CAL. The principal units are the Flagstaff Limestone, Claron Formation, and Salt Lake Formation; these units are not generally as pure as Paleozoic-age marine limestones but contain large resources and are widely distributed in central and northeastern Utah. Quaternary HI-CAL resources in Utah are found in tufa, travertine, and lacustrine oolite deposits. These deposits are small but often fairly pure. They are locally important; an example is U.S. Magnesium's use of Holocene-age oolites from the Great Salt Lake.

There is no complete list of formations containing HI-CAL because no thorough, systematic sampling of HI-CAL has been done in Utah. However, I compiled a list (table 4) of all geologic units known or inferred to have potential for HI-CAL production based on available analytical data (appendix B).

Transportation and High-Calcium Limestone Consuming Industries

Cement plants, lime plants, crushed stone producers, electric power plants, metal smelters, and coal mines (plate 1) use large amounts of HI-CAL. Demand from these operations and transportation routes (plate 1) heavily influence where HI-CAL is mined. Railroads are the cheapest land-based way to move low-unit-value HI-CAL and higher unit-value HI-CAL products such as cement, quick lime, and hydrated lime. Some of the largest HI-CAL quarries and processing plants have been sited based on proximity to the railroads shown on plate 1. Examples are the Ash Grove Cement West plant in western Juab County and the Graymont Western U.S. lime plant in Millard County.

Several HI-CAL quarries have been opened at a distance from a railroad to serve specific remote markets. Several examples are listed in appendix A. The Cherry Hill Park mine exists to supply coal-mine rock dust to the coal mines of Carbon County. The Diamond Mountain Resources quarry was opened in northern Uintah County to supply flue-gas-desulfurization (FGD) limestone to the Bonanza electric power plant in southern Uintah County. The Papoose quarry was located to supply FGD limestone to the Nucla, Colorado coal-fired power plant that is in an area with few surface-minable HI-CAL outcrops and no nearby rail line.

Future of Utah High-Calcium Limestone Development

The amount of HI-CAL mined in Utah should steadily increase to match the trend of increasing population in the western U.S. because HI-CAL usage closely tracks residential and commercial construction. The Utah Governor's Office of Planning and Budget projects that Utah's population will increase about 60% between 2003 and 2030 (GOPB, 2003).

Potential negative factors affecting HI-CAL production are the eventual decrease in coal mining in Utah and the decline in metal mining and refining in the western U.S. Most of the coal that can be mined economically under current conditions will be mined by about 2050, eliminating a small, but locally important market for coal-mine rock dusting. Geneva Steel of Utah ceased steelmaking so the market for HI-CAL flux is reduced. Kennecott Utah Copper Company announced that it has enough resources, that can be surface mined, remaining at the Bingham Canyon mine to operate until 2013, when they may go underground to mine higher grade vein and skarn copper ore. This will probably result in a significant decrease in the tonnage of ore processed and therefore the amount of HI-CAL needed for treatment of water going to their tailings pond and lime used in their smelter and refinery. Kennecott has enough underground resources to continue mining until 2028 (Rio Tinto, 2001). Some additional HI-CAL and lime will be used for Kennecott's "pump and treat" program for cleanup of a metals-contaminated ground-water plume in the western part of the Salt Lake Valley. Gold recovery systems in Nevada use large amounts of HI-CAL lime for controlling the pH of the leach liquor (some of the lime comes from Utah). Many of the large Nevada gold mines will be exhausted in the next 20 years and this market for chemical lime will decrease.

SUMMARY

The Utah Geological Survey (UGS) compiled information on the HI-CAL resources of Utah because, 1) little information is published, 2) the published information is scattered throughout obscure data sources, 3) there is growing demand for HI-CAL, and 4) federal, state, and local officials need up-to-date resource information for land-use planning.

This report presents, (1) data on existing pits and prospects, (2) chemical analyses of HI-CAL, (3) spatial distribution of geologic formations having potential for HI-CAL production, (4) references for geologic maps covering existing pits and prospects, and analytical data points, (5) location of railroads and major roads, and (6) locations of cement and lime plants, electric power plants, coal mines, and metal smelters that are large consumers of HI-CAL.

Eighty-four HI-CAL workings are distributed across Utah. They range in size from small prospect pits to large quarries that have been mined for decades. Fourteen of these quarries produced HI-CAL in 2001 from Cambrian to Tertiary-age geologic units. HI-CAL from Utah quarries was used for crushed stone, Portland cement raw material, flue-gas desulfurization, chemical lime production, metallurgical flux, and coal-mine rock dusting.

Calcium carbonate analyses for 387 samples from 46 limestone units were compiled into a list of geologic units known or inferred to have potential for HI-CAL production. Favorable formations range in age from lower Paleozoic to Holocene. Paleozoic marine rocks, particularly Cambrian, Devonian, and Mississippian-age units, contain most of the HI-CAL resources in Utah. These units are exposed on the surface primarily in western Utah and on the flanks of the Uinta Mountains of northeast Utah. Mesozoic-age rocks of Utah contain a few, mostly impure limestones that have potential for local production where more favorable formations are not present. Cenozoic lacustrine rocks contain large volumes of limestone in western Utah and northeastern Utah, including some HI-CAL. The Cenozoic units with the most potential are Tertiary lacustrine limestones. There are also some Quaternary limestones in Utah that are locally important, such as tufa mounds and Great Salt Lake oolites.

Cement plants, lime plants, power plants, smelters, and coal mines consume HI-CAL. The locations of these consumers and existing transportation routes heavily influence where the low-unit-value HI-CAL can be economically

Table 4. Geologic formations in Utah known or inferred to contain HI-CAL resources and a statistical summary of analytical data presented in this report. The formations are chronologically organized. The formation abbreviations are those used in plate 1 and appendix B. Mean $CaCO_3$ content is rounded to one decimal place.

FORMATION	NUMBER OF SAMPLES	% $CaCO_3$ HIGH	% $CaCO_3$ LOW	% $CaCO_3$ MEAN
Holo. Spring tufa (Qt)	1	89.23	89.23	89.2
Holo. Great Salt Lake oolites (Qo)	1	91.47	91.47	91.5
Tert. Salt Lake Formation (Tsl)	3	96.4	88.6	92.8
Tert. Brian Head Group (Tbh)*	7	2.68	7.07	5.1
Tert. Green River Formation (Tgr)	3	97.69	94.7	95.9
Tert. Flagstaff Limestone (Tf)	24	98.61	91.0	95.6
Tert. Claron Formation (Tcl)*	43	1.73	9.15	4.7
Jur. Carmel Formation (Jc)	13	94.57	86.7	89.9
Jur. Carmel Formation (Jc)*	6	3.29	9.94	7.1
Jur. Kayenta Formation (Jk)	1	85.64	85.64	85.6
Tri. Moenkopi Formation (Trm)	2	89.2	88.6	88.9
Tri. Moenkopi Formation (Trm)*	28	3.40	9.39	7.2
PAL. Undifferentiated (PAL)	1	86.2	86.2	86.2
Perm. Park City Formation (Ppc)	1	94.62	94.62	94.6
Perm. Kaibab Formation (Pk)	2	91.7	91.1	91.4
Perm./Penn. Oquirrh Group (PPo)	1	92.63	92.63	92.6
Penn. Wells Formation (Pw)	1	93.63	93.63	93.6
Penn. Honaker Trail Formation (Pht)	4	92.1	87.8	89.7
Miss. Doughnut Formation (Mdo)	5	98.4	90.8	93.6
Miss. Great Blue Limestone (Mgb)	18	100.05	72.9	90.9
Miss. Fm. of Rose Spring Canyon (Mrs)	2	94.2	84.7	89.5
Miss. Humbug Formation (Mh)	11	99.9	90.0	95.7
Miss. Brazer Dolomite (Mb)	1	89.8	89.8	89.8
Miss. Deseret Limestone (Mde)	8	97.9	91.63	95.2
Miss. Deseret Limestone (Mde)*	1	3.17	3.17	3.2
Miss. Gardison Limestone (Mg)	55	98.61	87.2	92.1
Miss. Gardison Limestone (Mg)*	3	1.15	3.64	2.5
Miss. Joana Limestone (Mj)	2	98.4	97.4	97.9
Miss. Lodgepole Limestone (Ml)	11	100.0	91.0	95.6
Miss. Redwall Limestone (Mrw)	1	99.4	99.4	99.4
Miss./Dev. Fitchville Formation (MDf)	8	97.79	86.9	94.4
Miss./Dev. Fitchville Formation (MDf)*	2	0.88	1.16	1.0
Dev. Beirdneau Sandstone (Db)	6	98.0	89.8	94.3
Dev. Hyrum Dolomite (Dh)	11	99.1	90.0	96.0
Dev. Guilmette Formation (Dg)	10	99.4	91.3	96.8
Ord. Pogonip Group (Op)	2	94.5	93.94	94.2
Ord. Garden City Formation (Ogc)	2	89.21	94.50	91.86
Ord. Opohonga Limestone (Oop)	1	91.4	91.4	91.4
Ord./Camb. St. Charles Formation (OCsc)	1	90.14	90.14	90.1
Camb. undifferentiated (Cu)	31	95.05	87.9	91.1
Camb. Orr Formation (Co)	3	94.6	92.3	93.7
Camb. Wah Wah Summit Fm. (Cww)	18	98.1	91.0	96.6
Camb. Trippe Limestone (Ct)	1	86.2	86.2	86.2
Camb. Trippe Limestone and Pierson Cove Fm. Undiff. (Ctp)	2	92.84	90.80	91.8
Camb. Cole Canyon Dolomite (Ccc)	1	96.9	96.9	96.9
Camb. Marjum Formation (Cm)	1	89.00	89.00	89.0
Camb. Pierson Cove Formation (Cpc)	2	94.0	86.9	89.6
Camb. Bluebird Dolomite (Cb)	1	97.9	97.9	97.9
Camb. Eye of Needle Limestone (Cen)	1	96.7	96.7	96.7
Camb. Dome Limestone (Cd)	19	99.36	88.9	96.0
Camb. Howell Limestone (Cho)	4	98.56	95.76	97.2

* Results reported in percent hydrochloric acid-insoluble minerals; generally the lower the acid-insoluble content, the higher the $CaCO_3$ content.

mined. The amount of HI-CAL mined in Utah should steadily increase at about the same rate as population growth in the western U.S.

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Appendix A

High-calcium limestone quarries and prospects in Utah. Workings are listed alphabetically by site name. Only properties with workings are listed and limestone properties developed for building stone, decorative stone, natural cement rock, or vein calcite are omitted. Crushed stone operations are included if they may have potential for HI-CAL production. Locations of these workings are plotted on plate 1. The table heading "Quad." refers to the 7.5 minute U.S. Geological Survey topographic map where the working is located. Cadastral locations are all related to the Salt Lake Baseline survey. "UTM.E" and "UTM.N" headings represent the Universal Transverse Mercator (UTM) coordinate (easting and northing in meters) in zone +12 (NAD 27). In the “NOTES” field the abbreviation G.M. stands for geologic map and refers to the most recent, largest scale geologic map that covers the limestone property. Also in the “NOTES” field, all analytical information is in percent. Production data are from mine permit files of the Utah Division of Oil, Gas and Mining.

SITE.NAME	FORMATION	QUAD.	CADASTRAL. LOC.	UTM.N	UTM.E	NOTES
Agnes and Betty Claims (Alsop Claims)	Camb. Ls., Dome, Chisholm Fm., and Howell Ls.	Candland Spring	NW¼SW¼SE¼ sec. 19, 021S, 009W	4314800	335000	Main pit 100 x 45 yds (91 x 41m) adjacent pit (sw) is 65 x 5 yds (59 x 5 m). Numerous bulldozer cuts and scrapes. Examined on 07/79. Reference = U.S. Steel, 1950. G.M. = Hintze, 1984. Original exploration work done by U.S. Steel (USX). Site is owned by Graymont Western U.S., Inc. and is being evaluated in February 2000 for mining in the near future.
Asarco	Miss. Great Blue Ls.	Fivemile Pass	NW¼SW¼NW¼ sec. 10, 008S, 003W	4443690	399999	Large quarry, 600 x 230 yds (540 x 210 m) with a 58 yd (53 m) highwall, inactive. Examined 07/81. Reference = Bissell, 1959. G.M. = Disbrow, 1957. Quarried for flux for ASARCO smelter and for use at the Lehi sugar plant. Average assay 1929-1930: $CaCO_3$ = 92.62, $MgCO_3$ = 2.11, SiO_2 = 3.81, Al_2O_3 = 0.85. More than 4,000,000 st (3,600,000 mt) produced to 1959.
Ashley	Penn. Morgan Fm.	Dyer Mtn.	SW¼NW¼NW¼ sec. 06, 002S, 021E	4503730	617080	Two adjacent prospect pits covering an area of 50 x 20 yds (45 x 18 m). Property examined 09/77. G.M = Kinney, 1955; Sprinkel, 2002.
Bear Lake	Camb. Bloomington Fm.	Garden City	NW¼SW¼SE¼ sec. 26, 014N, 004E	4641350	461225	One pit 135 x 90 yd (123 x 82 m). Probably used in road surfacing. Examined 06/80. G.M. = Dover, 1995.
Beaver Mtn.	Camb. Bloomington Fm.	Tony Grove Crk.	SW¼SW¼SE¼ sec. 08, 014N, 004E	4645830	456230	One pit 160 x 43 yd (145 x 39 m). Examined 07/80. G.M. = Dover, 1995.
Burnt Canyon	Penn. Oquirrh Grp.	Saratoga Springs	SW¼NE¼SW¼ sec. 03, 006S, 001W	4463790	420290	Two prospect pits: north pit 32 x 20 yds (29 x 18 m) by 5 yd (5 m) deep; south pit 40 x 30 yds (36 x 27 m) by 7 yd (6 m) deep. Examined 05/82. G.M. = Moore, 1973.
Canyon Rim	Tri. Thaynes Fm. Jur. Twin Creek Ls.	Sugar House	NW¼NE¼SW¼ sec. 25, 001S, 001E	4506000	433400	Central pit is 140 x 15 yds (127 x 14 m) by 11 yds (10 m) high; south pit is 55 yds by 35 yds (50 x 32 m). North pits are relatively small. Examined 05/82. G.M. = Crittenden, 1965.
Cat Hill NE	Miss. undiff.	Soldiers Pass	NW¼NW¼NW¼ sec. 07, 008S, 001W	4443600	415310	Three shallow pits totaling 890 sq yds (740 m^2). Examined 04/82. Reference = Crawford and Buranek, 1948. G.M. = Bullock, 1951.
Cat Hill North	Miss. undiff.	Soldiers Pass	SE¼SW¼SW¼ sec. 06, 008S, 001W	4443850	414920	Two shallow pits totaling 330 sq yds (280 m^2). Examined 04/82. Reference = Crawford and Buranek, 1948. G.M. = Bullock, 1951.
Chaffin	Miss. Great Blue Ls. Miss. Humbug Fm. Dev. Victoria Fm.	Santaquin	SW¼NW¼NE¼ sec. 08, 010S, 001E	4424000	427440	Two small quarries, the 27,000 sq yd (23,000 m^2) south quarry is in Victoria Fm. (dolomite) and is approximately 270 x 66 yds (240 x

SITE.NAME	FORMATION	QUAD.	CADASTRAL. LOC.	UTM.N	UTM.E	NOTES
						60 m) with a 27 yd (25 m) highwall. The northwest quarry is approximately 100 x 33 yds (91 x 30 m) in the Humbug Fm. (limestone). The northern prospect is about 30 x 10 yds (27 x 9 m) by 3 yd (3 m) deep in the Great Blue Ls. The NW prospect has the same dimensions but is in the Humbug Fm. Examined 01/82. G.M. = Witkind and Weiss, 1991.
Cherry Hill Park (Beaver Creek)	Tert. Flagstaff Ls.	Kyune	NW¼NW¼ sec. 36, 011S, 008E	4408210	501270	One pit 125 x 100 yds (113 x 91 m) in 05/78. Quarry reopened by Emery Industrial Resources in 1993 to produce coal mine rock dust. G.M. = Weiss and others, 1990. Produced 26,500 st (24,000 mt) of limestone in 1994 and 29,000 st (26,300 mt) in 1998. No production in 2003.
Chief Lime (Lime Peak, Fitchville)	Miss. Fitchville Fm. and Gardison Ls.	Eureka	SW¼SW¼ sec. 04, 010S, 002W	4425670	407980	Quarry on hillside 80 by 81 yds (73 x 74 m) with up to a 27 yd (25 m) highwall. There is also a 7 yd (6 m) long adit in one wall of the quarry. Examined 09/92, B. Tripp. G.M. = Morris, 1964a. In 2004 quarry is being reopened and expanded to provide crushed stone for Anaconda's Eureka Remediation Project. An additional pit, the Fitchville pit, will be opened a short distance to the NW. Together, the two pits are expected to produce about 260,000 CY of crushed stone. Quarry produced a small amount of limestone, about 40 st (36 mt) per day for burning in two vertical lime kilns built into the floor of the quarry. Petroleum coke was used at one time for fuel. Owned by Chief Consolidated Mining Co.
Chimney Rock	Tert. Flagstaff Ls.	Kyune	NE¼SE¼ sec. 33, 011S, 009E	4407550	505850	A small pit explores a 6-ft-(2-m-) thick limestone bed. G.M. = Weiss and others, 1990. 1997 production was 900 st (820 mt).
Chocolate Peak	Miss. Great Blue Ls.	Honeyville 04, 011N, 002W	SE¼NW¼NW¼	4619680	409970	Two shallow pits of similar size, totaling about 2200 sq yds (1840 m^2). Examined 03/87. G.M. = Oviatt, 1986. Probably a pioneer era attempt at producing lime for mortar.
Clyde Knoll	Miss. Humbug Fm.	Soldiers Pass	NW¼SE¼NE¼ sec. 08, 008S, 001W	4443060	418000	Six pits totaling 3000 sq yds (2500 m^2). Most are shallow bulldozer cuts. Examined 06/81. Reference = Crawford and Buranek, 1948. G.M. = Bullock, 1951.
Cottonwood	Tert. Green River Fm.	Richfield	NE¼NW¼NW¼ sec. 24, 023S, 003W	4294100	405620	Two small prospect pits. G.M. = Willis, 1994. Probably a pioneer era attempt at producing lime for mortar.
Cove Travertine (Travertine Cove)	Quat./Tert. unnamed marly ls.	Antelope Valley	NE¼ and NW¼ sec. 05, 025S, 007W	4281070	354851	Planned to produce about 30,000 st (27,200 mt) per year with a four-acre disturbed area. G.M. = Steven and Morris, 1983. Mined 10 st (9 mt) in 2000 and 100 st (90 mt) in 2001. Pit has been reclaimed.
Cruz	Camb. White Marker Mbr. of the Wah Wah Summit Fm.	Cruz	NW¼SW¼NW¼ sec. 04, 023S, 009W	4301000	338450	Workings total 1100 sq yds (920 m^2). Examined 09/79. G.M. = Hintze, 1984.

SITE.NAME	FORMATION	QUAD.	CADASTRAL. LOC.	UTM.N	UTM.E	NOTES
Deseret No. 1	Miss. Deseret Ls.	Fivemile Pass	SW¼SE¼SW¼ sec. 09, 008S, 003W	4442820	398900	Five prospect pits cover a total area of 8000 sq yds (6700 m^2). Examined 02/81. G.M. = Disbrow, 1957.
Diamond Mountain Resoures	Miss. Madison Ls.	Burnt Cabin Gorge	sec. 15, 16, 21 001S, 022E	4509200	631250	Quarry permitted in 1998. Produces scrubber limestone for the Bonanza power plant, railroad ballast for their own use, and crushed stone for sale. G.M. = Rowley and others, 1985; Sprinkel, 2002. Production (st) by year: 2001 – 49,328 (44,762 mt); 2002 – 66,173 (60,048 mt); 2003 – 78,289 (71,043 mt); 2004 – 72,591 (65,872 mt).
Dodd's Hollow	Penn. Morgan Fm.	Dyer Mtn.	SE¼SE¼SW¼ sec. 06, 002S, 021E	4502620	617860	Several small prospects. Examined 09/77. G.M. = Rowley and others, 1985; Sprinkel, 2002.
Ekins East	Miss. Deseret Ls.	Santaquin	NE¼SW¼SE¼ sec. 04, 010S, 001E	4424680	429290	G.M. = Witkind and Weiss, 1991. Production (st) by year: 1998 – 293,000 (266,000 mt); 1999 – 650,000 (590,000 mt); 2000 – 365,000 (331,000 mt); 2002 – 239,311 (217,161 mt).
Emigration Canyon	Jur. Twin Creek Ls.	Fort Douglas	SW¼NE¼NE¼ sec. 11, 001N, 001E	4511400	432510	Five open cuts covering a total area of 2800 sq yds (2300 m^2). Examined 05/82. G.M. = Bryant, 1990.
Enoch Ridge	Penn. Oquirrh Grp.	Soldiers Pass	NW¼SE¼NW¼ sec. 01, 007S, 001W	4454800	423210	Open cut 16 yd x 10 yd (15 x 9 m) with a 5 yd (5 m) highwall. Examined 04/82. Reference = Crawford and Buranek, 1948. G.M. = Bullock, 1951.
Evans	Quat. travertine	Jordan Narrows	NW¼SW¼NW¼ sec. 27, 004S, 001W	4477480	419810	Four small pits excavated for travertine; several smaller pits within the travertine pits mined for manganese. Examined 03/82. Reference = Wilson, 1948. G.M. = Bryant, 1992.
Flat Canyon	Miss. Great Blue Ls.	Honeyville	NW¼SE¼SW¼ sec. 09, 011N, 002W	4617010	410270	Quarry measures 370 x 170 yd (340 x 150 m). Examined 03/87. G.M. = Oviatt, 1986. Used for sugar refining (Utah-Idaho Sugar Co.)
Flatiron	Camb. Dome Ls.	Candland Spring	SE¼ sec. 26, 021S, 010W	4313550	332100	One quarry roughly 670 yd by 430 yds (610 by 390 m) in the year 2000. G.M. = Hintze, 1984. This is Graymont's new high-calcium lime stone pit. Mining has shifted from the Poison Mtn. pit that is almost worked out.
Flux and South Flux	Miss. Great Blue Ls.	Flux	sec. 05 08, 002S, 006W	4503100	368600	At least six major cuts cover an area 3000 yds x 100 yds (2700 x 90 m). G.M. = Arnold, 1956. Originally opened to provide high-calcium limestone and lime that was used for sugar refining, metallurgical flux, and masonry mortar. Property was later acquired by the Portland Cement Company of Utah for cement raw material.
Georges Pass	Camb. White Marker Mbr. of the Wah Wah Summit Fm.	Cat Canyon	NW¼SW¼SW¼ sec. 04, 023S, 009W	4300325	337150	Pit measures 170 yd x 7 yd (160 x 6 m). Examined 09/79. G.M. = Hintze, 1984.
Goshen Hill	Miss. Humbug Fm. Miss. Deseret Ls.	Santaquin	NW¼NE¼NW¼ sec. 34, 009S, 001E	4427500	430160	Several open pits cover an area 330 x 130 yd (300 x 120 m). Open pits are up to 12 yds (11 m) deep. Examined 01/82. G.M. = Witkind and Weiss, 1991.

SITE.NAME	FORMATION	QUAD.	CADASTRAL. LOC.	UTM.N	UTM.E	NOTES
Gracie D	Miss. Great Blue Ls.	Ophir	NW¼NW¼SE¼ sec. 11, 006S, 004W	4463000	393450	One pit measuring 120 x 70 yd (110 x 60 m). Examined 06/82. G.M. = Tooker, 1987.
Great Blue No. 1	Miss. Great Blue Ls.	Fivemile Pass	SE¼SW¼NW¼ sec. 09, 008S, 003W	4443570	398710	Two prospect cuts: west cut 25 x 15 yds (23 x 14 m) x 5 yd (5 m) deep, east cut 32 x 18 yds (29 x 16 m) x 6 yd (5 m) deep. Examined 02/81. G.M. = Disbrow, 1957.
Great Blue No. 2	Miss. Great Blue Ls.	Fivemile Pass	NE¼SE¼NW¼ sec. 09, 008S, 003W	4443850	398950	One prospect cut 27 x 25 yds (25 x 23 m). Examined 02/81. G.M. = Disbrow, 1957.
Great Blue No. 3	Miss. Great Blue Ls.	Fivemile Pass	NE1¼NW¼NE¼ sec. 09, 008S, 003W	4444210	399400	One open cut 50 x 18 yd (46 x 16 m). Examined 02/81. G.M. = Disbrow, 1957.
Green Canyon No. 2	Ord. Garden City Fm.	Smithfield	W¼NE¼ sec. 19, 012N, 002E	4624450	436660	Quarry measures 70 x 30 yd (64 x 27 m). Examined 07/80. G.M. = Lowe and Galloway, 1993. Quarry probably opened for building stone (flagstone) but may have high-calcium potential.
Gunnison Reservoir	Tert. Flagstaff Ls.	Sterling	NW¼SW¼SW¼ sec. 21, 018S, 002E	4342240	438900	Eight small prospect pits totaling 270 sq yds (230 m^2). Pits have existed since at least the 1950s. No recent activity known. Examined 07/78. Reference: Pratt and Callaghan, 1970 and U.S. Steel, 1957. G.M. = Weiss, 1994.
Hical #1	Tert. Sage Valley Ls. Mbr. of Goldens Ranch Fm.	Sugarloaf	NE¼ sec. 24, 013S, 002W	4391300	414900	One quarry with almost five acres of surface disturbed as of 2002. G.M. = Meibos, 1983; Witkind and Weiss, 1991. Production (st) by year 2001 – 40,000 (36,000 mt); 2002 – 38,000 (34,000 mt); 2004 – 38,000 (34,000 mt).
Ironton North	Miss. Humbug Fm. Miss. Deseret Ls.	Springville	NE¼SW¼NE¼ sec. 17, 007S, 003E	4451400	446930	Quarry measures 45 x 20 yds (41 x 18 m). Examined 10/81. G.M. = Baker, 1973.
Ironton South	Miss. Deseret Ls.	Springville	SW¼SE¼NE¼ sec. 17, 007S, 003E	4451200	447150	Quarry measures 20 x 55 yds (18 x 50 m). Examined 10/81. G.M.= Baker, 1973. Small, pioneer era lime kiln nearby.
Keigley	Camb. Herkimer Ls. Camb. Teutonic Ls.	West Mountain	NW¼NE¼NE¼ sec. 27, 009S, 001E	4429100	430900	Quarry measures 1400 yd x 1100 yd (1300 x 1000 m). Examined 03/81. The quarry produced flux stone for the Geneva Steel mill and rock dust for coal mines. Geneva Steel sold the quarry to Staker Paving in 1999. The quarry now produces limestone, dolomite, and quartzite aggregate and limestone rock dust? Total production : 1999 - 150,000 st (136,000 mt); 2000 - 368,571 st (334,456 mt); 2001 - 151,462 st (137,443 mt). Staker was acquired by U.S. Aggregates in 2001. References = Elison, 1952 and Bullock, 1962. G.M. = White, 1953.
Lakeside No. 1	Miss. Great Blue Ls.	Strongs Knob	NE¼NE¼SW¼ sec. 21, 006N, 009W	4564900	342500	Quarry measures 700 x 200 yd (640 x 180 m). Examined 04/79. G.M. = Doelling, 1980. Quarry is owned by Union Pacific Railroad and was quarried for ballast and riprap for maintenance of the Great Salt Lake railroad causeway.

SITE.NAME	FORMATION	QUAD.	CADASTRAL. LOC.	UTM.N	UTM.E	NOTES
Lakeside No. 2	Miss. Great Blue Ls.	Lakeside	SW¼NW¼SE¼ sec. 22, 006N, 009W	4564700	344250	Quarry measures 540 x 100 yd (490 x 91 m) with a 70 yd (64 m) highwall. Examined 04/79. G.M. = Doelling, 1980. Quarry is owned by Union Pacific Railroad and was quarried for ballast and riprap for maintenance of the Great Salt Lake railroad causeway.
Leamington	Camb. Swasey, Dome, and Howell Ls.	Champlin Peak	NW¼SW¼SE¼ sec. 33, 014S, 003W	4379010	397950	Quarry is more than 700 yds (640 m) long. Examined 06/74. References = Godek, 2003; Abbay, 1990; and Smouse, 1990. G.M. = Higgins, 1982. Combined production (st) of limestone and shale by year: 2000 - 1,053,572 (956,054 mt); 2001 - 891,552 (809,031 mt); 2002 - 1,416,991 (1,285,836 mt); 2003 - 1,246,010 (1,130,680 mt); 2004 - 1,352,360 (1,227,187 mt).
Lehi Quarry	Miss. Great Blue Ls.	Jordan Narrows	NW¼SE¼NW¼ sec. 16, 005S, 001W	4470896	418748	One large quarry that produces crushed stone for aggregate. A crushing plant and an asphalt paving plant are also on site. Disturbed area as of Dec. 30, 2000 is 38 acres (154,000 m^2). The owner Valley Asphalt (a subsidiary of U.S. Aggregates) transferred the property to Staker and Parsons Companies on October 24, 2002. G.M. = Moore, 1973. Production by year (in st): 1998 - 910,835 (826,529 mt), 1999- 900,000 (820,000 mt), and 2000 - 380,000 (350,000 mt); 2002 - 302,997 (274,952 mt); 2004 - 36,423 (33,052 mt).
Limekiln Gulch North	Penn. Morgan Fm.	Fort Douglas	NW¼SW¼SE¼ sec. 28, 001N, 001E	4515260	428980	Workings total 30 x 8 yds (27 x 7 m). West prospect - open cut in lime stone 25 x 8 yd (23 x 7 m) by 2 yd (2 m) deep, north prospect - small pit in iron-stained colluvium, central - prospect open cut on gossan in brecciated limestone 10 x 3 yds (9 x 3 m). south prospect - collapsed adit in alluvium approximately 7 yds (6 m) long, slight iron staining. Examined 04/82. G.M. = Bryant, 1990.
Limekiln Gulch South	Penn. Morgan Fm.	Fort Douglas	SE¼NW¼NE¼ sec. 33, 001N, 001E	4514640	429120	Workings total 340 x 34 yd (310 x 31 m). Three pits along strike of limestone horizon; south pit 240 x 25 yd (220 x 23 m), central pit 30 x 25 yd (27 x 23 m), north pit 140 x 34 yd (130 x 31 m). Examined 04/82. G.M. = Bryant, 1990.
Lime Ridge	Penn. Honaker Trail Fm.	San Juan Hill	SW¼SW¼SW¼ sec. 16, 041S, 020E	4119400	613000	Small quarry. G.M. = O'Sullivan, 1965. Small amount of limestone produced; 29,866 cu yds (24,971 m^3) mined in 1994. Production (st) by year: 2000 - 58,291 (52,896 mt); 2001 - 7111 (6453 mt); 2002 - 946 (858 mt); 2003 - 7587 (6885 mt); 2004 - 1556 (1412 mt). Produced large riprap for U.S. Bureau of Reclamation in Shiprock, AZ.
Limestone Mesa	Tri. Moenkopi Fm.	Virgin	sec. 29, 041S, 012W	4118220	302280	Small quarry. G.M. = Marshall, 1956; Nielson and Johnson, 1979. 450 cu yd (380 m^3) of rock mined in 1994.

SITE.NAME	FORMATION	QUAD.	CADASTRAL. LOC.	UTM.N	UTM.E	NOTES
Little Canyon North	Miss. Great Blue Ls.	Soldiers Pass	NW¼SE¼SW¼ sec. 31, 006S, 001E	4455610	425290	East prospect - 10 x 3 yd (9 x 3 m) x 2 yd (2 m) deep; west pit - 85 x 11 yd (77 x 10 m) by 3 yd (3 m) average depth. Examined 04/82. Reference = Crawford and Buranek, 1948. G.M. = Bullock, 1951.
Little Creek	Tert. Green River Fm.?	Randolph	NE¼NE¼SW¼ sec. 14, 011N, 006E	4615280	480400	Quarry measures 40 x 27 yd (36 x 25 m). Limestone is a coquina with algal oncolites and gastropods. Examined 06/80. G.M. = Dover, 1995.
Little Mountain	Miss. Great Blue Ls.	Flux	NE¼ sec. 20, 002S, 006W	4498950	369450	Quarry measures 180 x 80 yds (160 x 73 m). The quarry is cut into the northwest slope of Little Mountain and the working face is the dip slope of the Great Blue Limestone. The benches are somewhat irregular, sloping into each other but are usually 7 to 10 yds (6 to 9 m) high. The property was last quarried for cement raw material. Examined 02/80. G.M. = Arnold, 1956.
Lofgreen No. 1	Miss. Humbug Fm.	Lofgreen	NE¼SE¼SW¼ sec. 24, 008S, 005W	4439802	384350	Quarry measures 100 x 27 yds (91 x 25 m). Examined 12/80. G.M. = Groff, 1959.
Lofgreen No. 2	Miss. Great Blue Ls.	Lofgreen	SE¼SW¼SE¼ sec. 35, 008S, 005W	4436310	383120	Quarry measures 100 x 34 yds (91 x 31 m). Examined 12/80. G.M. = Groff, 1959.
Lofgreen No. 3	Miss. Great Blue Ls.	Lofgreen	NW¼NW¼NE¼ sec. 02, 009S, 005W	4436250	382950	Quarry measures 100 x 67 yds (91 x 61 m). Examined 12/80. G.M. = Groff, 1959.
Lofgreen No. 4	Miss. Great Blue Ls.	Lofgreen	NE¼SW¼SE¼ sec. 35, 008S, 005W	4436530	383050	Two pits each measuring 30 x 23 yds (27 x 21 m), and a third pit 30 x 20 yds (27 x 18 m). Examined 12/80. G.M. = Groff, 1959.
Lofgreen No. 5	Miss. Great Blue Ls.	Lofgreen	NW¼NW¼NE¼ sec. 02, 009S, 005W	4436104	383100	67 x 50 yds (61 x 46 m). Examined 12/80. G.M. = Groff, 1959.
Lofgreen No. 6	Miss. Great Blue Ls.	Lofgreen	NW¼NW¼NW¼ sec. 02, 009S, 005W	4436203	383705	27 x 10 yds (24 x 9 m). Examined 12/80. G.M. = Groff, 1959.
Lofgreen No. 7	Miss. Great Blue Ls.	Lofgreen	NW¼NW¼NE¼ sec. 02, 009S, 005W	4436204	383530	34 x 27 yds (31 x 24 m). Examined 12/80. G.M. = Groff, 1959.
Lofgreen Prospect	Miss. Humbug Fm.	Lofgreen	SE¼SE¼NW¼ sec. 24, 008S, 005W	4440370	384480	27 x 10 yds (24 x 9 m). Examined 12/80. G.M. = Groff, 1959.
Mammoth	Camb. Teutonic Ls.	Tintic Junction	SE¼NE¼NW¼ sec. 25, 010S, 003W	4420450	403620	Quarry measures 50 x 36 yds (46 x 33 m) with a 13 yd (12 m) highwall on pit. Examined 03/81. G.M. = Morris, 1964b.
Mercur Canyon	Miss. Great Blue Ls.	Mercur	NW¼NW¼NW¼ sec. 07, 006S, 003W	4463700	395650	One large pit and several small pits and trenches cover an area 400 x 40 yds (360 x 36 m). Examined 06/81. G.M. = Tooker, 1987. Quarry was operated by McFarland and Hullinger.
Metz Hollow	Miss. Lodgepole Ls.	Morgan	NW¼NW¼ sec. 31, 004N, 003E	4543554	444516	Around 6.9 acres disturbed by 2002. Produces crushed stone for construction. G.M. = Coogan and King, 2001. Production by year (in st): 1998 - 20,000 (18,000 mt); 1999 - 30,000 (27,000 mt); 2000 - 73,000 (66,000 mt); 2001 - 20,790 (18,870 mt); 2002 - 432 (392 mt); 2003 - 300 (270 mt); 2004 - 450 (410 mt).

SITE.NAME	FORMATION	QUAD.	CADASTRAL. LOC.	UTM.N	UTM.E	NOTES
MH-1 Calcite	Tert. Salt Lake Fm.	Sabie Mtn.	SE¼SW¼ sec. 35, 009S, 004W	4426696	392702	One small quarry. McFarland and Hullinger is the quarry operator. G.M. = Pampeyan, 1989. Production (st) by year: 1990 - 394 (350 mt); 1991 - 2500 (2275 mt); 1992 - 3000 (2700 mt); 1993 - 3000 (2730 mt); 1994 - 500 (450 mt); 1995 - 250 (230 mt); 1996 - 1000 (900 mt); 1997 - 2,500 (2275 mt); 1998 - 950 (870 mt); 1999 - 1525 (1390 mt); 2000 - 735 (670 mt); and 2001 - 192 (175 mt).
Midway Tufa	Quat. tufa	Heber City	NE¼NW¼NW¼ sec. 35, 003S, 004E	4485520	460480	Three tufa quarries. Examined 02/84. Reference = Baker, 1968. G.M. = Bromfield and others,1970. Soluble minerals in two samples = 98%, with Ca/Mg ratios of 106-1 and 140-1.
North Slope	Miss. Great Blue Ls.	Jordan Narrows	SW¼SW¼SE¼ sec. 08, 005S, 001W	4471700	417459	G.M. = Moore, 1973. No production as of 2004.
Papoose	Penn. Honaker Trail Fm.	Lisbon Valley	NE¼SW¼NW¼ sec. 36, 29.5S., 024E	4231290	653890	One quarry that measured 690 x 210 yds (630 x 190 m). Quarry opened in 1994 to provide about 25,000 tpy (22,750 mtpy) of crushed limestone to the TriState Generation and Transmission Power Plant in Nucla, CO. Reference = Reed, 1996. G.M. = Weir and others,1960. Production (st) by year: 1999 - 47,862 (43,432 mt); 2000 - 52,885 (47,990 mt); 2001 - 88,203 (81,075 mt); 2002 - 89,345 (81,075 mt); 2003 - 89,432 (81,154 mt); 2004 - 111,747 (101,404 mt).
Pelican Point	Miss. Deseret Ls.	Pelican Point	NW¼SE¼NE¼ sec. 31, 006S, 001E	4456230	425940	Long open cuts on hillside. Most product is sold for crushed stone, purer lenses are sold for flue gas desulfurization. Examined 04/82. Reference = Crawford and Buranek, 1948. G.M. = Bullock, 1951. Production (st) by year: 1998 - 300,000 (270,000 mt); 1999 - 320,000 (291,000 mt); 2000 - 340,000 (309,000 mt); 2001 - 300,000 (273,000 mt); 2003 - 300,000 (272,000 mt).
Poison Mtn.	Camb. Dome Ls.	Candland Spring	NW¼, 36; S½ sec. 25, 021S, 010W	4312875	333180	A very large quarry that provided all of the limestone used by Graymont Western U.S., Inc. and predecessors at the Cricket Mtn. lime plant until 2000 when the Flatiron quarry was opened. G.M. = Hintze, 1984. Production in 2001 was 1,435,743 st (1,306,526 mt).
Poverty Point	Miss. Great Blue Ls.	Poverty Point	sec 16, 21, 001N, 008W	4519110	353030	Site of limited mining by Holcim Inc., originally permitted in 1980 as a source of limestone to blend into the kiln feed at the Devil's Slide cement plant. Site is scheduled for reclamation. G.M. = Young, 1955.
Powder Knoll	Miss. Great Blue Ls.	Fivemile Pass	NE¼NW¼SW¼ sec. 03, 008S, 003W	4444840	400140	Consists of three pits, north and middle pit in limestone and south pit

SITE.NAME	FORMATION	QUAD.	CADASTRAL. LOC.	UTM.N	UTM.E	NOTES
						in clay in alluvium. The workings total 144 x 20 yd. (131 x 18 m). Examined 02/81. G.M. = Disbrow, 1957.
Providence	Miss. Brazer Dolo.	Logan Peak	NW¼SW¼ sec. 16, 011N, 002E	4615400	439000	Quarry measures 730 x 500 yds (660 x 460 m). Examined 08/80. Reference = Morris, 1969. G.M. = Dover, 1995. Owned by the Amalgamated Sugar Company.
Redmond Limestone	Tert. Flagstaff Ls.	Redmond	NW¼NW¼ sec. 08, 021S, 001E	4317200	428020	Long history of intermittent production for sugar processing, coal mine rock dusting, and crushed stone. G.M. = Witkind, 1981. Production (st) by year: 1989 - 16,856 (15,339 mt); 1990 - 11,475 (10,442 mt); 1991 - 11,520 (10,483 mt); 1992 - 13,643 (12,417 mt); 1993 - 8648 (7870 mt); 1994 - 8361 (7608 mt); 1995 - 3404 (3098 mt); 1996 -1,604 (1460 mt); 1997 - 280 (255 mt), 1998 - 235 (214 mt); 1999 - 381 (347 mt); 2000 - 405 (369 mt); 2001 - 0 (0 mt); 2003 - 521 (473 mt). Owned by Western Clay Company.
Red Warrior (Beaver Dam)	Miss. Redwall Ls.	Jarvis Peak	SE¼ sec. 02, 043S, 018W	4106060	248400	Small prospect, work suspended. G.M. = Hammond, 1991.
Round Valley Rock	Miss. upper mbr. of Doughnut Fm.	Morgan	SW¼NW¼ sec. 29, 004N, 003E	4544793	446244	Quarry opened in 1998. Currently (2005) supplying limestone to the Devil's Slide cement plant. G.M. = Coogan and King, 2001. Minerals owned by Union Pacific Resources. Production (st) by year: 1999 - 40,000 (36,000 mt); 2000 - 70,000 (64,000 mt); 2001 - 160,000 (146,000 mt); 2002 - 121,000 (109,800 mt); 2004 - 260,000 (236,000 mt).
Sage Creek	Tert. Green River Fm.?	Sage Creek	NE¼SE¼NW¼ sec. 13, 012N, 006E	4625410	482090	Five shallow bulldozer cuts and one large open-cut area together measure 118 x 32 yds (107 x 29 m). Examined 05/80. G.M. = Dover, 1995.
TAD 5,7	Miss. Redwall Ls.	Jarvis Peak	SW¼NE¼SE¼ sec. 23, 042S, 018W	4111050	248740	Prospect, no significant production. G.M. = Hammond, 1991.
The Goosenecks	Penn. Hermosa Grp.	Mexican Hat	NW¼NE¼SW¼ sec. 10, 042S, 018E	4111710	595830	Quarry measures 100 x 67 yds (91 x 61 m). Examined 06/77. G.M. = Miller, 1955 and O'Sullivan, 1965.
Three Knolls	Tert. Flagstaff Ls.	Scipio Lake	SW¼NE¼NE¼ sec. 14, 020S, 002W	4325900	410450	Small quarry operated by Western Clay. Produced 4530 st in 2003 and 3490 st in 2004. G.M = Hintze, 1991.
Three Sisters	Miss. Deseret Ls. and Humbug Fm.	Springville	SW¼NE¼SW¼ sec. 27, 007S, 003E	4447700	449550	Limestone was apparently taken from a talus slope, no real signs of quarrying are present. There is a small kiln and a coke pile in the area. Examined 10/81. G.M. = Baker, 1973.
Topaz Valley	Ord. Garden City Fm. of the Pogonip Grp.	Topaz Mtn. 15'	SE1/4SW1/4 sec. 21, 013S, 011W	4393200	320750	Quarry opened in 1991 to provide 60,000 to 100,000 st (54,000 to 91,000 mt) per year of crushed,

SITE.NAME	FORMATION	QUAD.	CADASTRAL. LOC.	UTM.N	UTM.E	NOTES
						screened limestone to the Intermountain Power Project power plant near Delta, UT for flue-gas desulfurization. The quarry was last mined in 1995 with some ore shipped from a stockpile after that. The pit has been reclaimed. G.M. = Morris, 1987. The limestone is moderately pure, a five-foot interval in one drill hole assayed $CaCO_3$ - 93.94, $MgCO_3$ - 0.90, insols. - 5.14.
Travertine #1	Holo. travertine	Champlin Peak	SW¼ sec. 14, 014S, 003W	4383981	400802	One small quarry; 7.6 acres disturbed as of 2000. Material apparently shipped to IPP electric power plant near Delta for flue-gas desulfurization. G.M = Higgins, 1982. Production (st) by year: 1998 - 18,000 st (16,000 mt); 1999 - 25,000 st (22,800 mt); 2000 - 28,500 st (25,900 mt); 2001 - 20,000 st (18,200 mt). One grab sample assayed: $CaCO_3$- 89.7, $MgCO_3$ - 1.1, SiO_2 -7.34, Al_2O_3 - 1.21, MnO - 0.012, Na_2O - 0.08, K_2O - 0.25, TiO_2 - 0.059, P_2O_5 - 0.03, LOI - 39.80.
U.S. Magnesium LLC	Holo. oolites	Badger Island	002N, 007-008 W 003N, 006-007W	4531000	355300	U.S. Magnesium intermittently mined oolites from dunes in a broad area adjacent to the Great Salt Lake for use as a stack-gas neutralizing agent in their process for making magnesium metal. G.M. = Dean, 1978. They mined 50,000 st (45,000 mt) between May and September 1998.
USSR & M	Miss. Great Blue Ls.	Fivemile Pass	SW¼NE¼SE¼ sec. 05, 008S, 003W	4444780	398180	Quarry measures 370 x 270 yds (340 x 250 m) with a 23 yd (21 m) highwall. Property examined 02/81. Reference = Bissell and Proctor, 1959. G.M. = Disbrow, 1957.
Victory Road	Miss. Madison Ls.	S. L. City N.	N½SW¼NE¼ sec. 25, 001N, 001W	4516100	424240	Quarry measures 110 x 60 yds (100 x 55 m). Examined 07/81. Reference = Crawford, 1964. G.M. = Bryant, 1990.

Appendix B

Limestone analytical data summary : major oxide analyses (in %), samples locations, data sources, and geological map coverage. Sample locations are plotted on plate 1. Additional information on the sample locations is contained in appendix C.

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
1	OCsc	90.14	0.98	7.48	1.27	0.26	–	–	0.53	–	–	–	–	39.75	–	4648600	463350	01	014N	004E	KALISER, B.N., 1969.	DOVER, J.H., 1995.
2	Ogc	89.21	1.09	4.36	0.80	0.28	–	–	0.38	–	–	–	–	42.29	–	4648500	462250	01	014N	004E	KALISER, B.N., 1969.	DOVER, J.H., 1995.
3	Dh	96.4	2.2	–	–	–	–	–	–	–	–	–	–	–	2.4	4646000	394430	11	015N	004W	ELIASON, J.F., 1969.	MURPHY, B.E., AND OTHERS, 1985.
4	Dh	98.0	1.4	–	–	–	–	–	–	–	–	–	–	–	3.4	4646000	394430	11	015N	004W	ELIASON, J.F., 1969.	MURPHY, B.E., AND OTHERS, 1985.
5	Dh	95.8	2.9	–	–	–	–	–	–	–	–	–	–	–	3.5	4646000	394430	11	015N	004W	ELIASON, J.F., 1969.	MURPHY, B.E., AND OTHERS, 1985.
6	Ogc	94.5	1.5	4.3	0.68	0.42	–	–	–	–	–	0.1	<0.05	–	–	4644630	404810	14	014N	003W	TRIPP, B.T., SAMPLED 1984.	BIEK, R.F., AND OTHERS, 2003.
7	Pw	93.63	0.84	1.18	0.20	0.07	–	–	–	–	–	–	–	43.77	–	4629930	475800	32	013N	006E	KALISER, B.N., 1969.	VALENTI, G.L., 1982.
8	Ml	91.0	1.36	3.5	0.42	0.19	–	–	–	–	–	0.09	<0.05	–	–	4627000	477170	09	012N	006E	TRIPP, B.T., SAMPLED 05/1980.	VALENTI, G.L., 1982.
9	Db	89.8	2.3	–	–	–	–	–	–	–	–	–	–	–	4.6	4625500	475400	17	012N	006E	ELIASON, J.F., 1969.	VALENTI, G.L., 1982.
10	Db	90.5	1.4	–	–	–	–	–	–	–	–	–	–	–	7.1	4625500	475400	17	012N	006E	ELIASON, J.F., 1969.	VALENTI, G.L., 1982.
11	Tgr	94.7	1.00	0.4	0.13	0.06	–	–	–	–	–	0.06	<0.05	–	–	4625390	482090	13	012N	006E	TRIPP, B.T., SAMPLED 06/1980.	DOVER, J.H., 1995.
12	Dh	94.5	5.6	–	–	–	–	–	–	–	–	–	–	–	2.3	4624000	442200	23	012N	002E	ELIASON, J.F., 1969.	DOVER, J.H., AND BIGSBY, P.R., 1983.
13	Db	94.8	1.9	–	–	–	–	–	–	–	–	–	–	–	4.0	4624000	443600	24	012N	002E	ELIASON, J.F., 1969.	DOVER, J.H., AND BIGSBY, P.R., 1983.
14	Db	97.4	1.5	–	–	–	–	–	–	–	–	–	–	–	1.2	4624000	443600	24	012N	002E	ELIASON, J.F., 1969.	DOVER, J.H., AND BIGSBY, P.R., 1983.
15	Mb	89.8	1.02	–	–	–	–	–	–	–	–	–	–	–	–	4615350	438750	–	011N	002E	AMODT, L.A. AND SHARPS, T.I., 1978.	DOVER, J.H., 1995.
16	Dh	96.4	0.8	–	–	–	–	–	–	–	–	–	–	–	1.9	4609000	435000	01	010N	001E	ELIASON, J.F., 1969.	EVANS, J.P., AND OTHERS, 1991.
17	Dh	99.1	0.9	–	–	–	–	–	–	–	–	–	–	–	1.1	4609000	435000	01	010N	001E	ELIASON, J.F., 1969.	EVANS, J.P., AND OTHERS, 1991.
18	Dh	97.4	1.0	–	–	–	–	–	–	–	–	–	–	–	1.2	4609000	435000	01	010N	001E	ELIASON, J.F., 1969.	EVANS, J.P., AND OTHERS, 1991.
19	Dh	99.1	1.8	–	–	–	–	–	–	–	–	–	–	–	2.0	4623810	442180	23	012N	002E	ELIASON, J.F., 1969.	DOVER, J.H., AND BIGSBY, P.R., 1983.
20	Dh	97.4	0.9	–	–	–	–	–	–	–	–	–	–	–	1.6	4609000	435000	01	010N	001E	ELIASON, J.F., 1969.	EVANS, J.P., AND OTHERS, 1991.

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
21	Dh	92.1	2.8	–	–	–	–	–	–	–	–	–	–	–	6.1	4609000	435000	01	010N	001E	ELIASON, J.F., 1969.	EVANS, J.P., AND OTHERS, 1991.
22	Dh	90.0	8.1	–	–	–	–	–	–	–	–	–	–	–	0.4	4609000	435000	01	010N	001E	ELIASON, J.F., 1969.	EVANS, J.P., AND OTHERS, 1991.
23	Db	98.0	1.6	–	–	–	–	–	–	–	–	–	–	–	1.9	4608000	437300	08	010N	002E	ELIASON, J.F., 1969.	MULLENS, T.E. AND IZETT, G.A., 1963.
24	Db	95.0	1.5	–	–	–	–	–	–	–	–	–	–	–	1.9	4608000	437300	08	010N	002E	ELIASON, J.F., 1969.	MULLENS, T.E. AND IZETT, G.A., 1963.
25	Cu	90.30	5.75	1.80	–	–	–	–	–	–	–	–	–	–	–	4567190	379650	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988
26	Cu	89.61	5.39	2.15	–	–	–	–	–	–	–	–	–	–	–	4567180	379650	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
27	Cu	90.44	4.97	1.95	–	–	–	–	–	–	–	–	–	–	–	4567170	379650	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
28	Cu	89.28	4.49	2.95	–	–	–	–	–	–	–	–	–	–	–	4567160	379650	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
29	Cu	90.71	5.39	1.78	–	–	–	–	–	–	–	–	–	–	–	4567150	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
30	Cu	90.39	5.27	1.90	–	–	–	–	–	–	–	–	–	–	–	4567150	379650	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
31	Cu	91.94	5.02	1.18	–	–	–	–	–	–	–	–	–	–	–	4567140	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
32	Cu	92.60	5.02	0.92	–	–	–	–	–	–	–	–	–	–	–	4567140	379650	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
33	Cu	90.76	5.23	1.70	–	–	–	–	–	–	–	–	–	–	–	4567130	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
34	Cu	91.53	5.81	1.15	–	–	–	–	–	–	–	–	–	–	–	4567130	379650	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
35	Cu	90.26	4.01	2.75	–	–	–	–	–	–	–	–	–	–	–	4567120	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
36	Cu	90.78	5.33	1.78	–	–	–	–	–	–	–	–	–	–	–	4567120	379650	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
37	Cu	89.41	5.48	2.32	–	–	–	–	–	–	–	–	–	–	–	4567110	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
38	Cu	90.21	4.70	2.42	–	–	–	–	–	–	–	–	–	–	–	4567100	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
39	Cu	88.29	6.48	2.85	–	–	–	–	–	–	–	–	–	–	–	4567090	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
40	Cu	91.01	5.81	1.28	–	–	–	–	–	–	–	–	–	–	–	4567085	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988
41	Cu	90.78	6.44	1.02	–	–	–	–	–	–	–	–	–	–	–	4567080	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
42	Cu	92.67	5.02	0.66	–	–	–	–	–	–	–	–	–	–	–	4567070	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
43	Cu	91.92	5.68	0.76	–	–	–	–	–	–	–	–	–	–	–	4567065	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
44	Cu	92.28	5.48	0.62	–	–	–	–	–	–	–	–	–	–	–	4567060	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
45	Cu	91.01	6.58	0.70	–	–	–	–	–	–	–	–	–	–	–	4567050	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
46	Cu	90.44	7.21	0.71	–	–	–	–	–	–	–	–	–	–	–	4567040	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
47	Cu	91.17	7.32	0.22	–	–	–	–	–	–	–	–	–	–	–	4567035	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
48	Cu	91.85	5.89	0.96	–	–	–	–	–	–	–	–	–	–	–	4567030	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
49	Cu	91.71	5.39	1.18	–	–	–	–	–	–	–	–	–	–	–	4567020	379110	17	006N	005W	U.S. STEEL (USX), 1957.	CRITTENDEN, M.D., 1988.
50	Mgb	89.4	2.7	6.6	0.5	0.3	–	–	–	–	–	0.02	<0.05	–	–	4564850	342500	21	006N	009W	TRIPP, B.T., . SAMPLED 05/1984	DOELLING, H.H., 1980.
51	Mh	95.9	–	–	–	–	–	–	–	–	–	–	–	–	–	4548680	446120	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
52	Mdo	90.8	–	–	–	–	–	–	–	–	–	–	–	–	–	4548315	446600	17	004N	003E	AMODT, L.A. AND. SHARPS,T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
53	Mdo	93.4	–	–	–	–	–	–	–	–	–	–	–	–	–	4548310	446570	17	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
54	Mdo	93.9	–	–	–	–	–	–	–	–	–	–	–	–	–	4548300	446520	17	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001
55	Mh	99.9	–	–	–	–	–	–	–	–	–	0.03	–	–	–	4548080	446210	17	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001
56	Ml	93.9	–	–	–	–	–	–	–	–	–	–	–	–	–	4546850	445050	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
57	Ml	98.9	–	–	–	–	–	–	–	–	–	–	–	–	–	4546800	445100	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
58	Ml	94.0	–	–	–	–	–	–	–	–	–	–	–	–	–	4546470	444700	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
59	Ml	95.8	–	–	–	–	–	–	–	–	–	–	–	–	–	4546466	444704	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
60	Ml	95.7	–	–	–	–	–	–	–	–	–	–	–	–	–	4546462	444706	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
61	Ml	96.0	–	–	–	–	–	–	–	–	–	–	–	–	–	4546455	444715	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
62	Ml	95.8	–	–	–	–	–	–	–	–	–	–	–	–	–	4546440	444730	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
63	Ml	94.6	–	–	–	–	–	–	–	–	–	–	–	–	–	4546250	444870	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
64	Ml	100.0	–	–	–	–	–	–	–	–	–	–	–	–	–	4546250	444900	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
65	Ml	96.2	–	–	–	–	–	–	–	–	–	–	–	–	–	4546250	444920	19	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
66	Mde	97.9	–	–	–	–	–	–	–	–	–	2.93	–	–	–	4545240	445010	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
67	Mde	97.9	–	–	–	–	–	–	–	–	–	4.12	–	–	–	4545240	445010	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
68	Mdo	98.4	–	–	–	–	–	–	–	–	–	–	–	–	–	4544050	445990	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
69	Mh	99.0	–	–	–	–	–	–	–	–	–	–	–	–	–	4544020	445780	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
70	Mdo	91.45	–	–	–	–	–	–	–	–	–	–	–	–	–	4544010	446080	29	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001
71	Mh	95.80	–	–	–	–	–	–	–	–	–	–	–	–	–	4543990	445900	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
72	Mh	94.00	–	–	–	–	–	–	–	–	–	–	–	–	–	4543990	445900	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
73	Mh	95.87	–	–	–	–	–	–	–	–	–	–	–	–	–	5439900	445900	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
74	Mh	94.02	–	–	–	–	–	–	–	–	–	–	–	–	–	4543990	445900	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
75	Mh	90.00	–	–	–	–	–	–	–	–	–	–	–	–	–	4543990	445900	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
76	Mh	95.9	–	–	–	–	–	–	–	–	–	–	–	–	–	4543990	445900	30	004N	003E	AMODT, L.A. AND. SHARPS, T.I., 1978	COOGAN, J.C., AND KING, J.K., 2001.
77	Dg	93.6	0.33	–	–	–	–	–	–	–	–	–	–	–	–	4543759	237380	14	036N	069E	GLOYN, R.W., SAMPLED 1991	MILLER, D.M., AND LUSH, A.P., 1994

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
78	Dg	93.6	0.37	–	–	–	–	–	–	–	–	–	–	–	–	4543707	237396	14	036N	069E	GLOYN, R.W., SAMPLED 1991	MILLER, D.M., AND LUSH, A.P., 1994.
79	Mj	97.4	0.48	1.660	0.290	0.070	–	0.011	0.104	0.007	0.011	–	–	42.80	–	4537640	265880	34	003N	017W	TRIPP, B.T., SAMPLED 06/1991	SCHAEFFER, F.E., JR., 1960.
80	Dg	99.1	0.48	–	0.074	0.024	–	0.007	0.028	0.004	–	–	–	43.80	–	4537600	265900	34	003N	017W	TRIPP, B.T., SAMPLED 06/1991	SCHAEFFER, F.E., JR., 1960.
81	Dg	98.1	0.65	–	0.148	0.053	–	0.009	0.112	0.014	0.008	–	–	43.50	–	4537580	265930	34	003N	017W	TRIPP, B.T., SAMPLED 06/1991	SCHAEFFER, F.E., JR., 1960.
82	Dg	98.6	0.42	–	0.076	0.033	–	0.009	0.027	0.011	0.014	–	–	43.70	–	4537530	265960	34	003N	017W	TRIPP, B.T., SAMPLED 06/1991	SCHAEFFER, F.E., JR., 1960.
83	Mj	98.4	1.1	–	–	–	–	–	–	–	–	–	–	–	–	4537500	268160	35	003N	017W	TRIPP, B.T., SAMPLED 05/1991	SCHAEFFER, F.E., JR., 1960.
84	Dg	97.6	1.31	0.860	0.490	0.220	–	0.012	0.220	0.007	0.016	0.020	–	42.80	–	4535380	268290	02	002N	017W	TRIPP, B.T., SAMPLED 06/1991	SCHAEFFER, F.E., JR., 1960.
85	Dg	97.7	1.11	1.920	0.645	0.250	–	0.014	0.250	0.008	0.023	<0.001	–	42.60	–	4535320	268350	02	002N	017W	TRIPP, B.T., SAMPLED 06/1991	SCHAEFFER, F.E., JR., 1960.
86	Dg	99.4	0.72	<0.400	0.075	0.034	–	0.009	0.014	0.005	<0.001	0.012	–	43.80	–	4535220	268420	02	002N	017W	TRIPP, B.T., SAMPLED 06/1991	SCHAEFFER, F.E., JR., 1960.
87	Dg	91.3	8.45	<0.400	0.037	0.053	–	0.015	0.038	0.006	<0.001	<0.001	–	44.80	–	4535120	268490	02	002N	017W	TRIPP, B.T., SAMPLED 06/1991	SCHAEFFER, F.E., JR., 1960.
88	Dg	98.6	1.13	–	0.070	0.055	–	0.016	0.042	0.008	<0.001	–	–	43.80	–	4527620	259120	36	002N	018W	TRIPP, B.T., SAMPLED 06/1991	SCHAEFFER, F.E., JR., 1960.
89	Cm	89.00	7.38	2.60	0.17	–	–	–	–	–	–	–	–	–	–	4525110	352180	33	002N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
90	Mde	94.67	3.13	0.80	0.17	–	–	–	–	–	–	–	–	–	–	4522320	350140	08	001N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
91	Mde	91.63	5.48	1.45	0.35	–	–	–	–	–	–	–	–	–	–	4522260	350130	08	001N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
92	Mde	92.29	3.14	2.84	0.45	–	–	–	–	–	–	–	–	–	–	4522210	350120	08	001N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
93	Mde	94.52	3.51	0.68	0.13	–	–	–	–	–	–	–	–	–	–	4522100	350100	08	001N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
94	PPo	92.63	4.14	1.95	0.16	–	–	–	–	–	–	–	0.015	–	–	4519180	337720	24	001N	010W	U.S. STEEL (USX), 1957.	MAURER, R.E., 1970.
95	Mgb	93.81	2.68	2.20	0.26	–	–	–	–	–	–	–	0.018	–	–	4518800	352720	21	001N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
96	Mgb	91.67	4.43	2.50	0.18	–	–	–	–	–	–	–	0.022	–	–	4518770	352690	21	001N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
97	Mgb	93.27	2.88	2.60	0.18	–	–	–	–	–	–	–	0.030	–	–	4518670	352550	21	001N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
98	Mgb	92.88	2.61	2.10	0.14	–	–	–	–	–	–	–	0.029	–	–	4518610	352490	21	001N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
99	Mgb	90.71	6.17	1.85	0.14	–	–	–	–	–	–	–	0.016	–	–	4518590	352450	21	001N	008W	U.S. STEEL (USX), 1957.	YOUNG, J.C., 1955.
100	Ppc	94.62	1.31	3.10	0.202	0.089	–	–	–	–	–	–	–	–	–	4514650	429150	33	001N	001E	KRUKOWSKI, STANLEY,. 2000	VAN HORN, R., AND CRITTENDEN, M.D., Jr., 1987.

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
101	Qo	91.47	1.86	3.03	0.18	0.26	–	0.57	0.36	–	0.0065	0.065	–	–	–	4509110	397900	17	001S	003W	EARDLEY, A.J., 1938.	TOOKER, E.W. AND ROBERTS, R.J., 1971.
102	Mgb	100.05	2.24	0.16	0.21	0.08	–	0.04	0.10	–	–	–	–	41.80	–	4498540	369050	20	002S	006W	ALMQUIST, C.L., 1987.	RIGBY, J.K., 1958.
103	Mgb	93.38	1.59	2.83	0.16	0.06	–	0.04	0.11	–	–	–	–	41.60	–	4496230	365420	26	002S	007W	ALMQUIST, C.L., 1987.	RIGBY, J.K., 1958.
104	Mde	96.3	1.5	1.4	–	–	–	–	–	–	–	–	–	–	–	4456230	425940	31	006S	001E	CRAWFORD, A.L. & BURANEK, A.M., 1948.	BULLOCK, K.C., 1951.
105	Mg	96.49	1.65	0.57	0.14	–	–	–	–	–	–	–	0.016	–	–	4440910	412910	13	008S	002W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
106	Mg	96.12	1.76	0.54	–	–	–	–	–	–	–	–	–	–	–	4440830	413490	23	008S	002W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
107	Mg	91.67	4.58	2.27	–	–	–	–	–	–	–	–	–	–	–	4440520	413660	24	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
108	Mg	92.56	3.18	3.53	–	–	–	–	–	–	–	–	–	–	–	4440500	413580	23	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
109	Mg	96.30	1.63	0.77	0.14	–	–	–	–	–	–	–	0.020	–	–	4440490	413460	23	008S	002W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
110	Mg	98.61	0.75	0.71	–	–	–	–	–	–	–	–	–	–	–	4440480	413520	23	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
111	Mg	95.23	2.78	0.26	–	–	–	–	–	–	–	–	–	–	–	4440370	413500	23	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
112	Mg	92.74	6.02	2.56	–	–	–	–	–	–	–	–	–	–	–	4440360	413460	23	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
113	Mg	96.48	1.96	1.32	–	–	–	–	–	–	–	–	–	–	–	4440340	413420	23	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
114	Mg	95.87	3.05	0.84	0.15	–	–	–	–	–	–	–	0.009	–	–	4436700	403350	36	008S	003W	U.S. STEEL (USX), 1957.	DISBROW, A.E., 1961.
115	Mg	–	0.83	0.96	0.19	–	–	–	–	–	–	–	–	–	–	4436560	399720	33	008S	003W	MADSEN, J.W., 1986.	DISBROW, A.E., 1961.
116	MDf	–	0.73	0.98	0.18	–	–	–	–	–	–	–	–	–	–	4436500	399910	34	008S	003W	MADSEN, J.W., 1986.	DISBROW, A.E., 1961.
117	Mg	96.67	1.82	0.28	0.12	–	–	–	–	–	–	–	0.010	–	–	4436230	403710	36	008S	003W	U.S. STEEL (USX), 1957.	DISBROW, A.E., 1961.
118	Mg	90.99	6.86	0.93	0.10	–	–	–	–	–	–	–	0.010	–	–	4436210	403700	36	008S	003W	U.S. STEEL (USX), 1957.	DISBROW, A.E., 1961.
119	Mg	95.05	2.22	1.79	0.16	–	–	–	–	–	–	–	0.013	–	–	4436200	403750	36	008S	003W	U.S. STEEL (USX), 1957.	DISBROW, A.E., 1961.
120	Mg	96.65	1.67	1.03	–	–	–	–	–	–	–	–	–	–	–	4436180	413290	35	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
121	Mg	93.45	4.54	1.28	–	–	–	–	–	–	–	–	–	–	–	4436170	413320	35	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985
122	Mg	91.31	7.44	0.70	–	–	–	–	–	–	–	–	–	–	–	4436160	413340	35	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
123	Mg	94.87	3.93	0.55	–	–	–	–	–	–	–	–	–	–	–	4436150	413380	35	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
124	Mg	95.23	2.59	1.15	–	–	–	–	–	–	–	–	–	–	–	4436140	413400	35	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
125	Mg	93.98	2.32	2.84	–	–	–	–	–	–	–	–	–	–	–	4436130	413420	35	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
126	Mg	89.53	5.23	2.19	–	–	–	–	–	–	–	–	–	–	–	4436120	413480	35	008S	002W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
127	Mde	–	–	–	–	–	–	–	–	–	–	–	–	–	3.17	4436100	396940	05	009S	003W	MADSEN, J.W., 1986.	DISBROW, A.E., 1961.
128	Mg	–	1.46	3.14	0.50	–	–	–	–	–	–	–	–	–	–	4435910	397750	05	009S	003W	MADSEN, J.W., 1986.	DISBROW, A.E., 1961.

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
129	Mg	–	–	–	–	–	–	–	–	–	–	–	–	–	2.6	4435910	399210	04	009S	003W	MADSEN, J.W., 1986.	DISBROW, A.E., 1961.
130	MDf	–	–	–	–	–	–	–	–	–	–	–	–	–	0.88	4435770	397370	05	009S	003W	MADSEN, J.W., 1986.	DISBROW, A.E., 1961.
131	Mg	96.96	1.50	0.20	0.15	–	–	–	–	–	–	–	0.012	–	–	4435750	403910	01	008S	003W	U.S. STEEL (USX), 1957.	DISBROW, A.E., 1961.
132	Mg	93.69	2.80	2.22	–	–	–	–	–	–	–	–	–	–	–	4435530	404050	01	009S	003W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
133	Mg	94.66	1.42	2.57	–	–	–	–	–	–	–	–	–	–	–	4435520	404030	01	009S	003W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
134	Mg	97.85	1.13	0.74	–	–	–	–	–	–	–	–	–	–	–	4435520	404040	01	009S	003W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
135	Mg	96.37	1.05	0.92	–	–	–	–	–	–	–	–	–	–	–	4435510	404010	01	009S	003W	U.S. STEEL (USX), 1957.	DISBROW, A.E., 1961.
136	Mg	93.64	2.05	2.52	–	–	–	–	–	–	–	–	–	–	–	4435510	404020	01	009S	003W	U.S. STEEL (USX), 1957.	DISBROW, A.E., 1961.
137	Oop	91.4	0.76	–	–	–	–	–	–	–	–	–	–	–	–	4435470	403080	02	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	DISBROW, A.E., 1961.
138	MDf	97.79	1.53	0.80	0.13	0.34	–	0.89	–	0.08	–	0.082	0.013	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
139	MDf	97.13	0.69	1.13	0.12	0.23	–	0.43	–	0.08	–	0.027	0.007	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
140	Mg	96.51	0.77	1.46	0.21	0.31	–	0.38	–	0.03	–	0.037	0.017	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
141	Mg	97.97	1.05	0.65	0.09	0.23	–	0.54	–	0.03	–	0.037	0.008	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
142	MDf	96.01	2.56	0.63	0.13	0.23	–	0.57	–	0.04	–	0.046	0.010	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
143	Mg	92.47	2.81	3.73	0.15	0.17	–	0.31	–	0.04	–	0.044	0.008	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
144	Mg	97.81	0.59	0.42	0.12	0.29	–	0.73	–	0.03	–	0.027	0.008	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
145	Mg	95.34	1.34	2.33	0.24	0.26	–	0.49	–	0.03	–	0.064	0.014	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
146	MDf	94.44	2.01	2.38	0.25	0.23	–	0.76	–	0.08	–	0.055	0.018	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
147	Mg	90.50	4.12	4.56	0.14	0.26	–	0.51	–	0.03	–	0.023	0.021	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
148	Mg	97.86	0.50	0.68	0.12	0.26	–	0.19	–	0.03	–	0.01	0.021	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
149	Mg	95.23	1.42	2.22	0.23	0.26	–	1.23	–	0.05	–	0.06	0.013	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
150	MDf	95.19	1.48	2.50	0.33	0.26	–	0.65	–	0.05	–	0.03	0.013	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
151	MDf	94.48	3.91	0.44	0.23	0.26	–	1.13	–	0.04	–	0.03	0.030	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
152	Mg	93.81	4.72	0.48	0.15	0.23	–	0.27	–	0.05	–	0.01	0.020	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
153	Mg	93.86	3.80	1.31	0.23	0.31	–	0.57	–	0.04	–	0.03	0.011	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
154	Mg	94.91	1.15	2.96	0.18	0.29	–	0.57	–	0.03	–	0.02	0.004	–	–	4435450	404160	01	009S	003W	CLARK, D.L., 1954.	PROCTOR, P.D., 1985.
155	Mg	93.61	3.32	1.52	–	–	–	–	–	–	–	–	–	–	–	4435250	404340	01	009S	003W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
156	Mg	96.10	1.73	0.73	–	–	–	–	–	–	–	–	–	–	–	4435240	404330	01	009S	003W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.

Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
157 Mg	94.32	2.53	1.55	–	–	–	–	–	–	–	–	–	–	–	4435220	404320	01	009S	003W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
158 Mg	96.58	1.15	0.82	–	–	–	–	–	–	–	–	–	–	–	4435200	404310	01	009S	003W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
159 Mg	89.96	7.52	1.07	–	–	–	–	–	–	–	–	–	–	–	4435190	404300	01	009S	003W	U.S. STEEL (USX), 1957.	PROCTOR, P.D., 1985.
160 Mg	92.10	3.51	2.45	–	–	–	–	–	–	–	–	–	–	–	4435180	404180	01	009S	003W	U.S. STEEL (USX), 1953.	PROCTOR, P.D., 1985.
161 Ccc	96.9	0.90	–	–	–	–	–	–	–	–	–	–	–	–	4434990	402950	02	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	DISBROW,, A.E., 1961.
162 Cb	97.9	0.97	–	–	–	–	–	–	–	–	–	–	–	–	4434910	402950	02	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	DISBROW, A.E., 1961.
163 Ctp	92.84	4.31	1.66	0.41	0.27	–	<0.01	<0.01	0.010	0.040	0.09	<0.001	42.69	–	4434200	254390	21	009S	018W	HANNIGAN, B.J., 1990.	ROGERS, D.W., 1989.
164 Mgb	91.9	0.90	–	–	–	–	–	–	–	–	–	–	–	–	4428230	394300	25	009S	004W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
165 Mgb	94.4	0.83	–	–	–	–	–	–	–	–	–	–	–	–	4428170	394360	25	009S	004W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
166 Mh	95.1	1.39	–	–	–	–	–	–	–	–	–	–	–	–	4428170	394670	25	009S	004W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
167 Mgb	93.6	1.35	–	–	–	–	–	–	–	–	–	–	–	–	4428160	394610	25	009S	004W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
168 Mgb	95.6	0.94	–	–	–	–	–	–	–	–	–	–	–	–	4428150	394580	25	009S	004W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
169 Mgb	93.9	0.83	–	–	–	–	–	–	–	–	–	–	–	–	4428100	394410	25	009S	004W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
170 Mh	97.1	1.39	–	–	–	–	–	–	–	–	–	–	–	–	4428090	394960	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
171 Mde	96.6	2.08	–	–	–	–	–	–	–	–	–	–	–	–	4427870	395710	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
172 Mg	92.4	0.97	–	–	–	–	–	–	–	–	–	–	–	–	4427500	409050	33	009S	002W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964a.
173 Mg	91.6	0.97	–	–	–	–	–	–	–	–	–	–	–	–	4427430	409040	33	009S	002W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964a.
174 Mg	87.2	0.90	–	–	–	–	–	–	–	–	–	–	–	–	4427210	395980	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
175 Mg	87.2	1.25	–	–	–	–	–	–	–	–	–	–	–	–	4427190	396010	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
176 Mg	87.7	3.50	–	–	–	–	–	–	–	–	–	–	–	–	4427140	396030	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
177 Mg	88.2	1.01	–	–	–	–	–	–	–	–	–	–	–	–	4427120	396060	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.

Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
178 Mg	92.9	2.67	–	–	–	–	–	–	–	–	–	–	–	–	4427110	396080	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
179 Mg	87.7	1.14	–	–	–	–	–	–	–	–	–	–	–	–	4427090	396110	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
180 MDf	93.6	4.20	–	–	–	–	–	–	–	–	–	–	–	–	4427020	396180	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
181 MDf	86.9	2.95	–	–	–	–	–	–	–	–	–	–	–	–	4427000	396220	31	009S	003W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964b.
182 Tsl	88.6	1.42	–	–	–	–	–	–	–	–	–	–	–	–	4426700	392450	35	009S	004W	TRIPP, B.T., SAMPLED 09/1992.	PAMPEYAN, E.H., 1989.
183 Tsl	93.4	1.53	–	–	–	–	–	–	–	–	–	–	–	–	4426680	392470	35	009S	004W	TRIPP, B.T., SAMPLED 09/1992.	PAMPEYAN, E.H., 1989.
184 Tsl	96.4	0.69	–	–	–	–	–	–	–	–	–	–	–	–	4426650	392500	35	009S	004W	TRIPP, B.T., SAMPLED 09/1992.	PAMPEYAN, E.H., 1989.
185 Mg	92.9	0.69	–	–	–	–	–	–	–	–	–	–	–	–	4425650	408030	04	010S	002W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964a.
186 Mg	90.6	1.07	–	–	–	–	–	–	–	–	–	–	–	–	4425650	408040	04	010S	002W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964a.
187 Mg	94.1	0.64	–	–	–	–	–	–	–	–	–	–	–	–	4425650	408050	04	010S	002W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964a.
188 Mg	92.2	1.05	–	–	–	–	–	–	–	–	–	–	–	–	4425650	408060	04	010S	002W	TRIPP, B.T., SAMPLED 09/1992.	MORRIS, H.T., 1964a.
189 Ctp	90.80	6.58	1.59	0.47	0.07	–	0.11	0.22	<0.01	0.04	<0.01	<0.001	42.59	–	4422790	255220	27	010S	018W	HANNIGAN, B.J., 1990.	ROGERS, D.W., 1989.
190 Cu	93.25	2.49	1.75	0.58	0.3	–	<0.01	<0.01	0.050	0.04	0.15	<0.001	42.14	–	4422600	255530	34	010S	018W	HANNIGAN, B.J., 1990	ROGERS, D.W., 1989.
191 Cu	95.05	1.23	1.65	0.52	0.07	–	<0.01	<0.01	0.02	0.05	0.08	<0.001	41.97	–	4422310	255900	34	010S	018W	HANNIGAN, B.J., 1990	ROGERS, D.W., 1989.
192 Op	94.5	0.86	2.6	0.2	0.34	–	–	–	–	–	–	–	–	–	4409731	241947	05	012S	019W	SATKOSKI, J.J. AND SOKASKI, M., 1980.	THOMPSON, K.C., 1970.
193 Cww	97.9	0.6	0.8	0.3	–	–	–	–	–	–	–	0.003	–	–	4404850	337650	21	022S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
194 Op	93.94	0.92	–	–	–	–	–	–	–	–	–	–	–	–	4393100	320700	21	013S	011W	UDOGM FILES	LINDSEY, D.A., 1979.
195 Qt	89.23	1.10	7.34	1.21	0.54	–	0.08	0.25	0.021	0.059	0.03	–	39.80	–	4383981	400802	14	014S	003W	TRIPP, B.T., SAMPLED 02/2000.	HIGGINS, J.M., 1982.
196 Cu	89.87	1.92	2.93	0.66	0.65	–	–	1.1	0.05	0.03	0.17	–	42.2	–	4366611	231014	–	018N	070E	KNESS, R.F., 1989.	HOSE, R.K., AND OTHERS, 1976.
197 Cu	92.76	4.66	0.35	0.47	0.56	–	–	1.1	0.01	0.01	0.11	–	43.87	–	4360521	234858	–	017N	070E	KNESS, R.F., 1989.	HOSE, R.K., AND OTHERS, 1976.
198 Cu	94.83	2.2	0.47	0.45	0.43	–	–	0.8	0.01	0.02	0.08	–	43.29	–	4360521	234858	–	017N	070E	KNESS, R.F., 1989.	HOSE, R.K., AND OTHERS, 1976.

Label		$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
199	Cho	98.56	0.54	0.86	–	0.29	–	–	–	–	–	–	–	–	–	4358430	300000	04	017S	013W	TUFTIN, S.E., 1987.	HINTZE, L.F., 1981.
200	Cho	95.76	1.23	2.32	–	0.29	–	–	–	–	–	–	–	–	–	4357350	298220	08	017S	013W	TUFTIN, S.E., 1987.	HINTZE, L.F., 1981.
201	Tf	93.27	1.44	3.92	0.66	0.29	–	0.05	0.14	0.315	0.023	0.10	–	41.45	–	4356250	583400	16	017S	017E	TRIPP, B.T., SAMPLED 05/2000.	WITKIND, I.J., 1988.
202	Cho	98.06	1.11	0.71	–	0.29	–	–	–	–	–	–	–	–	–	4346520	292660	15	018S	014W	TUFTIN, S.E., 1987.	HINTZE, L.F., 1974a.
203	Tf	97.0	1.7	1.0	–	–	–	–	–	–	–	–	–	43.7	1.0	4343030	439300	21	018S	002E	PRATT, A.R., & CALLAGHAN, E., 1970.	WEISS, M.P., 1994.
204	Tf	96.8	1.7	1.0	–	–	–	–	–	–	–	–	–	43.8	1.0	4342650	438930	21	018S	002E	PRATT, A.R., & CALLAGHAN, E., 1970.	WEISS, M.P., 1994.
205	Tf	95.59	2.80	0.40	0.12	–	–	–	–	–	–	–	–	–	–	4342400	438550	20	018S	002E	U.S. STEEL (USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
206	Tf	95.02	3.64	0.27	0.16	–	–	–	–	–	–	–	–	–	–	4342280	438880	21	018S	002E	U.S. STEEL (USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
207	Tf	98.61	1.65	0.32	0.41	–	–	–	–	–	–	–	–	–	–	4342250	438900	21	018S	002E	U.S. STEEL (USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
208	Tf	97.0	1.7	1.0	–	–	–	–	–	–	–	–	–	43.7	1.0	4342240	438900	21	018S	002E	PRATT, A.R., & CALLAGHAN, E., 1970.	WEISS, M.P., 1994.
209	Tf	95.87	2.57	0.50	0.14	–	–	–	–	–	–	–	–	–	–	4341750	438600	29	018S	002E	U.S. STEEL (USX), 1957.	WITKIND, I.J.,AND OTHERS, 1987.
210	Tf	97.0	1.7	1.0	–	–	–	–	–	–	–	–	–	43.7	1.0	4341720	438590	21	018S	002E	PRATT, A.R., & CALLAGHAN, E., 1970.	WEISS, M.P., 1994.
211	Tf	97.79	0.61	0.30	–	–	–	–	–	–	–	–	0.022	–	–	4341710	429050	20	018S	001E	U.S. STEEL (USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
212	Tf	94.96	2.99	1.26	–	–	–	–	–	–	–	–	–	–	–	4341600	438430	29	018S	002E	U.S. STEEL (USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
213	Tf	95.05	3.24	0.20	–	–	–	–	–	–	–	–	0.025	–	–	4341580	428300	29	018S	001E	U.S. STEEL (USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
214	Tf	95.94	2.19	1.00	–	–	–	–	–	–	–	–	–	–	–	4341540	438500	29	018S	002E	U.S. STEEL (USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
215	Tf	96.1	2.5	1.0	–	–	–	–	–	–	–	–	–	43.8	1.0	4341460	438470	21	018S	002E	PRATT, A.R., & CALLAGHAN, E., 1970.	WEISS, M.P., 1994.
216	Tf	97.37	0.96	0.89	–	–	–	–	–	–	–	–	–	–	–	4340880	438470	29	018S	002E	U.S. STEEL(USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
217	Tf	96.46	2.09	0.20	0.18	–	–	–	–	–	–	–	–	–	–	4340880	438510	29	018S	002E	U.S. STEEL (USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
218	Tf	93.98	4.10	0.71	–	–	–	–	–	–	–	–	–	–	–	4340810	438380	29	018S	002E	U.S. STEEL (USX),1957.	WITKIND, I.J., AND OTHERS, 1987.

Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
219 Tf	91.9	2.8	3.0	0.56	0.25	–	–	–	–	–	0.06	<0.05	–	–	4340780	480400	34	018S	006E	PERRY, L.I., UGS SAMPLE, 1980.	ELLIS, E.G., AND FRANK, J.R., 1981.
220 Tf	92.26	5.83	0.64	0.18	–	–	–	–	–	–	–	–	–	–	4340720	438380	29	018S	002E	U.S. STEEL (USX), 1957.	WITKIND, I.J., AND OTHERS, 1987.
221 Jc	91.40	1.67	5.77	0.74	0.31	–	<0.01	0.31	0.096	0.043	0.53	–	40.32	–	4336800	537810	10	019S	012E	GERWE, S., SAMPLED, 09/2000.	CASS, J.T., 1955.
222 Jc	91.67	1.80	5.65	0.58	0.31	–	<0.01	0.17	0.029	0.035	0.02	–	40.62	–	4335880	527780	15	019S	011E	GERWE, S., SAMPLED, 09/2000.	WITKIND, I.J., 1988.
223 Jc	93.79	1.92	3.69	0.67	0.36	–	0.03	0.25	0.025	0.034	0.01	–	41.55	–	4335880	527780	15	019S	011E	GERWE, S., SAMPLED, 09/2000.	WITKIND, I.J., 1988.
224 Tf	96.5	1.7	1.0	–	–	–	–	–	–	–	–	–	44.4	1.0	4335500	414600	11	019S	1.5W	PRATT, A.R., & CALLAGHAN, E., 1970.	PETERSON, DAVID, 1992.
225 Jc	94.57	1.76	3.52	0.60	0.30	–	<0.01	0.27	0.030	0.029	0.02	–	41.65	–	4334220	528620	22	019S	011E	GERWE, S., SAMPLED, 09/2000.	WITKIND, I.J., 1988.
226 Tf	96.1	1.7	1.0	–	–	–	–	–	–	–	–	–	43.2	2.0	4331000	418000	30	019S	001W	PRATT, A.R., & CALLAGHAN, E., 1970.	PETERSON, DAVID, 1992.
227 Tf	94.9	4.6	–	–	–	–	–	–	–	–	–	–	42.6	1.6	4324410	473060	13	020S	005E	PRATT, A.R., & CALLAGHAN, E., 1970.	SANCHEZ, J.D., AND HAYES, P.T., 1979.
228 Tf	91.0	6.5	1.0	–	–	–	–	–	–	–	–	–	43.8	2.0	4321300	433200	26	020S	001E	PRATT, A.R., & CALLAGHAN, E., 1970.	WITKIND, I.J., 1981.
229 Tf	97.0	1.7	1.0	–	–	–	–	–	–	–	–	–	43.7	1.0	4320450	432890	26	020S	001E	PRATT, A.R., & CALLAGHAN, E., 1970.	WITKIND, I.J., 1981.
230 Cd	98.08	0.6	0.9	0.3	–	–	–	–	–	–	–	0.006	–	–	4315550	333700	24	021S	010W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
231 Cd	98.08	0.6	0.9	0.3	–	–	–	–	–	–	–	0.006	–	–	4315100	334630	19	021S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
232 Cd	98.08	0.6	0.9	0.3	–	–	–	–	–	–	–	0.006	–	–	4315010	335000	19	021S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
233 Cd	95.4	2.9	1.21	–	–	0.5	–	–	–	–	–	–	–	–	4314900	334880	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
234 Cd	97.5	1.7	0.7	–	–	0.3	–	–	–	–	–	–	–	–	4314840	335020	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
235 Cd	99.36	0.84	0.81	0.19	0.07	–	0.02	0.06	0.003	<0.001	<0.01	–	43.06	–	4314820	335000	19	021S	009W	TRIPP, B.T., SAMPLED 02/2000.	HINTZE, L.F., 1984.
236 Cd	96.7	2.1	0.9	–	–	0.5	–	–	–	–	–	–	–	–	4314810	335010	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
237 Cd	96.1	2.3	1.0	–	–	0.6	–	–	–	–	–	–	–	–	4314800	335000	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
238 Cd	96.7	2.7	0.9	–	–	0.4	–	–	–	–	–	–	–	–	4314620	334890	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
239 Cd	97.5	2.5	0.8	–	–	0.2	–	–	–	–	–	–	–	–	4314620	334920	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
240 Cd	97.0	2.3	0.7	–	–	0.4	–	–	–	–	–	–	–	–	4314620	334950	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
241 Cd	96.7	2.7	0.8	–	–	0.5	–	–	–	–	–	–	–	–	4314610	334890	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.

Label		$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
242	Cd	95.9	2.9	1.0	–	–	0.4	–	–	–	–	–	–	–	–	4314610	334910	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
243	Cd	96.7	2.0	0.9	–	–	0.3	–	–	–	–	–	–	–	–	4314610	334940	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
244	Cd	95.9	2.9	1.0	–	–	0.4	–	–	–	–	–	–	–	–	4314590	334890	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
245	Cd	97.4	2.1	0.8	–	–	0.5	–	–	–	–	–	–	–	–	4314590	334920	19	021S	009W	GIN, T.T., 1958.	HINTZE, L.F., 1984.
246	Cho	96.3	3.1	0.8	0.3	–	–	–	–	–	–	–	0.005	–	–	4311730	332370	35	021S	010W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
247	Cww	95.2	3.1	0.7	0.2	–	–	–	–	–	–	–	0.007	–	–	4308410	335670	08	022S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
248	Cww	98.1	0.8	0.7	0.3	–	–	–	–	–	–	–	0.003	–	–	4307460	336450	17	022S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
249	Cww	98.1	0.8	0.7	0.3	–	–	–	–	–	–	–	0.003	–	–	4307180	336420	17	022S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
250	Cww	98.1	0.8	0.7	0.3	–	–	–	–	–	–	–	0.003	–	–	4306920	336500	17	022S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
251	Cww	98.1	0.8	0.7	0.3	–	–	–	–	–	–	–	0.003	–	–	4306510	336450	17	022S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
252	Cww	98.1	0.8	0.7	0.3	–	–	–	–	–	–	–	0.003	–	–	4306130	336500	20	022S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
253	Cww	97.0	1.3	0.8	0.4	–	–	–	–	–	–	–	–	–	–	4303500	337980	28	022S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
254	Jc	92.54	1.67	5.09	0.78	0.44	–	0.10	0.28	0.034	0.039	0.02	–	40.70	–	4301300	505250	32	022S	009E	GERWE, S., SAMPLED 09/2000.	WILLIAMS, P.L., 1972.
255	Cww	97.5	0.8	1.0	0.2	–	–	–	–	–	–	–	0.003	–	–	4301250	337620	04	023S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
256	Cww	97.4	1.0	0.9	0.2	–	–	–	–	–	–	–	0.004	–	–	4301100	332970	01	023S	010W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
257	Cww	97.5	0.8	1.0	0.2	–	–	–	–	–	–	–	0.003	–	–	4301040	337450	04	023S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
258	Cww	97.4	1.0	0.9	0.2	–	–	–	–	–	–	–	0.004	–	–	4300960	332570	01	023S	010W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
259	Cww	97.9	0.2	0.8	0.1	–	–	–	–	–	–	–	0.006	–	–	4300620	337380	04	023S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
260	Cww	96.8	1.5	1.0	0.4	–	–	–	–	–	–	–	0.003	–	–	4300100	337420	04	023S	009W	U.S. STEEL (USX), 1950.	HINTZE, L.F., 1984.
261	Tgr	97.69	2.30	1.89	0.44	0.23	–	0.03	0.19	0.02	0.03	< 0.03	<0.02	41.58	–	4294930	405820	13	023S	003W	WILLIS, G.C., 1994.	WILLIS, G.C., 1994.
262	Tgr	95.21	5.81	1.94	0.33	0.24	–	0.05	<0.05	0.02	0.02	< 0.03	0.04	41.50	–	4294110	405350	23	023S	003W	WILLIS, G.C., 1994.	WILLIS, G.C., 1994.
263	Jc	89.04	1.02	6.22	0.99	0.09	–	0.04	0.38	<0.01	<0.01	<0.01	–	39.76	–	4284480	494190	19	024S	008E	NEUMANN, T.R., 1989.	CONDON, W.H., 1953.
264	Co	94.6	5.0	1.00	0.11	0.13	–	<0.01	0.28	<0.01	0.02	0.04	–	42.5	–	4283100	273270	02	025S	016W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.
265	Jk	85.64	2.65	7.38	0.95	0.26	–	0.11	0.11	0.03	0.04	<0.01	–	41.87	–	4282250	537790	26	024S	012E	MUNTS, S.R., 1989.	HEMPHILL, W.R., 1963.
266	Cww	96.2	3.05	1.02	0.30	0.13	–	<0.01	0.32	<0.01	0.02	0.06	–	42.3	–	4278780	273290	23	025S	016W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.
267	Cpc	94.0	5.38	0.74	0.20	0.11	–	<0.01	0.25	<0.01	0.01	0.02	–	43.0	–	4277800	271490	22	025S	016W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.
268	Cpc	86.9	12.1	0.91	0.24	0.12	–	<0.01	0.24	<0.01	0.02	0.04	–	43.4	–	4273880	273100	02	026S	016W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.
269	Ct	86.2	12.0	2.01	0.35	0.17	–	<0.0	0.35	<0.01	0.02	0.05	–	42.7	–	4271900	274280	12	026S	016W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
270	Cww	91.0	6.32	2.51	0.55	0.23	–	<0.01	0.49	0.01	0.03	0.03	–	41.5	–	4271500	275810	07	026S	015W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.
271	Cww	95.5	4.35	1.08	0.20	0.10	–	<0.01	0.26	<0.01	0.02	<0.01	–	42.8	–	4271400	276620	08	026S	015W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.
272	Co	92.3	1.95	6.64	0.55	0.27	–	<0.01	0.50	0.04	0.04	0.14	–	39.5	–	4268600	279060	21	026S	015W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.
273	Co	94.2	6.42	1.67	0.27	0.16	–	<0.01	0.20	0.01	0.01	0.04	–	42.1	–	4268010	279350	21	026S	015W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.
274	Cww	91.6	3.85	2.21	0.13	0.51	–	<0.01	0.38	0.01	0.02	0.03	–	41.6	–	4267990	276130	19	026S	015W	BROWN, S.D., 1987.	HINTZE, L.F., 1974b.
275	Cen	96.7	1.11	2.7	0.19	0.06	–	–	–	–	–	<0.01	<0.05	–	–	4265300	273400	36	026S	016W	EVERTS, M.E, UGS SAMPLE 6/1980.	HINTZE, L.F., 1974b.
276	PAL	86.2	12.69	–	–	–	–	–	–	–	–	–	–	–	–	4258200	319710	22	027S	011W	TRIPP, B.T., SAMPLED 3/1990.	BEST, M.G., AND OTHERS, 1989.
277	Trm	89.2	2.07	–	–	–	–	–	–	–	–	–	–	–	–	4249360	314250	18	028S	011W	TRIPP, B.T., SAMPLED 3/1990.	BEST, M.G., AND OTHERS, 1989.
278	Trm	88.6	4.16	–	–	-	–	–	–	–	–	–	–	–	–	4249360	314250	18	028S	011W	TRIPP, B.T., SAMPLED 3/1990.	BEST, M.G., AND OTHERS, 1989.
279	Pk	91.1	3.9	–	–	–	–	–	–	–	–	–	–	–	–	4249020	313730	18	028S	011W	TRIPP, B.T., SAMPLED 3/1990.	BEST, M.G., AND OTHERS, 1989.
280	Pk	91.7	5.00	–	–	–	–	–	–	–	–	–	–	–	–	4248600	314900	17	028S	011W	TRIPP, B.T., SAMPLED 3/1990.	BEST, M.G., AND OTHERS, 1989.
281	Mrs	94.2	0.77	–	–	–	–	–	–	–	–	–	–	–	–	4244490	312460	36	028S	012W	TRIPP, B.T., SAMPLED 3/1990.	BEST, M.G., AND OTHERS, 1989.
282	Mrs	84.7	1.02	–	–	–	–	–	–	–	–	–	–	–	–	4244490	312600	36	028S	012W	TRIPP, B.T., SAMPLED 3/1990.	BEST, M.G., AND OTHERS, 1989.
283	Mgb	80.9	9.22	–	–	–	–	–	–	–	–	–	–	–	–	4242280	298380	09	029S	013W	TRIPP, B.T., SAMPLED 3/1990.	HAYMOND, D.E., 1981.
284	Mgb	72.9	16.4	–	–	–	–	–	–	–	–	–	–	–	–	4242200	298360	09	029S	013W	TRIPP, B.T., SAMPLED 3/1990.	HAYMOND, D.E., 1981.
285	Mgb	89.9	1.69	–	–	–	–	–	–	–	–	–	–	–	–	4242170	298350	09	029S	013W	TRIPP, B.T., SAMPLED 3/1990.	HAYMOND, D.E., 1981.
286	Mgb	88.4	0.77	–	–	–	–	–	–	–	–	–	–	–	–	4242150	298290	09	029S	013W	TRIPP, B.T., SAMPLED 3/1990.	HAYMOND, D.E., 1981.
287	Mgb	89.9	0.81	–	–	–	–	–	–	–	–	–	–	–	–	4242060	298290	09	029S	013W	TRIPP, B.T., SAMPLED 3/1990.	HAYMOND, D.E., 1981.
288	Trc	96.3	1.55	2.7	0.6	0.48	–	0.09	0.15	0.01	0.02	0.02	–	42.25	–	4240190	474520	08	029S	006E	SMITH, J.F. AND OTHERS, 1963.	SMITH, J.F. AND OTHERS, 1963.
289	Cd	88.9	8.46	–	–	–	–	–	–	–	–	–	–	–	–	4226120	290630	35	030S	014W	TRIPP, B.T., SAMPLED 3/1990.	WEAVER, C.L., 1980.
290	Cd	89.9	7.14	–	–	–	–	–	–	–	–	–	–	–	–	4226090	290660	35	030S	014W	TRIPP, B.T., SAMPLED 3/1990.	WEAVER, C.L., 1980.

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
291	Cd	91.4	4.58	–	–	–	–	–	–	–	–	–	–	–	1.81	4226050	290680	35	030S	014W	TRIPP, B.T., SAMPLED 3/1990.	WEAVER, C.L., 1980.
292	Cpc	87.9	7.14	–	–	–	–	–	–	–	–	–	–	–	–	4224280	291590	01	031S	014W	TRIPP, B.T., SAMPLED 3/1990.	WEAVER, C.L., 1980.
293	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	4.99	4193410	409320	32	033S	002W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
294	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	3.11	4193400	415680	36	033S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
295	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	5.64	4192840	415780	01	034S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
296	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	8.91	4191030	406700	12	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
297	Tcl	–	–	2.53	–	–	–	–	–	–	–	–	–	–	7.28	4191030	406700	12	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
298	Tcl	–	–	2.95	–	–	–	–	–	–	–	–	–	–	5.54	4190640	406240	12	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
299	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	7.40	4190640	406240	12	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
300	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	3.62	4189500	405050	14	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
301	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	8.11	4189360	404400	14	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
302	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	4.47	4189290	405250	14	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
303	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	6.57	4189290	405250	14	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
304	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	6.24	4188320	403880	23	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
305	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	6.61	4187810	403210	22	034S	003W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.
306	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	9.15	4187700	422600	22	034S	01W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
307	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	6.72	4187080	422390	22	034S	001W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
308	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	4.72	4185100	422290	34	034S	001W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
309	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	1.73	4180350	408670	17	035S	002W	HODGSON, D.L., 1974.	ROWLEY, P.D., AND OTHERS, 1987.

Label		$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
310	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	5.69	4177360	422520	00	035S	001W	HODGSON, D.L., 1974.	BOWERS, W.E., 1973.
311	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	2.13	4173960	395000	02	036S	004W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
312	Tbh	–	–	–	–	–	–	–	–	–	–	–	–	–	2.68	4172550	361460	07	036S	006W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
313	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	5.64	4166560	368420	35	036S	006W	HODGSON, D.L., 1974.	KURLICH, R.A., III & ANDERSON, J.J., 1992.
314	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	3.70	4164500	371380	06	037S	005W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
315	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	4.06	4164150	429690	04	037S	001E	HODGSON, D.L., 1974.	BOWERS, W.E., 1981.
316	Tbh	–	–	–	–	–	–	–	–	–	–	–	–	–	6.91	4163920	370440	12	037S	006W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
317	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	3.01	4163630	429780	04	037S	001E	HODGSON, D.L., 1974.	BOWERS, W.E., 1981.
318	Tbh	–	–	–	–	–	–	–	–	–	–	–	–	–	5.10	4163300	369750	12	037S	006W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
319	Tbh	–	–	–	–	–	–	–	–	–	–	–	–	–	7.07	4163100	370410	12	037S	006W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
320	Tbh	–	–	–	–	–	–	–	–	–	–	–	–	–	4.07	4162970	370480	07	037S	005W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
321	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	5.07	4162500	385780	11	037S	4.5W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
322	Tbh	–	–	–	–	–	–	–	–	–	–	–	–	–	5.39	4161020	369600	13	037S	006W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
323	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	5.56	4160370	369900	24	037S	006W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
324	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	5.95	4159280	370300	24	037S	006W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
325	Tbh	–	–	–	–	–	–	–	–	–	–	–	–	–	4.17	4157080	355200	33	037S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., 1975.
326	Jc	86.8	3.5	6.0	1.4	0.55	–	–	–	0.015	0.001	0.05	–	40.0	–	4155000	309550	01	038S	012W	ZELTEN, J.E., 1987.	AVERITT, PAUL, 1967.
327	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	3.3	4154270	352040	07	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.
328	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	2.91	4152470	359650	13	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.
329	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	5.11	4152310	359180	14	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.
330	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	2.63	4152230	358110	14	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
331	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	3.53	4152100	359700	13	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.
332	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	2.16	4151550	356780	15	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.
333	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	2.70	4151510	357550	14	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.
334	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	2.21	4151500	358120	14	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.
335	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	3.95	4151300	359970	13	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.
336	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	6.58	4151210	357010	22	038S	007W	HODGSON, D.L., 1974.	DOELLING, H.H., and DAVIS, F.D.,1989.
337	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	2.56	4151120	357950	23	038S	007W	HODGSON, D.L., 1974.	CASHION, W.B., JR., 1967.
338	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	3.00	4150810	357890	23	038S	007W	HODGSON, D.L., 1974.	CASHION, W.B., JR., 1967.
339	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	1.88	4150460	356990	22	038S	007W	HODGSON, D.L., 1974.	CASHION, W.B., JR., 1967.
340	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	2.66	4150400	357100	22	038S	007W	HODGSON, D.L., 1974.	CASHION, W.B., JR., 1967.
341	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	4.04	4150350	357450	22	038S	007W	HODGSON, D.L., 1974.	CASHION, W.B., JR., 1967.
342	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	3.86	4149330	355800	28	038S	007W	HODGSON, D.L., 1974.	CASHION, W.B., JR., 1967.
343	Jc	88.9	1.8	5.5	1.6	0.55	–	–	–	0.013	0.012	0.04	–	40.4	–	4148150	313300	20	038S	011W	ZELTEN, J.E., 1987.	DOELLING, H.H. AND GRAHAM, R.L., 1972.
344	Jc	86.7	1.9	8.0	1.1	0.86	–	–	–	0.047	0.008	0.04	–	39.3	–	4146250	313900	28	038S	011W	ZELTEN, J.E., 1987.	DOELLING, H.H. AND GRAHAM, R.L., 1972.
345	Tcl	–	–	–	–	–	–	–	–	–	–	–	–	–	4.24	4144380	350460	12	039S	008W	HODGSON, D.L., 1974.	CASHION, W.B., JR., 1967.
346	Jc	88.4	1.6	4.1	1.0	0.38	–	–	–	0.012	0.0008	0.02	–	41.3	–	4138080	323410	31	039S	010W	ZELTEN, J.E., 1987.	SABLE, E.G. & HERE-FORD, RICHARD, 1989.
347	Pht	91.0	2.7	–	–	–	–	–	–	–	–	–	–	–	–	4128850	575200	16	040S	016E	KIERSCH, G.A., 1955.	MARSHALL, C.H., 1955.
348	Pht	87.8	2.7	–	–	–	–	–	–	–	–	–	–	–	–	4128850	575200	16	040S	016E	KIERSCH, G.A., 1955.	MARSHALL, C.H., 1955.
349	Pht	88.0	2.7	–	–	–	–	–	–	–	–	–	–	–	–	4128850	575200	16	040S	016E	KIERSCH, G.A., 1955.	MARSHALL, C.H., 1955.

	Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
350	Jc	–	–	–	–	–	–	–	–	–	–	–	–	–	5.56	4128100	365100	33	040S	006W	HODGSON, D.L., 1974.	SABLE, E.G. & HERE-FORD, RICHARD, 1989.
351	Jc	–	–	–	–	–	–	–	–	–	–	–	–	–	9.94	4127900	377880	35	040S	005W	HODGSON, D.L., 1974.	SABLE, E.G. & HERE-FORD, RICHARD, 1989.
352	Jc	–	–	–	–	–	–	–	–	–	–	–	–	–	8.17	4126600	361710	06	041S	006W	HODGSON, D.L., 1974.	SABLE, E.G. & HERE-FORD, RICHARD, 1989.
353	Jc	–	–	–	–	–	–	–	–	–	–	–	–	–	5.65	4124700	378000	11	041S	005W	HODGSON, D.L., 1974.	SABLE, E.G. & HERE-FORD, RICHARD, 1989.
354	Jc	90.7	1.2	4.93	0.79	0.77	–	0.14	0.38	0.10	0.060	0.05	–	40.71	–	4122710	275450	15	041S	015W	WOOD, R.H., II, 1987.	COOK, E.F., 1960.
355	Jc	–	–	–	–	–	–	–	–	–	–	–	–	–	9.70	4121310	349520	24	041S	008W	HODGSON, D.L., 1974.	SABLE, E.G. & HERE-FORD, RICHARD, 1989.
356	Jc	–	–	–	–	–	–	–	–	–	–	–	–	–	3.29	4121190	350650	24	041S	008W	HODGSON, D.L., 1974.	SABLE, E.G. & HERE-FORD, RICHARD, 1989.
357	Jc	87.1	3.2	5.4	0.67	0.28	–	–	–	0.19	0.0002	0.02	–	41.4	–	4120800	337930	27	041S	009W	ZELTEN, J.E., 1987.	SABLE, E.G. & HERE-FORD, RICHARD, 1989.
358	Jc	86.9	3.0	7.3	0.99	0.75	–	–	–	0.45	0.0003	0.04	–	40.2	–	4117610	342300	31	041S	008W	ZELTEN, J.E., 1987.	SABLE, E.G. & HERE-FORD, RICHARD, 1989.
359	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	5.58	4117110	413520	36	041S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
360	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	7.92	4116130	412880	02	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
361	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	9.24	4114960	411680	11	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
362	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	7.29	4114410	410890	10	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
363	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	3.40	4112770	409300	16	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
364	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	7.23	4110210	405040	25	042S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
365	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	7.91	4109570	406800	30	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
366	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	7.02	4109560	406240	30	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
367	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	6.88	4109360	407780	29	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
368	Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	6.96	4109200	404980	25	042S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.

Label	$CaCO_3$	$MgCO_3$	SiO_2	Al_2O_3	Fe_2O_3	R_2O_3	Na_2O	K_2O	MnO	TiO_2	P_2O_5	S	LOI	Insol	Utm N	Utm E	SEC	TWN	RNG	Data Source	Geologic Map Coverage
369 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	5.67	4109190	406590	30	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
370 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	4.50	4109130	404100	25	042S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
371 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	5.71	4108990	404580	25	042S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
372 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	7.59	4108610	407740	32	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
373 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	9.13	4108400	402550	35	042S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
374 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	6.50	4108150	407590	32	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
375 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	6.36	4108040	407520	32	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
376 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	4.82	4108040	407550	32	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
377 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	9.37	4108020	402850	35	042S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
378 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	6.50	4107810	401770	34	042S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
379 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	6.79	4107630	401550	34	042S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
380 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	7.16	4107590	406970	32	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
381 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	9.06	4107480	407570	32	042S	002W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
382 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	8.57	4107010	401340	03	043S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
383 Mrw	99.40	0.69	0.70	0.09	0.07	–	0.03	0.02	0.04	<0.001	–	0.02	43.13	0.7	4106975	249230	01	043S	018W	TRIPP, B.T., & BLACK-ETT, R.E., SAMPLED 04/2000.	HINTZE, L.F., 1985.
384 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	7.66	4106380	404580	01	043S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
385 Pht	92.1	0.16	–	–	–	–	–	–	–	–	–	–	–	–	4105400	592500	32	042S	0018E	KIERSCH, G.A., 1955.	HAYNES, D.D., AND OTHERS, 1972.
386 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	8.87	4098220	397520	32	043S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.
387 Trm	–	–	–	–	–	–	–	–	–	–	–	–	–	9.39	4097020	398460	05	044S	003W	HODGSON, D.L., 1974.	DOELLING, H.H., AND DAVIS, F.D., 1989.

Appendix C

Detailed limestone analytical data: sample location, major oxide chemical analyses (in percent), topographic and geologic map coverage, source of data, sample descriptions, and associated notes for selected analyzed limestones. Each paragraph describes one analyzed sample; sample locations are plotted on plate 1 and an abridged edition of this data is included in appendix B. Total iron content is reported as Fe2O3. Analytical results reported are sometimes an average of several samples collected through drilling or along a measured section; the average is weighted by the thickness of the strata that the sample represents. (Abbreviations used: T. = Salt Lake Base and Meridian township, R. = Salt Lake Base and Meridian range, SEC. = Salt Lake Base and Meridian section, UTM.N = Universal Transverse Mercator northing coordinant, NAD27 (meters), UTM.E = Universal Transverse Mercator easting coordinant, NAD27 (meters), UTM.Z = Universal Transverse Mercator zone. Acid Insols. = minerals not soluble in dilute hydrochloric acid, (including quartz and clay minerals) in percent. R2O3 = combined, total Al2O3 and Fe2O3. LOI = loss on ignition.

No. 1 OCsc T.= 014N R.= 004E SEC.= SW1/4NE1/4NE1/4 SECTION 01 UTM.N= 4648600 UTM.E= 463350 UTM.Z= +12 Topo. Map = GARDEN CITY
$CaCO_3$=90.14 $MgCO_3$=0.98 SiO_2 =7.48 Al_2O_3=1.27 Fe_2O_3=0.26 K_2O=0.53 Na_2O= MnO= TiO_2= P_2O_5= LOI=39.75
Data Source = KALISER, 1969. Geol. Map = DOVER, 1995.
Notes: LIMESTONE, MEDIUM LIGHT GREY (N6), WEATHERS TO LIGHT GREY, MASSIVE, FINE GRAINED, TAN CALCITE VEINS, STRONGLY EFFERVESCENT. LOCATION IS APPROXIMATE, KALISER GIVES LOCATION SIMPLY AS ST. CHARLES LS. ALONG SWAN CREEK. KALISER SAMPLE NUMBER .

No. 2 Ogc T.= 014N R.= 004E SEC.= NW1/4SW1/4NW1/4 SECTION 01 UTM.N= 4648500 UTM.E= 462250 UTM.Z= +12 Topo. Map = GARDEN CITY
$CaCO_3$=89.21 $MgCO_3$=1.09 SiO_2=4.36 Al_2O_3=0.80 Fe_2O_3=0.28 K_2O=0.38 Na_2O= MnO= TiO_2= P_2O_5= LOI =42.29
Data Source = KALISER, 1969. Geol. Map = DOVER, 1995.
Notes: LIMESTONE, MEDIUM LIGHT GREY (N6) TO MEDIUM GREY (N5), WEATHERS TO LIGHT MEDIUM GREY AND TAN, THIN TO THICK BEDDED, FINE GRAINED, STRONGLY EFFERVESCENT. LOCATION IS APPROXIMATE, KALISER GAVE LOCATION SIMPLY AS GARDEN CITY LS. ALONG SWAN CREEK. KALISER SAMPLE NUMBER 9.

No. 3 Dh T.= 015N R.= 004W SEC.= SE1/4 SECTION 11 UTM.N= 4646000 UTM.E= 394430 UTM.Z= +12 Topo. Map = LIMEKILN KNOLL
$CaCO_3$=96.4 $MgCO_3$=2.2 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = MURPHY AND OTHERS, 1985.
Notes: SAMPLE FROM PORTAGE CANYON SECTION, UNIT 1. LIMESTONE, YELLOWISH GREY (5Y 8/1) TO MEDIUM LIGHT GREY (N6), THIN BEDDED TO MASSIVE, WEATHERS IN 10 FT LEDGES, CONTORTED IN UPPER PART, BASE IS UNDERLAIN BY A SANDSTONE BRECCIA, FOSSIL FRAGMENTS PRESENT. ACID INSOLS. = 2.4. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 4 Dh T.= 015N R.= 004W SEC.= SE1/4 SECTION 11 UTM.N= 4646000 UTM.E= 394430 UTM.Z= +12 Topo. Map = LIMEKILN KNOLL
$CaCO_3$=98.0 $MgCO_3$=1.4 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source =ELIASON, 1969. Geol. Map = MURPHY AND OTHERS, 1985.
Notes: SAMPLE FROM PORTAGE CANYON SECTION, UNIT 2-2. ARENACEOUS CALCITIC DOLOMITE, MEDIUM GREY (N5), THIN TO THICK BEDDED, VERY FINELY CRYSTALLINE, SOME SILTY BEDS, EXTREMELY FOSSILIFEROUS. ACID INSOLS. = 3.4. UNIT IS 90 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 5 Dh T.= 015N R.= 004W SEC.= SE1/4 SECTION 11 UTM.N= 4646000 UTM.E= 394430 UTM.Z= +12 Topo. Map = LIMEKILN KNOLL
$CaCO_3$=95.8 $MgCO_3$=2.9 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = MURPHY AND OTHERS, 1985.
Notes: SAMPLE IS FROM PORTAGE CANYON SECTION, UNIT 6-2. CALCITIC DOLOMITE, MEDIUM GREY (N5) TO MEDIUM LIGHT GREY (N6), THIN TO MEDIUM BEDDED, FINELY CRYSTALLINE, MOSTLY COVERED. ACID INSOLS. = 3.5. UNIT IS 65 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 6 Ogc T.= 014N R.= 003W SEC.= 14 UTM.N= 4644630 UTM.E= 404810 UTM.Z= +12 Topo. Map = Portage
$CaCO_3$= 94.5 $MgCO_3$= 1.5 SiO_2= 4.3 Al_2O_3= 0.68 Fe_2O_3= 0.42 K_2O= Na_2O= MnO= TiO_2= P_2O_5= 0.1 LOI=
Trace Elements (IN PERCENT): S <0.05.
Data Source = TRIPP AND OVIATT, SAMPLED 1984. Geol. Map = BIEK AND OTHERS, 2003.
Notes:

No. 7 Pw T.= 013N R.= 006E SEC.= NW1/4NW1/4SE1/4 SECTION 32 UTM.N= 4629930 UTM.E= 475800 UTM.Z= +12 Topo. Map = LAKETOWN
$CaCO_3$=93.63 $MgCO_3$=0.84 SiO_2=1.18 Al_2O_3=0.20 Fe_2O_3=0.07 K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=43.77
Data Source = KALISER, 1969. Geol. Map = VALENTI, 1982.
Notes: LIMESTONE (SAMPLE NO. 2), MEDIUM DARK GREY (N 4), WEATHERS TO MEDIUM GREY, MEDIUM GRAINED, MOSTLY MEDIUM BEDDED, WHITE CALCITE VEINS, STRONGLY EFFERVESCENT. LOCATION IS NOT PRECISE, KALISER (1969) LISTS LOCATION AS THE WELLS FORMATION EAST OF LAKETOWN.

No. 8 Ml T.= 012N R.= 006E SEC.= NE1/4SE1/4NW1/4 SECTION 09 UTM.N= 4627000 UTM.E= 477170 UTM.Z= +12 Topo. Map = LAKETOWN
$CaCO_3$=91.0 $MgCO_3$=1.36 SiO_2=3.5 Al_2O_3=0.42 Fe_2O_3=0.19 K_2O= Na_2O= MnO= TiO_2= P_2O_5=0.09 LOI=
Trace Elements (IN PERCENT): S <0.05.
Data Source = TRIPP, SAMPLED 05/1980. Geol. Map = VALENTI, 1982.
Notes: SAMPLE TAKEN FROM FLOAT NEAR LAKEVIEW MANGANESE CLAIMS. SAMPLE 033-LT-002.

No. 9 Db T.= 012N R.= 006E SEC.= NW1/4 SECTION 17 UTM.N= 4625500 UTM.E= 475400 UTM.Z= +12 Topo. Map = LAKETOWN
$CaCO_3$=89.8 $MgCO_3$=2.3 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = VALENTI, 1982. Notes: SAMPLE IS FROM LAKETOWN CANYON SECTION, UNIT 20. MAGNESIAN LIMESTONE, LIGHT OLIVE GREY, (5Y 6/1), THICK BEDDED TO MASSIVE, UNIT IS COMPLETE BRECCIATED. ACID INSOLS. = 4.6. UNIT IS 63 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 10 Db T.= 012N R.= 006E SEC.= NW1/4 SECTION 17 UTM.N= 4625500 UTM.E= 475400 UTM.Z= +12 Topo. Map = LAKETOWN
$CaCO_3$=90.5 $MgCO_3$=1.4 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = VALENTI, 1982.
Notes: SAMPLE WAS TAKEN FROM LAKETOWN CANYON SECTION, UNIT 24. LIMESTONE, VERY LIGHT OLIVE GREY (5Y 6/1), LAMINATED TO THIN BEDDED, VERY FINELY CRYSTALLINE, RIPPLE MARKS AND HALITE CASTS PRESENT. ACID INSOLS. = 7.1. UNIT IS 7 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 11 Tgr T.= 012N R.= 006E SEC.= NE1/4SE1/4NW1/4 SECTION 13 UTM.N= 4625390 UTM.E= 482090 UTM.Z= +12 Topo. Map = SAGE CREEK
$CaCO_3$=94.7 $MgCO_3$=1.00 SiO_2=0.4 Al_2O_3=0.13 Fe_2O_3=0.06 K_2O= Na_2O= MnO= TiO_2= P_2O_5=0.06 LOI=
Trace Elements (IN PERCENT): S < 0.05.
Data Source = TRIPP, SAMPLED 06/1980. Geol. Map = DOVER, 1995.
Notes: SAMPLE FROM FOSSILIFEROUS LIMESTONE THAT FORMS A RESISTANT KNOLL. SAMPLE NUMBER 033-SC-005.

No. 12 Dh T.= 012N R.= 002E SEC.= NW1/4 SECTION 23 UTM.N= 4624000 UTM.E= 442200 UTM.Z= +12 Topo. Map = MT. ELMER
$CaCO_3$=94.5 $MgCO_3$=5.6 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = DOVER AND BIGSBY, 1983.
Notes: SAMPLE FROM LOGAN CANYON SECTION, UNIT 1-1. DOLOMITIC LIMESTONE, MEDIUM DARK GREY (N4), WEATHERS LIGHT OLIVE GREY (5Y 6/1), MEDIUM BEDDED TO THICK BEDDED, VERY FINELY CRYSTALLINE, FOSSILS PRESENT. ACID INSOLS. = 2.3. UNIT IS 26 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 13 Db T.= 012N R.= 002E SEC.= NW1/4 SECTION 24 UTM.N= 4624000 UTM.E= 443600 UTM.Z= +12 Topo. Map = MT. ELMER
$CaCO_3$=94.8 $MgCO_3$=1.9 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = DOVER AND BIGSBY, 1983.
Notes: SAMPLE FROM LOGAN CANYON SECTION, UNIT 29. ARENACEOUS CALCITIC DOLOMITE, MEDIUM LIGHT GREY (N6), WEATHERS YELLOWISH GREY (5Y 8/1), LAMINATED TO THIN BEDDED, FINELY CRYSTALLINE, FEW OUTCROPS. ACID INSOLS. = 4.0. UNIT IS 151 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 14 Db T.= 012N R.= 002E SEC.= NW1/4 SECTION 24 UTM.N= 4624000 UTM.E= 443600 UTM.Z= +12 Topo. Map = MT. ELMER
$CaCO_3$=97.4 $MgCO_3$=1.5 SiO_2= Al2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = DOVER AND BIGSBY, 1983.
Notes: SAMPLE IS FROM LOGAN CANYON SECTION, UNIT 31. LIMESTONE, MEDIUM LIGHT GREY (N6), LAMINATED TO MEDIUM BEDDED, FINELY CRYSTALLINE, LAMINATED BEDS ARE CONTORTED, SOME BRECCIA. ACID INSOLS. = 1.2. UNIT IS 84 FT THICK. LOCATION IS ACCURATE ONLY TO 1/4 SECTION.

No. 15 Mb T.= 011N R.= 002E SEC.= UTM.N= 4615350 UTM.E= 438750 UTM.Z= +12 Topo. Map = LOGAN PEAK
$CaCO_3$=89.8 $MgCO_3$=1.02 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = DOVER, 1995.
Notes: CALCIUM CARBONATE VALUE IS AN AVERAGE OF ASSAYS OF SPLITS OF THE SAME SAMPLE: 89.6 AND 91 CACO3. SAMPLE T-1.

No. 16 Dh T.= 010N R.= 001E SEC.= SE1/4 SECTION 01 UTM.N= 4609000 UTM.E= 435000 UTM.Z= +12 Topo. Map = LOGAN
$CaCO_3$=96.4 $MgCO_3$=0.8 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = EVANS AND OTHERS, 1991.
Notes: SAMPLE FROM BLACKSMITH FORK CANYON SECTION, UNIT 18 1. LIMESTONE, MEDIUM DARK GREY (N4), WEATHERS YELLOWISH GREY (5Y 8/1), MASSIVE BEDS INTERBEDDED WITH THIN BEDS, FINELY CRYSTALLINE. SIX MASSIVE BEDS FROM 1 10 FT THICK INTERBEDDED WITH LIGHT GREY SILTY DOLOMITIC LIMESTONE, HALITE CASTS, RIPPLE MARKS, SUN CRACKS, AND SOME OOLITIC TEXTURE, BRECCIA COMMON. ACID INSOLS. = 1.9. UNIT IS 134 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 17 Dh T.= 010N R.= 001E SEC.= SE1/4 SECTION 01 UTM.N= 4609000 UTM.E= 435000 UTM.Z= +12 Topo. Map = LOGAN
$CaCO_3$=99.1 $MgCO_3$=0.9 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = EVANS AND OTHERS, 1991.
Notes: SAMPLE WAS TAKEN FROM BLACKSMITH FORK CANYON SECTION, UNIT 14 1. CALCITIC DOLOMITE, SOME OF THE CARBONATE BEDS ARE LIMESTONE. SOME INTERBEDS ARE SILTY LIMESTONE. ACID INSOLS. = 1.1. UNIT IS 92 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 18 Dh T.= 010N R.= 001E SEC.= SE1/4 SECTION 01 UTM.N= 4609000 UTM.E= 435000 UTM.Z= +12 Topo. Map = LOGAN
$CaCO_3$=97.4 $MgCO_3$=1.0 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = EVANS AND OTHERS, 1991.

Notes: SAMPLE FROM BLACKSMITH FORK CANYON SECTION, UNIT 16 3. DOLOMITIC LIMESTONE, MEDIUM DARK GREY (N4), WEATHERS MEDIUM LIGHT GREY (N6), MEDIUM BEDDED TO LAMINATED, FINELY CRYSTALLINE. SEVERAL BEDS OF DARK GREY, MEDIUM CRYSTALLINE DOLOMITE. SOME THIN BEDS OF SANDY LIMESTONE CONTAIN CONSIDERABLE BRECCIA THROUGHOUT. CLIFFS WEATHER ROUNDED. ACID INSOLS. = 1.2. UNIT IS 95 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 19 Dh T.= 012N R.= 002E SEC.= NW1/4 SECTION 23 UTM.N= 4623810 UTM.E= 442180 UTM.Z= +12 Topo. Map = MT. ELMER
$CaCO_3$=99.1 $MgCO_3$=1.8 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = DOVER AND BIGSBY, 1983.
Notes: SAMPLE FROM UNIT 19. CALCITIC DOLOMITE, MEDIUM LIGHT GREY (N6), THIN BEDDED TO MASSIVE BEDDED, VERY FINELY CRYSTALLINE, LOWER 60 FT COVERED, FORMS STEEP SLOPES. ACID INSOLS. = 2.0. UNIT IS 42 FT THICK. LOCATION IS ACCURATE ONLY TO 1/4 SECTION.

No. 20 Dh T.= 010N R.= 001E SEC.= SE1/4 SECTION 01 UTM.N= 4609000 UTM.E= 435000 UTM.Z= +12 Topo. Map = LOGAN
$CaCO_3$=97.4 $MgCO_3$=0.9 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = EVANS AND OTHERS, 1991.
Notes: SAMPLE TAKEN FROM BLACKSMITH FORK CANYON SECTION, UNIT 1. LIMESTONE, MASSIVE BEDDED, MEDIUM CRYSTALLINE. ACID INSOLS. = 1.6. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 21 Dh T.= 010N R.= 001E SEC.= SE1/4 SECTION 01 UTM.N= 4609000 UTM.E= 435000 UTM.Z= +12 Topo. Map = LOGAN
$CaCO_3$=92.1 $MgCO_3$=2.8 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = EVANS AND OTHERS, 1991.
Notes: SAMPLE FROM BLACKSMITH FORK CANYON SECTION, UNIT 14 2. CALCITIC DOLOMITE, SOME OF THE CARBONATE BEDS ARE LIMESTONE. SOME INTERBEDS ARE SILTY LIMESTONE. ACID INSOLS. = 6.1. UNIT IS 92 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 22 Dh T.= 010N R.= 001E SEC.= SE1/4 SECTION 01 UTM.N= 4609000 UTM.E= 435000 UTM.Z= +12 Topo. Map = LOGAN
$CaCO_3$=90.0 $MgCO_3$=8.1 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = EVANS AND OTHERS, 1991.
Notes: SAMPLE FROM BLACKSMITH FORK CANYON SECTION, UNIT 16 1. DOLOMITIC LIMESTONE, MEDIUM DARK GREY (N4), WEATHERS MEDIUM LIGHT GREY (N6), MEDIUM BEDDED TO LAMINATED, FINELY CRYSTALLINE, SEVERAL BEDS OF DARK GREY, MEDIUM CRYSTALLINE DOLOMITE, SOME THIN BEDS OF SANDY LIMESTONE CONTAIN CONSIDERABLE BRECCIA THROUGHOUT, CLIFFS WEATHER ROUNDED. ACID INSOLS. = 0.4. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 23 Db T.= 010N R.= 002E SEC.= NW1/4 SECTION 08 UTM.N= 4608000 UTM.E= 437300 UTM.Z= +12 Topo. Map = PARADISE
$CaCO_3$=98.0 $MgCO_3$=1.6 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = MULLENS AND IZETT, 1963.
Notes: SAMPLE IS FROM BLACKSMITH FORK CANYON SECTION, UNIT 28 1. LIMESTONE AND DOLOMITE INTERBEDDED, LIGHT GREY (N7), WEATHERS LIGHT OLIVE GREY (5Y 6/1), MEDIUM BEDDED TO THIN BEDDED, FINELY CRYSTALLINE, CONTAINS STRINGERS OF WHITE CHERT, SOME LAMINATED BEDS OF SILTSTONE, 10 FT BED OF GREENISH BLACK (5G 1/1) LIMESTONE AT TOP OF UNIT. ACID INSOLS. = 1.9. UNIT IS 135 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 24 Db T.= 010N R.= 002E SEC.= NW1/4 SECTION 08 UTM.N= 4608000 UTM.E= 437300 UTM.Z= +12 Topo. Map = PARADISE
$CaCO_3$=95.0 $MgCO_3$=1.5 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = ELIASON, 1969. Geol. Map = MULLENS AND IZETT, 1963.
Notes: SAMPLE FROM BLACKSMITH FORK CANYON SECTION, UNIT 30 2. LIMESTONE, INTERBEDDED WITH ARENACEOUS CALCITIC DOLOMITE. ACID INSOLS. = 1.9. UNIT IS 25 FT THICK. LOCATION IS ONLY ACCURATE TO 1/4 SECTION.

No. 25 Cu T.= 006N R.= 005W SEC.= NW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4567190 UTM.E= 379650 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.30 $MgCO_3$=5.75 SiO_2=1.80 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5523.

No. 26 Cu T.= 006N R.= 005W SEC.= NW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4567180 UTM.E= 379650 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=89.61 $MgCO_3$=5.39 SiO_2=2.15 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5522.

No. 27 Cu T.= 006N R.= 005W SEC.= NW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4567170 UTM.E= 379650 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.44 $MgCO_3$=4.97 SiO_2=1.95 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5521.

No. 28 Cu T.= 006N R.= 005W SEC.= NW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4567160 UTM.E= 379650 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=89.28 $MgCO_3$=4.49 SiO_2=2.95 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5520.

No. 29 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567150 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.71 $MgCO_3$=5.39 SiO_2=1.78 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5524.

No. 30 Cu T.= 006N R.= 005W SEC.= NW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4567150 UTM.E= 379650 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.39 $MgCO_3$=5.27 SiO_2=1.90 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5519.

No. 31 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567140 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=91.94 $MgCO_3$=5.02 SiO_2=1.18 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5525.

No. 32 Cu T.= 006N R.= 005W SEC.= NW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4567140 UTM.E= 379650 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=92.60 $MgCO_3$=5.02 SiO_2=0.92 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5518.

No. 33 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567130 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.76 $MgCO_3$=5.23 SiO_2=1.70 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5526.

No. 34 Cu T.= 006N R.= 005W SEC.= NW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4567130 UTM.E= 379650 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=91.53 $MgCO_3$=5.81 SiO_2=1.15 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5517.

No. 35 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567120 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.26 $MgCO_3$=4.01 SiO_2=2.75 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5527.

No. 36 Cu T.= 006N R.= 005W SEC.= NW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4567120 UTM.E= 379650 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.78 $MgCO_3$=5.33 SiO_2=1.78 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5516.

No. 37 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567110 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=89.41 $MgCO_3$=5.48 SiO_2=2.32 $Al2O_3$= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5528.

No. 38 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567100 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.21 $MgCO_3$=4.70 SiO_2=2.42 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5529.

No. 39 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567090 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=88.29 $MgCO_3$=6.48 SiO_2=2.85 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=

Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5530.

No. 40 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567085 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=91.01 $MgCO_3$=5.81 SiO_2=1.28 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5531.

No. 41 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567080 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.78 $MgCO_3$=6.44 SiO_2=1.02 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5532.

No. 42 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567070 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=92.67 $MgCO_3$=5.02 SiO_2=0.66 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5533.

No. 43 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567065 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=91.92 $MgCO_3$=5.68 SiO_2=0.76 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5534.

No. 44 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567060 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=92.28 $MgCO_3$=5.48 SiO_2=0.62 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5535.

No. 45 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567050 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=91.01 $MgCO_3$=6.58 SiO_2=0.70 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5536.

No. 46 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567040 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=90.44 $MgCO_3$=7.21 SiO_2=0.71 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5537.

No. 47 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567035 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=91.17 $MgCO_3$=7.32 SiO_2=0.22 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5538.

No. 48 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567030 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=91.85 $MgCO_3$=5.89 SiO_2=0.96 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5539.

No. 49 Cu T.= 006N R.= 005W SEC.= NE1/4NW1/4SW1/4 SECTION 17 UTM.N= 4567020 UTM.E= 379110 UTM.Z= +12 Topo. Map = PROMONTORY POINT
$CaCO_3$=91.71 $MgCO_3$=5.39 SiO_2=1.18 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = CRITTENDEN, 1988.
Notes: USX SAMPLE NUMBER PROMONTORY POINT 5540.

No. 50 Mgb T.= 006N R.= 009W SEC.= NE1/4NE1/4SW1/4 SECTION 21 UTM.N= 4564850 UTM.E= 342500 UTM.Z= +12 Topo. Map = STRONGS KNOB
$CaCO_3$=89.4 $MgCO_3$=2.7 SiO_2=6.6 Al_2O_3=0.5 Fe_2O_3=0.3 K_2O= Na_2O= MnO= TiO_2= P_2O_5=0.02 LOI=
Trace Elements (IN PERCENT): S $<$ 0.05, MOISTURE = 0.61.

Data Source = TRIPP, SAMPLED 05/1984. Geol. Map = DOELLING AND GRAHAM, 1972.
Notes: SAMPLE WAS TAKEN AT RANDOM FROM A CRUSHED STONE PILE. IT IS PROBABLY NOT REPRESENTATIVE OF THE BEST MATERIAL AVAILABLE AT THE QUARRY. SAMPLE NUMBER 10-05-84A

No. 51 Mh T.= 004N R.= 003E SEC.= SW1/4SW1/4SW1/4 SECTION 08 UTM.N= 4548680 UTM.E= 446120 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=95.9 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AVERAGE OF U.P. SAMPLES H H' 1 THROUGH H H' 11 YIELDED 103 FT OF 95.9% CACO3. NO CHERT.

No. 52 Mdo T.= 004N R.= 003E SEC.= SW1/4NE1/4NW1/4 SECTION 17 UTM.N= 4548315 UTM.E= 446600 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=90.8 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: 0.5-FT-THICK SECTION SAMPLED, SAMPLE NUMBER G-G' 23.

No. 53 Mdo T.= 004N R.= 003E SEC.= SW1/4NE1/4NW1/4 SECTION 17 UTM.N= 4548310 UTM.E= 446570 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=93.4 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AN AVERAGE OF U.P. SAMPLES G G' 18 AND G G' 19 YIELDED 20 FT OF 93.4% CACO3. NO CHERT.

No. 54 Mdo T.= 004N R.= 003E SEC.= SW1/4NE1/4NW1/4 SECTION 17 UTM.N= 4548300 UTM.E= 446520 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=93.9 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AN AVERAGE OF U.P. SAMPLES G G' 1 THROUGH G G' 15 YIELDED 145.5 FT OF 93.9% CACO3. FOSSILIFEROUS, SPARSE PYRITE AND CHERT, OCCASIONAL CALCITE VEINS.

No. 55 Mh T.= 004N R.= 003E SEC.= SW1/4NW1/4 SECTION 17 UTM.N= 4548080 UTM.E= 446210 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=99.9 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5=0.03 LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: GRAB SAMPLE NUMBER PO-3.

No. 56 Ml T.= 004N R.= 003E SEC.= SE1/4NE1/4NW1/4 SECTION 19 UTM.N= 4546850 UTM.E= 445050 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=93.9 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AN AVERAGE OF U.P. SAMPLES E E' 20 THROUGH E E' 25 YIELDED 59 FT OF 93.9% CACO3. MODERATE CHERT LOCALLY PRESENT.

No. 57 Ml T.= 004N R.= 003E SEC.= SE1/4NE1/4NW1/4 SECTION 19 UTM.N= 4546800 UTM.E= 445100 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=98.9 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: FOSSILIFEROUS, 10-FT-THICK SECTION SAMPLED. SAMPLE NUMBER E-E' 28.

No. 58 Ml T.= 004N R.= 003E SEC.= NE1/4SW1/4NW1/4 SECTION 19 UTM.N= 4546470 UTM.E= 444700 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=94.0 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: 5-FT-THICK SECTION SAMPLED, CONTAINS HORN CORAL AND ABUNDANT CHERT. SAMPLE NUMBER B-B' 10.

No. 59 Ml T.= 004N R.= 003E SEC.= NE1/4SW1/4NW1/4 SECTION 19 UTM.N= 4546466 UTM.E= 444704 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=95.8 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: FOSSILIFEROUS, 5-FT-THICK SECTION SAMPLED, SPARSE CHERT. SAMPLE NUMBER B-B' 13.

No. 60 Ml T.= 004N R.= 003E SEC.= NE1/4SW1/4NW1/4 SECTION 19 UTM.N= 4546462 UTM.E= 444706 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=95.7 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: 5-FT-THICK SECTION SAMPLED, INTERBEDDED CHERT AND LIMESTONE. SAMPLE NUMBER B-B' 14.

No. 61 Ml T.= 004N R.= 003E SEC.= NE1/4SW1/4NW1/4 SECTION 19 UTM.N= 4546455 UTM.E= 444715 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=96.0 $MgCO_3$= SiO_2= Al2O_3= Fe2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=

Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AVERAGING SAMPLES B-B' 16 THROUGH B-B' 25 YIELDS 50 FT OF SECTION AVERAGING 96.0% CACO3. SPARSE CHERT.

No. 62 Ml T.= 004N R.= 003E SEC.= NE1/4SW1/4NW1/4 SECTION 19 UTM.N= 4546440 UTM.E= 444730 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=95.8 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AN AVERAGE OF SAMPLES B-B' 32 THROUGH B-B' 35 YIELDED A 20-FT-THICK SECTION AVERAGING 95.8%. NO CHERT.

No. 63 Ml T.= 004N R.= 003E SEC.= SW1/4SE1/4NW1/4 SECTION 19 UTM.N= 4546250 UTM.E= 444870 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=94.6 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AN AVERAGE OF SAMPLES E E' 1 THROUGH E E' 8 YIELDED 78 FT OF 94.6% CACO3. CHERT LOCALLY ABUNDANT.

No. 64 Ml T.= 004N R.= 003E SEC.= SW1/4SE1/4NW1/4 SECTION 19 UTM.N= 4546250 UTM.E= 444900 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=100.0 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: 10-FT-THICK SECTION SAMPLED. SAMPLE E-E' 10, NO CHERT.

No. 65 Ml T.= 004N R.= 003E SEC.= SW1/4SE1/4NW1/4 SECTION 19 UTM.N= 4546250 UTM.E= 444920 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=96.2 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001. Notes: AN AVERAGE OF SAMPLES E E' 11 THROUGH E E' 15 YIELDED 44 FT OF 96.2% CACO3. SPARSE CHERT.

No. 66 Mde T.= 004N R.= 003E SEC.= NE1/4NW1/4 SECTION 30 UTM.N= 4545240 UTM.E= 445010 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=97.9 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5=2.93 LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: GRAB SAMPLE NUMBER PO-1.

No. 67 Mde T.= 004N R.= 003E SEC.= NE1/4NW1/4 SECTION 30 UTM.N= 4545240 UTM.E= 445010 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=97.9 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5=4.12 LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: GRAB SAMPLE NUMBER PO-2.

No. 68 Mdo T.= 004N R.= 003E SEC.= NE1/4SE1/4SE1/4 SECTION 30 UTM.N= 4544050 UTM.E= 445990 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=98.4 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: 24-FT-THICK SECTION SAMPLED. SAMPLE NUMBER A-A' 3.

No. 69 Mh T.= 004N R.= 003E SEC.= NW1/4SE1/4SE1/4 SECTION 30 UTM.N= 4544020 UTM.E= 445780 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=99.0 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: 50-FT-THICK SECTION SAMPLED. SAMPLE NUMBER A-A' 6.

No. 70 Mdo T.= 004N R.= 003E SEC.= NW1/4SW1/4SW1/4 SECTION 29 UTM.N= 4544010 UTM.E= 446080 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=91.45 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AN AVERAGE OF SAMPLES C C' 1 THROUGH C C' 5 YIELDED 20 FT ASSAYING 91.45% CACO3. NO CHERT.

No. 71 Mh T.= 004N R.= 003E SEC.= SE1/4SE1/4SE1/4 SECTION 30 UTM.N= 4543990 UTM.E= 445900 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=95.80 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001. Notes: 8-FT-THICK SECTION SAMPLED. SAMPLE NUMBER D-D' 28, NO CHERT.

No. 72 Mh T.= 004N R.= 003E SEC.= SE1/4SE1/4SE1/4 SECTION 30 UTM.N= 4543990 UTM.E= 445900 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=94.00 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: 9.5-FT-THICK SECTION SAMPLED. SAMPLE NUMBER D-D' 18, NO CHERT.

No. 73 Mh T.= 004N R.= 003E SEC.= SE1/4SE1/4SE1/4 SECTION 30 UTM.N= 4543990 UTM.E= 445900 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=95.87 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AN AVERAGE OF SAMPLES D-D' 14 THROUGH D-D' 16 YIELDED 18.5 FT ASSAYING 95.87% CACO3. NO CHERT

No. 74 Mh T.= 004N R.= 003E SEC.= SE1/4SE1/4SE1/4 SECTION 30 UTM.N= 4543990 UTM.E= 445900 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=94.02 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: AVERAGE OF SAMPLES D D' 7 THROUGH D D' 12 YIELDED 39.5 FT OF 94.02% CACO3. NO CHERT.

No. 75 Mh T.= 004N R.= 003E SEC.= SE1/4SE1/4SE1/4 SECTION 30 UTM.N= 4543990 UTM.E= 445900 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=90.00 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: 6.5-FT-THICK SECTION SAMPLED. SAMPLE NUMBER D-D' 33, NO CHERT.

No. 76 Mh T.= 004N R.= 003E SEC.= SE1/4SE1/4SE1/4 SECTION 30 UTM.N= 4543990 UTM.E= 445900 UTM.Z= +12 Topo. Map = MORGAN
$CaCO_3$=95.9 $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = AMODT AND SHARPS, 1978. Geol. Map = COOGAN AND KING, 2001.
Notes: 6.5-FT-THICK SECTION SAMPLED. SAMPLE NUMBER D-D' 43, MODERATE CHERT PRESENT.

No. 77 Dg T.= 036N R.= 069E SEC.=NE1/4 SECTION 14 UTM.N.= 4543759 UTM.E= 237380 UTM.Z= +12 Topo. Map = PILOT PEAK
$CaCO_3$=93.6 $MgCO_3$= 0.33 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO2= P_2O_5= LOI=
Data Source = GLOYN, R.W., SAMPLED 1991. Geol. Map = MILLER AND LUSH, 1994.
Notes: UGS SAMPLE G-2 TAKEN APPROXIMATELY 150 FT BELOW TRUE JOANA LS. OCCURS IN ZONE +11 BUT PROJECTED TO +12 FOR PLOTTING. TWN./RNG IS RELATIVE TO THE MT. DIABLO BASE AND MERIDIAN.

No. 78 Dg T.= 036N R.= 069E SEC.= NE1/4 SECTION 14 UTM.N.= 4543707 UTM.E=237396 UTM.Z= +12 Topo. Map = PILOT PEAK
$CaCO_3$=93.6 $MgCO_3$= 0.37 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GLOYN, R.W., SAMPLED 1991. Geol. Map =MILLER AND LUSH, 1994. Notes: UGS SAMPLE G-1 TAKEN APPROXIMATELY 50 FT BELOW THE TRUE JOANA LS. OCCURS IN ZONE +11 BUT PROJECTED TO ZONE +12 FOR PLOTTING. TWN./RNG IS RELATIVE TO THE MT. DIABLO BASE AND MERIDIAN.

No. 79 Mj T.= 003N R.= 017W SEC.= SW1/4SW1/4NW1/4 SECTION 34 UTM.N= 4537640 UTM.E= 265880 UTM.Z= +12 Topo. Map = GRAHAM PEAK
$CaCO_3$=97.4 $MgCO_3$=0.48 SiO_2=1.660 Al_2O_3=0.290 Fe_2O3=0.070 K2O=0.104 Na2O=0.011 MnO=0.007 TiO2=0.011 P2O5= LOI=42.80
Data Source = TRIPP, SAMPLED 06/1991. Geol. Map = SCHAEFFER, 1960.
Notes: THE NUMBERS SHOWN ABOVE ARE AVERAGES OF THE FOLLOWING ANALYSES OF SPLIT SAMPLES: CACO3 = 99.9%, 94.8%. MGCO3 = 0.50% 0.46%. THERE IS SOME UNCERTAINTY WHETHER THIS IS THE LOWERMOST JOANA OR THE UPPERMOST GUILMETTE, IT PLOTS AS THE JOANA AS MAPPED BY SCHAEFFER (1960) BUT THERE IS SOME DISTORTION IN TRANSFERRING HIS CONTACTS TO A TOPOGRAPHIC BASE. LIMESTONE, VERY FINELY CRYSTALLINE, EXTENSIVE RECRYSTALLIZED, MASSIVE BEDDING, LIGHT GREY ON FRESH AND WEATHERED SURFACE, WEATHERS TO A HACKLY TO VUGGY SURFACE, CLIFFY SLOPE FORMER, CONTAINS FREQUENT THIN CALCITE VEINLETS AND BLEBS, SOME BRECCIATION, VERY SPARSE TRACES OF PARTIALLY RECRYSTALLIZED FOSSILS. SAMPLE NUMBER 6-7-001.

No. 80 Dg T.= 003N R.= 017W SEC.= NW1/4NW1/4SW1/4 SECTION 34 UTM.N= 4537600 UTM.E= 265900 UTM.Z= +12 Topo. Map = GRAHAM PEAK
$CaCO_3$=99.1 $MgCO_3$=0.48 SiO_2= Al_2O_3=0.074 Fe_2O_3=0.024 K_2O=0.028 Na_2O=0.007 MnO=0.004 TiO_2= P_2O_5= LOI=43.80
Data Source = TRIPP, SAMPLED 06/1991. Geol. Map = SCHAEFFER, 1960.
Notes: THE NUMBERS SHOWN ABOVE ARE AVERAGES OF THE FOLLOWING ANALYSES OF SPLIT SAMPLES: CACO3 = 100.3%, 97.8% ; MGCO3 = 0.50%, 0.46%. THERE IS SOME UNCERTAINTY WHETHER THIS IS THE LOWERMOST JOANA OR THE UPPERMOST GUILMETTE, IT PLOTS AS THE GUILMETTE AS MAPPED BY SCHAEFFER (1960) BUT THERE IS SOME DISTORTION IN TRANSFERRING HIS CONTACTS TO A TOPOGRAPHIC BASE. LIMESTONE, VERY FINELY CRYSTALLINE, EXTENSIVELY RECRYSTALLIZED, MASSIVE BEDDING, LIGHT GREY ON FRESH AND WEATHERED SURFACE, WEATHERS TO A HACKLY TO VUGGY SURFACE, CLIFFY SLOPE FORMER, CONTAINS FREQUENT THIN CALCITE VEINLETS AND BLEBS, SOME BRECCIATION, VERY SPARSE TRACES OF PARTIALLY RECRYSTALLIZED FOSSILS.

No. 81 Dg T.= 003N R.= 017W SEC.= NW1/4NW1/4SW1/4 SECTION 34 UTM.N= 4537580 UTM.E= 265930 UTM.Z= +12 Topo. Map = GRAHAM PEAK
$CaCO_3$=98.1 $MgCO_3$=0.65 SiO_2= Al_2O_3=0.148 Fe_2O_3=0.053 K_2O=0.112 Na_2O=0.009 MnO=0.014 TiO_2=0.008 P_2O_5= LOI=43.50
Data Source = TRIPP, SAMPLED 06/1991. Geol. Map = SCHAEFFER, 1960.
Notes: THE NUMBERS SHOWN ABOVE ARE AVERAGES OF THE FOLLOWING ANALYSES OF SPLIT SAMPLES: CACO3 = 99.4%, 96.7%; MGCO3 = 0.63%, 0.67%. LIMESTONE, VERY FINELY CRYSTALLINE, EXTENSIVELY RECRYSTALLIZED, MASSIVE BEDDING, LIGHT GREY ON FRESH AND WEATHERED SURFACE, WEATHERS TO A HACKLY TO VUGGY SURFACE, CLIFFY SLOPE FORMER, CONTAINS FREQUENT THIN CALCITE VEINLETS AND BLEBS AND MINOR HEMATITE STAINING, SOME BRECCIATION, VERY SPARSE TRACES OF PARTIALLY RECRYSTALLIZED FOSSILS. SAMPLE 6-7-003.

No. 82 Dg T.= 003N R.= 017W SEC.= NW1/4NW1/4SW1/4 SECTION 34 UTM.N= 4537530 UTM.E= 265960 UTM.Z= +12 Topo. Map = GRAHAM PEAK
$CaCO_3$=98.6 $MgCO_3$=0.42 SiO_2= Al_2O_3=0.076 Fe_2O_3=0.033 K_2O=0.027 Na_2O=0.009 MnO=0.011 TiO_2=0.014 P_2O_5= LOI=43.70
Data Source = TRIPP, SAMPLED 06/1991. Geol. Map = SCHAEFFER, 1960.
Notes: LIMESTONE, VERY FINELY CRYSTALLINE, EXTENSIVE RECRYSTALLIZED, MASSIVE BEDDING, MEDIUM GREY ON FRESH AND WEATHERED SURFACE, WEATHERS TO A RELATIVELY SMOOTH SURFACE, CLIFFY SLOPE FORMER, CONTAINS ABUNDANT CALCITE VEINLETS AND BLEBS, SOME BRECCIATION, VERY SPARSE TRACES OF PARTIALLY RECRYSTALLIZED FOSSILS. SAMPLE 6-7-004.

No. 83 Mj T.= 003N R.= 017W SEC.= NE1/4NE1/4SW1/4 SECTION 35 UTM.N= 4537500 UTM.E= 268160 UTM.Z= +12 Topo. Map = GRAHAM PEAK
$CaCO_3$=98.4 $MgCO_3$=1.1 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 06/1991. Geol. Map = SCHAEFFER, 1960.
Notes: LIMESTONE, VERY FINELY CRYSTALLINE, THIN BEDDED, WEATHERS TO A FLAT, SOMEWHAT FISSURED SURFACE, FORMS A PROMINENT LEDGE, DARK GREY ON FRESH SURFACE, MEDIUM DARK GREY ON WEATHERED SURFACE. OCCASIONAL THIN CALCITE VEINS. SAMPLE 5-22-001.

No. 84 Dg T.= 002N R.= 017W SEC.= SE1/4SW1/4SE1/4 SECTION 02 UTM.N= 4535380 UTM.E= 268290 UTM.Z= +12 Topo. Map = GRAHAM PEAK
$CaCO_3$=97.6 $MgCO_3$=1.31 SiO_2=0.860 Al_2O_3=0.490 Fe_2O_3=0.220 K_2O=0.220 Na_2O=0.012 MnO=0.007 TiO_2=0.016 P_2O_5=0.020 LOI=42.8
Data Source = TRIPP, SAMPLED 06/1991. Geol. Map = SCHAEFFER, 1960.
Notes: THE NUMBERS SHOWN ABOVE ARE AVERAGES OF THE FOLLOWING ANALYSES OF SPLIT SAMPLES: CACO3 = 97.8%, 97.4%; MGCO3 = 1.38%, 1.23%. LIMESTONE, FINELY CRYSTALLINE, THICK BEDDING, DARK GREY ON FRESH SURFACE, MEDIUM DARK GREY ON WEATHERED SURFACE, WEATHERS TO A SOMEWHAT HACKLY TO VUGGY SURFACE, FORMS A LEDGEY SLOPE, CONTAINS ABUNDANT TRACE FOSSILS AND FREQUENT CALCITE VEINLETS UP TO .25 IN. IN WIDTH. SAMPLE 6-6-004.

No. 85 Dg T.= 002N R.= 017W SEC.= NE1/4SW1/4SE1/4 SECTION 02 UTM.N= 4535320 UTM.E= 268350 UTM.Z= +12 Topo. Map = GRAHAM PEAK
$CaCO_3$=97.7 $MgCO_3$=1.11 SiO_2=1.920 Al_2O_3=0.645 Fe_2O_3=0.250 K_2O=0.250 Na_2O=0.014 MnO=0.008 TiO_2=0.023 P_2O_5=0.001 LOI=42.60
Data Source = TRIPP, SAMPLED 06/1991. Geol. Map = SCHAEFFER, 1960.
Notes: THE NUMBERS SHOWN ABOVE ARE AVERAGES OF THE FOLLOWING ANALYSES OF SPLIT SAMPLES: CACO3 = 98.4%, 96.9%; MGCO3 = 1.15%, 1.06%. LIMESTONE, FINELY CRYSTALLINE, MASSIVE BEDDING, DARK GREY ON FRESH AND WEATHERED SURFACES, WEATHERS TO A SOMEWHAT HACKLY SURFACE, FORMS A LEDGE, CONTAINS FREQUENT CALCITE VEINS UP TO .25 IN. IN THICKNESS. SAMPLE 6-6-003.

No. 86 Dg T.= 002N R.= 017W SEC.= SE1/4SW1/4SE1/4 SECTION 02 UTM.N= 4535220 UTM.E= 268420 UTM.Z= +12 Topo. Map = GRAHAM PEAK
$CaCO_3$=99.4 $MgCO_3$=0.72 SiO_2<0.400 Al_2O_3=0.075 Fe_2O_3=0.034 K_2O=0.014 Na_2O=0.009 MnO=0.005 TiO_2=0.001 P_2O_5=0.012 LOI=43.80
Data Source = TRIPP, SAMPLED 06/1991. Geol. Map = SCHAEFFER, 1960.
Notes: THE NUMBERS SHOWN ABOVE ARE AVERAGES OF THE FOLLOWING ANALYSES OF SPLIT SAMPLES: CACO3 = 100.3%, 98.5%; MGCO3 = 0.50%, 0.94%. LIMESTONE, VERY FINELY CRYSTALLINE, MASSIVE BEDDING, DARK GREY ON FRESH AND WEATHERED SURFACES, WEATHERS TO A SOMEWHAT HACKLY SURFACE, FORMS A LEDGE, CONTAINS FREQUENT CALCITE VEINS UP TO .25 IN THICK. SAMPLE 6-6-002.

No. 87 Dg T.= 002N R.= 017W SEC.= SE1/4SW1/4SE1/4 SECTION 02 UTM.N= 4535120 UTM.E= 268490 UTM.Z= +12 Topo. Map = GRAHAM PEAK
$CaCO_3$=91.3 $MgCO_3$=8.45 SiO_2<0.400 Al_2O_3=0.037 Fe_2O_3=0.053 K_2O=0.038 Na_2O=0.015 MnO=0.006 TiO_2=0.001 P_2O_5=0.001 LOI=44.80
Data Source = TRIPP, SAMPLED 06/1991. Geol. Map = SCHAEFFER, 1960.
Notes: THE NUMBERS SHOWN ABOVE ARE AVERAGES OF THE FOLLOWING ANALYSES OF SPLIT SAMPLES: CACO3 = 94.4% 88.2%; MGCO3 = 9.0%, 7.90%. LIMESTONE, FINELY CRYSTALLINE, MASSIVE BEDDING, DARK GREY ON FRESH AND WEATHERED SURFACES, WEATHERS TO A SOMEWHAT HACKLY SURFACE, FORMS A LEDGE, CONTAINS AN OCCASIONAL PARTIALLY RECRYSTALLIZED HORN CORAL AND OCCASIONAL STROMATOLITES, FREQUENT CALCITE VEINS UP TO .25 IN THICKNESS, SOME BRECCIATION. SAMPLE 6-6-001.

No. 88 Dg T.= 002N R.= 018W SEC.= NW1/4SW1/4SW1/4 SECTION 36 UTM.N= 4527620 UTM.E= 259120 UTM.Z= +12 Topo. Map = BONNEVILLE RACETRACK
$CaCO_3$=98.6 $MgCO_3$=1.13 SiO_2= Al_2O_3=0.070 Fe_2O_3=0.055 K_2O=0.042 Na_2O=0.016 MnO=0.008 TiO_2=0.001 $P2O_5$= LOI=43.80
Data Source = TRIPP, SAMPLED 6/1991. Geol. Map = SCHAEFFER, 1960.
Notes: ALTERED LIMESTONE, MODERATELY CRYSTALLINE, MASSIVELY BEDDED, WHITE TO LIGHT PINK ON FRESH AND WEATHERED SURFACES, WEATHERS TO A SMOOTH SURFACE, FORMS A SMOOTH SLOPE, ABUNDANT FRACTURES LIGHTLY IRON STAINED, OCCASIONAL REDDISH MOTTLING, MOST FRACTURES ARE SOMEWHAT RECEMENTED, UNIT IS CUT BY OCCASIONAL BANDS OF UNALTERED LIMESTONE BRECCIA. THIS WHITE, ALTERED BAND IN THE GUILMETTE IS IN EXCESS OF 100 FT THICK HERE. SAMPLE 6-7-005.

No. 89 Cm T.= 002N R.= 008W SEC.= NW1/4SE1/4NW1/4 SECTION 33 UTM.N= 4525110 UTM.E= 352180 UTM.Z= +12 Topo. Map = DELLE
$CaCO_3$=89.00 $MgCO_3$=7.38 SiO_2=2.60 Al_2O_3=0.17 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 120 FT THICK. LAKESIDE DEPOSIT SAMPLE 5315. UNIT ORIGINALLY MAPPED AS THE HARTMANN LS. BY YOUNG (1955); HINTZE (1988) USES MARJUM AT THIS STRATIGRAPHIC POSITION IN THE LAKESIDE MOUNTAINS.

No. 90 Mde T.= 001N R.= 008W SEC.= NW1/4NW1/4NW1/4 SECTION 08 UTM.N= 4522320 UTM.E= 350140 UTM.Z= +12 Topo. Map = DELLE
$CaCO_3$=94.67 $MgCO_3$=3.13 SiO_2=0.80 Al_2O_3=0.17 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 50 FT THICK. LAKESIDE DEPOSIT SAMPLE 5319.

No. 91 Mde T.= 001N R.= 008W SEC.= NW1/4NW1/4NW1/4 SECTION 08 UTM.N= 4522260 UTM.E= 350130 UTM.Z= +12 Topo. Map = DELLE
$CaCO_3$=91.63 $MgCO_3$=5.48 SiO_2=1.45 Al_2O_3=0.35 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 50 FT THICK. LAKESIDE DEPOSIT SAMPLE 5318.

No. 92 Mde T.= 001N R.= 008W SEC.= NW1/4NW1/4NW1/4 SECTION 08 UTM.N= 4522210 UTM.E= 350120 UTM.Z= +12 Topo. Map = DELLE
$CaCO_3$=92.29 $MgCO_3$=3.14 SiO_2=2.84 Al_2O_3=0.45 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 50 FT THICK. LAKESIDE DEPOSIT 5317.

No. 93 Mde T.= 001N R.= 008W SEC.= SW1/4NW1/4NW1/4 SECTION 08 UTM.N= 4522100 UTM.E= 350100 UTM.Z= +12 Topo. Map = DELLE
$CaCO_3$=94.52 $MgCO_3$=3.51 SiO_2=0.68 Al_2O_3=0.13 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 50 FT THICK. LAKESIDE DEPOSIT SAMPLE 5316.

No. 94 PPo T.= 001N R.= 010W SEC.= NE1/4NE1/4NW1/4 SECTION 24 UTM.N= 4519180 UTM.E= 337720 UTM.Z= +12 Topo. Map = LOW
$CaCO_3$=92.63 $MgCO_3$=4.14 SiO_2=1.95 Al_2O_3=0.16 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.015.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = MAURER, 1970. Notes: UNIT SAMPLED IS 350 FT THICK. CEDAR MTNS. DEPOSIT SAMPLE 875.

No. 95 Mgb T.= 001N R.= 008W SEC.= SW1/4NE1/4NE1/4 SECTION 21 UTM.N= 4518800 UTM.E= 352720 UTM.Z= +12 Topo. Map = POVERTY POINT
$CaCO_3$=93.81 $MgCO_3$=2.68 SiO_2=2.20 $Al2O_3$=0.26 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.018.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 70 FT THICK. LAKESIDE DEPOSIT SAMPLE 5309.

No. 96 Mgb T.= 001N R.= 008W SEC.= SE1/4NW1/4NE1/4 SECTION 21 UTM.N= 4518770 UTM.E= 352690 UTM.Z= +12 Topo. Map = POVERTY POINT
$CaCO_3$=91.67 $MgCO_3$=4.43 SiO_2=2.50 Al_2O_3=0.18 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.022.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 30 FT THICK. LAKESIDE DEPOSIT SAMPLE 5308.

No. 97 Mgb T.= 001N R.= 008W SEC.= NE1/4SW1/4NE1/4 SECTION 21 UTM.N= 4518670 UTM.E= 352550 UTM.Z= +12 Topo. Map = POVERTY POINT
$CaCO_3$=93.27 $MgCO_3$=2.88 SiO_2=2.60 Al_2O_3=0.18 Fe2O3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.030.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 30 FT THICK. LAKESIDE DEPOSIT SAMPLE 5306.

No. 98 Mgb T.= 001N R.= 008W SEC.= NW1/4SW1/4NE1/4 SECTION 21 UTM.N= 4518610 UTM.E= 352490 UTM.Z= +12 Topo. Map = POVERTY POINT
$CaCO_3$=92.88 $MgCO_3$=2.61 SiO_2=2.10 Al_2O_3=0.14 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.029.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 21 FT THICK. LAKESIDE DEPOSIT SAMPLE 5305.

No. 99 Mgb T.= 001N R.= 008W SEC.= NW1/4SW1/4NE1/4 SECTION 21 UTM.N= 4518590 UTM.E= 352450 UTM.Z= +12 Topo. Map = POVERTY POINT
$CaCO_3$=90.71 $MgCO_3$=6.17 SiO_2=1.85 Al_2O_3=0.14 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.016.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = YOUNG, 1955.
Notes: UNIT SAMPLED IS 25 FT THICK. LAKESIDE DEPOSIT SAMPLE 5304.

No. 100 Ppc T.= 001N R.= 001E SEC.= NW1/4NE1/4 SECTION 33 UTM.N.= 4514650 UTM.E= 429150 UTM.Z= +12 Topo. Map = FORT DOUGLAS
$CaCO_3$=94.62 $MgCO_3$= 1.31 SiO_2= 3.10 Al_2O_3= 0.202 Fe_2O_3=0.089 K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = KRUKOWSKI, STANLEY, SAMPLE COLLECTED 2001. Geol. Map = VAN HORN AND CRITTENDEN, 1987.
Notes: SAMPLE TAKEN FROM STOCKPILE NEAR PIT.

No. 101 Qo T.= 001S R.= 003W SEC.= SE1/4SW1/4 SECTION 17 UTM.N= 4509110 UTM.E= 397900 UTM.Z= +12 Topo. Map = FARNSWORTH PEAK
$CaCO_3$=91.47 $MgCO_3$=1.86 SiO_2=3.03 Al_2O_3=0.18 Fe_2O_3=0.26 K_2O= 0.36 Na_2O=0.57 MnO= TiO_2= 0.0065 P_2O_5= 0.065 LOI=

Trace Elements (IN PERCENT): S03 = 0.66.
Data Source = EARDLEY, 1938. Geol. Map = TOOKER AND ROBERTS, 1971.
Notes: AVERAGE OF THREE SAMPLES FROM EARDLEY'S TABLE 16.

No. 102 Mgb T.= 002S R.= 006W SEC.= SE1/4SW1/4NE1/4 SECTION 20 UTM.N= 4498540 UTM.E= 369050 UTM.Z= +12 Topo. Map = FLUX
$CaCO_3$=100.05 $MgCO_3$=2.24 SiO_2=0.16 Al_2O_3=0.21 Fe_2O_3=0.08 K_2O=0.10 Na_2O=0.04 MnO= TiO_2= P_2O_5= LOI=41.80
Data Source = ALMQUIST, 1987. Geol. Map = RIGBY, 1958.
Notes: SAMPLE 112. SAMPLE TAKEN FROM THE UPPER PART OF THE GREAT BLUE LS.

No. 103 Mgb T.= 002S R.= 007W SEC.= SE1/4SE1/4SE1/4 SECTION 26 UTM.N= 4496230 UTM.E= 365420 UTM.Z= +12 Topo. Map = NORTH WILLOW CANYON
$CaCO_3$=93.38 $MgCO_3$=1.59 SiO_2=2.83 Al_2O_3=0.16 Fe_2O_3=0.06 K_2O=0.11 Na_2O=0.04 MnO= TiO_2= P_2O_5= LOI=41.60
Data Source = ALMQUIST, 1987. Geol. Map =RIGBY, 1958.
Notes: SAMPLE 101.

No. 104 Mde T.= 006S R.= 001E SEC.= NW1/4SE1/4NE1/4 SECTION 31 UTM.N= 4456230 UTM.E= 425940 UTM.Z= +12 Topo. Map = PELICAN POINT
$CaCO_3$=96.3 $MgCO_3$=1.5 SiO_2=1.4 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = CRAWFORD AND BURANEK, 1948. Geol. Map = BULLOCK, 1951. Notes: ASSAY NUMBERS ARE AN AVERAGE OF SIX SAMPLES TAKEN FROM VARIOUS (UNSPECIFIED) PARTS OF THE PROPERTY. AMODT AND SHARPS (1978) REPORT VALUES FOR ONE SAMPLE FROM THE QUARRY: CACO3 = 94.2 AND 96.2, MGCO3 = 1.23.

No. 105 Mg T.= 008S R.= 002W SEC.= SW1/4SW1/4SW1/4 SECTION 13 UTM.N= 4440910 UTM.E= 412910 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=96.49 $MgCO_3$=1.65 SiO_2=0.57 Al_2O_3=0.14 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.016.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: TRANSECT III OF USX REPORT, GREELEY PASS HILL DEPOSIT. UNIT SAMPLED WAS 29.4 FT THICK.

No. 106 Mg T.= 008S R.= 002W SEC.= NE1/4NE1/4NE1/4 SECTION 23 UTM.N= 4440830 UTM.E= 413490 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=96.12 $MgCO_3$=1.76 SiO_2=0.54 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: TRANSECT A OF USX REPORT, GREELEY PASS HILL DEPOSIT. UNIT SAMPLED WAS 90 FT THICK. ANALYSIS DID NOT INCLUDE A 2 FT-THICK CHERT INTERBED.

No. 107 Mg T.= 008S R.= 002W SEC.= NW1/4NW1/4 SECTION 24 UTM.N= 4440520 UTM.E= 413660 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=91.67 $MgCO_3$=4.58 SiO_2=2.27 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: GREY FOSSILIFEROUS LIMESTONE. THICKNESS OF UNIT SAMPLED 180 FT. SAMPLE NO. 1 USX TRANSECT A. GREELEY PASS HILL DEPOSIT.

No. 108 Mg T.= 008S R.= 002W SEC.= NE1/4NE1/4 SECTION 23 UTM.N= 4440500 UTM.E= 413580 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=92.56 $MgCO_3$=3.18 SiO_2=3.53 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: BLUE FOSSILIFEROUS LIMESTONE. THICKNESS OF UNIT SAMPLED = 213 FT. SAMPLE NO. 2 USX TRANSECT A. GREELEY PASS HILL DEPOSIT.

No. 109 Mg T.= 008S R.= 002W SEC.= NE1/4NE1/4 SECTION 23 UTM.N= 4440490 UTM.E= 413460 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=96.30 $MgCO_3$=1.63 SiO_2=0.77 Al_2O_3=0.14 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.020.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: TRANSECT II OF USX REPORT. UNIT SAMPLED WAS 24.4 FT THICK.

No. 110 Mg T.= 008S R.= 002W SEC.= NE1/4NE1/4 SECTION 23 UTM.N= 4440480 UTM.E= 413520 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=98.61 $MgCO_3$=0.75 SiO_2=0.71 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: PINK TO GREY LITHOGRAPHIC LS. SAMPLE NO. 3, USX TRANSECT A. UNIT SAMPLED IS 39 FT THICK.

No. 111 Mg T.= 008S R.= 002W SEC.= NE1/4NE1/4 SECTION 23 UTM.N= 4440370 UTM.E= 413500 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=95.23 $MgCO_3$=2.78 SiO_2=0.26 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: BLUE TO GREY SUBLITHOGRAPHIC LIMESTONE. THICKNESS OF UNIT SAMPLED 42 FT. SAMPLE NO. 5, USX TRANSECT A.

No. 112 Mg T.= 008S R.= 002W SEC.= NE1/4NE1/4 SECTION 23 UTM.N= 4440360 UTM.E= 413460 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=92.74 $MgCO_3$=6.02 SiO_2=2.56 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: HORN CORAL LIMESTONE. THICKNESS OF UNIT SAMPLED 51 FT. SAMPLE NO. 11 USX TRANSECT A.

No. 113 Mg T.= 008S R.= 002W SEC.= NE1/4NE1/4 SECTION 23 UTM.N= 4440340 UTM.E= 413420 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=96.48 $MgCO_3$= 1.96 SiO_2=1.32 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: BLUE GREY, MASSIVE LIMESTONE. SAMPLE NO. 15, USX TRANSECT A. THICKNESS OF UNIT SAMPLED 39 FT.

No. 114 Mg T.= 008S R.= 003W SEC.= SE1/4NW1/4SW1/4 SECTION 36 UTM.N= 4436700 UTM.E= 403350 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=95.87 $MgCO_3$=3.05 SiO_2=0.84 Al_2O_3=0.15 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.009.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = DISBROW, 1961.
Notes: UNIT SAMPLED IS 70.9 FT THICK. USX TRAVERSE NO. IV, BOOKLIME DEPOSIT.

No. 115 Mg T.= 008S R.= 003W SEC.= NE1/4SE1/4SE1/4 SECTION 33 UTM.N= 4436560 UTM.E= 399720 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$= $MgCO_3$=0.83 SiO_2=0.96 Al_2O_3=0.19 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = MADSEN, 1986. Geol. Map = DISBROW, 1961.
Notes: WHITEROCK CLAIM GROUP, SAMPLE BC-1(G). ADDITIONAL INFORMATION ON LIMESTONE POTENTIAL OF AREA IS CONTAINED IN CLARK (1954).

No. 116 MDf T.= 008S R.= 003W SEC.= NW1/4SW1/4SW1/4 SECTION 34 UTM.N= 4436500 UTM.E= 399910 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$= $MgCO_3$=0.73 SiO_2=0.98 Al_2O_3=0.18 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = MADSEN, 1986. Geol. Map = DISBROW, 1961.
Notes: WHITEROCKS CLAIM GROUP. ADDITIONAL INFORMATION ON LIMESTONE POTENTIAL OF AREA IS CONTAINED IN CLARK (1954).

No. 117 Mg T.= 008S R.= 003W SEC.= SE1/4SE1/4SW1/4 SECTION 36 UTM.N= 4436230 UTM.E= 403710 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=96.67 $MgCO_3$=1.82 SiO_2=0.28 Al_2O_3=0.12 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.010.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = DISBROW, 1961.
Notes: UNIT SAMPLED IS 78.9 FT THICK. USX TRAVERSE NO. V, BOOKLIME DEPOSIT.

No. 118 Mg T.= 008S R.= 003W SEC.= SE1/4SE1/4SW1/4 SECTION 36 UTM.N= 4436210 UTM.E= 403700 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=90.99 $MgCO_3$=6.86 SiO_2=0.93 Al_2O_3=0.10 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.010.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = DISBROW, 1961.
Notes: UNIT SAMPLED IS 13.9 FT THICK. USX TRAVERSE NO. V, BOOKLIME DEPOSIT.

No. 119 Mg T.= 008S R.= 003W SEC.= SE1/4SE1/4SW1/4 SECTION 36 UTM.N= 4436200 UTM.E= 403750 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=95.05 $MgCO_3$=2.22 SiO_2=1.79 Al_2O_3=0.16 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.013.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = DISBROW, 1961.
Notes: UNIT SAMPLED IS 237.0 FT THICK. USX TRAVERSE NO. V, BOOKLIME DEPOSIT.

No. 120 Mg T.= 008S R.= 002W SEC.= SE1/4SE1/4 SECTION 35 UTM.N= 4436180 UTM.E= 413290 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=96.65 $MgCO_3$=1.67 SiO_2=1.03 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: BLUE GREY MASSIVE LIMESTONE. THICKNESS OF UNIT SAMPLED 35 FT. ANALYSIS IS FOR AVERAGE OF UNIT FIFTEEN FROM USX TRANSECT J AND M, WANLASS HILL DEPOSIT.

No. 121 Mg T.= 008S R.= 002W SEC.= SE1/4SE1/4 SECTION 35 UTM.N= 4436170 UTM.E= 413320 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=93.45 $MgCO_3$=4.54 SiO_2=1.28 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: HORN CORAL LIMESTONE. THICKNESS OF UNIT SAMPLED 55 FT. ANALYSIS IS FOR AVERAGE OF UNIT ELEVEN FROM USX TRANSECT J AND M, WANLASS HILL DEPOSIT.

No. 122 Mg T.= 008S R.= 002W SEC.= SE1/4SE1/4 SECTION 35 UTM.N= 4436160 UTM.E= 413340 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=91.31 $MgCO_3$=7.44 SiO_2=0.70 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=

Data Source =U.S. STEEL (USX), 1953. Geol. Map =PROCTOR, 1985.
Notes: WHITE LIMESTONE. THICKNESS OF UNIT SAMPLED 16 FT. ANALYSIS IS FOR AVERAGE OF UNIT TEN FROM USX TRANSECT J AND M. WANLASS HILL DEPOSIT.

No. 123 Mg T.= 008S R.= 002W SEC.= SE1/4SE1/4 SECTION 35 UTM.N= 4436150 UTM.E= 413380 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=94.87 $MgCO_3$=3.93 SiO_2=0.55 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: BLUE GREY SUBLITHOGRAPHIC LIMESTONE. THICKNESS OF UNIT SAMPLED 18 FT. ANALYSIS IS FOR AVERAGE OF UNIT FIVE FROM USX TRANSECT J AND M. WANLASS HILL DEPOSIT.

No. 124 Mg T.= 008S R.= 002W SEC.= SE1/4SE1/4 SECTION 35 UTM.N= 4436140 UTM.E= 413400 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=95.23 $MgCO_3$=2.59 SiO_2=1.15 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: PINK TO GREY LITHOGRAPHIC LIMESTONE. THICKNESS OF UNIT SAMPLED 32 FT. ANALYSIS IS FOR AVERAGE OF UNIT THREE FROM USX TRANSECT J AND M. WANLASS HILL DEPOSIT.

No. 125 Mg T.= 008S R.= 002W SEC.= SE1/4SE1/4 SECTION 35 UTM.N= 4436130 UTM.E= 413420 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=93.98 $MgCO_3$=2.32 SiO_2=2.84 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: BLUE FOSSILIFEROUS LIMESTONE. THICKNESS OF UNIT SAMPLED 161 FT. ANALYSIS IS FOR AVERAGE OF UNIT TWO FROM USX TRANSECT J AND M. WANLASS HILL DEPOSIT.

No. 126 Mg T.= 008S R.= 002W SEC.= SE1/4SE1/4 SECTION 35 UTM.N= 4436120 UTM.E= 413480 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=89.53 $MgCO_3$=5.23 SiO_2=2.19 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P2O5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: GREY FOSSILIFEROUS LIMESTONE. THICKNESS OF UNIT SAMPLED 162 FT. ANALYSIS IS FOR AVERAGE OF UNIT ONE FROM USX TRANSECT J AND M. WANLASS HILL DEPOSIT.

No. 127 Mde T.= 009S R.= 003W SEC.= NE1/3NW1/4NW1/4 SECTION 05 UTM.N= 4436100 UTM.E= 396940 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = MADSEN, 1986. Geol. Map = DISBROW, 1961.
Notes: LONELY CLAIM SAMPLE EC-3(D-1), 3.17% INSOLS, 70-FT-UNIT SAMPLED. ADDITIONAL INFORMATION ON LIMESTONE POTENTIAL OF AREA IS CONTAINED IN CLARK (1954).

No. 128 Mg T.= 009S R.= 003W SEC.= SE1/4NW1/4NE1/4 SECTION 05 UTM.N= 4435910 UTM.E= 397750 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$= $MgCO_3$=1.46 SiO_2=3.14 Al_2O_3=0.50 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = MADSEN, 1986. Geol. Map = DISBROW, 1961.
Notes: INSPIRATION CLAIM GROUP SAMPLE EC-9(G)4. ADDITIONAL INFORMATION ON LIMESTONE POTENTIAL OF AREA IS CONTAINED IN CLARK (1954).

No. 129 Mg T.= 009S R.= 003W SEC.= SW1/4NW1/4NE1/4 SECTION 04 UTM.N= 4435910 UTM.E= 399210 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = MADSEN, 1986. Geol. Map = DISBROW, 1961.
Notes: WHITEROCKS CLAIM GROUP, SAMPLE E-C-6(G)2, 2.6% INSOLS. ADDITIONAL INFORMATION ON LIMESTONE POTENTIAL OF AREA IS CONTAINED IN CLARK (1954).

No. 130 MDf T.= 009S R.= 003W SEC.= NE1/4SE1/4NW1/4 SECTION 05 UTM.N= 4435770 UTM.E= 397370 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$= $MgCO_3$= SiO2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = MADSEN, 1986. Geol. Map = DISBROW, 1961.
Notes: INSPIRATION CLAIM GROUP, 0.88% INSOLS, 115-FT-THICK UNIT SAMPLED, SAMPLE EC-2(F). ADDITIONAL INFORMATION ON LIMESTONE POTENTIAL OF AREA IS CONTAINED IN CLARK (1954).

No. 131 Mg T.= 008S R.= 003W SEC.= SE1/4NE1/4NW1/4 SECTION 01 UTM.N= 4435750 UTM.E= 403910 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=96.96 $MgCO_3$=1.50 SiO_2=0.20 Al_2O_3=0.15 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.012.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = DISBROW, 1961.
Notes: UNIT SAMPLED IS 131.2 FT THICK. USX TRAVERSE NO. I, BOOKLIME DEPOSIT.

No. 132 Mg T.= 009S R.= 003W SEC.= NW1/4SE1/4NE1/4 SECTION 01 UTM.N= 4435530 UTM.E= 404050 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=93.69 $MgCO_3$=2.80 SiO_2=2.22 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: UNIT SAMPLED IS 312 FT THICK. USX TRAVERSE B, BOOKLIME DEPOSIT.

No. 133 Mg T.= 009S R.= 003W SEC.= NW1/4SW1/4NE1/4 SECTION 01 UTM.N= 4435520 UTM.E= 404030 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=94.66 $MgCO_3$=1.42 SiO_2=2.57 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=

Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: UNIT SAMPLED IS 27.0 FT THICK. USX TRAVERSE NO. B, BOOKLIME DEPOSIT.

No. 134 Mg T.= 009S R.= 003W SEC.= NE1/4SW1/4NE1/4 SECTION 01 UTM.N= 4435520 UTM.E= 404040 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=97.85 $MgCO_3$=1.13 SiO_2=0.74 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: UNIT SAMPLED IS 85.8 FT THICK. USX TRAVERSE NO. B, BOOKLIME DEPOSIT.

No. 135 Mg T.= 009S R.= 003W SEC.= NW1/4SW1/4NE1/4 SECTION 01 UTM.N= 4435510 UTM.E= 404010 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=96.37 $MgCO_3$=1.05 SiO_2=0.92 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = DISBROW, 1961.
Notes: UNIT SAMPLED IS 25.0 FT THICK. USX TRAVERSE NO. B, BOOKLIME DEPOSIT.

No. 136 Mg T.= 009S R.= 003W SEC.= NW1/4SW1/4NE1/4 SECTION 01 UTM.N= 4435510 UTM.E= 404020 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=93.64 $MgCO_3$=2.05 SiO_2=2.52 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = DISBROW, 1961.
Notes: UNIT SAMPLED IS 148.8 FT THICK. USX TRAVERSE NO. B, BOOKLIME DEPOSIT.

No. 137 Oop T.= 009S R.= 003W SEC.= SE1/4SE1/4NE1/4 SECTION 02 UTM.N= 4435470 UTM.E= 403080 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=91.4 $MgCO_3$=0.76 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = DISBROW, 1961
Notes: LIMESTONE, EXTREMELY FINE GRAINED, THICK BEDDING, WEATHERS TO A ROUGH SURFACE, FORMS LEDGY SLOPE, CONTAINS SMALL CHERT NODULES, PALE RED GREY ON FRESH AND WEATHERED SURFACES, ALMOST TRANSLUCENT. SAMPLE 9/30/92/003.

No. 138 MDf T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=97.79 $MgCO_3$=1.53 SiO_2=0.80 Al_2O_3=0.13 Fe_2O_3=0.34 K_2O= Na_2O=0.89 MnO=0.08 TiO_2= P_2O_5=0.082 LOI=
Trace Elements (IN PERCENT): S = 0.013.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, FORMS A SLOPE WITH ONLY A FEW OUTCROPS PRESENT, DARK GREY BLUE, FINE GRAINED, THIN BEDDED, SAMPLE 20B TAKEN AT TOP OF BED. UNIT SAMPLED IS 26.5 FT THICK. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 139 MDf T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=97.13 $MgCO_3$=0.69 SiO_2=1.13 Al_2O_3=0.12 Fe_2O_3=0.23 K_2O= Na_2O=0.43 MnO=0.08 TiO_2= P_2O_5=0.027 LOI=
Trace Elements (IN PERCENT): S= 0.007.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT PROVIDE THE EXACT LOCATION OF SAMPLED SECTION. CLARK UNIT CL-24. LIMESTONE, MEDIUM TO DARK, BROWNISH BLUE AT TOP, WEATHERING DULL MEDIUM TO DARK BLUE GREY, MASSIVE BEDDED. CORALS PRESENT. THE ROCK GRADES IMPERCEPTIBLY INTO A CHICKEN WIRE LIMESTONE, THAT IS THE PINYON PEAK OF OTHER AREAS. CONTACT HERE IS ARBITRARY. SAMPLES 24A-24B IN ASCENDING ORDER: 24 A = CAO - 54.22, MGO - 0.34, SIO_2 - 1.72, AL_2O_3 - 0.12, FE - 0.08, NA - 0.15, MN - 0.06 S - 0.008, P = 0.010; SAMPLE 24 B: CAO - 54.92, MGO - .32, SIO_2 - 0.54, AL_2O_3 - 0.12, FE - 0.08, NA - 00.17, MN - 0.05, P - 0.003, S - 0.006. UNIT SAMPLED IS 123.5 FT THICK. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 140 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=96.51 MgCO =0.77 SiO_2=1.46 Al_2O_3=0.21 Fe_2O_3=0.31 K_2O= Na_2O=0.38 MnO=0.03 TiO_2= P_2O_5=0.037 LOI=
Trace Elements (IN PERCENT): S = 0.017.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE MEASURED SECTION. LIMESTONE, DARK BLUE GREY, WEATHERING MEDIUM TO DARK GREY BLUE.THIN BEDDED WEATHERS PLATEY. HASHY. UNIT SAMPLED IS 7 FT THICK. CLARK UNIT CL-15. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 141 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=97.97 $MgCO_3$=1.05 SiO_2=0.65 Al_2O_3=0.09 Fe_2O_3=0.23 K_2O= Na_2O=0.54 MnO=0.03 TiO_2= P_2O_5=0.037 LOI=
Trace Elements (IN PERCENT): S=0.008.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, BLUE GREY TO MEDIUM BLUE GREY, WEATHERS LIGHTER, FINE GRAINED, SOME COARSE, MEDIUM TO THICK-BEDDED. CLARK UNIT CL-6. UNIT SAMPLED IS 48 FT THICK. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 142 MDf T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=96.01 $MgCO_3$=2.56 SiO_2=0.63 Al_2O_3=0.13 Fe2O3=0.23 K_2O= Na_2O=0.57 MnO=0.04 TiO_2= P_2O_5=0.046 LOI=

Trace Elements (IN PERCENT): S=0.010.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, A SUB LITHOGRAPHIC TO MEDIUM GRAINED, CLASTIC, MEDIUM TO DARK GREY BLUE, SOME BROWN BLUE, WEATHERS LIGHT GREY BLUE. MEDIUM TO THICK BEDDED, CORALS PRESENT. THIS UNIT 19 A-C IN ASCENDING ORDER: 19A - CAO - 52.44, MGO - 2.48, SIO_2 - 0.54, AL_2O_3 - 0.12, FE - 0.08, MN - 0.04, NA - 0.35, S - 0.014, P - 0.018; SAMPLE 19B: CAO - 54.76, MGO - 0.28, SIO_2 - 1.14, AL_2O_3 - 0.12, FE - 0.08, MN - 0.03, NA - 0.12, S - 0.008, P - 0.004, SAMPLE 19C: CAO - 54.62, MGO - 0.91, SIO_2 - 0.22, AL_2O_3 - 0.14, FE - 0.08, MN - 0.02, NA - 0.17, S - 0.009, P - 0.007. UNIT SAMPLED IS 73.7 FT THICK. ADDITIONAL INFORMATION IS CONTAINED IN MADSEN (1986).

No. 143 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=92.47 $MgCO_3$=2.81 SiO_2=3.73 Al_2O_3=0.15 Fe_2O_3=0.17 K_2O= Na_2O=0.31 MnO=0.04 TiO_2= P_2O_5=0.044 LOI=
Trace Elements (IN PERCENT): S=0.008.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, MEDIUM TO DARK BLUE GREY, WEATHERS SOMBER MEDIUM BLUE GREY TO GREY BLUE, LIGHT BROWNISH BLACK CHERT PRESENT AT RANDOM THROUGHOUT UNIT, FINE GRAINED TO HASHY, MUCH HASH IN BASE OF UNIT, SAMPLE 5 FROM 2 FT BELOW TOP, SAMPLE 5A FROM ONE FT BELOW TOP, SAMPLE 5B FROM BASE. SAMPLE 5: CAO - 50.2, MGO - 0.56, SIO_2 - 8.42, AL_2O_3 - 0.18, FE - 0.20, NA - 0.30, MN 0.02, P - 0.044, S - 0.005. SAMPLE 5A: CAO - 52.50, MGO - 2.25, SIO_2 - 0.92, AL_2O_3 - 0.09, FE - 0.08, NA - 0.12, MN - 0.02, P - 0.008, S - 0.008. SAMPLE 5B: CAO - 53.16, MGO - 1.22, SIO_2 - 1.85, AL_2O_3 - 0.18, FE - 0.08, NA - 0.28, MN - 0.05, P - 0.005, S - 0.011. UNIT SAMPLED IS 27 FT THICK. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 144 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=97.81 $MgCO_3$=0.59 SiO_2=0.42 Al_2O_3=0.12 Fe_2O_3=0.29 K_2O= Na_2O=0.73 MnO=0.03 TiO_2= P_2O_5=0.027 LOI=
Trace Elements (IN PERCENT): S = 0.008.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, LIGHT TO MEDIUM GREY AT BASE BECOMING GREY BLUE UPWARDS. FINE GRAINED TO SUB LITHOGRAPHIC. SOME CHERT STRINGERS PRESENT. CORAL AND BRACHIOPODS ABUNDANT. SAMPLE 14A TAKEN SIX FT ABOVE BASE OF UNIT. UNIT SAMPLED IS 22 FT THICK. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 145 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=95.34 $MgCO_3$=1.34 SiO_2=2.33 Al_2O_3=0.24 Fe_2O_3=0.26 K_2O= Na_2O=0.49 MnO=0.03 TiO_2= P_2O_5=0.064 LOI=
Trace Elements (IN PERCENT): S = 0.014.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE MEASURED SECTION. LIMESTONE, DARK BLUE TO BLUE GREY, WEATHERS MEDIUM TO DARK GREYISH BLUE. FINE TO COARSE GRAINED, THIN TO MEDIUM BEDDED, SOME LAMINAE. CORALS PRESENT. SAMPLES 10A AND 10B (TAKEN IN ASCENDING ORDER) FROM 7 FT BELOW TOP OF UNIT. UNIT SAMPLED IS 16 FT THICK. SAMPLE A: CAO = 54.02, MGO = 0.41, SIO_2 = 1.62, AL_2O_3 = 0.28, FE = 0.09, NA = 0.18, P = 0.008, MN = 0.02, S = 0.016. SAMPLE B: CAO = 53.10, MGO = 0.86, SIO_2 = 3.04, AL_2O_3 = 0.19, FE = 0.09, MN = 0.02, NA = 0.18, P = 0.02, S = 0.012. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 146 MDf T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=94.44 $MgCO_3$=2.01 SiO_2=2.38 Al_2O_3=0.25 $F_{e2}O_3$=0.23 K_2O= Na_2O=0.76 MnO=0.08 TiO_2= P_2O_5=0.055 LOI=
Trace Elements (IN PERCENT): S = 0.018.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, DARK GREY BLUE, SOME ALMOST BLACK, WEATHERS MEDIUM TO DARK BLUE GREY, WITH MERINGUE SURFACE. DENSE, THIN TO MEDIUM BEDDED AT TOP TO THICK AND MASSIVE BEDDED FARTHER DOWN TOWARDS BASE OF UNIT. CORALS PRESENT, SOME CHERT NODULES, SAMPLE 20A IS FROM BASE OF UNIT, SAMPLE 20B IS FROM 2 FT ABOVE BASE, SAMPLE 20C WAS TAKEN NEAR THE CHERT BED, AND SAMPLE D WAS TAKEN FROM THE TOP OF THE UNIT. TOTAL THICKNESS OF UNIT 20 IS 26.5 FT THICK. SAMPLE 20A: CAO - 53.62, MGO - 0.54, SIO_2 - 1.80, AL_2O_3 - 0.42, FE - 0.09, NA - 0.43, MN - 0.06, S - 0.029, P - 0.014. SAMPLE 20B: CAO - 48.14, MGO - 3.97, SIO_2 - 4.02, AL_2O - 0.73, FE - 0.30, NA - 0.35, MN - 0.08, S - 0.018, P - 0.063. SAMPLE 20C: CAO - 51.44, MGO - 1.36, SIO_2 - 4.50, AL_2O_3 - 0.21, FE - 0.08, NA - 0.20, MN - 0.06, S - 0.008, P - 0.013. SAMPLE 20D: CAO - 54.12, MGO - 0.98, SIO_2 - 0.84, AL_2O_3 - 0.12, FE - 0.08, NA - 0.22, MN - 0.05, S - 0.016, P - 0.010. SAMPLE 20 A,C, AND D INCLUDED IN AVERAGE VALUE. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 147 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=90.50 $MgCO_3$=4.12 SiO_2=4.56 Al_2O_3=0.14 Fe_2O_3=0.26 K_2O= Na_2O=0.51 MnO=0.03 TiO_2= P_2O_5=0.023 LOI=
Trace Elements (IN PERCENT): S=0.021.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, MEDIUM TO DARK BLUE GREY, WEATHERS BLUE GREY, MEDIUM GRAINED, SOME SILICEOUS MATERIAL, EUOMPHALUS PRESENT, SOME CORALS. UNIT SAMPLED IS ONE FT THICK. CLARK UNIT CL-7. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 148 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=97.86 $MgCO_3$=0.50 SiO_2=0.68 Al_2O_3=0.12 Fe_2O_3=0.26 K_2O= Na_2O=0.19 MnO=0.03 TiO_2= P_2O_5=0.01 LOI=
Trace Elements (IN PERCENT): S=0.021.

Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, DARK GREY BLUE WEATHERING DARK SOMBER GREY BLUE, FINE GRAINED, MASSIVE BEDDED, FOSSIL HASH. UNIT SAMPLED IS 8.7 FT THICK. CLARK UNIT CL-7. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 149 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=95.23 $MgCO_3$=1.42 SiO2=2.22 Al_2O_3=0.23 Fe_2O_3=0.26 K_2O= Na_2O=1.32 MnO=0.05 TiO_2= P_2O_5=0.06 LOI=
Trace Elements (IN PERCENT): S =0.013.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, MOSTLY COVERED INTERVAL, FIRST GOOD BED (LOCATION OF SAMPLE 8) OCCURS 21 FT BELOW TOP, FLOAT IS VERY HASHY, UNIT SAMPLED IS 36.3 FT THICK. SAMPLE 8B IS TAKEN FROM BASE OF UNIT. SAMPLE 8: CAO - 52.90, MGO - 0.84, SIO_2 - 2.85, AL_2O_3 - 0.32, FE - 0.09, NA - 0.50, MN - 0.03, P - 0.004, S - 0.016. SAMPLE 8B: CAO - 54.10, MGO - 0.52, SIO_2 - 1.58, AL_2O_3 - 0.13, FE - 0.08, NA - 0.48, MN - 0.04, P - 0.024, S - 0.009. ADDITIONAL INFORMATION IS LOCATED IN MADSEN (1986).

No. 150 MDf T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$ = 95.19 $MgCO_3$ = 1.48 SiO_2 = 2.50 Al_2O_3 = 0.33 Fe_2O_3 = 0.26 K_2O = Na_2O = 0.65 MnO = 0.05 TiO_2 = P_2O_5 = 0.03 LOI =
Trace Elements (IN PERCENT): S = 0.013.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, LIGHT TO MEDIUM BLUE BROWN, WEATHERING PALE LIGHT GREY BLUE. THIN TO MEDIUM BEDDED. SOME SUB LITHOGRAPHIC BEDS (LAMINAE). TWO SAMPLES 18 TO 18A IN ASCENDING ORDER. SAMPLE 18: CA - 53.86, MGO - 0.57, SIO_2 - 1.78, AL_2O_3 - 0.38, FE - 0.09, MN - 0.03, NA - 0.24, S - 0.012, P - 0.007. SAMPLE 18A: CAO - 53.10, MGO - 0.85, SIO_2 - 3.22, AL_2O_3 - 0.28, FE - 0.08, MN - 0.05, NA - 0.24, S - 0.013, P - 0.005. UNIT SAMPLED IS 3.8 FT THICK. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 151 MDf T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=94.48 $MgCO_3$=3.91 SiO_2=0.44 Al_2O_3=0.23 Fe_2O_3=0.26 K_2O= Na_2O=1.13 MnO=0.04 TiO_2= P_2O_5=0.03 LOI=
Trace Elements (IN PERCENT): S = 0.030.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK DID NOT PROVIDE THE EXACT LOCATION OF SAMPLED SECTION. LIMESTONE, LITHOGRAPHIC, PINK TO LIGHT PURPLE. BEDS WEATHER PALE LIGHT BLUE LAVENDER WITH A MERINGUE SURFACE. THICK BEDDED. TWO-IN. INTRAFORMATIONAL CONGLOMERATE BED AT BASE. TWO SAMPLES, SAMPLE 17 FROM BASE, 17A FROM TOP OF UNIT. SAMPLE 17: CAO - 51.20, MGO - 3.53, SIO_2 - 0.48, AL_2O_3 - 0.36, FE - 0.10, MN - 0.03, NA - 0.46, S - 0.017, P - 0.006. SAMPLE 17A: CAO - 54.96, MGO - 0.21, SIO_2 - 0.40, AL_2O_3 - 0.09, FE - 08, MN -0.02, NA - 0.37, S - 0.042, P - 0.005. UNIT SAMPLED IS 7.4 FT THICK. ADDITIONAL INFORMATION IS CONTAINED IN MADSEN (1986).

No. 152 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=93.81 $MgCO_3$=4.72 SiO_2=0.48 Al_2O_3=0.15 Fe_2O_3=0.23 K_2O= Na_2O=0.27 MnO=0.05 TiO_2= P_2O_5=0.01 LOI=
Trace Elements (IN PERCENT): S = 0.020.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, MEDIUM TO DARK BLUE GREY, WEATHERS PALE LIGHT TO MEDIUM BLUE GREY, FINE TO MEDIUM GRAINED, THICK BEDDED. UNIT SAMPLED IS 9.6 FT THICK. CLARK SAMPLE NUMBER CL-2. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 153 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=93.86 $MgCO_3$=3.80 SiO_2=1.31 Al_2O_3=0.23 Fe_2O_3=0.31 K_2O= Na_2O=0.57 MnO=0.04 TiO_2= P_2O_5=0.03 LOI=
Trace Elements (IN PERCENT): S = 0.011.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK (1954) DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION. LIMESTONE, MEDIUM TO DARK GREY BLUE, WEATHERS DARKER AND WITH A MERINGUE SURFACE FINE TO MEDIUM GRAINED, SOME PARTS HASHY. MASSIVE BEDDED. SAMPLE 9 IS FROM 10 FT BELOW UNIT TOP, B IS FROM TOP BED, C IS FROM MIDWAY IN UNIT, D IS FROM JUST ABOVE BASAL BED, AND E IS FROM BASE. ASSAY GIVEN ABOVE IS AN AVERAGE OF THE FIVE FOLLOWING ANALYSES: SAMPLE 9: CAO = 53.98, MGO = 1.08, SIO_2 = 0.92, AL_2O_3 = 0.08, FE = 0.09, MN = 0.05, NA = 0.10, P = 0.012, S = 0.019. SAMPLE 9B: CAO = 54.80, MGO = 0.33, SIO_2 = 0.84, AL_2O_3 = 0.13, FE = 0.18, MN = 0.04, NA = 0.12, P = 0.010, S = 0.008. SAMPLE 9C: CAO = 46.40, MGO = 6.83, SIO_2 = 1.50, AL_2O_3 = 0.56, FE = 0.10, MN = 0.02, NA = 0.48, P = 0.006, S = 0.010. SAMPLE 9D: CAO =54.08, MGO = 0.40, SIO_2 = 1.82, AL_2O_3 = 0.21, FE = 0.09, MN = 0.03, NA = 0.21, P = 0.004, S = 0.013. SAMPLE 9E: CAO = 54.40, MGO = 0.48, SIO_2 = 1.46, AL_2O_3 = 0.16, FE = 0.08, MN = 0.02, NA = 0.12, P = 0.005, S = 0.006. ADDITIONAL INFORMATION IN: MADSEN (1986).

No. 154 Mg T.= 009S R.= 003W SEC.= NE1/4 SECTION 01 UTM.N= 4435450 UTM.E= 404160 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=94.91 $MgCO_3$=1.15 SiO_2=2.96 Al_2O_3=0.18 Fe_2O_3=0.29 K_2O= Na_2O=0.57 MnO=0.03 TiO_2= P_2O_5=0.02 LOI=
Trace Elements (IN PERCENT): S = 0.004.
Data Source = CLARK, 1954. Geol. Map = PROCTOR, 1985.
Notes: CLARK DID NOT GIVE THE EXACT LOCATION OF THE SAMPLED SECTION, UNIT C1-12. LIMESTONE, THIN BEDDED, CONTAIN CORALS AND GASTROPODS. UNIT SAMPLED IS 72 FT THICK BUT MOST OF IT IS COVERED BY COLLUVIUM. ADDITIONAL INFORMATION IN MADSEN (1986).

No. 155 Mg T.= 009S R.= 003W SEC.= NW1/4NE1/4SE1/4 SECTION 01 UTM.N= 4435250 UTM.E= 404340 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=93.61 $MgCO_3$=3.32 SiO_2=1.52 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: UNIT SAMPLED IS 98.7 FT THICK. USX TRAVERSE A, BOOKLIME DEPOSIT.

No. 156 Mg T.= 009S R.= 003W SEC.= NW1/4NE1/4SE1/4 SECTION 01 UTM.N= 4435240 UTM.E= 404330 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=96.10 $MgCO_3$=1.73 SiO_2=0.73 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: UNIT SAMPLED IS 189.6 FT THICK. USX TRAVERSE A, BOOKLIME DEPOSIT.

No. 157 Mg T.= 009S R.= 003W SEC.= NW1/4NE1/4SE1/4 SECTION 01 UTM.N= 4435220 UTM.E= 404320 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=94.32 $MgCO_3$=2.53 SiO_2=1.55 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: UNIT SAMPLED IS 47.4 FT THICK. USX TRAVERSE A, BOOKLIME DEPOSIT.

No. 158 Mg T.= 009S R.= 003W SEC.= NW1/4NE1/4SE1/4 SECTION 01 UTM.N= 4435200 UTM.E= 404310 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=96.58 $MgCO_3$=1.15 SiO_2=0.82 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: UNIT SAMPLED IS 60.0 FT THICK. USX TRAVERSE A, BOOKLIME DEPOSIT.

No. 159 Mg T.= 009S R.= 003W SEC.= NW1/4NE1/4SE1/4 SECTION 01 UTM.N= 4435190 UTM.E= 404300 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=89.96 $MgCO_3$=7.52 SiO_2=1.07 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = PROCTOR, 1985.
Notes: UNIT SAMPLED IS 25.0 FT THICK. USX TRAVERSE A, BOOKLIME DEPOSIT.

No. 160 Mg T.= 009S R.= 003W SEC.= NW1/4NE1/4SE1/4 SECTION 01 UTM.N= 4435180 UTM.E= 404180 UTM.Z= +12 Topo. Map = ALLENS RANCH
$CaCO_3$=92.10 $MgCO_3$=3.51 SiO_2=2.45 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1953. Geol. Map = PROCTOR, 1985.
Notes: UNIT SAMPLED IS 180.0 FT THICK. USX TRAVERSE A, BOOKLIME DEPOSIT.

No. 161 Ccc T.= 009S R.= 003W SEC.= SE1/4NE1/4SE1/4 SECTION 02 UTM.N= 4434990 UTM.E= 402950 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=96.9 $MgCO_3$=0.90 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = DISBROW, 1961.
Notes: LIMESTONE, VERY FINE GRAINED, MASSIVE BEDDING, WEATHERS TO A VERY ROUGH SURFACE, FORMS SLIGHTLY LEDGY ANGULAR SLOPE, REGULAR THIN IRON-STAINED SILTY SEAMS (TAN), WEATHERS OLIVE DARK GREY, FRESH SURFACE IS DARK GREY. SAMPLE 9-30-92-002.

No. 162 Cb T.= 009S R.= 003W SEC.= NE1/4SE1/4SE1/4 SECTION 02 UTM.N= 4434910 UTM.E= 402950 UTM.Z= +12 Topo. Map = BOULTER PEAK
$CaCO_3$=97.9 $MgCO_3$=0.97 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = DISBROW, 1961. Notes: LIMESTONE, VERY FINE GRAINED, MASSIVE BEDDING, WEATHERS TO A VERY ROUGH BLOCKY SURFACE, FORMS SLIGHTLY LEDGY SLOPE, ABUNDANT UNIFORM WHITE BURROWS, OLIVE DARK GREY ON WEATHERED SURFACE, DARK GREY ON FRESH SURFACE, UNITS IS ABOUT 30 FT THICK. SAMPLE 9-30-92-001.

No. 163 Ct T.= 009S R.= 018W SEC.= NW1/4SW1/4SE1/4 SECTION 21 UTM.N= 4434200 UTM.E= 254390 UTM.Z= +12 Topo. Map = IBAPAH PEAK
$CaCO_3$=92.84 $MgCO_3$=4.31 SiO_2=1.66 Al_2O_3=0.41 Fe_2O_3=0.27 K_2O<0.01 Na_2O<0.01 MnO=0.01 TiO_2=0.040 P_2O_5=0.09 LOI=42.69
Trace Elements (IN PERCENT): S <0.001.
Data Source = HANNIGAN, 1990. Geol. Map = ROGERS, 1989.
Notes: LIMESTONE, 2 FT CHIP SAMPLE, MINOR CALCITE VEINLETS.

No. 164 Mgb T.= 009S R.= 004W SEC.= SW1/4SW1/4SE1/4 SECTION 25 UTM.N= 4428230 UTM.E= 394300 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=91.9 $MgCO_3$=0.90 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, VERY FINE GRAINED, THICK TO MASSIVELY BEDDED, WEATHERING SURFACE IS SOMEWHAT ROUGH, FORMS A SLIGHTLY LEDGY SLOPE, CONTAINS OCCASIONAL CHERT NODULES, LIGHT MEDIUM GREY ON WEATHERED SURFACE, MEDIUM GREY ON FRESH SURFACE, NUMEROUS THIN CALCITE VEINS. SAMPLE 9-29-92-001.

No. 165 Mgb T.= 009S R.= 004W SEC.= SE1/4SW1/4SE1/4 SECTION 25 UTM.N= 4428170 UTM.E= 394360 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=94.4 $MgCO_3$=0.83 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=

Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, VERY FINE GRAINED, THICK TO MASSIVELY BEDDED, SLIGHTLY ROUGH WEATHERED SURFACE WITH PROMINENT CALCITE VEINS UP TO ONE IN. THICK, FORMS ROUNDED SLOPE, MEDIUM GREY ON FRESH SURFACE, MEDIUM LIGHT GREY ON WEATHERED SURFACE, TINY LIMONITE BLEBS THROUGHOUT THE ROCK. SAMPLE 9-29-92-002.

No. 166 Mh T.= 009S R.= 004W SEC.= SE1/4SE1/4SE1/4 SECTION 25 UTM.N= 4428170 UTM.E= 394670 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=95.1 $MgCO_3$=1.39 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, VERY FINE GRAINED, THICK BEDDED, WEATHERS TO A SMOOTH SURFACE, FORMS AN ANGULAR, SLIGHTLY LEDGY SLOPE, OCCASIONAL HORN CORAL AND PELECYPODS, NO CALCITE OR CHERT VISIBLE, LIGHT MEDIUM GREY ON WEATHERED SURFACE, MEDIUM GREY ON FRESH SURFACE. SAMPLE 9-29-92-007.

No. 167 Mgb T.= 009S R.= 004W SEC.= SW1/4SE1/4SE1/4 SECTION 25 UTM.N= 4428160 UTM.E= 394610 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=93.6 $MgCO_3$=1.35 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, EXTREMELY FINE GRAINED, THICK TO MASSIVELY BEDDED, WEATHERS SMOOTH TO SOMEWHAT ROUGH, FORMS ANGULAR LEDGY SLOPE, OCCASIONAL CALCITE VEINS UP TO ONE IN. THICK, MEDIUM GREY ON WEATHERED SURFACE, DARK GREY ON FRESH SURFACE, OCCASIONAL HORN CORALS. SAMPLE 9-29-92-006.

No. 168 Mgb T.= 009S R.= 004W SEC.= SW1/4SE1/4SE1/4 SECTION 25 UTM.N= 4428150 UTM.E= 394580 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=95.6 $MgCO_3$=0.94 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, EXTREMELY FINE GRAINED, THICK TO MASSIVELY BEDDED, WEATHERS SMOOTH TO SOMEWHAT ROUGH, FORMS ANGULAR LEDGY SLOPE, OCCASIONAL CALCITE VEIN UP TO .5 IN. THICK, MEDIUM GREY ON WEATHERED SURFACE, DARK GREY ON FRESH SURFACE. SAMPLE 9-29-92-005.

No. 169 Mgb T.= 009S R.= 004W SEC.= SE1/4SW1/4SE1/4 SECTION 25 UTM.N= 4428100 UTM.E= 394410 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=93.9 $MgCO_3$=0.83 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, VERY FINE GRAINED, THICK TO MASSIVE BEDDING, SLIGHTLY ROUGH WEATHERED SURFACE WITH PROMINENT CALCITE VEINS UP TO ONE IN. THICK, FORMS A PROMINENT LEDGE, MEDIUM GREY ON A FRESH SURFACE, MEDIUM LIGHT GREY ON A WEATHERED SURFACE. DISSEMINATED IRON ALONG FRACTURES. SAMPLE 9-29-92-003.

No. 170 Mh T.= 009S R.= 003W SEC.= NW1/4NW1/4NW1/4 SECTION 31 UTM.N= 4428090 UTM.E= 394960 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=97.1 $MgCO_3$=1.39 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, FINE GRAINED, THICK BEDDED, SURFACE IS HACKLY, NUMEROUS HORN CORAL AND PELECYPODS, A FEW VERY THIN CALCITE VEINS, FORMS A CLIFF, MEDIUM GREY ON WEATHERED SURFACE, DARK GREY ON FRESH SURFACE. SAMPLE 9-29-92-010.

No. 171 Mde T.= 009S R.= 003W SEC.= SE1/4NE1/4NW1/4 SECTION 31 UTM.N= 4427870 UTM.E= 395710 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=96.6 $MgCO_3$=2.08 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE FINE GRAINED, THIN TO THICK BEDDED, WEATHERS TO A ROUGH, RIDGY SURFACE, FORMS A SLIGHTLY LEDGY SLOPE COVERED WITH FLAT FRAGMENTS UP TO 6 IN. IN DIAMETER, MEDIUM DARK GREY ON FRESH AND WEATHERED SURFACES. THE UNIT IS ABOUT 20 FT THICK. SAMPLE 9-28-92-004.

No. 172 Mg T.= 009S R.= 002W SEC.= NW1/4SE1/4SE1/4 SECTION 33 UTM.N= 4427500 UTM.E= 409050 UTM.Z= +12 Topo. Map = EUREKA
$CaCO_3$=92.4 $MgCO_3$=0.97 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964a.
Notes: LIMESTONE, FINE GRAINED WITH VERY FINE GRAINED INTRAFORMATIONAL CLASTS, THIN TO THICK BEDDED, OLIVE MEDIUM DARK GREY ON FRESH AND WEATHERED SURFACE, WEATHERS TO A SMOOTH TO SLIGHTLY HACKLY SURFACE, SLOPE FORMER, OCCASIONAL SMALL HORN CORALS AND PELECYPODS. SAMPLE 9-15-92-002.

No. 173 Mg T.= 009S R.= 002W SEC.= NW1/4SE1/4SE1/4 SECTION 33 UTM.N= 4427430 UTM.E= 409040 UTM.Z= +12 Topo. Map = EUREKA
$CaCO_3$=91.6 $MgCO_3$=0.97 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964a.
Notes: LIMESTONE, MEDIUM GRAINED, THIN BEDDED, MEDIUM DARK GREY ON FRESH SURFACE, OLIVE DARK GREY ON WEATHERED SURFACE, WEATHERS TO A SMOOTH BUT SLIGHTLY HACKLY SURFACE, SLOPE FORMER, MOSTLY RECRYSTALLIZED BUT WITH OCCASIONAL SMALL HORN CORAL, CUT BY RARE, THIN CALCITE VEINS. SAMPLE 9-15-92-001.

No. 174 Mg T.= 009S R.= 003W SEC.= NE1/4NW1/4SE1/4 SECTION 31 UTM.N= 4427210 UTM.E= 395980 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=87.2 $MgCO_3$=0.90 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, FINE GRAINED, THICK BEDDED, MEDIUM GREY ON FRESH SURFACE, LIGHT MEDIUM GREY ON WEATHERED SURFACE, WEATHERS TO A HACKLY SURFACE, FORMS A

LEDGY SLOPE, HEAVILY RECRYSTALLIZED CRINOIDAL HASH, CUT BY OCCASIONAL CALCITE VEINLETS THAT AVERAGE 1/16 IN. THICK WITH A MAXIMUM THICKNESS OF 1/4 IN., OCCASIONAL PODS OF CHERT AS BIG AS 9 IN. IN DIAMETER. SAMPLE 9-18-92-001.

No. 175 Mg T.= 009S R.= 003W SEC.= NE1/4NW1/4SE1/4 SECTION 31 UTM.N= 4427190 UTM.E= 396010 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=87.2 $MgCO_3$=1.25 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, MEDIUM GRAINED, MASSIVE BEDDED, MEDIUM GREY ON FRESH SURFACE, LIGHT MEDIUM GREY ON WEATHERED SURFACE, WEATHERS TO A HACKLY SURFACE, FORMS A LEDGY SLOPE, HEAVILY RECRYSTALLIZED CRINOIDS AND OCCASIONAL HORN CORAL, CUT BY RARE THIN CALCITE VEINLETS. SAMPLE 9-18-92-002.

No. 176 Mg T.= 009S R.= 003W SEC.= NE1/4NW1/4SE1/4 SECTION 31 UTM.N= 4427140 UTM.E= 396030 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=87.7 $MgCO_3$=3.50 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, MEDIUM GRAINED, THIN TO THICK BEDDED, MEDIUM GREY ON FRESH AND WEATHERED SURFACE, WEATHERS TO A SMOOTH SURFACE, FORMS A SMOOTH SLOPE, HEAVILY RECRYSTALLIZED CRINOIDS AND OCCASIONAL HORN CORAL, CUT BY OCCASIONAL THIN CALCITE VEINLETS. SAMPLE 9-18-92-003.

No. 177 Mg T.= 009S R.= 003W SEC.= SE1/4NW1/4SE1/4 SECTION 31 UTM.N= 4427120 UTM.E= 396060 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=88.2 $MgCO_3$=1.01 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b. Notes: LIMESTONE, FINE GRAINED, THICK BEDDED, YELLOWISH LIGHT GREY ON FRESH SURFACE, MEDIUM GREY ON WEATHERED SURFACE, WEATHERS TO A SMOOTH SURFACE, FORMS A SMOOTH SLOPE, CUT BY OCCASIONAL CALCITE VEINLETS. SAMPLE 9-18-92-004.

No. 178 Mg T.= 009S R.= 003W SEC.= SE1/4NW1/4SE1/4 SECTION 31 UTM.N= 4427110 UTM.E= 396080 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=92.9 $MgCO_3$=2.67 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, FINE GRAINED, THIN TO THICK BEDDED, DARK MEDIUM GREY ON FRESH SURFACE, MEDIUM GREY ON WEATHERED SURFACE, WEATHERS TO A SMOOTH, ANGULAR SURFACE, FORMS A SMOOTH SLOPE, HEAVILY RECRYSTALLIZED, CUT BY OCCASIONAL CALCITE VEINLETS, LIMONITE STAINING ALONG SOME BEDDING PLANES. SAMPLE 9-18-92-005.

No. 179 Mg T.= 009S R.= 003W SEC.= SE1/4NW1/4SE1/4 SECTION 31 UTM.N= 4427090 UTM.E= 396110 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=87.7 $MgCO_3$=1.14 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, FINE GRAINED, THIN TO THICK BEDDED, DARK MEDIUM GREY ON FRESH SURFACE, MEDIUM GREY ON WEATHERED SURFACE, WEATHERS TO A SMOOTH ANGULAR SURFACE, FORMS A SMOOTH SLOPE, HEAVILY RECRYSTALLIZED, CUT BY CALCITE VEINLETS, LIMONITE STAINING ALONG SOME BEDDING PLANES. SAMPLE 9-18-92-006.

No. 180 MDf T.= 009S R.= 003W SEC.= SW1/4NE1/4SE1/4 SECTION 31 UTM.N= 4427020 UTM.E= 396180 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
$CaCO_3$=93.6 $MgCO_3$=4.20 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, COARSE GRAINED, MASSIVE BEDDED, LIGHT GREY ON FRESH AND WEATHERED SURFACE, WEATHERS TO SMOOTH TO SOMEWHAT HACKLY SURFACE, FORMS ROUNDED LEDGY SLOPES, OCCASIONAL SMALL CALCITE BLEBS AND STRINGERS. SAMPLE 9-18-92-008.

No. 181 MDf T.= 009S R.= 003W SEC.= SW1/4NE1/4SE1/4 SECTION 31 UTM.N= 4427000 UTM.E= 396220 UTM.Z= +12 Topo. Map = TINTIC JUNCTION
CaCO3=86.9 MgCO3=2.95 SiO2= Al2O3= Fe2O3= K2O= Na2O= MnO= TiO2= P2O5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964b.
Notes: LIMESTONE, VERY FINE GRAINED, THIN TO THICK BEDDED, MEDIUM GREY ON FRESH SURFACE, LIGHT MEDIUM GREY ON WEATHERED SURFACE, WEATHERS TO A ROUGH, BLOCKY SURFACE, FORMS A SMOOTH SLOPE, OCCASIONAL THIN CALCITE VEINLETS, SOME SPARSE LIMONITE IN WISPY LAYERS ALONG BEDDING PLANES. SAMPLE 9-18-92-009.

No. 182 Tsl T.= 009S R.= 004W SEC.= NW1/4NE1/4SW1/4 SECTION 35 UTM.N= 4426700 UTM.E= 392450 UTM.Z= +12 Topo. Map = SABIE MTN.
$CaCO_3$=88.6 $MgCO_3$=1.42 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = PAMPEYAN, 1989.
Notes: LIMESTONE, VERY FINE GRAINED, MASSIVE BEDDING, NON RESISTANT, WEATHERS TO A SMOOTH, ROUNDED SLOPE, SOFT AND PULVERULENT, ABUNDANT IRON STAINED ROOT CASTS?, WHITE (VERY SLIGHT ORANGE TINGE BUT LIGHTER THAN VERY PALE ORANGE). GRAB SAMPLE TAKE FROM 4 FT BELOW TOP OF QUARRY ON THE NW END OF THE QUARRY. SAMPLE 9-28-92-001.

No. 183 Tsl T.= 009S R.= 004W SEC.= NW1/4NE1/4SW1/4 SECTION 35 UTM.N= 4426680 UTM.E= 392470 UTM.Z= +12 Topo. Map = SABIE MTN.
$CaCO_3$=93.4 $MgCO_3$=1.53 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = PAMPEYAN, 1989.
Notes: LIMESTONE, VERY FINE GRAINED, THIN TO THICK BEDDED, NON RESISTANT, WEATHERS INTO A SMOOTH ROUNDED SLOPE, VERY WHITE WITH MINOR LIMONITE STAINING ALONG FRACTURES, OCCASIONAL GASTROPOD CAST, GRAB SAMPLE TAKEN NEAR MIDDLE OF UNIT EXPOSED IN THE NW END OF THE QUARRY. SAMPLE 9-28-92-002.

No. 184 Tsl T.= 009S R.= 004W SEC.= NW1/4NE1/4SW1/4 SECTION 35 UTM.N= 4426650 UTM.E= 392500 UTM.Z= +12 Topo. Map = SABIE MTN.
$CaCO_3$=96.4 $MgCO_3$=0.69 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = PAMPEYAN, 1989.
Notes: LIMESTONE, VERY FINE GRAINED, THIN TO THICK BEDDED, DENSE AND COMPACT (PORCELAIN LIKE), LIGHT BROWNISH GREY, GRAB SAMPLE TAKEN NEAR BOTTOM OF QUARRY ON WEST FACE OF QUARRY. SAMPLE 9-28-92-003.

No. 185 Mg T.= 010S R.= 002W SEC.= SE1/4SW1/4SW1/4 SECTION 04 UTM.N= 4425650 UTM.E= 408030 UTM.Z= +12 Topo. Map = EUREKA
$CaCO_3$=92.9 $MgCO_3$=0.69 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964a.
Notes: LIMESTONE, ULTRA FINE GRAINED, MARBLEIZED, GREYISH ORANGE PINK ON FRESH AND WEATHERED SURFACES, HEMATITE, LIMONITE, AND CALCITE ALONG BEDDING PLANES. SAMPLE 9-16-92- 001.

No. 186 Mg T.= 010S R.= 002W SEC.= SE1/4SW1/4SW SECTION 04 UTM.N= 4425650 UTM.E= 408040 UTM.Z= +12 Topo. Map = EUREKA
$CaCO_3$=90.6 $MgCO_3$=1.07 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964a.
Notes: LIMESTONE, VERY FINE GRAINED, THICK TO MASSIVELY BEDDED, HIGHLY RECRYSTALLIZED, LIGHT BROWNISH GREY ON FRESH AND WEATHERED SURFACE, SURFACE IS SLIGHTLY TRANSLUCENT, ROCK HIGHLY FRACTURED; HEMATITE, LIMONITE, AND CALCITE ALONG FRACTURES, OCCASIONAL THIN CALCITE VEINS. SAMPLE 9-16-92-002.

No. 187 Mg T.= 010S R.= 002W SEC.= SE1/4SW1/4SW SECTION 04 UTM.N= 4425650 UTM.E= 408050 UTM.Z= +12 Topo. Map = EUREKA
$CaCO_3$=94.1 $MgCO_3$=0.64 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964a.
Notes: LIMESTONE, VERY FINE GRAINED, BROWNISH GREY ON FRESH AND WEATHERED SURFACE, THICK TO MASSIVELY BEDDED, SURFACE SLIGHTLY TRANSLUCENT, HIGHLY RE-CRYS-TALLIZED NO FOSSILS VISIBLE, ROCK HIGHLY FRACTURED; LIMONITE, HEMATITE, AND CALCITE ALONG FRACTURES, OCCASIONAL THIN CALCITE VEINS. SAMPLE 9-16-92-003.

No. 188 Mg T.= 010S R.= 002W SEC.= SE1/4SW1/4SW SECTION 04 UTM.N= 4425650 UTM.E= 408060 UTM.Z= +12 Topo. Map = EUREKA
$CaCO_3$=92.2 $MgCO_3$=1.05 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 09/1992. Geol. Map = MORRIS, 1964a.
Notes: LIMESTONE, VERY FINE GRAINED, THICK TO MASSIVELY BEDDED, DARK GREY ON FRESH SURFACE, HIGHLY RECRYSTALLIZED WITH OCCASIONAL CRINOID STEM, ROCK HIGHLY FRACTURED; HEMATITE AND CALCITE ALONG FRACTURES, OCCASIONAL THIN CALCITE VEINS. SAMPLE 9-16-92-004.

No. 189 Ct T.= 010S R.= 018W SEC.= SW1/4SE1/4SW1/4 SECTION 27 UTM.N= 4422790 UTM.E= 255220 UTM.Z= +12 Topo. Map = GOSHUTE CANYON
$CaCO_3$=90.80 $MgCO_3$=6.58 SiO_2=1.59 Al_2O_3=0.47 Fe_2O_3=0.07 K_2O=0.22 Na_2O=0.11 MnO<0.01 TiO_2=0.04 P_2O_5<0.01 LOI=42.59
Trace Elements (IN PERCENT): S <0.001.
Data Source = HANNIGAN, 1990. Geol. Map = ROGERS, 1989.
Notes: LIMESTONE, 4 FT CHIP SAMPLE, MINOR CALCITE VEINLETS.

No. 190 Cu T.= 010S R.= 018W SEC.= NW1/4NW1/4NE1/4 SECTION 34 UTM.N= 4422600 UTM.E= 255530 UTM.Z= +12 Topo. Map = GOSHUTE CANYON
$CaCO_3$=93.25 $MgCO_3$=2.49 SiO_2=1.75 Al_2O_3=0.58 Fe_2O_3=0.3 K_2O<0.01 Na_2O<0.01 MnO=0.05 TiO_2=0.04 P_2O_5=0.15 LOI=42.14
Trace Elements (IN PERCENT): S <0.001.
Data Source = HANNIGAN, 1990. Geol. Map = ROGERS, 1989.
Notes: LIMESTONE, 5 FT CHIP SAMPLE, SPARSE HEMATITE. SAMPLE 227.

No. 191 Cu T.= 010S R.= 018W SEC.= SW1/4NE1/4NE1/4 SECTION 34 UTM.N= 4422310 UTM.E= 255900 UTM.Z= +12 Topo. Map = GOSHUTE CANYON
$CaCO_3$=95.05 $MgCO_3$=1.23 SiO_2=1.65 Al_2O_3=0.52 Fe_2O_3=0.07 K_2O<0.01 Na_2O<0.01 MnO=0.02 TiO_2=0.05 P_2O_5=0.08 LOI=41.97
Trace Elements (IN PERCENT): S <0.001.
Data Source = HANNIGAN, 1990. Geol. Map = ROGERS, 1989.
Notes: LIMESTONE, 5 FT CHIP SAMPLE, MASSIVE LIMESTONE. SAMPLE 118.

No. 192 Op T.= 012S R.= 019W SEC.= SE1/4SW1/4 SECTION 05 UTM.N= 4409731 UTM.E= 241947 UTM.Z= +12 Topo. Map = WEAVER CANYON
$CaCO_3$=94.5 $MgCO_3$=0.86 SiO_2=2.6 Al_2O_3=0.2 Fe_2O_3= 0.34 K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = SATKOSKI AND SOKASKI, 1980. Geol. Map = THOMPSON, 1970.
Notes: SAMPLE TAKEN FROM LUCKY STRIKE MINE DUMP IN JOHNSON CANYON. SOME UNCERTAINTY ABOUT UNIT SAMPLED, THOMPSON'S (1970) MAP SHOWS POGONIP AT THE SURFACE BUT THE SAMPLE COULD REPRESENT A SUBSURFACE FORMATION. ACTUAL UTM LOCATION IS 4409650N 755650E 11+. LOCATION WAS PROJECTED INTO ZONE +12 FOR PLOTTING.

No. 193 Op T.= 022S R.= 009W SEC.= SW1/4SE1/4SW1/4 SECTION 21 UTM.N= 4404850 UTM.E= 337650 UTM.Z= +12 Topo. Map = BORDEN
$CaCO_3$=97.9 $MgCO_3$=0.6 SiO_2=0.8 Al_2O_3=0.3 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.003.

Data Source =U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT G. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT G CONTAINS 2,500,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 300,000 TONS OF OVERBURDEN.

No. 194 Op T.= 013S R.= 011W SEC.= SE 1/4 SW1/4, 21 UTM.N= 4393100 UTM.E= 320700 UTM.Z= +12 Topo. Map = TOPAZ MTN.
$CaCO_3$=93.94 $MgCO_3$=0.92 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = UDOGM FILES Geol. Map = LINDSEY, 1979.
Notes: ANALYTICAL INFORMATION FOR BEST STONE ENCOUNTERED IN FOUR DRILL HOLES (IN %): HOLE 9 (25 30 FT DEPTH) = 92.32 CACO3, 0.97 MgCO3, 6.71 INERT; HOLE 10 (25 30 FT DEPTH) = 93.09 CACO3, 0.76 MGCO3, 6.15 INERT; HOLE 11 (55 60 FT DEPTH) = 93.94 CACO3, 0.92 MGCO3, 5.14 INERT; HOLE 12 (55 60 FT DEPTH) = 91.63 CACO3, 0.90 MGCO3, 7.47 INERT.

No. 195 Qt T.= 014S R.= 003W SEC.= SW1/4 SECTION 14 UTM.N.= 4383981 UTM.E= 400802 UTM.Z= +12 Topo. Map = CHAMPLIN PEAK
$CaCO_3$=89.23 $MgCO_3$=1.10 SiO_2=7.34 Al_2O_3=1.21 Fe_2O_3= 0.54 K_2O= 0.25 Na_2O= 0.08 MnO= 0.021 TiO_2= 0.059 P_2O_5=0.03 LOI=39.80
Trace Elements (IN PPM): BA-95, SR-237, Y-4, SC-1, ZR-43, BE-<1, V-13.
Data Source = TRIPP, B.T., SAMPLED 02/2000. Geol. Map = HIGGINS, 1982
Notes: SAMPLE TAKEN FROM STOCKPILE AT PIT.

No. 196 Cu T.= 018N R.= 070E SEC.= UNSURVEYED UTM.N= 4366611 UTM.E= 231014 UTM.Z= +12 Topo. Map = MORMON JACK PASS
$CaCO_3$=89.87 $MgCO_3$=1.92 SiO_2=2.93 Al_2O_3=0.66 Fe_2O_3=0.65 K_2O=1.1 Na_2O= MnO=0.05 TiO_2=0.03 P_2O_5=0.17 LOI=42.2
Trace Elements (IN PPM): AS - 5, BA - 50, BE - , BI - 2, CU - , F - 160, HG - , MO - , MN - 352, PB - 6, W - , ZN - 5.
Data Source = KNESS, 1989. Geol. Map = HOSE AND OTHERS, 1976.
Notes: LOCATION IS IN NEVADA JUST WEST OF THE UTAH STATE LINE. SAMPLE TAKEN WAS A 24 IN. CHIP SAMPLE. IN TRACE ELEMENT FIELD MEANS NOT DETECTED. LIMESTONE, THIN-BEDDED, MICA ALONG BEDDING PLANES. CONTAINS SOME THIN SHALE BEDS. ACTUAL UTM LOCATION IS: 4365900N 747620E +11. LOCATION WAS PROJECTED INTO ZONE +12 FOR PLOTTING. TWN./RNG. LOCATION IS RELATIVE TO THE MT. DIABLO BASE AND MERIDIAN.

No. 197 Cu T.= 017N R.= 070E SEC.= UNSURVEYED UTM.N= 4360521 UTM.E= 234858 UTM.Z= +12 Topo. Map = MORMON JACK PASS
$CaCO_3$=92.76 $MgCO_3$=4.66 SiO_2=0.35 Al_2O_3=0.47 Fe_2O_3=0.56 K_2O=1.1 Na_2O= MnO=0.01 TiO_2=0.01 P_2O_5=0.11 LOI=43.87
Trace Elements (IN PPM): AS - 10, BA - 70, BE - , BI - , CU - 6, F - 100, HG - , MO - , MN - 82, PB - 150, W - , ZN - 18.
Data Source = KNESS, 1989. Geol. Map = HOSE AND OTHERS, 1976.
Notes: LOCATION IS IN NEVADA JUST WEST OF THE UTAH STATE LINE. SAMPLE TAKEN WAS A 19 IN. CHIP SAMPLE FROM A 15-FT ADIT. IN TRACE ELEMENT FIELD MEANS NOT DETECTED. LIMESTONE, GREY, FINE GRAINED, THICK BEDDED, WITH CALCITE VEINLETS. ACTUAL UTM LOCATION IS: 4360080N 751868E 11+. LOCATION WAS PROJECTED INTO ZONE +12 FOR PLOTTING. TWN./RNG. LOCATION IS RELATIVE TO THE MT. DIABLO BASE AND MERIDIAN.

No. 198 Cu T.= 017N R.= 070E SEC.= UNSURVEYED UTM.N= 4360521 UTM.E= 234858 UTM.Z= +12 Topo. Map = MORMON JACK PASS
$CaCO_3$=94.83 $MgCO_3$=2.2 SiO_2=0.47 Al_2O_3=0.45 Fe_2O_3=0.43 K_2O=0.8 Na_2O= MnO=0.01 TiO_2=0.02 P_2O_5=0.08 LOI=43.29
Trace Elements (IN PPM): AS - 5, BA - 1,120, BE - , BI - , CU - 5, F - 80, HG - , MO - , MN - 90, PB - 36, W - , ZN - 9.
Data Source = KNESS, 1989. Geol. Map = HOSE AND OTHERS, 1976.
Notes: LOCATION IS IN NEVADA JUST WEST OF THE UTAH STATE LINE. SAMPLE TAKEN WAS A 36 IN. CHIP SAMPLE AT 15-FT ADIT. IN TRACE ELEMENT FIELD MEANS NOT DETECTED. LIMESTONE, GREY, FINE GRAINED, THICK BEDDED, WITH CALCITE VEINLETS. ACTUAL UTM LOCATION IS: 4360080N 751860E 11+. LOCATION WAS PROJECTED INTO ZONE +12 FOR PLOTTING.

No. 199 Cho T.= 017S R.= 013W SEC.= NE1/4SE1/4SW1/4 SECTION 04 UTM.N= 4358430 UTM.E= 300000 UTM.Z= +12 Topo. Map = MARJUM PASS
$CaCO_3$=98.56 $MgCO_3$=0.54 SiO_2=0.86 Al2O3= Fe_2O_3=0.29 K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TUFTIN, 1987. Geol. Map = HINTZE, 198.
Notes: GRAB SAMPLE.

No. 200 Cho T.= 017S R.= 013W SEC.= NE1/4NE1/4SW1/4 SECTION 08 UTM.N= 4357350 UTM.E= 298220 UTM.Z= +12 Topo. Map = MARJUM PASS
$CaCO_3$=95.76 $MgCO_3$=1.23 SiO_2=2.32 Al_2O_3= Fe_2O_3= 0.29 K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TUFTIN, 1987. Geol. Map = HINTZE, 198.
Notes: GRAB SAMPLE.

No. 201 Tf T.= 017S R.= 017E SEC.= NW1/4 SECTION 16 UTM.N.= 4356250 UTM.E= 583400 UTM.Z= +12 Topo. Map = THREE FORDS CANYON
$CaCO_3$=93.27 $MgCO_3$=1.44 SiO_2= 3.92 Al_2O_3=0.66 Fe_2O_3=0.29 K_2O= 0.14 Na_2O= 0.05 MnO= 0.315 TiO_2= 0.023 P_2O_5= 0.10 LOI=41.45
Trace Elements (IN PPM): BA-209, SR-195, Y-6, SC-1, ZR-21, B -<1, V-17.
Data Source = TRIPP, B.T., SAMPLED 05/2000. Geol. Map = WITKIND, 1988.
Notes: LOCATION IS ACCURATE WITHIN A 1,000 FT RADIUS.

No. 202 Cho T. = 018S R.= 014W SEC.= NW1/4SE1/4NE1/4 SECTION 15 UTM.N= 4346520 UTM.E= 292660 UTM.Z= +12 Topo. Map = NOTCH PEAK
$CaCO_3$=98.06 $MgCO_3$=1.11 SiO_2=0.71 Al_2O_3= Fe_2O_3= 0.29 K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=

Data Source = TUFTIN, 1987. Geol. Map = HINTZE, 1974a.
Notes: GRAB SAMPLE.

No. 203 Tf T. = 018S R.= 002E SEC.= NW1/4 SECTION 21 UTM.N= 4343030 UTM.E= 439300 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=97.0 $MgCO_3$=1.7 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=43.7
Data Source = PRATT AND CALLAGHAN, 1970. Geol. Map = WEISS, 1994.
Notes: FE_2O_3 + AL_2O_3 BELOW DETECTION LIMITS. ACID INSOLS. = 1.0. U.S. STEEL ALSO SAMPLED THIS AREA.

No. 204 Tf T. = 018S R.= 002E SEC.= CW1/2 SECTION 21 UTM.N= 4342650 UTM.E= 438930 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=96.8 $MgCO_3$=1.7 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P2O5= LOI=43.8
Data Source = PRATT AND CALLAGHAN, 1970. Geol. Map = WEISS, 1994.
Notes: FE_2O_3 + AL_2O_3 BELOW DETECTION LIMITS. ACID INSOLS. = 1.0. U.S. STEEL SAMPLED THE SAME AREA.

No. 205 Tf T. = 018S R.= 002E SEC.= NW1/4SE1/4SE1/4 SECTION 20 UTM.N= 4342400 UTM.E= 438550 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=95.59 $MgCO_3$=2.80 SiO_2=0.40 Al_2O_3=0.12 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WEISS, 1994.
Notes: MANTI DEPOSIT. UNIT SAMPLED IS 8.5 FEET THICK. SAMPLE TAKEN ON A TRANSECT PERPENDICULAR TO STRIKE.

No. 206 Tf T .= 018S R.= 002E SEC.= NW1/4SW1/4SW1/4 SECTION 21 UTM.N= 4342280 UTM.E= 438880 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=95.02 $MgCO_3$=3.64 SiO_2=0.27 Al_2O_3=0.16 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WEISS, 1994.
Notes: MANTI DEPOSIT. ASSAY IS FOR A COMPOSITE OF GRAB SAMPLES FROM LOCATION IV, V 2, VI, VII, VIII, AND IX. UTM LOCATION IS TO PIT AT V 2.

No. 207 Tf T. = 018S R.= 002E SEC.= NW1/4SW1/4SW1/4 SECTION 21 UTM.N= 4342250 UTM.E= 438900 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=98.61 $MgCO_3$=1.65 SiO_2=0.32 Al_2O_3=0.41 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WEISS, 1994.
Notes: MANTI DEPOSIT. GRAB SAMPLE FROM PIT V 1.

No. 208 Tf T.= 018S R.= 002E SEC.= SW, 21 UTM.N= 4342240 UTM.E= 438900 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=97.0 $MgCO_3$=1.7 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=43.7
Data Source = PRATT, AND CALLAGHAN, 1970. Geol. Map = WEISS, 1994.
Notes: FE_2O_3 + AL_2O_3 BELOW DETECTION LIMITS. ACID INSOLS. = 1.0. U.S. STEEL SAMPLED THE SAME AREA.

No. 209 Tf T.= 018S R.= 002E SEC.= SW1/4NE1/4NE1/4 SECTION 29 UTM.N= 4341750 UTM.E= 438600 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=95.87 $MgCO_3$=2.57 SiO_2=0.50 Al_2O_3=0.14 Fe_2O_3= K2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WEISS, 1994.
Notes: MANTI DEPOSIT. ASSAY IS THE AVERAGE COMPOSITION OF 11 RAILROAD CARS OF LIMESTONE SHIPPED FROM THIS PROPERTY. THE LOCATION USED IS THE CENTER OF THE VARIOUS WORKINGS.

No. 210 Tf T.= 018S R.= 002E SEC.= NE, 21 UTM.N= 4341720 UTM.E= 438590 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=97.0 $MgCO_3$=1.7 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=43.7
Data Source = PRATT AND CALLAGHAN, 1970. Geol. Map = WEISS, 1994.
Notes: FE_2O_3 + AL_2O_3 BELOW DETECTION LIMITS. ACID INSOLS. = 1.0. U.S. STEEL SAMPLED THE SAME AREA

No. 211 Tf T.= 018S R.= 001E SEC.= SE1/4SE1/4SE1/4 SECTION 20 UTM.N= 4341710 UTM.E= 429050 UTM.Z= +12 Topo. Map = GUNNISON
$CaCO_3$=97.79 $MgCO_3$=0.61 SiO_2=0.30 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.022.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WITKIND AND OTHERS, 1987.
Notes: FAYETTE DEPOSIT. CHIP SAMPLE (NO. 5687) FROM A 15-FT-THICK UNIT.

No. 212 Tf T.= 018S R.= 002E SEC.= NE1/4SW1/4NE1/4 SECTION 29 UTM.N= 4341600 UTM.E= 438430 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=94.96 $MgCO_3$=2.99 SiO_2=1.26 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WITKIND AND OTHERS, 1987.
Notes: MANTI DEPOSIT. UNIT SAMPLED IS 27.7 FEET THICK. UTAH LIME AND STONE COMPANY DRILL HOLE NO 1.

No. 213 Tf T.= 018S R.= 001E SEC.= NE1/4NE1/4NW1/4 SECTION 29 UTM.N= 4341580 UTM.E= 428300 UTM.Z= +12 Topo. Map = GUNNISON

$CaCO_3$=95.05 $MgCO_3$=3.24 SiO_2=0.20 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.025.
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WITKIND AND OTHERS, 1987.
Notes: FAYETTE DEPOSIT. CHIP SAMPLE (NO. 5692) FROM A 10-FT-THICK UNIT.

No. 214 Tf T.= 018S R.= 002E SEC.= NW1/4SE1/4NE1/4 SECTION 29 UTM.N= 4341540 UTM.E= 438500 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=95.94 $MgCO_3$=2.19 SiO_2=1.00 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WITKIND AND OTHERS, 1987.
Notes: MANTI DEPOSIT. UNIT SAMPLED IS 35 FT THICK. UTAH LIME AND STONE COMPANY DRILL HOLE NO. 2.

No. 215 Tf T.= 018S R.= 002E SEC.= CE2, 21 UTM.N= 4341460 UTM.E= 438470 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=96.1 $MgCO_3$=2.5 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=43.8
Data Source = PRATT AND CALLAGHAN, 1970. Geol. Map = WEISS, 1994.
Notes: FE_2O_3 + AL_2O_3 BELOW DETECTION LIMITS. ACID INSOLS. = 1.0. U.S. STEEL SAMPLED THE SAME AREA.

No. 216 Tf T.= 018S R.= 002E SEC.= SW1/4NE1/4SE1/4 SECTION 29 UTM.N= 4340880 UTM.E= 438470 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=97.37 $MgCO_3$=0.96 SiO_2=0.89 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WITKIND AND OTHERS, 1987.
Notes: MANTI DEPOSIT. UNIT SAMPLED IS 45 FT THICK. UTAH LIME AND STONE COMPANY DRILL HOLE NO 3.

No. 217 Tf T.= 018S R.= 002E SEC.= SW1/4NE1/4SE1/4 SECTION 29 UTM.N= 4340880 UTM.E= 438510 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=96.46 $MgCO_3$=2.09 SiO_2=0.20 Al_2O_3=0.18 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WITKIND AND OTHERS, 1987.
Notes: MANTI DEPOSIT. GRAB SAMPLE TAKEN FROM OUTCROP, SAMPLE TRAVERSE III.

No. 218 Tf T.= 018S R.= 002E SEC.= SE1/4NW1/4SE1/4 SECTION 29 UTM.N= 4340810 UTM.E= 438380 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=93.98 $MgCO_3$=4.10 SiO_2=0.71 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WITKIND AND OTHERS, 1987.
Notes: MANTI DEPOSIT. UNIT SAMPLED IS 21 FT THICK. UTAH LIME AND STONE COMPANY DRILL HOLE NO 4.

No. 219 Tf T.= 018S R.= 006E SEC.= NE1/4NE1/4NE1/4 SECTION 34 UTM.N= 4340780 UTM.E= 480400 UTM.Z= +12 Topo. Map = THE CAP
$CaCO_3$=91.9 $MgCO_3$=2.8 SiO_2=3.0 Al_2O_3=0.56 Fe_2O_3=0.25 K_2O= Na_2O= MnO= TiO_2= P_2O_5=0.06 LOI=
Data Source = PERRY, L.I., UGS SAMPLE, 1980. Geol. Map = ELLIS AND FRANK, 1981.
Notes: FIGURES ARE AN AVERAGE OF SIX SAMPLES TAKEN FROM THE CAP. THE EXACT SAMPLE LOCATIONS ARE UNKNOWN, THEY WERE TAKEN SOMEWHERE ON THE CAP. THE SIX SAMPLES ASSAYED AS FOLLOWS: SAMPLE 1: $CACO_3$ - 91.8, $MGCO_3$ - 1.59, SIO_2 - 3.6, AL_2O_3 - 0.7, FE_2O_3 - 0.29, P_2O_5 - 0.07, S - <.05; SAMPLE 2: $CACO_3$ - 92.4, $MGCO_3$ - 3.6, SIO_2 - 2.4, AL_2O_3 - 0.43, FE_2O_3 - 0.24, P_2O_5 - 0.07, S - < 0.05; SAMPLE 3: $CACO_3$ - 91.7, $MGCO_3$ - 1.69, SIO_2 - 3.3, AL_2O_3 - 0.62, FE_2O_3 - 0.27, P_2O_5 - 0.07, S - < 0.05; SAMPLE 4: $CACO_3$ - 90.6, $MGCO_3$ - 5.02, SIO_2 - 2.8, AL_2O_3 - 0.53, FE_2O_3 - 0.27, P_2O_5 - 0.05, S - < 0.05; SAMPLE 5: $CACO_3$ - 92.9, $MGCO_3$ - 1.48, SIO_2 - 2.7, AL_2O_3 - 0.45, FE_2O_3 - 0.21, P2O5 - 0.05, S - < 0.05; SAMPLE 6: $CACO_3$ - 91.7, $MGCO_3$ - 3.6, SIO_2 - 3.2, AL_2O_3 - 0.6, FE_2O_3 - 0.23, P_2O_5 - 0.07, S - < 0.05.

No. 220 Tf T.= 018S R.= 002E SEC.= NE1/4SW1/4SE1/4 SECTION 29 UTM.N= 4340720 UTM.E= 438380 UTM.Z= +12 Topo. Map = STERLING
$CaCO_3$=92.26 $MgCO_3$=5.83 SiO_2=0.64 Al_2O_3=0.18 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = U.S. STEEL (USX), 1957. Geol. Map = WITKIND AND OTHERS, 1987.
Notes: MANTI DEPOSIT. UNIT SAMPLED IS 38.4 FT THICK. SAMPLING DONE AT A SMALL PROSPECT PIT.

No. 221 Jc T.= 019S. R.= 012E SEC.= SW1/4 SECTION 10 UTM.N.=4336800 UTM.E= 537810 UTM.Z= +12 Topo. Map = CHIMNEY ROCK
$CaCO_3$= 91.40 $MgCO_3$= 1.67 SiO_2= 5.77 Al_2O_3= 0.74 Fe_2O_3= 0.31 K_2O= 0.31 Na_2O<0.01 MnO=0.096 TiO_2= 0.043 P2O5= 0.53 LOI=40.32
Trace Elements (IN PPM): BA-1476, SR-315, Y-2, SC-1, ZR-35, BE<1, V-8.
Data Source = GERWE, S., SAMPLED 09/2000. Geol. Map = CASS, 1955.
Notes: LOCATION IS ACCURATE WITHIN A 1,000-FT RADIUS.

No. 222 Jc T.= 019S R.= 011E SEC.= NW1/4 SECTION 15 UTM.N.= 4335880 UTM.E= 527780 UTM.Z= +12 Topo. Map = BOB HILL KNOLL
$CaCO_3$=91.67 $MgCO_3$=1.80 SiO_2= 5.65 Al_2O_3=0.58 Fe_2O_3=0.31 K_2O= 0.17 Na_2O<0.01 MnO= 0.029 TiO_2= 0.035 P_2O_5=0.02 LOI=40.62
Trace Elements (IN PPM): BA-161, SR-286, Y-2, SC-1, ZR-37, BE<1, V-7.
Data Source = GERWE, S., SAMPLED 09/2000. Geol. Map = WITKIND, 1988.
Notes: LOCATION IS ACCURATE WITHIN A 1,000-FT RADIUS.

No. 223 Jc T.= 019S R.= 011E SEC.= NW1/4 SECTION 15 UTM.N.= 4335880 UTM.E= 527780 UTM.Z= +12 Topo. Map = BOB HILL KNOLL
$CaCO_3$= 93.79 $MgCO_3$=1.92 SiO_2= 3.69 Al_2O_3= 0.67 Fe_2O_3=0.36 K_2O=0.25 Na_2O=0.03 MnO= 0.025 TiO_2= 0.034 P_2O_5= 0.01 LOI=41.55
Trace Elements (IN PPM): BA-107, SR-403, Y-2, SC-1, ZR-24, BE<1, V<5.
Data Source = GERWE, S., SAMPLED 09/2000. Geol. Map = WITKIND, 1988.
Notes: LOCATION IS ACCURATE WITHIN A 1,000-FT RADIUS.

No. 224 Tf T.= 019S R.= 01.5W SEC.= CS2, 11 UTM.N= 4335500 UTM.E= 414600 UTM.Z= +12 Topo. Map = HAYES CANYON
$CaCO_3$=96.5 $MgCO_3$=1.7 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=44.4
Data Source = PRATT AND CALLAGHAN, 1970. Geol. Map = PETERSON, 1992.
Notes: FE_2O_3 + AL_2O_3 BELOW DETECTION LIMITS. ACID INSOLS. = 1.0.

No. 225 Tc T. = 019S R.=011E SEC. = NE1/4 SECTION 22 UTM.N. = 4334220 UTM.E = 528620 UTM.Z = +12 Topo. Map = BOB HILL KNOLL
$CaCO_3$= 94.57 $MgCO_3$= 1.76 SiO_2= 3.52 Al_2O_3= 0.60 Fe_2O_3= 0.30 K_2O= 0.27 Na_2O= <0.01 MnO= 0.030 TiO_2= 0.029 P_2O_5= 0.02 LOI=41.65
Trace Elements (IN PPM): BA-52, SR-291, Y-1, SC-<1, ZR-20, BE<1, V<5.
Data Source = GERWE, S., SAMPLED 09/2000. Geol. Map = WITKIND, 1988.
Notes: LOCATION IS ACCURATE WITHIN A 1,000-FT RADIUS.

No. 226 Tf T.= 019S R.= 001W SEC.= SE1/4 SECTION 30 UTM.N= 4331000 UTM.E= 418000 UTM.Z= +12 Topo. Map = HAYES CANYON
$CaCO_3$=96.1 $MgCO_3$=1.7 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=43.2
Data Source = PRATT AND CALLAGHAN, 1970. Geol. Map = PETERSON, 1992.
Notes: FE_2O_3 + AL_2O_3 = 1.0. ACID INSOLS. = 2.0. U.S. STEEL SAMPLED THIS SAME AREA.

No. 227 Tf T.= 020S R.= 005E SEC.= CW1/2 SECTION 13 UTM.N= 4324410 UTM.E= 473060 UTM.Z= +12 Topo. Map = FLAGSTAFF PEAK
$CaCO_3$=94.9 $MgCO_3$=4.6 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=42.6
Data Source = PRATT AND CALLAGHAN, 1970. Geol. Map = SANCHEZ AND HAYES, 1979.
Notes: ACID INSOLS. = 1.6.

No. 228 Tf T.= 020S R.= 001E SEC.= NW, 26 UTM.N= 4321300 UTM.E= 433200 UTM.Z= +12 Topo. Map = REDMOND
$CaCO_3$=91.0 $MgCO_3$=6.5 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=43.8
Data Source = PRATT AND CALLAGHAN, 1970. Geol. Map = WITKIND, 1981.
Notes: FE_2O_3 + AL_2O_3 = 1.0. ACID INSOLS. = 2.0. U.S. STEEL SAMPLED THIS SAME AREA.

No. 229 Tf T.= 020S R.= 001E SEC.= SW, 49 UTM.N= 4320450 UTM.E= 432890 UTM.Z= +12 Topo. Map = REDMOND
$CaCO_3$=97.0 $MgCO_3$=1.7 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P2O5= LOI=43.7
Data Source = PRATT AND CALLAGHAN, 1970. Geol. Map = WITKIND, 1981.
Notes: FE_2O_3 + AL_2O_3 BELOW DETECTION LIMITS. ACID INSOLS. = 1.0. U.S STEEL SAMPLED THIS SAME AREA.

No. 230 Cd T.= 021S R.= 010W SEC.= SW1/4SE1/4NE1/4 SECTION 24 UTM.N= 4315550 UTM.E= 333700 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=98.08 $MgCO_3$=0.6 SiO_2=0.9 Al_2O_3=0.3 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.006.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT A. ANALYSIS IS AN AVERAGE OF SAMPLES FROM TRANSECTS A, B, AND C. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE DISTORTION OF THE ORIGINAL MAP. DEPOSITS A, B, AND C CONTAIN 12,000,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 4,000,000 TONS OF OVERBURDEN.

No. 231 Cd T.= 021S R.= 009W SEC.= SW1/4NE1/4SW1/4 SECTION 19 UTM.N= 4315100 UTM.E= 334630 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=98.08 $MgCO_3$=0.6 SiO_2=0.9 Al_2O_3=0.3 Fe_2O_3= K2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.006.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT B. ANALYSIS IS AN AVERAGE OF SAMPLES FROM TRANSECTS A, B, AND C. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSITS A, B, AND C CONTAIN 12,000,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 4,000,000 TONS OF OVERBURDEN.

No. 232 Cd T.= 021S R.= 009W SEC.= SW1/4NW1/4SE1/4 SECTION 19 UTM.N= 4315010 UTM.E= 335000 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=98.08 $MgCO_3$=0.6 SiO_2=0.9 Al_2O_3=0.3 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.006.

Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT C. ANALYSIS IS AN AVERAGE OF SAMPLES FROM TRANSECTS A, B, AND C. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSITS A, B, AND C CONTAIN 12,000,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 4,000,000 TONS OF OVERBURDEN.

No. 233 Cd T.= 021S R.= 009W SEC.= NE1/4SE1/4SW1/4 SECTION 19 UTM.N= 4314900 UTM.E= 334880 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=95.4 $MgCO_3$=2.9 SiO_2=1.21 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.5. USX DRILL HOLE NO. 9. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 97 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, $\%SIO_2$, %CAO, %MGO, $\%R_2O_3$): 0 4 1.1 48.4 5.8 0.6; 4 9 3.1 51.1 2.5 0.5; 9 14 1.3 52.3 2.5 0.6; 14 19 0.5 54.6 1.1 0.2; 19 24 0.5 55.4 0.7 0.2; 24 29 0.5 55.2 1.2 0.2; 29 33 0.5 55.0 0.7 0.2; 33 38 2.3 53.6 0.9 0.3; 38 42 2.1 54.0 0.8 0.3; 42 47 0.6 54.2 1.6 0.3, 47 52 0.5 55.0 0.7 0.3; 52 57 0.3 55.0 0.6 0.3; 57 62 0.2 54.7 0.8 0.2; 62 67 0.6 54.6 1.2 0.2; 67 72 0.6 54.8 0.9 0.3; 72 77 0.6 54.8 1.0 0.3, 77 82 0.6 54.7 0.8 0.3; 82 86 2.0 54.1 0.8 0.9; 86 91 3.1 51.4 1.6 1.6; 91 96 2.8 50.2 2.7 1.9; 96 101 1.7 53.2 0.9 1.3.

No. 234 Cd T.= 021S R.= 009W SEC.= NW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314840 UTM.E= 335020 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=97.5 $MgCO_3$=1.7 SiO_2=0.7 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.3. USX DRILL HOLE NO. 12. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 39 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, $\%SIO_2$, %CAO, %MGO, $\%R_2O_3$): 0 4 0.3 55.7 0.5 0.1; 5 8 0.3 55.0 0.5 0.1; 8 14 0.2 55.8 0.6 0.1; 14 19 0.7 54.6 1.3 0.4; 19 24 0.5 54.6 1.4 0.3; 24 - 29 0.7 55.0 0.6 0.2; 29 34 0.9 54.6 0.6 0.3; 34 39 2.1 53.4 0.7 1.2.

No. 235 Cd T.=021S R.= 009W SEC.= NW1/4SW1/4 SECTION 19 UTM.N.= 4314820 UTM.E= 335000 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$= 99.36 $MgCO_3$=0.84 SiO_2= 0.81 Al_2O_3= 0.19 Fe_2O_3=0.07 K_2O= 0.06 Na_2O=0.02 MnO=0.003 TiO_2<0.001 P_2O_5= <0.01 LOI= 43.06
Trace Elements (IN PPM): BA-7, SR-316, Y-2, SC-1, ZR-13, BE<1, V-<5.
Data Source = TRIPP, B.T., SAMPLED 02/2000. Geol. Map = HINTZE, 1984.
Notes: FROM THE BOTTOM OF THE FACE OF THE OLD PIT ON AGNES AND BETTY CLAIMS.

No. 236 Cd T.= 021S R.= 009W SEC.= NW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314810 UTM.E= 335010 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=96.7 $MgCO_3$=2.1 SiO_2=0.9 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984. Notes: R_2O_3 = 0.5. USX DRILL HOLE NO. 10. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 43 FT SECTION OF THE DRILL HOLE, INTERVAL FROM 43-51 NOT INCLUDED DUE TO LOW GRADE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, $\%SIO_2$, %CAO, %MGO, $\%R_2O_3$): 0 4 0.3 55.6 0.7 0.2; 4 9 0.3 55.9 0.7 0.2; 9 14 0.3 55.6 0.9 0.2; 14 19 0.5 55.4 0.6 0.3; 19 23 1.1 55.4 1.1 0.3; 23 28 0.8 51.4 1.0 0.5; 28 33 0.8 54.4 0.6 0.5; 33 38 1.6 53.6 0.9 0.6; 38 43 2.2 51.4 2.4 1.4; 43 51 1.5 37.6 14.2 1.6.

No. 237 Cd T.= 021S R.= 009W SEC.= NW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314800 UTM.E= 335000 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=96.1 $MgCO_3$=2.3 SiO2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.6. USX DRILL HOLE NO. 11. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 51 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, $\%SIO_2$, %CAO, %MGO, $\%R_2O_3$): 0 3 0.3 55.4 0.6 0.3; 3 17 0.3 55.2 0.6 0.2; 17 21 0.9 54.4 0.9 0.3; 21 31 0.7 54.6 0.7 0.3; 31 41 1.3 54.4 0.9 0.6; 41 49 2.0 53.0 1.0 1.4; 49 51 1.8 50.8 3.0 1.3.

No. 238 Cd T.= 021S R.= 009W SEC.= SW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314620 UTM.E= 334890 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=96.7 $MgCO_3$=2.7 SiO_2=0.9 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.4. USX DRILL HOLE NO. 3. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 51 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, $\%SIO_2$, %CAO, %MGO, $\%R_2O_3$): 0 3 6.7 43.6 6.1 1.3; 3 5 5.4 46.2 5.2 1.4; 5 9 0.9 52.4 2.2 0.5; 9 14 0.4 55.0 0.9 0.3; 14 19 0.4 54.6 0.9 0.3; 24 28 0.6 54.0 1.6 0.4; 28 38 0.4 55.2 0.9 0.4; 38 46 2.7 53.6 0.9 0.5; 46 51 1.2 53.6 2.0 0.6.

No. 239 Cd T.= 021S R.= 009W SEC.= SW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314620 UTM.E= 334920 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=97.5 $MgCO_3$=2.5 SiO_2=0.8 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.2. USX DRILL HOLE NO. 2. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 70 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, $\%SIO_2$, %CAO, %MGO, $\%R_2O_3$): 0 5 0.4 55.6 0.9 0.2; 5 8 0.5 55.0 1.1 0.2; 8 13 0.4 54.4 1.6 0.3; 13 17 0.4 55.2 0.9 0.2; 17 23 1.5 54.7 1.1 0.2; 23 29 2.7 53.6 1.1 0.4; 29 34 1.8 53.6 1.9 0.3; 34 39 0.5 55.6 0.9 0.3; 39 44 0.4 54.8 1.2 0.2; 44 51 0.4 54.8 0.9 0.2; 51 54 0.3 55.7 1.6 0.2; 54 59 0.4 55.0 1.1 0.2; 59 65 0.6 54.8 0.9 0.2; 65 70 1.2 55.0 0.9 0.2.

No. 240 Cd T.= 021S R.= 009W SEC.= SW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314620 UTM.E= 334950 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=97.0 $MgCO_3$=2.3 SiO_2=0.7 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.

Notes: R_2O_3 = 0.4. USX DRILL HOLE NO. 1. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 74 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, %SIO_2, %CAO, %MGO, %R_2O_3): 0 5 0.4 55.0 0.9 0.4; 5 10 0.5 54.8 0.9 0.4; 10 15 0.5 53.7 1.8 0.4; 15 20 0.5 53.0 2.4 0.4; 20 25 0.5 54.2 1.3 0.4; 25 30 0.6 55.0 0.9 0.3; 30 35 2.9 53.2 0.7 0.7; 35 40 1.8 53.8 0.9 0.4; 40 45 1.1 54.0 0.8 0.4; 45 50 0.4 54.6 1.8 0.3; 50 55 0.4 55.2 0.9 0.3; 55 60 0.3 55.8 0.6 0.3; 60 65 0.4 55.4 0.6 0.3; 65 70 0.4 55.4 0.6 0.3; 70 74 0.4 55.0 0.7 0.3.

No. 241 Cd T.= 021S R.= 009W SEC.= SE1/4SE1/4SW1/4 SECTION 19 UTM.N= 4314610 UTM.E= 334890 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=96.7 $MgCO_3$=2.7 SiO_2=0.8 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.5. USX DRILL HOLE NO. 4. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 45 FT SECTION OF THE DRILL HOLE. INTERVAL FROM 0-5 FT WAS NOT INCLUDED IN AVERAGE BECAUSE OF LOW GRADE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, %SIO_2, %CAO, %MGO, %R_2O_3): 0 5 7.5 42.6 6.6 1.0; 5 9 1.4 51.2 3.2 0.4; 9 14 0.7 55.0 0.9 0.4; 14 19 0.3 55.4 0.8 0.2; 19 24 0.7 54.0 1.4 0.3; 24 29 0.4 53.6 1.6 1.8; 29 34 0.4 55.2 1.1 0.3; 34 39 0.4 55.0 1.1 0.2; 39 44 0.9 55.0 0.8 0.3; 44 50 1.7 54.6 0.9 0.3.

No. 242 Cd T.= 021S R.= 009W SEC.= SW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314610 UTM.E= 334910 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=95.9 $MgCO_3$=2.9 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.4. USX DRILL HOLE NO. 5. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 50 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, %SIO_2, %CAO, %MGO, %R_2O_3): 0 5 2.3 51.0 2.6 0.6; 5 10 0.4 55.0 0.9 0.2; 10 15 0.3 55.0 0.9 0.2; 15 20 0.3 54.6 1.3 0.2; 20 25 0.4 54.2 1.3 0.2; 25 30 0.5 54.6 1.6 0.2; 30 35 2.7 53.0 0.7 0.4; 35 40 1.1 54.4 0.9 0.6; 40 45 2.0 53.4 1.1 0.6; 45 50 0.5 53.4 2.2 0.3.

No. 243 Cd T.= 021S R.= 009W SEC.= SW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314610 UTM.E= 334940 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=96.7 $MgCO_3$=2.0 SiO_2=0.9 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.3. USX DRILL HOLE NO. 6. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 52 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, %SIO_2, %CAO, %MGO, %R_2O_3): 0 5 0.5 54.8 0.9 0.3; 5 8 0.3 55.0 0.8 0.2; 8 13 0.3 55.0 1.1 0.2; 13 18 0.4 54.0 2.0 0.3; 18 23 0.4 54.2 1.0 0.3; 23 28 2.0 53.1 1.2 0.4; 28 33 3.5 52.0 0.9 0.6; 33 38 1.5 54.6 0.8 0.4; 38 43 0.9 54.4 0.8 0.5; 43 47 0.4 54.7 0.9 0.3; 47 52 0.2 55.6 0.8 0.3.

No. 244 Cd T.= 021S R.= 009W SEC.= SW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314590 UTM.E= 334890 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=95.9 $MgCO_3$=2.9 SiO_2=1.0 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.4. USX DRILL HOLE NO. 8. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 46 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, %SIO_2, %CAO, %MGO, %R_2O_3): 0 5 4.5 48.4 4.2 0.8; 5 8 1.7 51.2 2.8 0.6; 8 13 0.5 54.2 1.1 0.4; 13 18 0.4 55.2 0.9 0.3; 18 23 0.4 54.4 1.4 0.3; 23 28 0.4 55.4 0.6 0.3; 28 33 1.8 53.2 1.1 0.6; 33 38 2.4 53.4 1.0 0.6; 38 41 1.1 54.6 1.1 0.4; 41 46 0.5 53.6 1.6 0.4; 46 51 0.5 53.8 2.2 0.4.

No. 245 Cd T.= 021S R.= 009W SEC.= SW1/4SW1/4SE1/4 SECTION 19 UTM.N= 4314590 UTM.E= 334920 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=97.4 $MgCO_3$=2.1 SiO_2=0.8 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = GIN, 1958. Geol. Map = HINTZE, 1984.
Notes: R_2O_3 = 0.5. USX DRILL HOLE NO. 7. ANALYSIS IS AN AVERAGE OF SEVERAL SAMPLES FROM A 53 FT SECTION OF THE DRILL HOLE. ASSAYS FOR INTERVALS SAMPLED FOLLOW (INTERVAL IN FT, %SIO_2, %CAO, %MGO, %R_2O_3): 0 5 0.5 55.2 0.9 0.4; 5 8 0.4 55.4 0.6 0.4; 8 13 0.4 55.0 0.8 0.3; 13 18 0.4 54.6 1.3 0.4; 18 23 0.4 55.4 0.8 0.4; 23 28 2.0 53.6 0.9 0.7; 28 33 1.8 54.4 0.8 0.6; 33 38 1.8 53.0 1.8 0.7; 38 43 0.6 54.6 1.1 0.6; 43 48 0.4 55.6 0.9 0.4; 48 53 0.4 55.4 1.1 0.3.

No. 246 Cho T.= 021S R.= 010W SEC.= NE1/4SE1/4SE1/4 SECTION 35 UTM.N= 4311730 UTM.E= 332370 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=96.3 $MgCO_3$=3.1 SiO_2=0.8 Al_2O_3=0.3 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.005.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT N. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT N CONTAINS MORE THAN 10,000,000 TONS OF LIMESTONE THAT WOULD HAVE TO BE MINED UNDERGROUND.

No. 247 Cww T.= 022S R.= 009W SEC.= NW1/4SW1/4SW1/4 SECTION 08 UTM.N= 4308410 UTM.E= 335670 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=95.2 $MgCO_3$=3.1 SiO_2=0.7 Al_2O_3=0.2 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.007.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT F. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT F CONTAINS 4,000,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 450,000 TONS OF OVERBURDEN.

No. 248 Cww T.= 022S R.= 009W SEC.= SW1/4SW1/4NE1/4 SECTION 17 UTM.N= 4307460 UTM.E= 336450 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=98.1 $MgCO_3$=0.8 SiO_2=0.7 Al_2O_3=0.3 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.003.

Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT O. ANALYSIS IS AN AVERAGE OF SAMPLES FROM TRANSECTS I, P, Q, R, AND O. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSITS I, P, Q, R AND O CONTAIN 3,500,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 400,000 TONS OF OVERBURDEN.

No. 249 Cww T.= 022S R.= 009W SEC.= NW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4307180 UTM.E= 336420 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=98.1 $MgCO_3$=0.8 SiO_2=0.7 Al_2O_3=0.3 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.003.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT R. ANALYSIS IS AN AVERAGE OF SAMPLES FROM TRANSECTS I, P, Q, R, AND O. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSITS I, P, Q, R AND O CONTAIN 3,500,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 400,000 TONS OF OVERBURDEN.

No. 250 Cww T.= 022S R.= 009W SEC.= SW1/4NW1/4SE1/4 SECTION 17 UTM.N= 4306920 UTM.E= 336500 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=98.1 $MgCO_3$=0.8 SiO_2=0.7 Al_2O_3=0.3 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.003.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT Q. ANALYSIS IS AN AVERAGE OF SAMPLES FROM TRANSECTS I, P, Q, R, AND O. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSITS I, P, Q, R AND O CONTAIN 3,500,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 400,000 TONS OF OVERBURDEN.

No. 251 Cww T.= 022S R.= 009W SEC.= SW1/4SW1/4SE1/4 SECTION 17 UTM.N= 4306510 UTM.E= 336450 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=98.1 $MgCO_3$=0.8 SiO_2=0.7 Al_2O_3=0.3 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.003.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT P. ANALYSIS IS AN AVERAGE OF SAMPLES FROM TRANSECTS I, P, Q, R, AND O. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSITS I, P, Q, R AND O CONTAIN 3,500,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 400,000 TONS OF OVERBURDEN.

No. 252 Cww T.= 022S R.= 009W SEC.= SW1/4NW1/4NE1/4 SECTION 20 UTM.N= 4306130 UTM.E= 336500 UTM.Z= +12 Topo. Map = CANDLAND SPRING
$CaCO_3$=98.1 $MgCO_3$=0.8 SiO_2=0.7 Al_2O_3=0.3 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.003.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT I. ANALYSIS IS AN AVERAGE OF SAMPLES FROM TRANSECTS I, P, Q, R, AND O. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSITS I, P, Q, R AND O CONTAIN 3,500,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 400,000 TONS OF OVERBURDEN.

No. 253 Cww T.= 022S R.= 009W SEC.= NW1/4SW1/4SE1/4 SECTION 28 UTM.N= 4303500 UTM.E= 337980 UTM.Z= +12 Topo. Map = CRUZ
$CaCO_3$=97.0 $MgCO_3$=1.3 SiO_2=0.8 Al_2O_3=0.4 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements: S = TRACE.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT S. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT S CONTAINS 2,000,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 450,000 TONS OF OVERBURDEN.

No. 254 Cd T.= 022S R.=009E SEC.= NW1/4 SECTION 32 UTM.N.= 4301300 UTM.E= 505250 UTM.Z= +12 Topo. Map = COPPER GLOBE
$CaCO_3$=92.54 $MgCO_3$=1.67 SiO_2=5.09 Al_2O_3=0.78 Fe_2O_3=0.44 K_2O= 0.28 Na_2O=0.10 MnO= 0.034 TiO_2=0.039 P_2O_5=0.02 LOI=40.70
Trace Elements (IN PPM): BA-81, SR-496, Y-3, SC-1, ZR-32, BE<1, V-5.
Data Source = GERWE, S., SAMPLED 09/2000. Geol. Map = WILLIAMS, 1972.
Notes: LOCATION IS ACCURATE WITHIN A 1,000-FT RADIUS.

No. 255 Cww T.= 023S R.= 009W SEC.= SW1/4NE1/4NW1/4 SECTION 04 UTM.N= 4301250 UTM.E= 337620 UTM.Z= +12 Topo. Map = CRUZ
$CaCO_3$=97.5 $MgCO_3$=0.8 SiO_2=1.0 Al_2O_3=0.2 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.003.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT H. THE ASSAY IS AN AVERAGE OF SAMPLES TAKEN AT TRANSECTS H AND HH. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE

SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT H AND HH CONTAIN A VERY LARGE RESOURCE THAT WOULD HAVE TO BE MINED UNDERGROUND.

No. 256 Cww T. = 023S R.= 010W SEC.= W1/2SE1/4NW1/4 SECTION 01 UTM.N= 4301100 UTM.E= 332970 UTM.Z= +12 Topo. Map = CAT CANYON
$CaCO_3$=97.4 $MgCO_3$=1.0 SiO_2=0.9 Al_2O_3=0.2 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.004.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT T. THE ANALYSIS IS AN AVERAGE OF SAMPLES TAKEN AT TRANSECTS M AND T. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT M AND T CONTAIN 7,000,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 800,000 TONS OF OVERBURDEN.

No. 257 Cww T. = 023S R.= 009W SEC.= NE1/4SW1/4NW1/4 SECTION 04 UTM.N= 4301040 UTM.E= 337450 UTM.Z= +12 Topo. Map = CRUZ
$CaCO_3$=97.5 $MgCO_3$=0.8 SiO_2=1.0 Al_2O_3=0.2 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.003.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT HH. THE ASSAY IS AN AVERAGE OF SAMPLES TAKEN AT TRANSECTS H AND HH. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT H AND HH CONTAINS A LARGE AMOUNT OF LIMESTONE THAT WOULD HAVE TO BE UNDERGROUND MINED.

No. 258 Cww T. = 023S R.= 010W SEC.= SE1/4SW1/4NW1/4 SECTION 01 UTM.N= 4300960 UTM.E= 332570 UTM.Z= +12 Topo. Map = CAT CANYON
$CaCO_3$=97.4 $MgCO_3$=1.0 SiO_2=0.9 Al_2O_3=0.2 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.004.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT M. THE ANALYSIS IS AN AVERAGE OF SAMPLES TAKEN AT TRANSECTS M AND T. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT M AND T CONTAIN 7,000,000 TONS OF LIMESTONE THAT COULD BE OPEN PIT MINED WITH THE REMOVAL OF 800,000 TONS OF OVERBURDEN.

No. 259 Cww T. = 023S R.= 009W SEC.= NE1/4NW1/4SW1/4 SECTION 04 UTM.N= 4300620 UTM.E= 337380 UTM.Z= +12 Topo. Map = CRUZ
$CaCO_3$=97.9 $MgCO_3$=0.2 SiO_2=0.8 Al_2O_3=0.1 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.006.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT K. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT K CONTAINS A VERY LARGE AMOUNT OF LIMESTONE THAT WOULD HAVE TO BE UNDERGROUND MINED.

No. 260 Cww T. = 023S R.= 009W SEC.= SE1/4SW1/4SW1/4 SECTION 04 UTM.N= 4300100 UTM.E= 337420 UTM.Z= +12 Topo. Map = CRUZ
$CaCO_3$=96.8 $MgCO_3$=1.5 SiO_2=1.0 Al_2O_3=0.4 Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Trace Elements (IN PERCENT): S = 0.003.
Data Source = U.S. STEEL (USX), 1950. Geol. Map = HINTZE, 1984.
Notes: USX SAMPLE TRANSECT J. THE LOCATION OF THIS TRANSECT IS SOMEWHAT UNCERTAIN DUE TO THE SMALL SCALE AND DISTORTION OF THE ORIGINAL MAP. DEPOSIT J CONTAINS A VERY LARGE QUANTITY OF LIMESTONE THAT WOULD HAVE TO BE UNDERGROUND MINED.

No. 261 Tgr T.= 023S R.= 003W SEC.= NW1/4NE1/4SW1/4 SECTION 13 UTM.N= 4294930 UTM.E= 405820 UTM.Z= +12 Topo. Map = RICHFIELD
$CaCO_3$=97.69 $MgCO_3$=2.30 SiO_2=1.89 Al_2O_3=0.44 Fe_2O_3=0.23 K_2O=0.19 Na_2O=0.03 MnO=0.02 TiO_2=0.03 P_2O_5< 0.03 LOI=41.58
Trace Elements (IN PERCENT): BAO = 0.019, CR2O3 = 0.02, TOTAL SULFUR IS LESS THAN 0.02.
Data Source = WILLIS, 1994. Geol. Map = WILLIS, 1994.
Notes: THE SAMPLE ASSAYED WAS A GRAB SAMPLE FROM A TALUS SLOPE.

No. 262 Tgr T.= 023S R.= 003W SEC.= NE1/4NE1/4NE1/4 SECTION 23 UTM.N= 4294110 UTM.E= 405350 UTM.Z= +12 Topo. Map = RICHFIELD
$CaCO_3$=95.21 $MgCO_3$=5.81 SiO_2=1.94 Al_2O_3=0.33 Fe_2O_3=0.24 K_2O< 0.05 Na_2O=0.05 MnO=0.02 TiO_2=0.02 P_2O_5< 0.03 LOI=41.50
Trace Elements (IN PERCENT): BAO = 0.012, CR2O3 = 0.01, TOTAL SULFUR = 0.04.
Data Source = WILLIS, 1994. Geol. Map = WILLIS, 1994.
Notes: SAMPLES TAKEN FROM STOCKPILE NEAR OLD LIME KILN.

No. 263 Jc T.= 024S R.= 008E SEC.= NE1/4SE1/4NE1/4 SECTION 19 UTM.N= 4284480 UTM.E= 494190 UTM.Z= +12 Topo. Map = IRELAND MESA
$CaCO_3$=89.04 $MgCO_3$=1.02 SiO_2=6.22 Al_2O_3=0.99 Fe_2O_3=0.09 K_2O=0.38 Na_2O=0.04 MnO<0.01 TiO_2<0.01 P2O5<0.01 LOI=39.76
Data Source = NEUMANN, 1989. Geol. Map = CONDON, 1953.
Notes:

No. 264 Co T.= 025S R.= 016W SEC.= SE1/4SW1/4NE1/4 SECTION 02 UTM.N= 4283100 UTM.E= 273270 UTM.Z= +12 Topo. Map = GRASSY COVE
$CaCO_3$=94.6 $MgCO_3$=5.0 SiO_2=1.00 Al_2O_3=0.11 Fe_2O_3=0.13 K_2O=0.28 Na_2O= <0.01 MnO= <0.01 TiO_2=0.02 P_2O_5=0.04 LOI=42.5
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: TWENTY FIVE FT CHIP SAMPLE.

No. 265 Jk T. = 024S R.= 012E SEC.= SW1/4SE1/4SE1/4 SECTION 26 UTM.N= 4282250 UTM.E= 537790 UTM.Z= +12 Topo. Map = OLD WOMAN WASH
$CaCO_3$=85.64 $MgCO_3$=2.65 SiO_2=7.38 Al_2O_3=0.95 Fe_2O_3=0.26 K_2O=0.11 Na_2O=0.11 MnO=0.03 TiO_2=0.04 P_2O_5<0.01 LOI=41.87
Data Source = MUNTS, 1989. Geol. Map = HEMPHILL, 1963.
Notes: HEMPHILL (1963) MAPPED THE SAMPLE SITE AS JURASSIC CARMEL FM.

No. 266 Cww T. = 025S R.= 016W SEC.= NW1/4NE1/4NE1/4 SECTION 23 UTM.N= 4278780 UTM.E= 273290 UTM.Z= +12 Topo. Map = GRASSY COVE
$CaCO_3$=96.2 $MgCO_3$=3.05 SiO_2=1.02 Al_2O_3=0.30 Fe_2O_3=0.13 K_2O=0.32 Na_2O<0.01 MnO<0.01 TiO_2=0.02 P_2O_5=0.06 LOI=42.3
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: THIRTY FT CHIP SAMPLE.

No. 267 Cpc T. = 025S R.= 016W SEC.= SE1/4NW1/4SE1/4 SECTION 22 UTM.N= 4277800 UTM.E= 271490 UTM.Z= +12 Topo. Map = WAH WAH SUMMIT
$CaCO_3$=94.0 $MgCO_3$=5.38 SiO_2=0.74 Al_2O_3=0.20 Fe_2O_3=0.11 K_2O=0.25 Na_2O= <0.01 MnO= <0.01 TiO_2=0.01 P_2O_5=0.02 LOI=43.0
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: TWENTY FIVE FT CHIP SAMPLE.

No. 268 Cpc T. = 026S R.= 016W SEC.= SW1/4NE1/4NE1/4 SECTION 02 UTM.N= 4273880 UTM.E= 273100 UTM.Z= +12 Topo. Map = WAH WAH SUMMIT
$CaCO_3$=86.9 $MgCO_3$=12.1 SiO_2=0.91 Al_2O_3=0.24 Fe_2O_3=0.12 K_2O=0.24 Na_2O<0.01 MnO<0.01 TiO_2=0.02 P_2O_5=0.04 LOI=43.4
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: TWENTY FT CHIP SAMPLE.

No. 269 Ct T. = 026S R.= 016W SEC.= NW1/4NW1/4NE1/4 SECTION 12 UTM.N= 4271900 UTM.E= 274280 UTM.Z= +12 Topo. Map = WAH WAH SUMMIT
$CaCO_3$=86.2 $MgCO_3$=12.0 SiO_2=2.01 Al_2O_3=0.35 Fe_2O_3=0.17 K_2O=0.35 Na_2O<0.01 MnO <0.01 TiO_2=0.02 P_2O_5=0.05 LOI=42.7
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: TEN FT CHIP SAMPLE.

No. 270 Cww T.= 026S R.= 015W SEC.= SW1/4SW1/4NE1/4 SECTION 07 UTM.N= 4271500 UTM.E= 275810 UTM.Z= +12 Topo. Map = WAH WAH SUMMIT
$CaCO_3$=91.0 $MgCO_3$=6.32 SiO_2=2.51 Al_2O_3=0.55 Fe_2O_3=0.23 K_2O=0.49 Na_2O<0.01 MnO=0.01 TiO_2=0.03 P_2O_5=0.03 LOI=41.5
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: TWENTY FT CHIP SAMPLE.

No. 271 Cww T.= 026S R.= 015W SEC.= SW1/4SW1/4NW1/4 SECTION 08 UTM.N= 4271400 UTM.E= 276620 UTM.Z= +12 Topo. Map = WAH WAH SUMMIT
$CaCO_3$=95.5 $MgCO_3$=4.35 SiO_2=1.08 Al_2O_3=0.20 Fe_2O_3=0.10 K_2O=0.26 Na_2O<0.01 MnO<0.01 TiO_2=0.0 P_2O_5<0.01 LOI=42.8
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: FIFTEEN FT CHIP SAMPLE.

No. 272 Co T.= 026S R.= 015W SEC.= S1/2NW1/4NE1/4 SECTION 21 UTM.N= 4268600 UTM.E= 279060 UTM.Z= +12 Topo. Map = WAH WAH SUMMIT
$CaCO_3$=92.3 $MgCO_3$=1.95 SiO_2=6.64 Al_2O_3=0.55 Fe_2O_3=0.27 K_2O=0.50 Na_2O<0.01 MnO=0.04 TiO_2=0.04 P_2O_5=0.14 LOI=39.5
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: TEN FT CHIP SAMPLE.

No. 273 Co T.= 026S R.= 015W SEC.= NW1/4NE1/4SE1/4 SECTION 21 UTM.N= 4268010 UTM.E= 279350 UTM.Z= +12 Topo. Map = WAH WAH SUMMIT
$CaCO_3$=94.2 $MgCO_3$=6.42 SiO_2=1.67 Al_2O_3=0.27 Fe_2O_3=0.16 K_2O=0.20 Na_2O<0.01 MnO=0.01 TiO_2=0.01 P_2O_5=0.04 LOI=42.1
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: TWENTY FIVE FT CHIP SAMPLE.

No. 274 Cww T.= 026S R.= 015W SEC.= SW1/4NE1/4SE1/4 SECTION 19 UTM.N= 4267990 UTM.E= 276130 UTM.Z= +12 Topo. Map = WAH WAH SUMMIT
$CaCO_3$=91.6 $MgCO_3$=3.85 SiO_2=2.21 Al_2O_3=0.13 Fe_2O_3=0.51 K_2O=0.38 Na_2O<0.01 MnO=0.01 TiO_2=0.02 P_2O_5=0.03 LOI=41.6
Data Source = BROWN, 1987. Geol. Map = HINTZE, 1974b.
Notes: EIGHT FT CHIP SAMPLE.

No. 275 Cen T.= 026S R.= 016W SEC.= NE1/4NE1/4 SECTION 36 UTM.N= 4265300 UTM.E= 273400 UTM.Z= +12 Topo. Map = WAH WAH SUMMIT
$CaCO_3$=96.7 $MgCO_3$=1.11 SiO_2=2.7 Al_2O_3=0.19 Fe_2O_3=0.06 K_2O= Na_2O= MnO= TiO_2= P_2O_5< 0.01 LOI=
Trace Elements (IN PERCENT): S < 0.05.

Data Source = EVERTS, UGS SAMPLE, 06/1980. Geol. Map = HINTZE, 1974b.
Notes: LOCATION ACCURATE WITHIN 1,000-FT RADIUS. SAMPLE 95-11-1.

No. 276 PAL T.= 027S R.= 011W SEC.= NE1/4NE1/4NE1/4 SECTION 22 UTM.N= 4258200 UTM.E= 319710 UTM.Z= +12 Topo. Map = MILFORD
$CaCO_3$=86.2 $MgCO_3$=12.69 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 03/1990. Geol. Map = BEST AND OTHERS, 1989.
Notes: MARBLE, VERY FINE GRAINED, INDISTINCTLY BEDDED, LIGHT OLIVE GREY ON WEATHERED SURFACE, LIGHT GREY ON FRESH SURFACE, OCCASIONAL THIN DARK GREY TO REDDISH BROWN VEINLETS CONTAINING HEMATITE AND MINOR PYRITE. UNIT HERE WEATHERS TO A SMOOTH SURFACE FORMING A WHITE COBBLY TO BOULDERY SLOPE. SAMPLE 3-20-001

No. 277 Trm T.= 028S R.= 011W SEC.= NE1/4NW1/4SE1/4 SECTION 18 UTM.N= 4249360 UTM.E= 314250 UTM.Z= +12 Topo. Map = MILFORD FLAT
$CaCO_3$=89.2 $MgCO_3$=2.07 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 03/1990. Geol. Map = BEST AND OTHERS, 1989.
Notes: LIMESTONE, FINE GRAINED, FLAGGY TO THICK BEDDED, WEATHERS TO A SMOOTH SURFACE, OCCASIONAL THIN, SANDY, IRON STAINED SEAMS AND CROSSCUTTING CALCITE VEINLETS, MEDIUM DARK GREY ON WEATHERED SURFACE, MEDIUM GREY ON FRESH SURFACE. SAMPLE 3-21-002.

No. 278 Trm T.= 028S R.= 011W SEC.= NE1/4NW1/4SE1/4 SECTION 18 UTM.N= 4249360 UTM.E= 314250 UTM.Z= +12 Topo. Map = MILFORD FLAT
$CaCO_3$=88.6 $MgCO_3$=4.16 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 03/1990. Geol. Map = BEST AND OTHERS, 1989.
Notes: LIMESTONE, FINE GRAINED, FLAGGY TO THICK BEDDED, FETID, SMOOTH, STRAIGHT-WEATHERING OUTCROP, MEDIUM DARK GREY ON WEATHERED SURFACE, MEDIUM GREY ON FRESH SURFACE, SMALL DISSEMINATED HEMATITE BLEBS. SAMPLE 3-21-003.

No. 279 Pk T.= 028S R.= 011W SEC.= SW1/4NE1/4SW1/4 SECTION 18 UTM.N= 4249020 UTM.E= 313730 UTM.Z= +12 Topo. Map = PICACHO PEAK
$CaCO_3$=91.1 $MgCO_3$=3.9 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = T RIPP, SAMPLED 03/1990. Geol. Map = BEST AND OTHERS, 1989.
Notes: LIMESTONE, FINELY CRYSTALLINE, THICK TO MASSIVE BEDDING, MEDIUM LIGHT GREY ON WEATHERED SURFACE, LIGHT GREY ON FRESH SURFACE, TRACES OF CRINOIDS AND FOSSIL HASH ON WEATHERED SURFACE, OCCASIONAL CHERT NODULES UP TO FOUR IN. IN DIAMETER. SAMPLE 3-21-004.

No. 280 Pk T.= 028S R.= 011W SEC.= SW1/4SW1/4SW1/4 SECTION 17 UTM.N= 4248600 UTM.E= 314900 UTM.Z= +12 Topo. Map = MILFORD FLAT
$CaCO_3$=91.7 $MgCO_3$=5.00 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 03/1990. Geol. Map = BEST AND OTHERS, 1989.
Notes: LIMESTONE, MEDIUM CRYSTALLINE, MASSIVE BEDDING, WEATHERS INTO SMOOTH SLOPE WITH ABUNDANT NODULAR TO BEDDED CHERT, HACKLY SURFACE ON DOLOMITIC INTERVALS, LIGHT BROWNISH GREY TO MEDIUM LIGHT GREY ON FRESH AND WEATHERED SURFACES, ABUNDANT CRINOIDAL HASH IN LIMY PARTS OF OUTCROP SAMPLE 3-22-001.

No. 281 Mrs T.= 028S R.= 12W SEC.= N1/2N1/2SE1/4 SECTION 36 UTM.N= 4244490 UTM.E= 312460 UTM.Z= +12 Topo. Map = MILFORD FLAT
$CaCO_3$=94.2 $MgCO_3$=0.77 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 03/1990. Geol. Map = BEST AND OTHERS, 1989.
Notes: LIMESTONE, VERY FINELY CRYSTALLINE, THICK BEDDED, LIGHT OLIVE GREY ON FRESH AND WEATHERED SURFACE, FORMS A SLOPE. SAMPLE 3-23-004.

No. 282 Mrs T.= 028S R.= 012W SEC.= N1/2N1/2SE1/4 SECTION 36 UTM.N= 4244490 UTM.E= 312600 UTM.Z= +12 Topo. Map = MILFORD FLAT
$CaCO_3$=84.7 $MgCO_3$=1.02 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 03/1990. Geol. Map = BEST AND OTHERS, 1989.
Notes: SAMPLE 3-23-002. LIMESTONE, FINELY CRYSTALLINE, THIN TO THICK BEDDED, WEATHERS TO A RELATIVELY SMOOTH, FLAT SURFACE, FORMS A PROMINENT RIDGE, COLOR OLIVE GRAY ON WEATHERED SURFACE, MEDIUM GRAY ON FRESH SURFACE.

No. 283 Mgb T.= 029S R.= 013W SEC.= NE1/4NE1/4NE1/4 SECTION 09 UTM.N= 4242280 UTM.E= 298380 UTM.Z= +12 Topo. Map = WHITE MOUNTAIN
$CaCO_3$=80.9 $MgCO_3$=9.22 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 08/1990. Geol. Map = HAYMOND, 1981.
Notes: LIMESTONE, FINELY CRYSTALLINE, MASSIVELY BEDDED, MEDIUM GREY ON FRESH AND WEATHERED SURFACES, WEATHERS TO A SLIGHTLY HACKLY SURFACE, FORMS A RUBBLY LEDGE, ABUNDANT CALCITE VEINLETS, UNIT IS 6 FT THICK. SAMPLE 8-30-005.

No. 284 Mgb T.= 029S R.= 013W SEC.= NE1/4NE1/4NE1/4 SECTION 09 UTM.N= 4242200 UTM.E= 298360 UTM.Z= +12 Topo. Map = WHITE MOUNTAIN
$CaCO_3$=72.9 $MgCO_3$=16.4 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = T RIPP, SAMPLED 08/1990. Geol. Map = HAYMOND, 1981.
Notes: DOLOMITIC LIMESTONE, FINELY CRYSTALLINE, THICK BEDDED, MEDIUM GREY ON FRESH AND WEATHERED SURFACES, WEATHERS BLOCKY WITH SUCROSIC APPEARANCE, THIN CALCITE VEINLETS COMMON, FORMS A LEDGE 3 FT THICK. SAMPLE 8-30-004.

No. 285 Mgb T.= 029S R.= 013W SEC.= SE1/4NE1/4NE1/4 SECTION 09 UTM.N= 4242170 UTM.E= 298350 UTM.Z= +12 Topo. Map = WHITE MOUNTAIN
$CaCO_3$=89.9 $MgCO_3$=1.69 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 08/1990. Geol. Map = HAYMOND, 1981.
Notes; LIMESTONE, FINELY CRYSTALLINE, THICK BEDDED, LIGHT OLIVE GREY ON WEATHERED SURFACE, OLIVE GREY ON FRESH SURFACE, WEATHERS TO A SMOOTH, BLOCKY SURFACE, FORMS A SLIGHTLY LEDGY SLOPE ABOUT 10 FT THICK, CONTAINS OCCASIONAL THIN CHERT STRINGERS. SAMPLE 8-30-003.

No. 286 Mgb T. = 029S R.= 013W SEC.= SE1/4NE1/4NE1/4 SECTION 09 UTM.N= 4242150 UTM.E= 298290 UTM.Z= +12 Topo. Map = WHITE MOUNTAIN
$CaCO_3$=88.4 $MgCO_3$=0.77 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 08/1990. Geol. Map = HAYMOND, 1981.
Notes: LIMESTONE, MEDIUM CRYSTALLINE, THICK BEDDED, MODERATE GREY ON FRESH SURFACE, LIGHT MODERATE GREY ON WEATHERED SURFACE, WEATHERS TO A SMOOTH BLOCKY SURFACE, FORMS A LEDGY SLOPE ABOUT 20 FT THICK, ABUNDANT HORN CORAL. SAMPLE 8-30-002.

No. 287 Mgb T. = 029S R.= 013W SEC.= SE1/4NE1/4NE1/4 SECTION 09 UTM.N= 4242060 UTM.E= 298290 UTM.Z= +12 Topo. Map = WHITE MOUNTAIN
$CaCO_3$=89.9 $MgCO_3$=0.81 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 08/1990. Geol. Map = HAYMOND, 1981.
Notes: LIMESTONE, MEDIUM CRYSTALLINE, THICK BEDDED, LIGHT GREY ON FRESH SURFACE, LIGHT OLIVE GREY ON WEATHERED SURFACE, WEATHERS TO A SMOOTH SURFACE, FORMS A SLIGHT LEDGE ABOUT 15 FT HIGH. THE GREAT BLUE LS. ABOVE THIS POINT CONTAINS ABUNDANT CHERT. SAMPLE 8-30-001.

No. 288 Trc T. = 029S R.= 006E SEC.= N1/2 08 UTM.N.= 4240190 UTM.E= 474520 UTM.Z= +12 Topo. Map = TWIN ROCKS
$CaCO_3$= 96.3 $MgCO_3$= 1.55 SiO_2= 2.7 Al_2O_3= 0.6 Fe_2O_3= 0.48 K_2O= 0.15 Na_2O=0.09 MnO= 0.01 TiO_2= 0.02 P_2O_5= 0.02 LOI= 42.25
Data Source = SMITH AND OTHER, 1963. Geol. Map = SMITH AND OTHER, 1963.
Notes:

No. 289 Cd T. = 030S R.= 014W SEC.= SE1/4NE1/4NW1/4 SECTION 35 UTM.N= 4226120 UTM.E= 290630 UTM.Z= +12 Topo. Map = BLUE MTN.
$CaCO_3$=88.9 $MgCO_3$=8.46 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 08/1990. Geol. Map = WEAVER, 1980.
Notes: LIMESTONE, VERY FINE GRAINED, MASSIVE BEDDING, WEATHERS TO A SLIGHTLY ROUGH SURFACE, VERY ABUNDANT THIN CALCITE VEINS, SPARSE IRON STAINING, MEDIUM GREY ON WEATHERED SURFACE, MEDIUM DARK GREY ON FRESH SURFACE, FORMS NEARLY VERTICAL CLIFF. SAMPLE 8-28-002.

No. 290 Cd T. = 030S R.= 014W SEC.= SE1/4NE1/4NW1/4 SECTION 35 UTM.N= 4226090 UTM.E= 290660 UTM.Z= +12 Topo. Map = BLUE MTN.
$CaCO_3$=89.9 $MgCO_3$=7.14 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 08/1990. Geol. Map = WEAVER, 1980.
Notes: LIMESTONE, VERY FINE GRAINED, MASSIVE BEDDING, WEATHERS TO A SLIGHTLY ROUGH SURFACE, ABUNDANT THIN CALCITE VEINS WITH OCCASIONAL IRON STAINING, MEDIUM GREY ON WEATHERED SURFACE, MEDIUM DARK GREY ON FRESH SURFACE, FORMS NEARLY VERTICAL CLIFF. SAMPLE 8-28-003.

No. 291 Cd T.= 030S R.= 014W SEC.= SE1/4NE1/4NW1/4 SECTION 35 UTM.N= 4226050 UTM.E= 290680 UTM.Z= +12 Topo. Map = BLUE MTN.
$CaCO_3$=91.4 $MgCO_3$=4.58 SiO_2= Al_2O_3= Fe_2O_3= K2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 08/1990. Geol. Map = WEAVER, 1980.
Notes: SAMPLE 8-28-004. LIMESTONE, VERY FINE GRAINED, MASSIVE BEDDING, WEATHERS TO A SLIGHTLY ROUGH SURFACE, ABUNDANT THIN CALCITE VEINS WITH OCCASIONAL IRON STAINING, MEDIUM GREY ON WEATHERED SURFACE, MEDIUM DARK GREY ON FRESH SURFACE, FORMS A NEARLY VERTICAL CLIFF. ACID INSOLS. = 1.81.

No. 292 Cpc T.= 031S R.= 014W SEC.= NW1/4NW1/4 SECTION 01 UTM.N= 4224280 UTM.E= 291590 UTM.Z= +12 Topo. Map = BLUE MTN.
$CaCO_3$=87.9 $MgCO_3$=7.14 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = TRIPP, SAMPLED 08/1990. Geol. Map = WEAVER, 1980.
Notes: SAMPLE 8-29-001. LIMESTONE, VERY FINELY CRYSTALLINE, THICK BEDDED, DARK GREY ON FRESH AND WEATHERED SURFACE, WEATHER TO A SMOOTH SURFACE, FORMS MINOR LEDGE AND DIPSLOPE, MINOR IRREGULAR CALCITE BLEBS (RECRYSTALLIZED FOSSILS) AND MINOR CALCITE VEINLETS.

No. 293 Tcl T.= 033S R.= 002W SEC.= SE1/4SE1/4SW1/4 SECTION 32 UTM.N= 4193410 UTM.E= 409320 UTM.Z= +12 Topo. Map = COW CREEK
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE COW CREEK #2. LIMESTONE, GREYISH WHITE. ACID INSOLS. = 4.99. UNIT SAMPLED IS MORE THAN 10 FT THICK.

No. 294 Tcl T.= 033S R.=002W SEC.= SW1/4SE1/4SW1/4 SECTION 36 UTM.N= 4193400 UTM.E= 415680 UTM.Z= +12 Topo. Map = GRASS LAKES
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE GRASS LAKES #1. LIMESTONE, PURE WHITE, POSSIBLY CALCINED BY CONTACT WITH LAVA. ACID INSOLS. = 3.11. PROBABLY A GRAB SAMPLE FROM A THIN UNIT.

No. 295 Tcl T.= 034S R.= 002W SEC.= SE1/4NE1/4NW1/4 SECTION 01 UTM.N= 4192840 UTM.E= 415780 UTM.Z= +12 Topo. Map = GRASS LAKES
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLES GRASS LAKES #2 A - C (IN ASCENDING ORDER). UNIT A: LIMESTONE, GREY TO WHITE. ACID INSOLS. = 8.06. UNIT SAMPLED IS 6 FT THICK. UNIT B: LIMESTONE, WHITE TO TAN, MASSIVE, ACID INSOLS. = 5.59. UNIT SAMPLED IS 16 FT THICK. UNIT C: LIMESTONE, GREY TO WHITE, ACID INSOLS. = 3.28. UNIT SAMPLED IS 6 FT THICK.

No. 296 Tcl T.= 034S R.= 003W SEC.= SW1/4SE1/4NE1/4 SECTION 12 UTM.N= 4191030 UTM.E= 406700 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2= Al2O3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #107B. ACID INSOLS. = 8.91. THICKNESS OF UNIT SAMPLED = 6 FT.

No. 297 Tcl T.= 034S R.= 003W SEC.= SW1/4SE1/4NE1/4 SECTION 12 UTM.N= 4191030 UTM.E= 406700 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2=2.53 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #107A. ACID INSOLS. = 7.28. THICKNESS OF UNIT SAMPLED IS 8 FT.

No. 298 Tcl T.= 034S R.= 003W SEC.= SW1/4NW1/4SE1/4 SECTION 12 UTM.N= 4190640 UTM.E= 406240 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2=2.95 Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #106A. ACID INSOLS. = 5.54. THICKNESS OF UNIT SAMPLED IS 9 FT.

No. 299 Tcl T.= 034S R.= 003W SEC.= SW1/4NW1/4SE1/4 SECTION 12 UTM.N= 4190640 UTM.E= 406240 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #106B. ACID INSOLS. = 7.40. THICKNESS OF UNIT SAMPLED IS 8 FT.

No. 300 Tcl T.= 034S R.= 003W SEC.= SW1/4SE1/4NE1/4 SECTION 14 UTM.N= 4189500 UTM.E= 405050 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #105B. ACID INSOLS. = 3.62. THICKNESS OF UNIT SAMPLED IS 12+ FT.

No. 301 Tcl T.= 034S R.= 003W SEC.= SE1/4SE1/4NW1/4 SECTION 14 UTM.N= 4189360 UTM.E= 404400 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #104B. ACID INSOLS. = 8.11. THICKNESS OF UNIT SAMPLED IS 16 FT.

No. 302 Tcl T.= 034S R.= 003W SEC.= NE1/4NE1/4SE1/4 SECTION 14 UTM.N= 4189290 UTM.E= 405250 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #108B. ACID INSOLS. = 4.47. THICKNESS OF UNIT SAMPLED IS 3+ FT.

No. 303 Tcl T.= 034S R.= 003W SEC.= NE1/4NE1/4SE1/4 SECTION 14 UTM.N= 4189290 UTM.E= 405250 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #108A. ACID INSOLS. = 6.57. THICKNESS OF UNIT SAMPLED IS 9 FT.

No. 304 Tcl T.= 034S R.= 003W SEC.= SW1/4NW1/4NW1/4 SECTION 23 UTM.N= 4188320 UTM.E= 403880 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #110. ACID INSOLS. = 6.24. THICKNESS OF UNIT SAMPLED IS 13 FT.

No. 305 Tcl T.= 034S R.= 003W SEC.= SE1/4SW1/4NE1/4 SECTION 22 UTM.N= 4187810 UTM.E= 403210 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE NUMBER JOHNS VALLEY #113. ACID INSOLS. = 6.61. THICKNESS OF UNIT SAMPLED IS 9 FT.

No. 306 Tcl T.= 034S R.=001W SEC.= NW1/4NE1/4SE1/4 SECTION 22 UTM.N= 4187700 UTM.E= 422600 UTM.Z= +12 Topo. Map = SWEETWATER CREEK
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLES SWEETWATER #1 A AND B (IN ASCENDING ORDER): SAMPLE A LIMESTONE, WHITE. ACID INSOLS. = 8.95. GRAB SAMPLE FROM 40-FT UNIT. UNIT B LIMESTONE, WHITE. ACID INSOLS. = 9.35. GRAB SAMPLE FROM SAME 40- FT UNIT.

No. 307 Tcl T.= 034S R.= 001W SEC.= SE1/4SW1/4SE1/4 SECTION 22 UTM.N= 4187080 UTM.E= 422390 UTM.Z= +12 Topo. Map = SWEETWATER CREEK
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLES SWEETWATER #2 A AND B (IN DESCENDING ORDER): SAMPLE A LIMESTONE, WHITE TO GREY. ACID INSOLS. = 7.69, UNIT SAMPLED IS 4 FT THICK. UNIT B LIMESTONE, WHITE TO GREY. ACID INSOLS. = 6.23. UNIT SAMPLED IS ABOUT 8 FT THICK.

No. 308 Tcl T.= 034S R.=001W SEC.= SW1/4NW1/4NE1/4 SECTION 34 UTM.N= 4185100 UTM.E= 422290 UTM.Z= +12 Topo. Map = SWEETWATER CREEK
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE SWEETWATER #3. LIMESTONE, WHITE TO GREY. ACID INSOLS. = 4.72. SAMPLE REPRESENTS ABOUT 2 FT OF ROCK EXPOSED IN A PIT.

No. 309 Tcl T.= 035S R.= 002W SEC.= NW1/4NW1/4NW1/4 SECTION 17 UTM.N= 4180350 UTM.E= 408670 UTM.Z= +12 Topo. Map = FLAKE MTN. EAST
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = ROWLEY AND OTHERS, 1987.
Notes: SAMPLE SEVIER RIVER EAST #1. LIMESTONE, WHITE. ACID INSOLS. = 1.73, UNIT SAMPLED IS 10 FT THICK.

No. 310 Tcl T.= 035S R.= 001W SEC.= UTM.N= 4177360 UTM.E= 422520 UTM.Z= +12 Topo. Map = PINE LAKE
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = BOWERS, 1973.
Notes: SAMPLE PINE LAKE 1A AND 1B (IN DESCENDING ORDER). UNIT 1A LIMESTONE, WHITE. ACID INSOLS. = 5.85. UNIT SAMPLED IS 15 FT THICK. UNIT 1B LIMESTONE, WHITE. ACID INSOLS. = 5.43. UNIT SAMPLED IS 25 FT THICK.

No. 311 Tcl T.= 036S R.= 004W SEC.= NW1/4NW1/4NE1/4 SECTION 02 UTM.N= 4173960 UTM.E= 395000 UTM.Z= +12 Topo. Map = BRYCE CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE BRYCE CANYON #1. LIMESTONE, GREYISH WHITE TO MULTICOLORED. ACID INSOLS. = 2.13. UNIT SAMPLED IS 5 FT THICK.

No. 312 Tbh T.= 036S R.= 006W SEC.= NW1/4SE1/4SW1/4 SECTION 07 UTM.N= 4172550 UTM.E= 361460 UTM.Z= +12 Topo. Map = HAYCOCK MOUNTAIN
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE #144. LIMESTONE, GREY TO WHITE. ACID INSOLS. = 2.68. UNIT SAMPLED IS OVER 5 FT THICK.

No. 313 Tcl T.= 036S R.=006W SEC.= SE1/4SW1/4NE1/4 SECTION 35 UTM.N= 4166560 UTM.E= 368420 UTM.Z= +12 Topo. Map = HATCH
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = KURLICH AND ANDERSON, 1992.
Notes: SAMPLE HATCH #118. LIMESTONE, BUFF TO WHITE. ACID INSOLS. = 5.64. UNIT SAMPLED IS 12 FT THICK.

No. 314 Tcl T.= 037S R.= 005W SEC.= NW1/4NW1/4SE1/4 SECTION 06 UTM.N= 4164500 UTM.E= 371380 UTM.Z= +12 Topo. Map = GEORGE MTN.
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE GEORGE MTN. #1. LIMESTONE, WHITE, BEDDED. ACID INSOLS. = 3.70. UNIT SAMPLED IS 17 FT THICK.

No. 315 Tcl T.= 037S R.= 001E SEC.= SE1/4NE1/4NW1/4 SECTION 04 UTM.N= 4164150 UTM.E= 429690 UTM.Z= +12 Topo. Map = CANAAN PEAK
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = BOWERS, 1981.
Notes: SAMPLE CANAAN PEAK #165. MATERIAL IS WHITISH GREY AND RESISTANT. ACID INSOLS. = 4.06. THE UNIT SAMPLED IS 35 FT THICK.

No. 316 Tbh T.= 037S R.= 006W SEC.= NE1/4NE1/4NE1/4 SECTION 12 UTM.N= 4163920 UTM.E= 370440 UTM.Z= +12 Topo. Map = GEORGE MTN.
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=

Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE HATCH #125. LIMESTONE, WHITE, HARD, POORLY EXPOSED. ACID INSOLS. = 6.91. UNIT SAMPLED IS 17 FT THICK.

No. 317 Tcl T.= 037S R.= 001E SEC.= NE1/4NE1/4SW1/4 SECTION 04 UTM.N= 4163630 UTM.E= 429780 UTM.Z= +12 Topo. Map = CANAAN PEAK
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = BOWERS, 1981.
Notes: SAMPLE CANAAN PEAK #164. MATERIAL IS WHITISH GREY AND RESISTANT. ACID INSOLS. = 3.01. THICKNESS OF UNIT SAMPLED IS UNKNOWN.

No. 318 Tbh T.= 037S R.= 006W SEC.= SW1/4SW1/4NE1/4 SECTION 12 UTM.N= 4163300 UTM.E= 369750 UTM.Z= +12 Topo. Map = GEORGE MTN.
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE HATCH #124 UNITS C - E (IN ASCENDING ORDER): UNIT E LIMESTONE, WHITE. ACID INSOLS. = 4.60. UNIT SAMPLED IS 8 FT THICK. UNIT D LIMESTONE, YELLOWISH GREEN TO WHITE, SHELL HASH. ACID INSOLS = 5.70. UNIT SAMPLED IS 3 FT THICK. UNIT C LIMESTONE, WHITE, SHELL HASH ON TOP. ACID INSOLS 5.76. UNIT SAMPLED IS 3.5 FT THICK. UNITS A AND B HAD VERY HIGH ACID INSOLS.

No. 319 Tbh T.= 037S R.= 006W SEC.= NE1/4NE1/4SE1/4 SECTION 12 UTM.N= 4163100 UTM.E= 370410 UTM.Z= +12 Topo. Map = GEORGE MTN.
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE HATCH #126. LIMESTONE, WHITE TO BUFF, CRYSTALLINE IN PLACES, ALGAL. ACID INSOLS. = 7.07. UNIT SAMPLED IS 15 FT THICK.

No. 320 Tbh T.= 037S R.= 005W SEC.= NW1/4NW1/4SW1/4 SECTION 07 UTM.N= 4162970 UTM.E= 370480 UTM.Z= +12 Topo. Map = GEORGE MTN.
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P2O5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE HATCH #123. LIMESTONE, WHITE, MARBLY. ACID INSOLS. = 4.07. UNIT SAMPLED IS 12 FT THICK.

No. 321 Tcl T.= 037S R.= 04.5W SEC.= NW1/4SE1/4NE1/4 SECTION 11 UTM.N= 4162500 UTM.E= 385780 UTM.Z= +12 Topo. Map = TROPIC RESERVOIR
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE TROPIC RESERVOIR. LIMESTONE, WHITE. ACID INSOLS. = 5.07. UNIT SAMPLED IS 100 FT THICK.

No. 322 Tbh T.= 037S R.= 006W SEC.= NW1/4SW1/4SE1/4 SECTION 13 UTM.N= 4161020 UTM.E= 369600 UTM.Z= +12 Topo. Map = GEORGE MTN.
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLES HATCH #127 C A (IN DESCENDING ORDER): UNIT C LIMESTONE, WHITE, HARD. ACID INSOLS. = 5.34. UNIT SAMPLED IS 6 FT THICK. UNIT B LIMESTONE, WHITE, HARD, CRYSTALLINE. ACID INSOLS. = 5.14. UNIT SAMPLED IS 11 FT THICK. UNIT A LIMESTONE, WHITE, CRYSTALLINE, FRACTURED. ACID INSOLS. = 6.41. UNIT SAMPLED IS 3 FT THICK.

No. 323 Tcl T.= 037S R.= 006W SEC.= SE1/4NW1/4NE1/4 SECTION 24 UTM.N= 4160370 UTM.E= 369900 UTM.Z= +12 Topo. Map = GEORGE MTN.
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE HATCH #3. LIMESTONE, WHITE TO GREY. ACID INSOLS. = 5.56. UNIT SAMPLED IS 25 FT THICK.

No. 324 Tcl T.= 037S R.= 006W SEC.= SE1/4SE1/4SE1/4 SECTION 24 UTM.N= 4159280 UTM.E= 370300 UTM.Z= +12 Topo. Map = GEORGE MTN.
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE HATCH #2A: LIMESTONE, WHITE. ACID INSOLS. = 3.34. UNIT SAMPLED IS 2 FT THICK. SAMPLE 2C: LIMESTONE, WHITE TO GREY. ACID INSOLS. = 8.33. UNIT SAMPLED IS 9 FT THICK. SAMPLE 2D: LIMESTONE, WHITE TO GREY. ACID INSOLS. = 2.72. UNIT SAMPLED IS 5 FT THICK. SAMPLE HATCH #2B HAD VERY HIGH ACID INSOLS.

No. 325 Tbh T.= 037S R.= 007W SEC.= SW1/4SW1/4NE1/4 SECTION 33 UTM.N= 4157080 UTM.E= 355200 UTM.Z= +12 Topo. Map = HENRIE KNOLLS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING, 1975.
Notes: SAMPLE #141. LIMESTONE, GREY WITH PINK ZONES. ACID INSOLS. = 4.17. UNIT SAMPLED IS OVER 6 FT THICK.

No. 326 Tcl T.= 038S R.= 012W SEC.= NE1/4NW1/4 SECTION 01 UTM.N= 4155000 UTM.E= 309550 UTM.Z= +12 Topo. Map = KANARRAVILLE
$CaCO_3$=86.8 $MgCO_3$=3.5 SiO_2=6.0 Al_2O_3=1.4 Fe_2O_3=0.55 K_2O= Na_2O= MnO=0.015 TiO_2= 0.001 P_2O_5=0.05 LOI=40.0
Trace Elements (IN PPM): B 10, BA 30, CR 20, CU 30, LA 20, PB 150, SR 500, V 20, ZR 20.
Data Source = ZELTEN, 1987. Geol. Map = AVERITT, 1967.
Notes: SAMPLE (SC-3) WAS A 3.5-FT CHIP SAMPLE, GREYISH WHITE, VERY FINE GRAINED, CALCITE IN FRACTURES, MINOR CHERT AND INVERTEBRATE FOSSILS.

No. 327 Tcl T.= 038S R.= 007W SEC.= NE1/4SE1/4NW1/4 SECTION 07 UTM.N= 4154270 UTM.E= 352040 UTM.Z= +12 Topo. Map = HENRIE KNOLLS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES STRAWBERRY RIDGE #B K (B IS LOWEST IN THE SECTION). SAMPLE B: LIMESTONE, WHITE, WITH CALCITE. ACID INSOLS. = 2.67. UNIT SAMPLED IS 5 FT THICK. SAMPLE C: LIMESTONE, WHITE TO TAN, CHALKY, ACID INSOLS. = 2.10. UNIT SAMPLED IS 5 FT THICK. SAMPLE D: LIMESTONE, GREYISH TAN, CALCITE IN FRACTURES. ACID INSOLS. = 2.26. UNIT SAMPLED IS 5 FT THICK. SAMPLE E: LIMESTONE, WHITE, GREYISH WHITE. ACID INSOLS. = 2.23. UNIT SAMPLED IS 5 FT THICK. SAMPLE F: LIMESTONE, GREYISH TAN, CALCITE IN FRACTURES. ACID INSOLS.= 0.86. UNIT SAMPLED IS 5 FT THICK. SAMPLE G: LIMESTONE, GREYISH TAN, CALCITE IN FRACTURES. ACID INSOLS. = 1.37. UNIT SAMPLED IS 5 FT THICK. SAMPLE H: LIMESTONE, GREYISH TAN, CALCITE IN FRACTURES. ACID INSOLS. = 1.13. UNIT SAMPLED IS 5 FT THICK. SAMPLE I: LIMESTONE, GREYISH TAN, CALCITE IN FRACTURES. ACID INSOLS. = 1.1. UNIT SAMPLED IS 10 FT THICK. SAMPLE J: LIMESTONE, GREYISH WHITE, WITH CALCITE IN VEINS AND VUGS. ACID INSOLS. = 1.62. UNIT SAMPLED IS 15 IN. THICK. SAMPLE K: LIMESTONE, PARTIALLY COVERED WITH TALUS, ACID INSOLS. = 4.3. UNIT SAMPLED IS 70 FT THICK.

No. 328 Tcl T.= 038S R.= 007W SEC.= NW1/4SE1/4NW1/4 SECTION 13 UTM.N= 4152470 UTM.E= 359650 UTM.Z= +12 Topo. Map = ASAY BENCH
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES STRAWBERRY RIDGE #150 A F (A IS LOWEST IN THE SECTION). SAMPLE A: LIMESTONE, WHITE, CRYSTALLINE, SOME VUGS. ACID INSOLS. = 2.26. UNIT SAMPLED IS 5 FT THICK. SAMPLE B: LIMESTONE, WHITE. ACID INSOLS. = 2.09. UNIT SAMPLED IS 5 FT THICK. SAMPLE C: LIMESTONE, WHITE, SUGARY. ACID INSOLS. = 3.60. UNIT SAMPLED IS 10 FT THICK. SAMPLE D: LIMESTONE, WHITE, SUGARY. ACID INSOLS. = 3.02. UNIT SAMPLED IS 5 FT THICK.

No. 329 Tcl T.= 038S R.= 007W SEC.= SE1/4NE1/4 SECTION 14 UTM.N= 4152310 UTM.E= 359180 UTM.Z= +12 Topo. Map = ASAY BENCH
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES STRAWBERRY RIDGE #149 A D (A IS HIGHEST IN THE SECTION). SAMPLE A: LIMESTONE, WHITE WITH YELLOW PINK MOTTLING, CRYSTALLINE. ACID INSOLS. = 7.71. UNIT SAMPLED IS 5 FT THICK. SAMPLE B: LIMESTONE, WHITE, PINK, AND YELLOW MOTTLING. ACID INSOLS. = 4.84. UNIT SAMPLED IS 5 FT THICK. SAMPLE C: LIMESTONE, WHITE, YELLOW, AND PINK MOTTLING. ACID INSOLS. = 4.37. UNIT SAMPLED IS 5 FT THICK. SAMPLE D: LIMESTONE, WHITE, YELLOW, AND PINK MOTTLED. ACID INSOLS. = 3.51. UNIT SAMPLED IS 5 FT THICK.

No. 330 Tcl T.= 038S R.= 007W SEC.= SE1/4NW1/4 SECTION 14 UTM.N= 4152230 UTM.E= 358110 UTM.Z= +12 Topo. Map = ASAY BENCH
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES STRAWBERRY RIDGE #148 A I (A IS LOWEST IN THE SECTION). SAMPLE A: LIMESTONE, WHITE, CRYSTALLINE, VUGGY, SOME CLAY. ACID INSOLS. = 2.57. UNIT SAMPLED IS 5 FT THICK. SAMPLE B: LIMESTONE, WHITE, CRYSTALLINE, SUGARY, VUGGY. ACID INSOLS. = 4.16. UNIT SAMPLED IS 5 FT THICK. SAMPLE C: LIMESTONE, WHITE, CRYSTALLINE, SUGARY, VUGGY. ACID INSOLS. = 2.51. UNIT SAMPLED IS 5 FT THICK. SAMPLE D: LIMESTONE, WHITE, CRYSTALLINE, SUGARY, VUGGY. ACID INSOLS. = 3.0. UNIT SAMPLED IS 5 FT THICK. SAMPLE E: LIMESTONE, WHITE, CRYSTALLINE. ACID INSOLS. = 2.70. UNIT SAMPLED IS 5 FT THICK. SAMPLE F: LIMESTONE, CRYSTALLINE, VUGGY, SOME CLAY. ACID INSOLS. = 2.98. UNIT SAMPLED IS 5 FT THICK. SAMPLE G: LIMESTONE, CRYSTALLINE, WHITE, VUGGY, CLAYEY? ACID INSOLS. = 2.25. UNIT SAMPLED IS 5 FT THICK. SAMPLE H: LIMESTONE, WHITE, CRYSTALLINE. ACID INSOLS. = 2.72. UNIT SAMPLED IS 5 FT THICK. SAMPLE I: LIMESTONE, CRYSTALLINE, WHITE. ACID INSOLS. = 2.84. UNIT SAMPLED IS 9 FT THICK.

No. 331 Tcl T.= 038S R.= 007W SEC.= NW1/4NE1/4SW1/4 SECTION 13 UTM.N= 4152100 UTM.E= 359700 UTM.Z= +12 Topo. Map = ASAY BENCH
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES STRAWBERRY RIDGE #153 A C (A IS LOWEST IN THE SECTION): SAMPLE A: LIMESTONE, WHITE TO TAN, SOME PINK ZONES. ACID INSOLS. = 3.42. UNIT SAMPLED IS 15 FT THICK. SAMPLE B: LIMESTONE, WHITE TO TAN, SOME PINK ZONES. ACID INSOLS. = 3.03. UNIT SAMPLED IS 10 FT THICK. SAMPLE C: LIMESTONE, WHITE TO TAN. ACID INSOLS. = 3.96. UNIT SAMPLED IS ABOUT 15 FT THICK.

No. 332 Tcl T.= 038S R.= 007W SEC.= NW1/4SE1/4 SECTION 15 UTM.N= 4151550 UTM.E= 356780 UTM.Z= +12 Topo. Map = ASAY BENCH
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE STRAWBERRY RIDGE #159. LIMESTONE, BUFF TO WHITISH TAN. ACID INSOLS. = 2.16. UNIT SAMPLED IS OVER 25 FT THICK.

No. 333 Tcl T.= 038S R.= 007W SEC.= SW1/4SW1/4 SECTION 14 UTM.N= 4151510 UTM.E= 357550 UTM.Z= +12 Topo. Map = ASAY BENCH
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989. Notes: SAMPLES STRAWBERRY RIDGE #162 A B (A IS LOWEST IN THE SECTION): SAMPLE A: LIMESTONE, WHITE TO TAN. ACID INSOLS. = 5.20. UNIT SAMPLED IS 10 FT THICK. SAMPLE B: LIMESTONE, WHITE TO PINK, GREY, OR TAN. ACID INSOLS. = 1.03. UNIT SAMPLED IS 15 FT THICK.

No. 334 Tcl T.= 038S R.= 007W SEC.= SE1/4SW1/4 SECTION 14 UTM.N= 4151500 UTM.E= 358120 UTM.Z= +12 Topo. Map = ASAY BENCH
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE STRAWBERRY RIDGE #154. LIMESTONE, WHITE TO GREY, SUGARY, WEATHERS PINKISH. INSOLS. = 2.21. UNIT SAMPLED IS 20 FT THICK.

No. 335 Tcl T.= 038S R.= 007W SEC.= SE1/4SE1/4SW1/4 SECTION 13 UTM.N= 4151300 UTM.E= 359970 UTM.Z= +12 Topo. Map = LONG VALLEY JUNCTION
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source =HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES STRAWBERRY RIDGE #152 A C (A IS LOWEST IN THE SECTION): SAMPLE A: LIMESTONE, GREYISH WHITE TO TAN, PARTIALLY COVERED BY TALUS. ACID INSOLS. = 1.45. UNIT SAMPLED IS 8 FT THICK. SAMPLE B: LIMESTONE, GREYISH WHITE TO TAN. ACID INSOLS. = 2.50. UNIT SAMPLED IS 6 FT THICK. SAMPLE C: LIMESTONE, WHITE TO TAN, IN ROAD CUT. ACID INSOLS. = 4.99. UNIT SAMPLED IS 8 FT THICK. SAMPLE D: LIMESTONE, WHITE TO TAN. ACID INSOLS. = 6.49. UNIT SAMPLED IS 8 FT THICK.

No. 336 Tcl T.= 038S R.= 007W SEC.= NE1/4NW1/4NE1/4 SECTION 22 UTM.N= 4151210 UTM.E= 357010 UTM.Z= +12 Topo. Map = LONG VALLEY JUNCTION
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE STRAWBERRY RIDGE #163. LIMESTONE, WHITISH GREY. ACID INSOLS. = 6.58. UNIT SAMPLED IS 25 FT THICK.

No. 337 Tcl T.= 038S R.= 007W SEC.= NE1/4NW1/4NW1/4 SECTION 23 UTM.N= 4151120 UTM.E= 357950 UTM.Z= +12 Topo. Map = LONG VALLEY JUNCTION
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = CASHION, 1967.
Notes: SAMPLE STRAWBERRY RIDGE #155 A C (A IS LOWEST IN SECTION): SAMPLE A: LIMESTONE, WHITE, CRYSTALLINE, DEEPLY WEATHERED. ACID INSOL. = 3.72%. UNIT SAMPLED IS 10 FT THICK. SAMPLE B: LIMESTONE, WHITE, CRYSTALLINE, DEEPLY WEATHERED. ACID INSOLS. = 2.33. UNIT SAMPLED IS 3 FT THICK. SAMPLE C: LIMESTONE, WHITE, CRYSTALLINE. ACID INSOLS. = 1.72%. UNIT SAMPLED IS 13 FT THICK.

No. 338 Tcl T.= 038S R.= 007W SEC.= SE1/4NW1/4NW1/4 SECTION 23 UTM.N= 4150810 UTM.E= 357890 UTM.Z= +12 Topo. Map = LONG VALLEY JUNCTION
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = CASHION, 1967.
Notes: SAMPLES STRAWBERRY RIDGE #147 B J (B IS LOWEST IN SECTION). SAMPLE B: LIMESTONE, TANNISH GREY. ACID INSOLS. = 3.68. UNIT SAMPLED IS 5 FT THICK. SAMPLE C: LIMESTONE, PINKISH WHITE, MASSIVE. UNIT SAMPLED IS 5 FT THICK. ACID INSOLS. = 2.85%. SAMPLE D: LIMESTONE, GREYISH WHITE, GRANULAR. ACID INSOLS = 2.81%. UNIT SAMPLED IS 5 FT THICK. SAMPLE E: LIMESTONE, PINKISH WHITE, FOSSILIFEROUS (SHELL HASH). ACID INSOLS. = 3.99%. UNIT SAMPLED IS 5 FT THICK. SAMPLE F: LIMESTONE, PINKISH WHITE, CRYSTALLINE. ACID INSOLS. = 2.79. UNIT SAMPLED IS 5 FT THICK. SAMPLE G: LIMESTONE, WHITE. ACID INSOLS. = 3.20%. UNIT SAMPLED IS 10 FT THICK. SAMPLE H: LIMESTONE, WHITE, MASSIVE. ACID INSOLS. = 2.07. UNIT SAMPLED IS 5 FT THICK. SAMPLE I: LIMESTONE, WHITE, MASSIVE. ACID INSOLS. = 2.32%, UNIT SAMPLED IS 5 FT THICK. SAMPLE J: LIMESTONE, GREYISH WHITE, MASSIVE. ACID INSOLS. = 3.10%. UNIT SAMPLED IS 6 FT THICK.

No. 339 Tcl T.= 038S R.= 007W SEC.= SE1/4SW1/4NE1/4 SECTION 22 UTM.N= 4150460 UTM.E= 356990 UTM.Z= +12 Topo. Map = LONG VALLEY JUNCTION
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = CASHION, 1967.
Notes: SAMPLE STRAWBERRY RIDGE #156. LIMESTONE, WHITE, SOME CALCITE. ACID INSOLS. = 1.88. UNIT SAMPLED IS 25+ FT THICK. SAMPLE WAS TAKEN IN ROAD CUT ALONG HIGHWAY 14.

No. 340 Tcl T.= 038S R.= 007W SEC.= SE1/4SW1/4NE1/4 SECTION 22 UTM.N= 4150400 UTM.E= 357100 UTM.Z= +12 Topo. Map = LONG VALLEY JUNCTION
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = CASHION, 1967.
Notes: SAMPLE STRAWBERRY RIDGE #157. LIMESTONE IS WHITISH GREY, GRANULAR. ACID INSOLS. = 2.66%. UNIT SAMPLED IS 22 FT THICK AND IS TOP LIMESTONE IN STRAWBERRY RIDGE.

No. 341 Tcl T.= 038S R.= 007W SEC.= SE1/4SE1/4NE1/4 SECTION 22 UTM.N= 4150350 UTM.E= 357450 UTM.Z= +12 Topo. Map = LONG VALLEY JUNCTION
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = CASHION, 1967.
Notes: SAMPLES STRAWBERRY RIDGE #143 A AND B (SAMPLE A IS LOWER IN SECTION). SAMPLE A: LIMESTONE IS WHITE, CRYSTALLINE, AND MASSIVE. ACID INSOL. = 4.59%. UNIT IS 22 TO 25 FT THICK. SAMPLE B: LIMESTONE IS WHITE AND BLOCKY WITH SOME IRON STAINING. ACID INSOLS. = 3.61. UNIT SAMPLED IS 30 FT THICK

No. 342 Tcl T.= 038S R.= 007W SEC.= NE1/4SE1/4NE1/4 SECTION 28 UTM.N= 4149330 UTM.E= 355800 UTM.Z= +12 Topo. Map = STRAWBERRY POINT
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = CASHION, 1967. Notes: SAMPLE STRAWBERRY RIDGE #158. WHITE LITHOGRAPHIC LIMESTONE. ACID INSOLS. = 3.86%. SAMPLE REPRESENTS A 20+ FT UNIT EXPOSED IN A ROAD CUT ALONG HIGHWAY 14.

No. 343 Jc T.= 038S R.= 011W SEC.= NW1/4SE1/4SE1/4 SECTION 20 UTM.N= 4148150 UTM.E= 313300 UTM.Z= +12 Topo. Map = KOLOB RESERVOIR
$CaCO_3$=88.9 $MgCO_3$=1.8 SiO_2=5.5 Al_2O_3=1.6 Fe_2O_3=0.55 K_2O= Na_2O= MnO=0.013 TiO_2= 0.12 P_2O_5=0.04 LOI=40.4
Trace Elements (IN PPM): B 15, CR 20, CU 7, LA 20, SR 500, V 20.
Data Source = ZELTEN, 1987. Geol. Map = DOELLING AND GRAHAM, 1972.
Notes: SAMPLE (LV-1) WAS A 1.3-FT CHIP SAMPLE. GREYISH WHITE, VERY FINE GRAINED, MASSIVE, MINOR MN STAINING, CALCITE IN SMALL FRACTURES, SCATTERED INVERTEBRATE FOSSILS.

No. 344 Jc T.= 038S R.= 011W SEC.= SW1/4SE1/4SW1/4 SECTION 28 UTM.N= 4146250 UTM.E= 313900 UTM.Z= +12 Topo. Map = KOLOB RESERVOIR
$CaCO_3$=86.7 $MgCO_3$=1.9 SiO_2=8.0 Al_2O_3=1.1 Fe_2O_3=0.86 K_2O= Na_2O= MnO=0.039 TiO_2= 0.08 P_2O_5=0.04 LOI=39.3
Trace Elements (IN PPM): B 10, BA 50, CR 20, CU 5, SR 300, V 20.
Data Source = ZELTEN, 1987. Geol. Map = DOELLING AND GRAHAM, 1972.
Notes: SAMPLE (LV-2) WAS A 6-FT CHIP SAMPLE. GREY BROWN, VERY FINE GRAINED, MASSIVE, MINOR MN STAIN, CALCITE IN SMALL FRACTURES, SCATTERED INVERTEBRATE FOSSILS.

No. 345 Tcl T.= 039S R.= 008W SEC.= SW1/4SW1/4NE1/4 SECTION 12 UTM.N= 4144380 UTM.E= 350460 UTM.Z= +12 Topo. Map = STRAWBERRY POINT
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = CASHION, 1967.
Notes: SAMPLE STRAWBERRY RIDGE #142. LIMESTONE IS LIGHT GREYISH WHITE. ACID INSOLS. = 4.24%. SAMPLE REPRESENTS LOWER 15 FT OF THE 40 TO 50 FT EXPOSED HERE.

No. 346 Jc T.= 039S R.= 010W SEC.= SW1/4NE1/4SE1/4 SECTION 31 UTM.N= 4138080 UTM.E= 323410 UTM.Z= +12 Topo. Map = TEMPLE OF SINAWAVA
$CaCO_3$=88.4 $MgCO_3$=1.6 SiO_2=4.1 Al_2O_3=1.0 Fe_2O_3=0.38 K_2O= Na_2O= MnO=0.013 TiO_2= 0.08 P_2O_5=0.02 LOI=41.3
Trace Elements (IN PPM): B 10, BA 50, CR 20, CU 100, LA 20, PB 20, SR 500, V 20.
Data Source = ZELTEN, 1987. Geol. Map = SABLE AND HEREFORD, 1989.
Notes: A RANDOM CHIP SAMPLE (GC-1). LIMESTONE GREYISH WHITE, VERY FINE GRAINED, HIGHLY POROUS, CALCITE IN FRACTURES, SCATTERED INVERTEBRATE FOSSILS.

No. 347 Pht T.= 040S R.= 016E SEC.= SE1/4SE1/4 SECTION 16 UTM.N= 4128850 UTM.E= 575200 UTM.Z= +12 Topo. Map = SLICKHORN CANYON WEST
$CaCO_3$=91.0 $MgCO_3$=2.7 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = KIERSCH, 1955. Geol. Map = MARSHALL, 1955.
Notes:

No. 348 Pht T.= 040S R.= 016E SEC.= SE1/4SE1/4 SECTION 16 UTM.N= 4128850 UTM.E= 575200 UTM.Z= +12 Topo. Map = SLICKHORN CANYON WEST
$CaCO_3$=87.8 $MgCO_3$=2.7 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = KIERSCH, 1955. Geol. Map = MARSHALL, 1955.
Notes:

No. 349 Pht T.= 040S R.= 016E SEC.= SE1/4SE1/4 SECTION 16 UTM.N= 4128850 UTM.E= 575200 UTM.Z= +12 Topo. Map = SLICKHORN CANYON WEST
$CaCO_3$=88.0 $MgCO_3$=2.7 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = KIERSCH, 1955. Geol. Map = MARSHALL, 1955.
Notes: THIS PART OF THE PENNSYLVANIAN HONAKER TRAIL FM. OF THE HERMOSA GROUP WAS PREVIOUSLY CALLED THE RICO FM. THIS SAMPLE IS FROM UNIT A THAT KIERSCH (1955) REPORTS AVERAGES 1.5 TO 3 FT THICK.

No. 350 Jc T.= 040S R.= 006W SEC.= SE1/4SE1/4NE1/4 SECTION 33 UTM.N= 4128100 UTM.E= 365100 UTM.Z= +12 Topo. Map = GLENDALE
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = SABLE AND HEREFORD, 1989.
Notes: THREE UNITS SAMPLED (ORDERVILLE # 4A 4C IN ASCENDING ORDER). UNIT 4A – LIMESTONE, GREY, HARD. ACID INSOLS. = 5.61%. UNIT SAMPLED IS 4.5 FT THICK. UNIT 4B LIMESTONE, GREY, CRYSTALLINE, BEDDED. ACID INSOL = 6.12%. UNIT SAMPLED IS 6 FT THICK. UNIT 4C - LIMESTONE, GREY, CRYSTALLINE, BEDDED. ACID INSOLS. = 4.85%. THICKNESS OF UNIT SAMPLED IS 5 FT.

No. 351 Jc T.= 040S R.= 005W SEC.= SE1/4SE1/4NE1/4 SECTION 35 UTM.N= 4127900 UTM.E= 377880 UTM.Z= +12 Topo. Map = BALD KNOLL
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = SABLE AND HEREFORD, 1989.
Notes: SAMPLE BALD KNOLL #3A. LIMESTONE, GREY TO TAN, CRYSTALLINE. ACID INSOLS = 9.94%. UNIT SAMPLED IS 6 FT THICK.

No. 352 Jc T.= 041S R.= 006W SEC.= NW1/4SE1/4NE1/4 SECTION 06 UTM.N= 4126600 UTM.E= 361710 UTM.Z= +12 Topo. Map = GLENDALE
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = SABLE AND HEREFORD, 1989.
Notes: SAMPLE ORDERVILLE #5. LIMESTONE, WHITE TO GREY, MASSIVE. ACID INSOLS. 8.17%. UNIT SAMPLED IS 10.5 FT THICK

No. 353 Jc T.= 041S R.= 005W SEC.= SE1/4SE1/4NE1/4 SECTION 11 UTM.N= 4124700 UTM.E= 378000 UTM.Z= +12 Topo. Map = BALD KNOLL
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = SABLE AND HEREFORD, 1989.
Notes: SAMPLE BALD KNOLL #2. LIMESTONE, WHITE TO GREY, CONTAINS SMALL SHELL CASTS. ACID INSOLS. = 5.65%. UNIT SAMPLED IS 5-6 FT THICK.

No. 354 Jc T.= 041S R.= 015W SEC.= NW1/4NW1/4NW1/4 SECTION 15 UTM.N= 4122710 UTM.E= 275450 UTM.Z= +12 Topo. Map = WASHINGTON
$CaCO_3$=90.7 $MgCO_3$=1.2 SiO_2=4.93 Al_2O_3=0.79 Fe_2O_3=0.77 K_2O=0.38 Na_2O=0.14 MnO=0.10 TiO_2=0.060 P_2O_5=0.05 LOI=40.71

Data Source = WOOD, 1987. Geol. Map = COOK, 1960.
Notes: EIGHT FT THICK, LIGHT GREY, CRYSTALLINE LIMESTONE.

No. 355 Jc T.= 041S R.= 008W SEC.= NW1/4NW1/4SW1/4 SECTION 24 UTM.N= 4121310 UTM.E= 349520 UTM.Z= +12 Topo. Map = MOUNT CARMEL
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = SABLE AND HEREFORD, 1989.
Notes: SAMPLE MT. CARMEL #1. ACID INSOLS. = 9.70. UNIT SAMPLED IS ABOUT 10 FT THICK.

No. 356 Jc T.= 041S R.= 008W SEC.= SE1/4NE1/4SE1/4 SECTION 24 UTM.N= 4121190 UTM.E= 350650 UTM.Z= +12 Topo. Map = MOUNT CARMEL
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = SABLE AND HEREFORD, 1989.
Notes: SAMPLE MT. CARMEL #3B. LIMESTONE, GREY, FOSSILIFEROUS. ACID INSOLS. = 3.29. UNIT SAMPLED IS ABOUT 6 FT THICK.

No. 357 Jc T.= 041S R.= 009W SEC.= NE1/4NE1/4NE1/4 SECTION 27 UTM.N= 4120800 UTM.E= 337930 UTM.Z= +12 Topo. Map = THE BARRACKS
$CaCO_3$=87.1 $MgCO_3$=3.2 SiO_2=5.4 Al_2O_3=0.67 Fe_2O_3=0.28 K_2O= Na_2O= MnO=0.026 TiO_2= 0.017 P_2O_5=0.02 LOI=41.4
Trace Elements (IN PPM): BA 10, CR 10, CU 2, SR 100, V 10.
Data Source = ZELTEN, 1987. Geol. Map = SABLE AND DOELLING, 1990.
Notes: SAMPLE (PC-3) WAS A 5-FT CHIP SAMPLE. GREYISH WHITE, VERY FINE GRAINED, MASSIVE, MINOR MN STAINING, CALCITE IN FRACTURES.

No. 358 Jc T.= 041S R.= 008W SEC.= SE1/4SE1/4 SECTION 31 UTM.N= 4117610 UTM.E= 342300 UTM.Z= +12 Topo. Map = THE BARRACKS
$CaCO_3$=86.9 $MgCO_3$=3.0 SiO_2=7.3 Al_2O_3=0.99 Fe_2O_3=0.75 K_2O= Na_2O= MnO=0.039 TiO_2= 0.025 P_2O_5=0.04 LOI=40.2
Trace Elements (IN PPM): BA 10, CR 10, CU 2, PB 15, SR 100, V 10.
Data Source = ZELTEN, 1987. Geol. Map = SABLE AND DOELLING, 1990.
Notes: SAMPLE (PC-11) WAS A 2-FT CHIP SAMPLE. GREYISH BROWN, FINE GRAINED, CHERTY, MANY INVERTEBRATE FOSSILS.

No. 359 Trm T.= 041S R.= 002W SEC.= NW1/4SW1/4SW1/4 SECTION 36 UTM.N= 4117110 UTM.E= 413520 UTM.Z= +12 Topo. Map = FIVEMILE VALLEY
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB #2. LIMESTONE, BUFF TO TAN, SANDY. ACID INSOLS. = 5.58. UNIT SAMPLED IS ABOUT 12 FT THICK.

No. 360 Trm T.= 042S R.= 002W SEC.= NE1/4SW1/4NE1/4 SECTION 02 UTM.N= 4116130 UTM.E= 412880 UTM.Z= +12 Topo. Map = FIVEMILE VALLEY
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB #1. LIMESTONE, BLOCKY, TAN TO PINK, RED SILTSTONES AND LIMESTONES ABOVE AND BELOW. ACID INSOLS. = 7.92. UNIT SAMPLED IS 6 FT THICK.

No. 361 Trm T.= 042S R.= 002W SEC.= NW1/4NW1/4NW1/4 SECTION 11 UTM.N= 4114960 UTM.E= 411680 UTM.Z= +12 Topo. Map = FIVEMILE VALLEY
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB #3A. LIMESTONE, BUFF, SILTY? ACID INSOLS. = 9.24. UNIT SAMPLED IS 5 FT THICK.

No. 362 Trm T.= 042S R.= 002W SEC.= SW1/4SW1/4NE1/4 SECTION 10 UTM.N= 4114410 UTM.E= 410890 UTM.Z= +12 Topo. Map = EIGHTMILE PASS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES KAIBAB #18 C E (IN ASCENDING ORDER): SAMPLE C LIMESTONE, BLOCKY, TAN TO GREY. ACID INSOLS. = 9.29. UNIT SAMPLED IS 5 FT THICK. SAMPLE 18D LIMESTONE, BLOCKY, TAN TO GREY. ACID INSOLS. = 6.20. UNIT SAMPLED IS 1.5 FT THICK. SAMPLE 18E – LIMESTONE, BLOCKY, TAN TO GREY. ACID INSOLS. = 4.50%. UNIT SAMPLED IS 3 FT THICK.

No. 363 Trm T.= 042S R.= 002W SEC.= NW1/4NW1/4SE1/4 SECTION 16 UTM.N= 4112770 UTM.E= 409300 UTM.Z= +12 Topo. Map = EIGHTMILE PASS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: KAIBAB SAMPLE #19. LIMESTONE, TAN TO WHITE. ACID INSOLS. = 3.40. SAMPLE TAKEN WAS GRAB SAMPLE.

No. 364 Trm T.= 042S R.= 003W SEC.= NE1/4NE1/4NE1/4 SECTION 25 UTM.N= 4110210 UTM.E= 405040 UTM.Z= +12 Topo. Map = EIGHTMILE PASS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES KAIBAB #9A B. SAMPLE A: LIMESTONE, GREY TO BUFF. ACID INSOLS. = 7.26. UNIT SAMPLED IS OF UNKNOWN THICKNESS. SAMPLE B: LIMESTONE, GREY, BUFF. ACID INSOLS. = 7.19. UNIT SAMPLED IS OF UNKNOWN THICKNESS.

No. 365 Trm T.= 042S R.= 002W SEC.= SE1/4SE1/4NE1/4 SECTION 30 UTM.N= 4109570 UTM.E= 406800 UTM.Z= +12 Topo. Map = EIGHTMILE PASS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: KAIBAB SAMPLE #5. LIMESTONE, WHITE TO BUFF. ACID INSOLS. = 7.91. UNIT SAMPLED IS 6 FT THICK.

No. 366 Trm T.= 042S R.= 002W SEC.= NE1/4NW1/4SE1/4 SECTION 30 UTM.N= 4109560 UTM.E= 406240 UTM.Z= +12 Topo. Map = EIGHTMILE PASS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: KAIBAB SAMPLE #17. LIMESTONE, BLOCKY, BUFF TO WHITE. ACID INSOLS. = 7.02. UNIT SAMPLED IS 5.5 FT THICK.

No. 367 Trm T.= 042S R.= 002W SEC.= NW1/4NW1/4SE1/4 SECTION 29 UTM.N= 4109360 UTM.E= 407780 UTM.Z= +12 Topo. Map = EIGHTMILE PASS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: KAIBAB SAMPLE #16. LIMESTONE, BLOCKY, BUFF. ACID INSOLS. = 6.88. UNIT SAMPLED IS 13 FT THICK.

No. 368 Trm T.= 042S R.= 003W SEC.= NW1/4SE1/4SE1/4 SECTION 25 UTM.N= 4109200 UTM.E= 404980 UTM.Z= +12 Topo. Map = EIGHTMILE PASS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: KAIBAB SAMPLE #7A: LIMESTONE, BUFF. ACID INSOLS. = 6.96. UNIT SAMPLED IS 2.5 FT THICK.

No. 369 Trm T.= 042S R.= 002W SEC.= SW1/4NE1/4SE1/4 SECTION 30 UTM.N= 4109190 UTM.E= 406590 UTM.Z= +12 Topo. Map = EIGHTMILE PASS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: KAIBAB SAMPLE #6. LIMESTONE, BUFF, WITH RARE SILICEOUS FOSSILS (CRINOIDS AND SOLITARY CORALS). ACID INSOLS. = 5.67. UNIT SAMPLED IS ABOUT 6 FT THICK.

No. 370 Trm T.= 042S R.= 003W SEC.= NW1/4SE1/4SW1/4 SECTION 25 UTM.N= 4109130 UTM.E= 404100 UTM.Z= +12 Topo. Map = EIGHTMILE PASS
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: KAIBAB SAMPLE #21. LIMESTONE, BLOCKY, WHITE TO GREY. ACID INSOLS. = 4.50. UNIT SAMPLED IS 5.5 FT THICK.

No. 371 Trm T.= 042S R.= 003W SEC.= SW1/4SW1/4SE1/4 SECTION 25 UTM.N= 4108990 UTM.E= 404580 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: KAIBAB SAMPLE #8A C (IN ASCENDING ORDER): SAMPLE A: LIMESTONE, BUFF, BLOCKY. ACID INSOLS. = 4.74. UNIT SAMPLED IS 7 FT THICK. SAMPLE B: LIMESTONE, IRREGULAR. ACID INSOLS. = 4.11. UNIT SAMPLED IS .6 FT THICK. SAMPLE C: LIMESTONE, BUFF, IRREGULAR BEDDING. ACID INSOLS. = 7.0. UNIT SAMPLED IS 6 FT THICK.

No. 372 Trm T.= 042S R.= 002W SEC.= NW1/4NW1/4NE1/4 SECTION 32 UTM.N= 4108610 UTM.E= 407740 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al2O3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES KAIBAB #15 A B (IN ASCENDING ORDER): SAMPLE 15A LIMESTONE, GREY TO BUFF. ACID INSOLS. 9.00. UNIT SAMPLED IS 2 3 FT THICK. SAMPLE 15B LIMESTONE. ACID INSOLS. = 5.39 7.43. UNIT SAMPLED IS 3 FT THICK.

No. 373 Trm T.= 042S R.= 003W SEC.= NW1/4SE1/4NW1/4 SECTION 35 UTM.N= 4108400 UTM.E= 402550 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES KAIBAB #20 A B (IN ASCENDING ORDER): SAMPLE A: LIMESTONE, BUFF. ACID INSOLS. = 8.18. UNIT SAMPLED IS 6 FT THICK. SAMPLE B LIMESTONE, GREY, PINK TO BUFF. ACID INSOLS. = 9.54. UNIT SAMPLED IS 14 FT THICK.

No. 374 Trm T.= 042S R.= 002W SEC.= SW1/4SW1/4NE1/4 SECTION 32 UTM.N= 4108150 UTM.E= 407590 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB #12B. LIMESTONE, BUFF. ACID INSOLS. = 6.50. UNIT SAMPLED IS 5 6 FT THICK.

No. 375 Trm T.= 042S R.= 002W SEC.= SE1/4SE1/4NW1/4 SECTION 32 UTM.N= 4108040 UTM.E= 407520 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.

Notes: SAMPLES KAIBAB #14 A B (IN ASCENDING ORDER): SAMPLE 14A LIMESTONE, BLOCKY, BUFF TO WHITE. ACID INSOLS. = 5.14. UNIT SAMPLED IS 6 FT THICK. SAMPLE 14B (3 FT ABOVE SAMPLE 14A) LIMESTONE, BLOCKY, BUFF TO WHITE. ACID INSOLS. = 7.57. UNIT SAMPLED IS 6 FT THICK.

No. 376 Trm T.= 042S R.= 002W SEC.= SE1/4SE1/4NW1/4 SECTION 32 UTM.N= 4108040 UTM.E= 407550 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB #13. LIMESTONE, BLOCKY, BUFF TO WHITE. ACID INSOLS. = 4.82. UNIT SAMPLED IS 3 FT THICK.

No. 377 Trm T.= 042S R.= 003W SEC.= SW1/4SW1/4NE1/4 SECTION 35 UTM.N= 4108020 UTM.E= 402850 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= MgCO3= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB # 23. LIMESTONE, TAN TO BLUE GREY, FORMS DIP SLOPE TO NORTHWEST. ACID INSOLS. = 9.37. UNIT SAMPLED IS OVER 9 FT THICK.

No. 378 Trm T.= 042S R.= 003W SEC.= SE1/4NE1/4SE1/4 SECTION 34 UTM.N= 4107810 UTM.E= 401770 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB #24. LIMESTONE, BUFF. ACID INSOLS. = 6.50. UNIT SAMPLED IS 18 FT THICK.

No. 379 Trm T.= 042S R.= 003W SEC.= SW1/4NE1/4SE1/4 SECTION 34 UTM.N= 4107630 UTM.E= 401550 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB #25. LIMESTONE, GREY, BUFF TO PINK. RESTS DIRECTLY ON THE KAIBAB CHERT. ACID INSOLS. = 6.79. UNIT SAMPLED IS OVER 11 FT THICK.

No. 380 Trm T.= 042S R.= 002W SEC.= SE1/4NW1/4SW1/4 SECTION 32 UTM.N= 4107590 UTM.E= 406970 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB #10. LIMESTONE, BUFF, BLOCKY. ACID INSOLS. = 7.16. UNIT SAMPLED IS 8 FT THICK.

No. 381 Trm T.= 042S R.= 002W SEC.= NW1/4SW1/4SE1/4 SECTION 32 UTM.N= 4107480 UTM.E= 407570 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLE KAIBAB #11. LIMESTONE, GREY, BUFF. ACID INSOLS. = 9.06. UNIT SAMPLED IS 5 FT THICK.

No. 382 Trm T.= 043S R.= 003W SEC.= NE1/4NW1/4NE1/4 SECTION 03 UTM.N= 4107010 UTM.E= 401340 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: SAMPLES KAIBAB #26 A B (IN ASCENDING ORDER). SAMPLE 26A LIMESTONE, GREY, MASSIVE BEDDING. ACID INSOLS. = 8.98. UNIT SAMPLED IS 6 FT THICK. SAMPLE 26B – LIMESTONE, BUFF, BEDDED. ACID INSOLS. = 8.43. UNIT SAMPLED IS 18 FT THICK.

No. 383 Mrw T.= 043S R.=018W SEC.= NW 1/4 SECTION 01 UTM.N.= 4106975 UTM.E= 249230 UTM.Z= +12 Topo. Map = JARVIS PEAK
$CaCO_3$=99.40 $MgCO_3$= 0.69 SiO_2= 0.70 Al_2O_3= 0.09 Fe_2O_3= 0.07 K_2O= 0.02 Na_2O=0.03 MnO= 0.04 TiO_2= <0.001 P_2O_5= 0.02 LOI=43.13
Trace Elements (IN PPM): BA-8, SR-140, Y-8, SC<1, ZR-11, BE-<1, V-<9.
Data Source = TRIPP AND BLACKETT, SAMPLED 04/2000. Geol. Map = HINTZE, 1985.
Notes: AVERAGE OF NINE SAMPLES REPRESENTING ROUGHLY THE MIDDLE 250 FT OF THE FORMATION. ACID INSOLS. = 0.7%.

No. 384 Trm T.= 043S R.= 03W SEC.= NE1/4NW1/4SE1/4 SECTION 01 UTM.N= 4106380 UTM.E= 404580 UTM.Z= +12 Topo. Map = PINE HOLLOW CANYON
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: LIMESTONE, BLOCKY, WHITE TO GREY. ACID INSOLS. = 7.66. UNIT SAMPLED IS 10 FT THICK.

No. 385 Pht T.= 042S R.= 018E SEC.= UTM.N= 4105400 UTM.E= 592500 UTM.Z= +12 Topo. Map = MEXICAN HAT SW
$CaCO_3$=92.1 $MgCO_3$=0.16 SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = KIERSCH, 1955. Geol. Map = HAYNES AND OTHERS, 1972.
Notes: LOCATION IS ONLY APPROXIMATE. KIERSCH (1955) GIVES THE FOLLOWING DESCRIPTION OF THE LOCATION SAMPLED. THE LARGEST AND MOST ACCESSIBLE EXPOSURE (OF THE RICO) OCCURS A FEW MILES SOUTHWEST OF MEXICAN HAT, ATHWART THE MONUMENT VALLEY HIGHWAY, ON THE DIPSLOPE OF THE HALGAITO ANTICLINE. HE STATES THAT STONE HERE RANGES FROM 92 TO 95% $CACO_3$.

No. 386 Trm T.= 043S R.= 003W SEC.= SE1/4NE1/4SW1/4 SECTION 32 UTM.N= 4098220 UTM.E= 397520 UTM.Z= +12 Topo. Map = PETRIFIED HOLLOW
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: LIMESTONE, BUFF TO PINK, WITH CALCITE INCLUSIONS. ACID INSOLS. = 8.87. UNIT SAMPLED IS 3 FT THICK.

No. 387 Trm T.= 044S R.= 003W SEC.= NE1/4SE1/4NE1/4 SECTION 05 UTM.N.= 4097020 UTM.E= 398460 UTM.Z= +12 Topo. Map = PETRIFIED HOLLOW
$CaCO_3$= $MgCO_3$= SiO_2= Al_2O_3= Fe_2O_3= K_2O= Na_2O= MnO= TiO_2= P_2O_5= LOI=
Data Source = HODGSON, 1974. Geol. Map = DOELLING AND DAVIS, 1989.
Notes: LIMESTONE, BUFF, HARD. ACID INSOLS. = 9.39. THICKNESS OF UNIT SAMPLED UNKNOWN.

APPENDIX D

Appendix D is contained in the AppendxD folder of the CD-ROM included with this publication. AppendxD\lime_map3.apr is the ESRI ArcView® 3.1 project that is plotted as plate 1. This project file coordinates all of the components of the shape files (.avl, .dbf, .sbn, .sbx, .shp, and .shx files) for the various data layers. If the project is moved to another disk the project file (lime_map3.apr) and all the shape files should be placed in the same folder. The ArcView project can be viewed and manipulated in ArcView® 3.1, ArcView® 3.2, ArcGIS® 9 or various versions of ArcExplorer®.

APPENDIX E

Appendix E is in the appendxE folder of the CD-ROM and contains the file analyses.txt that reports chemical analyses of high-calcium limestone samples. Analyses.txt is an ascii, tab-delimited text file version of the ArcView analyses.shp file in Appendix D, which is the analytical data plotted on plate 1.

APPENDIX F

Appendix F is contained in the AppendxF folder of the CD-ROM and contains the file lst_pit.txt which reports data on high-calcium limestone pits. Lst_pit.txt is an ascii, comma-delimited text file version of the ArcView lst_pit.shp file in Appendix D, which is the pit location data plotted on plate 1. Appendix F also contains file Readme3.txt that explains the file structure of the lst_pit.txt file.

APPENDIX G

Appendix G is contained in the AppendxG folder of the CD-ROM and contains the file lime_use.txt which reports information on high-calcium limestone-consuming companies. Lime_use.txt is an ascii, comma-delimited text file version of the ArcView lime_use.shp file in Appendix D, that is the mine, plant, and smelter data plotted on plate 1.

HIGH-CALCIUM LIMESTONE RESOURCES OF UTAH

by Bryce T. Tripp