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MESOZOIC AND CENOZOIC MICROFOSSILS FROM GEOLOGIC UNITS WITHIN THE SAN JOSE 1:100,000 QUADRANGLE, CALIFORNIA

BY

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INTRODUCTION

The geology of the San Jose 1:100,000 Quadrangle is dominated by three major fault-bounded terrane complexes of mostly Mesozoic age, each with notable differences in basement rocks, sedimentary sequences, and metamorphic history; the Franciscan Complex, the Great Valley sequence, and the Salinia terrane. The largest of these is the Franciscan Complex that includes: (1) the strongly metamorphosed clastic rocks of the Eastern belt (Jurassic Eylar Mountain and Cretaceous Burnt Hills terranes) that form the core complex of the Diablo Range; the Eastern belt is bounded on the west by the Calaveras and Madrone Springs faults and on the east by the Coast Range and Tesla-Ortigalita faults (Blake and Showalter, 1991). And (2) the Central belt, which is an amalgam of smaller terranes in an area bounded by the San Andreas fault zone to the southwest, and the Shannon, Hayward, and Silver Creek faults to the northeast. These terranes include Jurassic basalt overlain by Jurassic to Cretaceous chert and marine clastic sediments of the Bald Mountain-El Sombroso terrane that correlate with the Marin Headlands terrane; and Cretaceous basalt and oceanic limestone and chert of the Permanente terrane (Sliter and others, 1991). These Franciscan rocks are overlain by and interleaved with ophiolitic rocks correlated with the Coast Range ophiolite, a thin sliver of Jurassic or older slate and phyllite tentatively correlated with the Mariposa Slate, Jurassic to Cenozoic marine sediments of the Sierra Azul block, and Miocene and younger marine and nonmarine rocks northeast of the Sierra Azul block (McLaughlin and others, 1991a; McLaughlin and others, 1991b). All of these units are imbricated by a series of faults that include the Hooker Gulch, Soda Springs, Sierra Azul, Berrocal, and Shannon faults.

Jurassic to Cretaceous rocks assigned to the Great Valley sequence (GVS) flank the Diablo Range. To the east, the GVS structurally overlies the Diablo Range along the Coast Range and Tesla-Ortigalita faults, and consists of a basement of Jurassic Coast Range Ophiolite overlain by Jurassic and Cenozoic marine sediments (Blake and Showalter, 1991). Along the west side of the Diablo Range, the GVS consists of a narrow strip of Cretaceous and Cenozoic sediments bounded

on the east by the Calaveras and Madrone Springs faults and on the west by the Hayward and Silver Springs faults. The Salinia terrane is exposed southwest of the San Andreas fault zone in the lower left corner of the map. The terrane consists of a continental fragment with a basement of metamorphic sediments intruded by granitic rocks (Mattinson, 1978), unconformably overlain by Cretaceous and Cenozoic marine sediments.

To better understand the complex upper crustal history of this region, the National Mapping Program funded an interdisciplinary mapping project from 1988 to 1993. Essential to the project was the development of an accurate biostratigraphic framework to document the timing of tectonic events. In addition, detailed paleoenvironmental analyses were needed to interpret the latitudinal displacement of exotic terranes, to determine the depositional environment of displaced and *in situ* sequences, and to document basin development. This report provides a brief age and environmental assignment for samples analyzed for microfossils (foraminifers, calcareous nannofossils, radiolarians, diatoms) during the project as well as for selected samples previously reported from the area. The compilation represents an important foundation for the geologic and paleontologic study of marine sedimentary units in the San Jose sheet.

Samples included in this report were selected based on the following criteria: (1) the presence of microfossils with age and environmental significance, (2) taxonomic identifications that were verified by curated material, illustrations, or species associations in taxonomic lists, and (3) detailed locality information identified on 7.5 minute quadrangles. Barren samples or assemblages lacking precise locality information are not included. Reports include those analyzed for foraminifers, calcareous nannofossils, and radiolarians. All samples analyzed for diatoms were barren. Fossil assemblages from previous studies were reviewed by the appropriate specialist to insure age and environmental consistency.

Appendix A lists the samples by laboratory and/or field number cross-referenced to the map number on Plate 1. Geologic data for each sample identified by map number is provided in Appendix B. The data format includes a brief description of the lithology and paleontology for each sample as well as locality information, the author and year of initial or subsequent analysis,

the collector, and one or more references. The references include unpublished USGS internal reports as well as other published and unpublished sources. Samples identified by foraminifers are followed by a notation identifying the reference group, i. e., (P) planktic species, (B) benthic species, and (L) larger benthic species. Sample number lists the original field number of the collector preceded by an Mf or MR number for samples curated in the Menlo Park USGS catalog system or a University of California locality number (numbers beginning with an A or B, i.e., B-4386).

Plate 1 shows the sample localities plotted by Cenozoic, Cretaceous, or Jurassic age. The symbol represents the youngest age at each locality. In addition, the microfossil group recovered from each locality is identified by letter code for foraminifers (F), calcareous nannofossils (N), and radiolarians (R). A single map number may include samples examined for more than one fossil group at one locality or closely spaced localities as identified in Appendix A. The spatial distribution pattern shows (1) Cenozoic foraminifers reported from the Salinia terrane southwest of the San Andreas fault zone in the lower left corner of Plate 1 and from overlap deposits both on the Franciscan Complex northeast of the San Andreas fault zone in the lower left corner, and from the GVS along the west side of the Diablo Range near the center of the map, (2) Cenozoic calcareous nannofossils from the Salinia terrane and from overlap deposits on the Franciscan Complex northeast of the San Andreas fault zone, (3) Cretaceous foraminifers in the Permanente terrane, and the GVS along the eastern flank of the Diablo Range, and (4) Mesozoic radiolarians in the Franciscan Complex northeast of the San Andreas fault zone and the Diablo Range. Once again, the locality distribution is not all inclusive but represents either areas of selected sampling or samples that contained diagnostic specimens. Thus, nondiagnostic, or poorly preserved microfossil assemblages known to occur in some areas, such as Cretaceous foraminifers, calcareous nannofossils, and radiolarians from the GVS, or benthic foraminifers from Cenozoic deposits overlapping the GVS, are not represented in this report.

AGE AND ENVIRONMENTAL INTERPRETATION

Cenozoic Foraminifers and Calcareous Nannofossils

Cenozoic benthic foraminiferal age interpretations (Figs. 1-2) are based on the California benthic foraminiferal zonations of Kleinpell (1938) and Mallory (1959) with modifications as proposed by Almgren and others (1988), McDougall (1988, 1989), and Blake (1991). Stage names follow the modifications proposed by McDougall (1980, 1988, 1989, 1993, unpublished data) for the Paleocene and Eocene, and by Blake (1991) for the late Neogene. Zonation of the Oligocene and Miocene primarily follows Kleinpell (1938) with modifications suggested by Addicott and others (1980) and McDougall (1983, unpublished data). Correlation of the benthic foraminiferal stages and zones to (1) the international time scale (Berggren and others, 1985; Aubrey and others, 1988), (2) planktic foraminiferal zones (Blow, 1969, 1979; Berggren, 1972), and (3) calcareous nannofossil zones (Bukry, 1973, 1975; Okada and Bukry, 1980) is summarized in McDougall (1988, 1989) and Bartow (1992). Where possible, benthic foraminferal age interpretations are given in terms of the correlative planktic foraminiferal zones or calcareous nannofossil zones.

Cenozoic environmental interpretations are based on an overview of California benthic foraminifers by Ingle (1980), a study of Atlantic Paleogene benthic foraminifers by Tjalsma and Lohmann (1983), and a study of cosmopolitan deep-water benthic foraminifers by van Morkhoven and others (1986). The paleoenvironmental analysis of much of the benthic foraminiferal data has been previously discussed by McDougall (1988, 1989).

Cretaceous Foraminifers

Cretaceous planktic foraminifers are dated according to the biozonation modified from Sliter (1989) for whole specimens as well as those examined in thin section (Fig. 3).

Modifications include calibration to the geochronologic scale of Harland and others (1990) and revision of the Aptian and older planktic foraminiferal datums based on new data from Europe (e.g., Coccioni and others, 1992; Premoli Silva, pers. comm., 1993). Thus, the top of the *Globigerinelloides blowi* Zone is placed in the long Cretaceous Normal Polarity Superchron above Reversed-Polarity Chron M0 in the early Aptian (Sliter and Leckie, 1993). The base of the *G. blowi* Zone, however, that previously was restricted to the Aptian is now correlated with Normal-Polarity Chron CM2 in the Barremian. Zonal boundaries below this level presently are considered tentative.

Cretaceous benthic foraminifers in the Great Valley sequence are correlated according to the zonations of Goudkoff (1945) modified by Almgren (1986) and Berry (1974). The zones and their age assignments are shown in Figure 4. Cretaceous depositional environments are based primarily on the scheme by Sliter and Baker (1972) with water depths modified according to Sliter (1985).

Radiolarians

The Jurassic and Cretaceous radiolarian assemblage zones described by Murchey (1984) and Murchey and Jones (1984) are used to correlate samples from the Franciscan Complex. Figure 5 shows a recalibration of Murchey's (1984) chronostratigraphic ranges. The ranges are based on correlation with radiolarian zonations calibrated by associated ammonites (Baumgartner, 1984; Pessagno and others, 1987; O'Dogherty and others, 1987; Carter and others, 1988;).

In the field of radiolarian biostratigraphy, an unresolved difference of opinion exists regarding the accuracy of chronostratigraphic ranges assigned to Middle and Late Jurassic radiolarian assemblages. In this report we utilize O'Dogherty and others (1987) recalibration of Baumgartner's (1984) zonation. This recalibration apparently is compatible with Pessagno and others (1987) chronostratigraphic range assignments for Middle Jurassic faunas from eastern Oregon but is incompatible with their range assignments for faunas associated with Jurassic ophiolites in California. Pessagno and others (1987) interpret the ophiolite faunas as totally post-

dating the eastern Oregon faunas whereas Baumgartner's zonation requires some stratigraphic overlap between the California ophiolite and eastern Oregon arc strata.

Herein we assign the following ages to the radiolarian zones in the Franciscan Complex: MH-1 is late Pliensbachian to lower or middle Toarcian; MH-2 is late Toarcian and Aalenian; MH-3 is Bajocian; MH-4 is Bathonian, Callovian, and possibly early Oxfordian. A widespread recrystallized zone found throughout the Central Belt of the Franciscan Complex marks a biostratigraphic gap between MH-4 and MH-5. Assemblage MH-5, *sensu stricto* (concurrent range zone of *Archaeodictyomitra apiaria, Acanthocircus dicranacanthos,* and *Cecrops septemporatus*), is Valanginian to Hauterivian in age, but samples lacking *C. septemporatus* (MH-5 *sensu lato*) may be older. Assemblage MH-6 is Barremian to Albian in age and assemblage MH-7 is late Albian to early Cenomanian. A single sample collected from chert associated with pelagic limestone in the Los Gatos quadrangle contains *Dictyomitra koslovae* and is late Turonian or Coniacian in age (Murchey and Jones, 1984).

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REFERENCES

Addicott, W.O., Poore, R.Z., Barron, J.A. and McDougall, Kristin, 1980, Miocene biostratigraphy of the Indian Creek-Shell Creek area, northern La Panza Range, San Luis Obispo County, California, *in* Blake, G.H., ed., Neogene Biostratigraphy of the Northern La Panza Range, San Luis Obispo County, California: Los Angeles, California, Pacific Section, Society of Economic Paleontologists and Mineralogists, p. 11-37.

Almgren, A.A., 1986, Benthic foraminiferal zonation and correlations of Upper Cretaceous strata of the Great Valley of California - a modification, *in* Abbott, P.L., ed., Cretaceous Stratigraphy Western North America: Pacific Section, Society of Economic Paleontologists and Mineralogists, v. 46, p. 137-152.

Almgren, A.A., Filewicz, M.V., and Heitman, H.L., 1988, Lower Tertiary foraminiferal and calcareous nannofossil zonation of California: an overview and recommendation, *in* Filowicz, M.V., and Squires, R.L., eds., Paleogene stratigraphy, West Coast of North America: Pacific Section, Society of Economic Paleontologists and Mineralogists, Los Angeles, p. 83-106.

Aubry, M.-P., Berggren, W.A., Kent. D.V., Flynn, J.J., Klitgord, K.D., Obradovich, J.D., and Prothero, D.R., 1988, Paleogene geochronology: an integrated approach: Paleoceanography, v. 3, p. 707-742.

Bartow, J.A., compiler, 1992, Paleogene and Neogene time scale for southern California: U.S. Geological Survey Open-File Report 92-0212, 2 oversized sheets.

Bartsch-Winkler, Susan, 1976, Geology of the Oak Flat Ranch area, Santa Clara County, California: San Jose, California State University, M.S. thesis, 52 p.

Bauer, P.G., 1971, Geology of the Redwood Retreat-Croy Ridge area of Santa Clara County, California: San Jose, California State University, M.S. thesis, 74 p.

Baumgartner, P.O., 1984, A Middle Jurassic-Early Cretaceous low-latitude radiolarian zonation based on unitary associations and age of Tethyan radiolarites: Ecologae Geologicae Helvetiae, v. 77, p. 729-837.

Bennett, R.E., 1972, Geology of the Dexter Canyon area, Santa Clara County, California: San Jose, California State University, M.S. thesis, 67 p.

Berggren, W.A., 1972, A Cenozoic time-scale - some implications for regional geology and paleobiogeography: Lethaia, v. 5, p. 195-215.

Berggren, W.A., Kent, D.V., Flynn, J.J., and van Couvering, J.A., 1985, Cenozoic geochronology: Geological Society of America Bulletin, v. 96, p. 1407-1418.

Berry, K.D., 1974, Mesozoic foraminiferal zonation, Turonian to Tithonian stages, Pacific Coast province: Pacific Section, Society of Economic Paleontologists and Mineralogists, Annual Meeting April 1974, Preprints, p. 1-29.

Bishop, C.C., 1970, Upper Cretaceous stratigraphy on the west side of the San Joaquin Valley, Stanislaus and San Joaquin counties, California: California Division of Mines and Geology Special Report 104, p. 5-29.

Blake, G.H., 1991, Review of the Neogene biostratigraphy and stratigraphy of the Los Angeles Basin and implications for basin evolution, *in* Biddle, K.T., ed., Active Margins: Tulsa, Oklahoma, American Association of Petroleum Geologists Memoir 52, p. 135-184.

Blake, M.C., Jr., and Showalter, P.K., 1991, Preliminary tectonic synthesis of the northern Diablo Range, California (abs.): Geological Society of America Cordilleran Section Abstracts with Programs, v. 23, p. 6.

Blondeau, Alphonse, and Brabb, E.E., 1983, Large foraminifers of Eocene age from the Coast Ranges of California, *in* Brabb, E.E., ed., Studies in Tertiary Stratigraphy of the California Coast Ranges: U.S. Geological Survey Professional Paper 1213, p. 41-48.

Blow, W.H., 1969, Late middle Eocene to Recent planktonic foraminiferal biostratigraphy, *in* Brönnimann, R., and Renz, H.H., eds., Proceedings of the First International Conference

on Planktonic Microfossils, Geneva, 1967, v. 1: Leiden, Netherlands, E.J. Brill, p. 199-421.

-------, 1979, The Cainozoic Globigerinida: A study of the morphology, taxonomy, evolutionary relationships and the stratigraphical distribution of some Globigerinida (mainly Globigerinacea): Leiden, Netherlands, E.J. Brill, v. 1-3, 1413 p.

Brabb, E.E., Clark, J.C., and Throckmorton, C.K., 1977, Measured sections of Paleogene rocks from the California Coast Ranges: U.S. Geological Survey Open-File Report 77-714, 113 p.

Bukry, David, 1973, Low-latitude coccolith biostratigraphic zonation, *in* Edgar, N.T., Saunders, J.B., and others, Initial Reports of the Deep Sea Drilling Project, v. 15: Washington, D.C., U.S. Government Printing Office, p. 685-703.

-------, 1975, Coccolith and silicoflagellate stratigraphy, northwestern Pacific Ocean, Deep Sea Drilling Project Leg 32, *in* Larson, R.L., Moberly, R., and others, Initial Reports of the Deep Sea Drilling Project, v. 32: Washington D.C., U.S. Government Printing Office, p. 677-701.

Bukry, D.J., Brabb, E.E., and Vedder, J.G., 1977, Correlation of Tertiary nannoplankton assemblages from the Coast and Peninsular Ranges of California: Memorias Segundo Congreso Latinoamericano de Geología, v. 3, Venezuela Boletín de Geología Publicación Especial no. 7, p. 1461-1483.

Carter, C.H., 1970, Geology of the Palassou Ridge area, California: San Jose, California State University, M.S. thesis, 70 p.

Carter, E.S., Cameron, B.E.B., and Smith, P.L., 1988, Lower and Middle Jurassic radiolarian biostratigraphy and systematic paleontology, Queen Charlotte Islands, British Columbia: Geological Survey of Canada Bulletin 386, 108 pp.

Clark, J.C., 1966, Tertiary stratigraphy of the Felton-Santa Cruz area, Santa Cruz Mountains, California: Stanford, California, Stanford University, Ph.D. dissertation, 179 p.

Coccioni, Rodolfo, Erba, Elisabetta, and Primoli Silva, Isabella, 1992, Barremian-Aptian calcareous plankton biostratigraphy from the Gorgo Cerbara section (Marche, central Italy) and implications for plankton evolution: Cretaceous Research, v. 13, p. 517-537.

Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969, Eocene and Oligocene Foraminifera from the Santa Cruz Mountains, California: University of California Publications in Geological Sciences, v. 81, 144 p.

Frames, D.W., 1955, Stratigraphy and structure of the Lower Coyote Creek area, Santa Clara County , California: Berkeley, California, University of California, M.A.thesis, 65 p.

Goudkoff, P.P., 1945, Stratigraphic relations of Upper Cretaceous in the Great Valley, California: American Association of Petroleum Geologists Bulletin, v. 29, p. 956-1007.

Harland, W.B., Armstrong, R.L., Cox, A.V., Craig, L.E., Smith, A.G., and Smith, D.G., 1990, A Geologic Time Scale 1989: Cambridge (Cambridge University Press), 263 p.

Hill, J.M., 1979, Stratigraphy and paleoenvironment of Miocene phosphatic rocks in the east San Francisco Bay Region, California: U.S. Geological Survey Open-File Report 79-1570, 70 p.

Ingle, J.C., Jr., 1980, Cenozoic paleobathymetry and depositional history of selected sequences within the southern California borderland, *in* Sliter, W.V., ed., Studies in marine micropaleontology and paleoecology: A memorial volume to Orville L. Bandy: Cushman Foundation for Foraminiferal Research Special Publication, no. 19, p. 163-195.

Kleinpell, R.M., 1938, Miocene stratigraphy of California: Tulsa, Oklahoma, American Association of Petroleum Geologists, 450 p.

Mallory, V.S., 1959, Lower Tertiary Biostratigraphy of the California Coast Ranges : Tulsa, Okalahoma, American Association of Petroleum Geologists, 416 pp.

Martini, E., 1970, Standard Paleogene calcareous nannoplankton zonation: Nature, v. 226, p. 560-561.

-------, 1971, Standard Tertiary and Quaternary calcareous nannoplankton zonation, *in* Farinacci, A., ed., Proceedings of the Second Planktonic Conference: Rome, Italy, Edizioni Teconscienza, p. 739-785.

Mattinson, J.M., 1978, Age, origin, and thermal histories of some plutonic rocks from the Salinian block of California: Contributions to Mineral Petrology, v. 67, p. 233-245.

McDougall, K., 1980, Paleoecological evaluation of late Eocene biostratigraphic zonations of the Pacific Coast of North America: Society of Economic Paleontologists and Mineralogists, Paleontological Monograph no. 2, 75 p.

-------, 1983, Upper Eocene to lower Miocene benthic foraminifers from the Santa Cruz Mountains area, California, *in* Brabb, E.E., ed., Studies in Tertiary Stratigraphy of the California Coast Ranges: U.S. Geological Survey Professional Paper 1213, p. 61-82.

-------, 1988, Re-evaluation of early Eocene, Penutian Stage (abs): American Association of Petroleum Geologists, Society of Economic Paleotologists and Mineralogists, and Society of Exploration Geophysics, Annual Meeting, 1988, Program with Abstracts, 1 p.

-------, 1989, Paleogene benthic foraminifers from the Loma Prieta Quadrangle, California: U.S. Geological Survey Open-File Report 89-649, 91 p.

-------, 1991, Benthic foraminifera from the Laurel quadrangle, California: U.S. Geological Survey Open-File Report 91-13, 66 p.

-------, 1993, Eocene benthic foraminiferal assemblages of the Palo Alto 7-1/2' quadrangle, California: U.S. Geological Survey Open-File Report 93-180, 93 p.

McLaughlin, R.J., 1973, Geology of the Sargent Fault Zone in the vicinity of Mount Madonna, Santa Clara and Santa Cruz counties, California: San Jose, California State University, M.S. thesis, 131 p.

McLaughlin, R.J., Clark, J.C., and Brabb, E.E., 1988, Geologic map and structure sections of the Loma Prieta 7 1/2' quadrangle, Santa Clara and Santa Cruz Counties, California: U.S. Geological Survey Open-File Map 88-752.

McLaughlin, R.J., Elder, W.P., and McDougall, Kristin, 1991b, Tectonic framework of the Loma Prieta area, *in* Sloan, Doris, and Wagner, D.L., eds., Geologic excursions in Northern California: San Francisco to the Sierra Nevada: California Division of Mines and Geology Specian Publication 109, p. 45-54.

McLaughlin, R.J., Kistler, R.W., Sliter, W.V., Murchey, B.L., and Franck, C.R., 1991a, Structure and character of Coast Range Ophiolite and oceanic Franciscan terranes, Loma Prieta, Laurel, and Los Gatos quadrangles, California (abs.): Geological Society of America Cordilleran Section Abstracts with Programs, v. 23, p. 77.

Murchey, B.L., 1984, Biostratigraphy and lithostratigraphy of chert in the Franciscan Complex in the San Francisco Bay Region, *in* Blake, M.C., Jr., ed., Franciscan Geology of Northern California: Pacific Section, Society of Economic Paleotologists and Mineralogists, book 43, p. 51-70.

Murchey, B.L., and Jones, D.L., 1984, Age and significance of chert in the Franciscan Complex in the San Francisco Bay Region, *in* Blake, M.C., Jr., ed., Franciscan Geology of Northern California: Pacific Section, Society of Economic Paleotologists and Mineralogists, book 43, p. 23-30.

O'Dogherty, L., Sandoval, J., Martin-Algarra, A., Baumgartner, P.O., 1989, Las facies con radiolarios del Jurásico subbético (Cordillera Bética, Sur de España): Revista Mexicana de Paleontología, v. 2, p. 70-77.

Okada, H. and Bukry, David, 1980, Supplemental modification and introduction of code numbers to the low-latitude coccolith biostratigraphic zonation (Bukry, 1973; 1975): Marine Micropaleontology, v. 5, p. 321-325.

Osbun, Erik, 1975, Geology of the Sveadal area, southern Santa Cruz Mountains, California: San Jose, California State University, M.S. thesis, 156 p.

Pessagno, E.A., Jr., Blome, C.D., Carter, E.S., MacLeod, Norman, Whalen, P.A., and Yeh, K.-Y., 1987, Preliminary radiolarian zonation for the Jurassic of North America, *in*

Studies of North American Jurassic Radiolaria, Part 2: Cushman Foundation for Foraminiferal Research Special Publication no. 23, p. 1-18.

Short, W.R., Jr., 1986, Geology of the Santa Teresa Hills, Santa Clara County, California: San Jose, California State University, M.S. thesis, 112 p.

Simoni, T.R., 1974, Geology of the Loma Prieta area, Santa Clara County, California: San Jose, California State University, M.S. thesis, 75 p.

Sliter, W.V., 1985, Cretaceous redeposited benthic foraminifers from Deep Sea Drilling Project Site 585 in the East Mariana Basin, western equatorial Pacific, and implications for the geologic history of the region, *in* Moberly, R., Schlanger, S.O., and others, Initial Reports of the Deep Sea Drilling Project, v. 89: Washington D.C., U.S. Government Printing Office, p. 327-361.

-------, 1989, Biostratigraphic zonation for Cretaceous planktonic foraminifers examined in thin section: Journal of Foraminiferal Research, v. 19, p. 1-19.

Sliter, W. V., and Baker, R. A., 1972, Cretaceous bathymetric distribution of benthic foraminifers: Journal of Foraminiferal Research, v. 2, p. 167-183.

Sliter, W.V., and Leckie, R.M., 1993, Cretaceous planktonic foraminifers and depositional environments from the Ontong Java Plateau with emphasis on Sites 803 and 807, *in* Berger, W.H., Kroenke, L.W., Mayer, L.A., and others, Proceedings of the Ocean Drilling Program, Scientific Results, v. 130: College Station, Texas (Ocean Drilling Program), p. 63-84.

Sliter, W.V., and McGann, Mary, 1992, Age and correlation of the Calera Limestone in the Permanente terrane of northern California: U. S. Geological Survey Open-File Report 92-306, 27 p.

Sliter, W.V., Murchey, B.L., McLaughlin, R.J., and Kistler, R.W., 1991, Permanente terrane: History of Early Cretaceous seamount formation in the eastern Pacific: Geological Society of America Cordilleran Section Abstracts with Programs, v. 23, p. 98.

Smith, R.K., 1971, Foraminiferal studies in the Lower and Middle Tertiary of Soquel Creek, Santa Cruz County, California: University of California Publications in Geological Sciences, v. 91, p. 1-109.

Tjalsma, R.C. and Lohmann, G.P., 1983, Paleocene-Eocene bathyal and abyssal benthic foraminifer from the Atlantic Ocean: Micropaleontology, Special Publication no. 4, 90 p.

van Morkhoven, F.P.C.M., Berggren, W.A., and Edwards, A.S., 1986, Cenozoic cosmopolitan deep-water benthic Foraminifera: Bulletin des Centres de Recherches Exploration-production Elf-Aquitaine Memoire 11, 421 p.

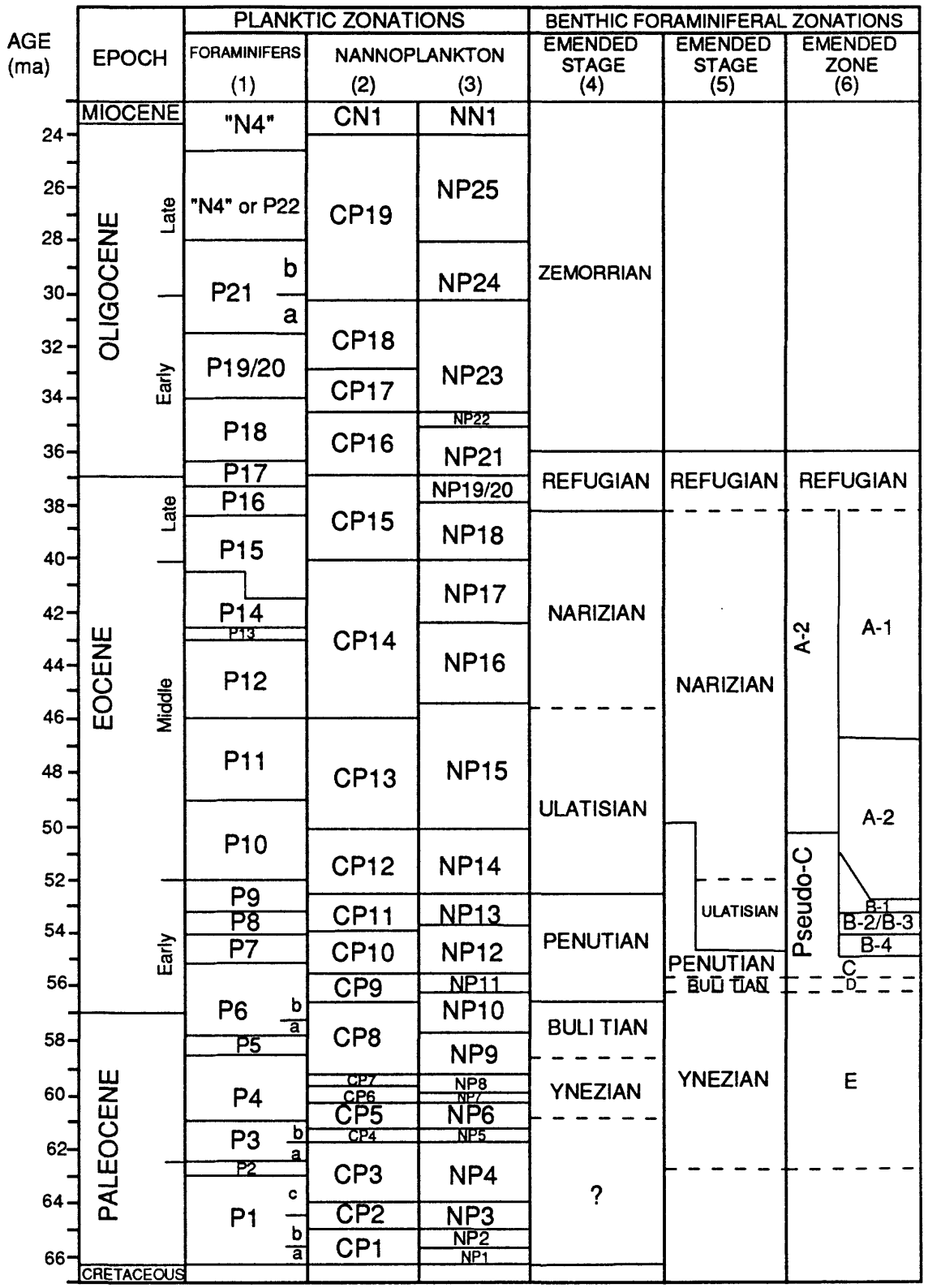

Figure 1. Correlation of California Paleogene benthic foraminiferal stages to the international time scale of Berggren and others (1985) and Aubry and others (1988), are shown for the planktic microfossil zones of Blow (1969, 1979) and Berggren (1972) in column 1, Bukry (1973, 1975) and Okada and Bukry (1980) in column 2, and Martini (1970, 1971) in column 3. Emended benthic foraminiferal stages of McDougall (1988, 1989, 1991, 1993 and unpublished data) are shown in column 4, and emended benthic foraminiferal stages and zones of Almgren and others (1988) are shown in columns 5 and 6. Many of these correlations are summarized by Bartow (1992).

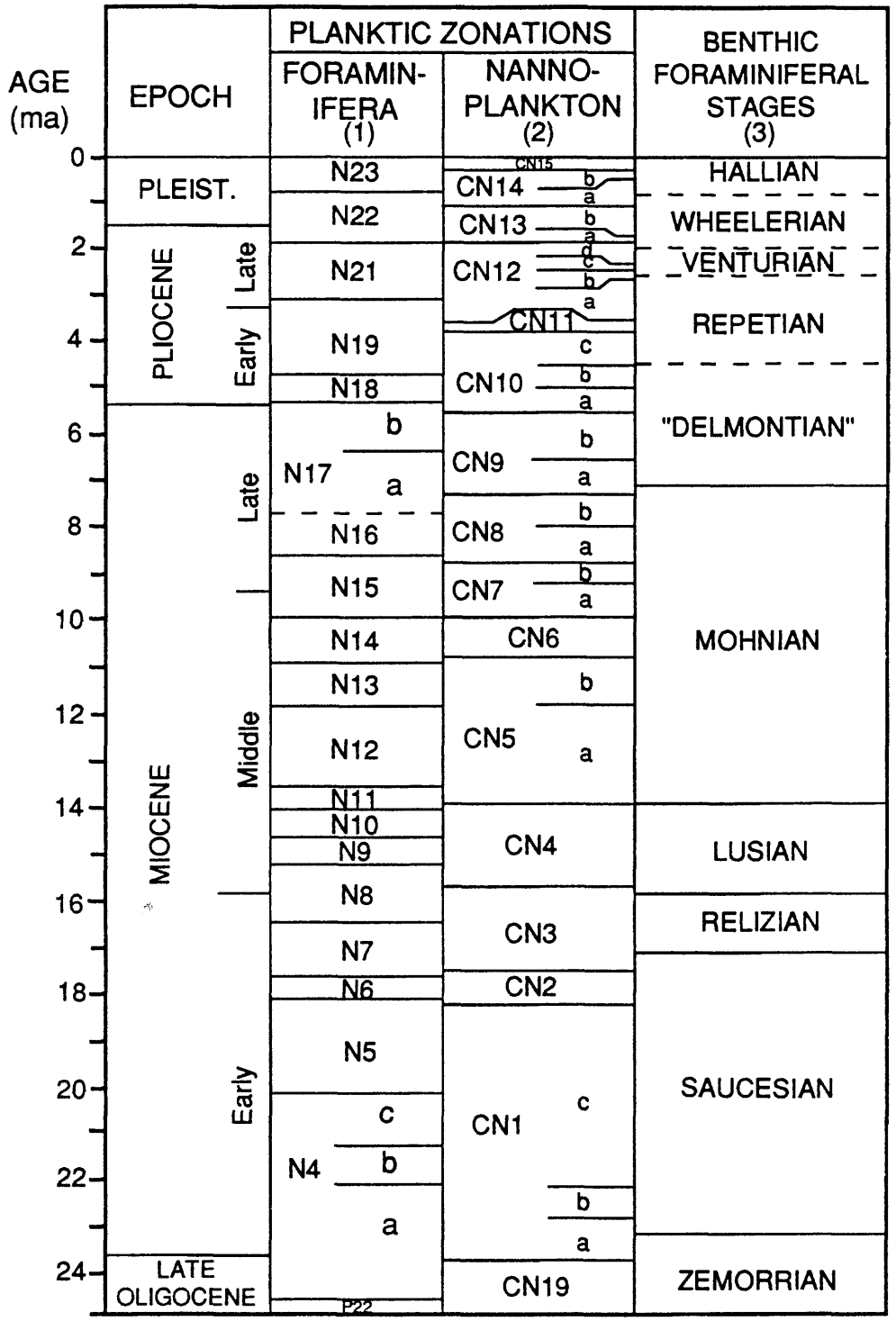

Figure 2. Correlation of California Neogene benthic foraminiferal stages (column 3) to the international time scale of Berggren and others (1985) are shown for the planktic microfossil zones of Blow (1969, 1979) and Berggren (1972) in column 1, and Bukry (1973, 1975) and Okada and Bukry (1980) in column 2. Revision and correlation of the late Neogene benthic foraminiferal stages follows Blake (1991). Most of the correlations are summarized by Bartow (1992).

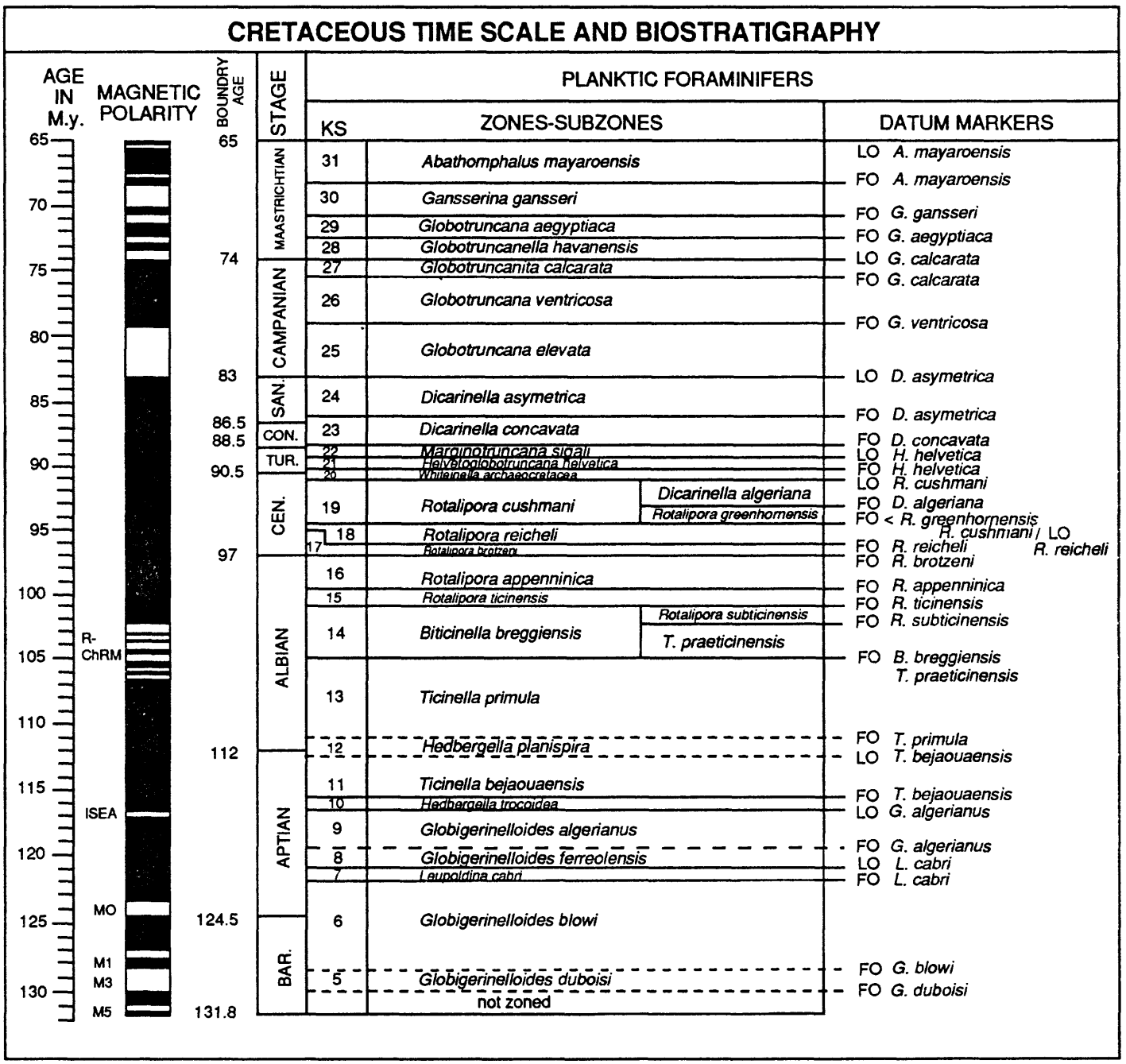

Fig. 3 Zonation for Cretaceous planktic foraminifers (modified from Sliter, 1989). Magneto-geochronology from Harland and others (1990). KS= Cretaceous zone notation. FO= first occurence; LO= last occurence.

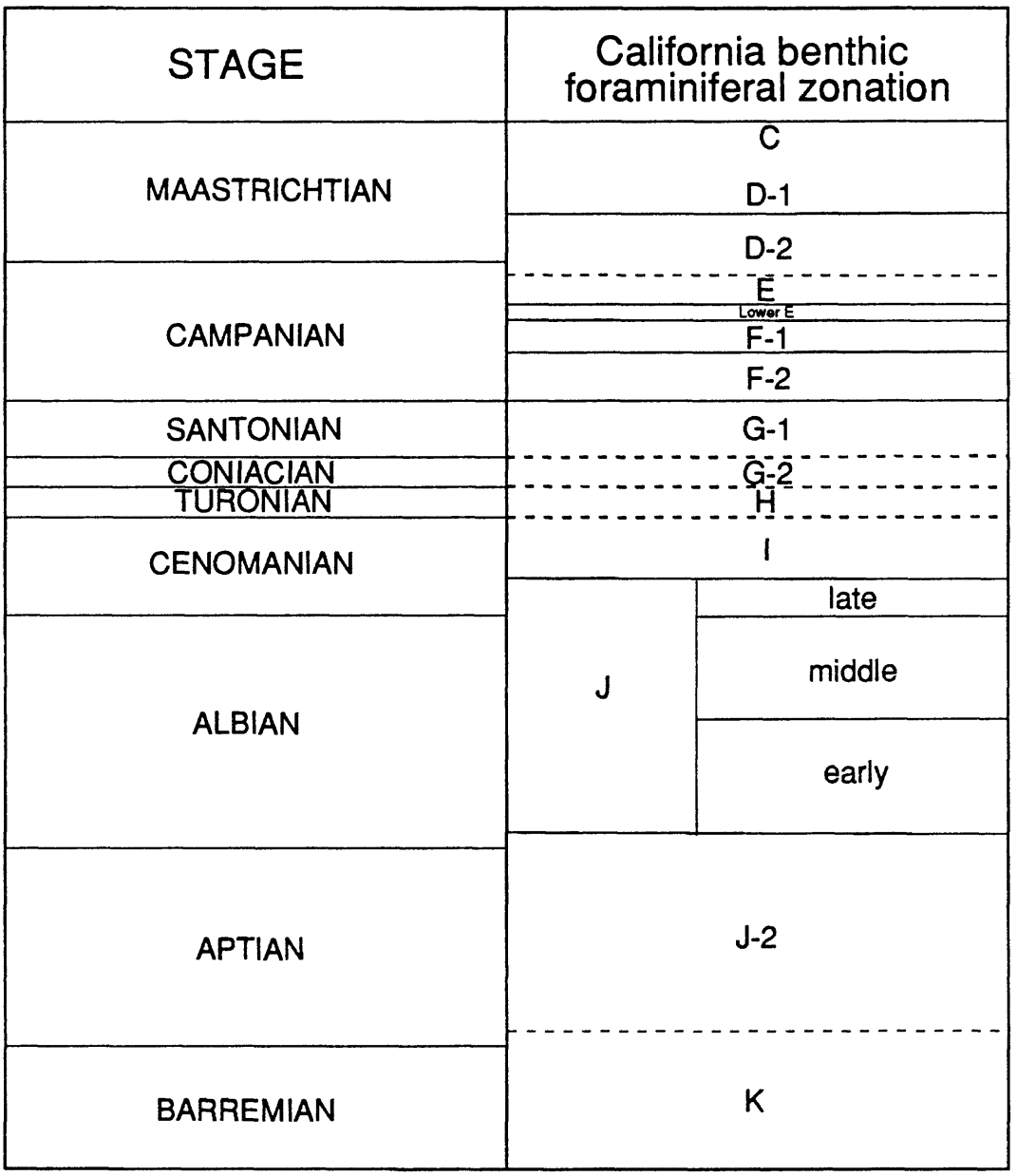

Fig. 4 Cretaceous zone assignments for benthic foraminifers from the Great Valley sequence of California after Goudkoff (1945) for zones G through C modified by Almgren (1986) and from Berry (1974) for zones H and older.

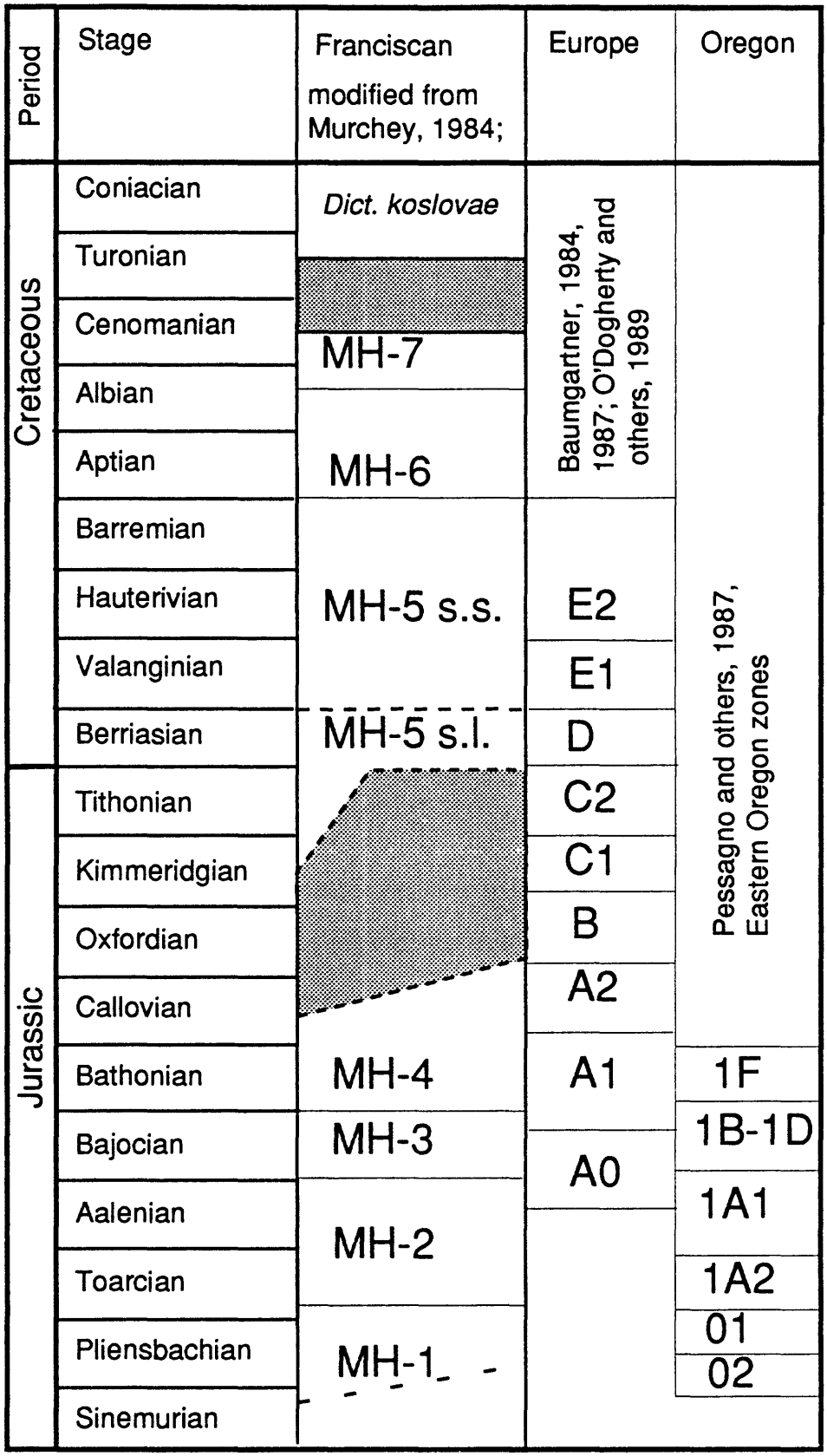

Figure 5. Ages of radiolarian assemblages in the Franciscan Complex of California and their correlation with selected zonations from Europe and Oregon. Recrystallized intervals are stippled.

Sequential laboratory or field number tied to map number on Plate 1 and Appendix B

Lab, or Field Number	Map no.
A-9158	158
A-9164	192
A-9165	194
A-9166	193
A-9168	168
A-9325	159
B-4384	21
B-4385	22
B-4386	11
B-4387	24
B-4388	25
B-4389	26
B-4390	26
B-4391	17
B-4392	18
B-4393	19
B-4394	20
B-4395	16
B-4396	14
B-7092	48
B-7093	48
B-7094	48
B-7095	49
B-7096	50
B-7097	51
B-7098	51
B-7099	52
B-7100	52
B-7101	53
B-7102	53
B-7103	53
B-7104	54
B-7105	54
B-7106	54
B-7107	54
B-7108	54
B-7109	54
B-7110	56
B-7111	56
B-7112	56
B-7113	56
B-7114	56

Lab, or Field Number	Map no.
B-7115	56
B-7116	56
B-7117	56
B-7118	56
B-7119	56
B-7120	56
B-7121	56
B-7122	56
B-7123	57
B-7124	57
B-7125	57
B-7126	57
B-7127	57
B-7128	57
B-7129	57
B-7130	22
B-8349	55
DMG-BG-101	221
DMG-DP-108	223
DMG-DP-302	222
DMG-DP-403-404	226
DMG-DP-707	225
DMG-DP-715	224
DMG-SOL-111	220
JC61-5	15
JC61-6	13
JC61-7	12
Mf1052	114
Mf1052A	114
Mf1053	79
Mf1297	184
Mf1298	179
Mf1304	97
Mf1305	96
Mf1306	95
Mf1307	98
Mf1309	116
Mf1310	115
Mf1311	38
Mf1312	31
Mf1313	32
Mf1314	33

Lab, or Field Number	Map no.
Mf1404	10
Mf1405	10
Mf1406	15
Mf1407	15
Mf1408	15
Mf1418	85
Mf1419	86
Mf1420	86
Mf1529	66
Mf1579	54
Mf1581	76
Mf1582	75
Mf1582A	119
Mf1583	67
Mf1583A	127
Mf1584	67
Mf1584A	127
Mf1585	68
Mf1585A	128
Mf1586	69
Mf1586A	125
Mf1587	70
Mf1587A	125
Mf1588	71
Mf1588A	124
Mf1589	124
Mf1590	112
Mf1591	113
Mf1592	103
Mf1593	102
Mf1594	101
Mf1595	100
Mf1596	99
Mf1600	106
Mf1601	105
Mf1603	94
Mf1847	168
Mf2051	143
Mf2052	144
Mf2262	34
Mf2263	33
Mf2264	32
Mf2265	35
Mf2266	39
Mf2267	40
Mf2268	44
Mf2269	44
Mf2270	44
Mf2271	45
Mf2272	46
Mf2273	47
Mf2274	47
Mf2642	141
Mf2647	129
Mf2648	122
Mf2649	86
Mf3261	148
Mf3263	150
Mf3339	147
Mf3340	146
Mf4498	78
Mf4499	78
Mf4501	83
Mf4502	84
Mf7438	59
Mf7439	59
Mf7440	77
Mf7442	75
Mf7443	74
Mf7444	72
Mf7447	142
Mf7448	142
Mf7449	142
Mf7453	127
Mf7454	127
Mf7471	124
Mf7473	121
Mf7474	120
Mf7475	91
Mf7480	93
Mf7481	60
Mf7482	61
Mf7485	62
Mf7486	63
Mf7487	64
Mf7488	65
Mf7489	73
Mf7490	73
Mf7492	89
Mf7493	90
Mf7495	87
Mf7496	81

Lab, or Field Number	Map no.
R1299	171
R1300	187
R1301	169
R1302	170
R1303	172
R1304	174
R1305	180
R1306	178
R1308	177
R1309	175
R1310	189
R1311	186
R1312	186
R1313	185
R1314	185
R1315	183
R1316	182
R1317	181
R1318	153
R1319	176
R1320	154
R1321	188
R1322	160
R1323	191
R1324	191
R1325	190
R1327	160
R1328	163
R1329	163
R1330	162
R1331	167
R1333	166
R1334	166
R1335	166
R1336	165
R1337	164
R1338	164
RMH55-71	88
RM192-70	104
RM263-70	104
S91-23-27	3
S84-253 to S84-256	1
S84-60	2
S84-52 to S84-57	139
S84-50	136
S84-49	135
S84-39 to S84-48	134
S84-32 to S84-35	132
S89-24 to S89-25	109
11--19--4	148
71CB971B	145
71CB983C	141

APPENDIX B

Geologic and paleontologic data associated with map numbers on Plate 1.

Sample Information

1. Formation name
2. USGS and/or field number
3. Locality information
4. " "
5. Lithology
6. Associated fossils
7. Period/Epoch
8. Stage
9. Zone
10. Fossils used for dating
11. Paleontologist, year
12. Collector, year
13. Depositional environment
14. Reference

Several lithologic units listed under Formation are used in an informal sense and are identified by quotation marks. These units and their sources are:

"Cretaceous Shale" (Ku_1) of McLaughlin and others (1988)
"Larios Canyon Sandstone" of Carter (1970)
"Little Arthur Creek Formation" of McLaughlin (1973)
"Loma Prieta ophiolite" of McLaughlin and others (1988)
"Marine sandstone and shale" (Te_2) of McLaughlin and others (1988)
"Marine shale and sandstone of Highland Way" (Tme) of McLaughlin and others (1988)
"Mottled mudstone of Mt. Chual" (Te_1) of McLaughlin and others (1988)
"Mt. Madonna Formation" of McLaughlin (1973)
"Mudstone of Nesbit Ridge" or "mudstone of Bolado Park" of Frames (1955)

Map Number

1

1. Franciscan Complex
2. S84-253 to S84-256
3. Los Gatos 7.5' Quad., Lat. 37° 13.00' N, Long. 121° 59.25' W, exposed road
4. cut on the western side of Highway 17 near Los Gatos
5. Calera Limestone; medium-grey, heavily-veined limestone and black chert
6.
7. Cretaceous
8. Aptian to Albian
9. *Globigerinelloides algerianus* Zone to *Rotalipora appenninica* Zone
10. Foraminifers (P)
11. Sliter, W.V., 1984
12. Sliter, W.V., 1984
13. Bathyal
14. Sliter and McGann (1992)

2
1. Franciscan Complex
2. S84-60
3. Los Gatos 7.5' Quad., Lat. 37° 12.30' N, Long. 121° 58.33' W, 4m section in a
4. small abandoned quarry on the eastern hillside of St. Josephs Hill near Los Gatos
5. Calera Limestone; recrystallized, medium-grey, heavily-veined limestone and chert
6.
7. Cretaceous
8. Cenomanian
9. *Rotalipora cushmani* Zone; *R. greenhornensis* Subzone
10. Foraminifers (P)
11. Sliter, W.V., 1984
12. Sliter, W.V., 1984
13. Bathyal
14. Sliter and McGann (1992)

3
1. Franciscan Complex
2. S91-23 to 27
3. Los Gatos 7.5' Quad., Lat. 37° 12' 33" N, Long. 121° 57' 46" W,
4. several abandoned quarries on western hillside east of St. Josephs Hill
5. Calera Limestone; light-grey limestone and interbedded medium-grey chert
6. Benthic foraminifers
7. Cretaceous
8. Aptian? to Cenomanian
9. *Hedbergella trocoidea* Zone? to *Rotalipora cushmani* Zone
10. Foraminifers (P)
11. Sliter, W.V., 1992
12. Sliter, W.V., 1991
13. Bathyal
14. Internal report

4
1. Franciscan Complex
2. MR8394 (MSJ -163-90A)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 42" N, Long. 121° 57' 52" W,
4. near Priest Rock
5. Chert, bedded, metachert lens
6.
7. Jurassic
8. Toarcian or Aalenian to Bajocian?
9. Correlative with MH-2 or possibly lower MH-3 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

4
1. Franciscan Complex
2. MR8396 (MSJ -163-90B)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 42" N, Long. 121° 57' 52" W
4.
5. Chert, bedded, metachert lens in mélange
6.
7. Jurassic, Middle to late?
8. Bajocian to Callovian or younger
9. Correlative with MH-3 or MH-4? of Murchey (1984)

10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

4
1. Franciscan Complex
2. MR8403 (MSJ -164-90)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 43" N, Long. 121° 57' 55" W,
4. near Priest Rock
5. Chert, bedded
6.
7. Jurassic, Middle
8. Bajocian or Bathonian?
9. Correlative with MH-3 or lower MH-4? of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

4
1. Franciscan Complex
2. MR8405 (MSJ -165-90)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 40" N, Long. 121° 57' 55" W
4.
5. Chert, bedded; lens in mélange
6.
7. Jurassic, late Middle
8. Bathonian or Callovian
9. Correlative with MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

5
1. Franciscan Complex
2. MR8392 (MSJ -172-90)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 22" N, Long. 121° 57' 07" W
4.
5. Chert, clast in gouged argillite along serpentinite body
6.
7. Jurassic, late Middle
8. Bathonian to Callovian?
9. Correlative with MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

5
1. Franciscan Complex
2. MR8398 (MSJ -171-90A)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 22" N, Long. 121° 57' 09" W

4.
5. Chert, in olistolith mélange
6.
7. Jurassic, Late or Cretaceous, Early
8. Oxfordian to Hauterivian
9. Correlative with MH-5 *sensu lato* of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

6
1. Franciscan Complex
2. MR8393 (MSJ -174-90A)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 22" N, Long. 121° 57' 03" W
4.
5. Chert, bedded
6.
7. Mesozoic
8. Undetermined
9.
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

7
1. Vaqueros Formation or San Lorenzo Formation
2. Mf7762 (MSJ-252-90)
3. Los Gatos 7.5' Quad., Lat. 37° 10' 37" N, Long. 121° 59' 40" W
4.
5. Shale, carbonaceous
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1990
12. McLaughlin, R.J., 1990
13.
14. Internal report

8
1. Vaqueros Formation or Butano Formation
2. Mf7678 (90CB2802)
3. Los Gatos 7.5' Quad,. Lat. 37° 08' 35" N, Long. 121° 59' 10" W,
4. north side of Mountain Charlie Road
5. Shale, with bedded sandstone
6. Fish debris
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K. 1990
12. Brabb, E.E., 1990

13. Unknown
14. Internal report

9
1. San Lorenzo Formation
2. Mf7690 (90CB2821)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 24" N, Long. 121° 57' 46" W
4.
5. Mudstone and shale
6. Planktic foraminifers
7. Eocene, late? through Oligocene
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1990
12. Brabb, E.E., 1990
13.
14. Internal report

10
1. San Lorenzo Formation, Rices Mudstone Member
2. Mf1404 (68CB126)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 00" N, Long. 121° 59' 34" W
4.
5. Mudstone
6.
7. Eocene, late through Oligocene
8. Probably Refugian or Zemorrian, early
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969
12. Brabb, E.E., 1968
13.
14. Internal report

10
1. San Lorenzo Formation, Rices Mudstone Member
2. Mf1405 (68CB131)
3. Los Gatos 7.5' Quad., Lat. 37° 07' 58" N, Long. 121° 59' 36" W
4.
5. Mudstone
6.
7. Probably Oligocene
8. Probably Zemorrian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969
12. Brabb, E.E., 1968
13.
14. Internal report

11
1. San Lorenzo Formation
2. B-4386
3. Los Gatos 7.5' Quad., Lat. 37° 07' 35" N, Long. 121° 58' 57" W
4.
5. Shale, dark-gray

6.
7. Oligocene
8. Zemorrian through Saucesian, early
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Bathyal biofacies
14. Fairchild, Wesendunk and Weaver (1969)

12
1. Vaqueros Formation
2. JC61-7
3. Laurel 7.5' Quad., Lat. 37° 07' 16" N, Long. 121° 59' 47" W
4.
5. Sandstone, massive
6.
7. Oligocene
8. Zemorrian, late
9.
10. Foraminifers (B)
11. Clark, J.C., 1966; revised by McDougall, K., 1991
12. Clark, J.C., 1966
13. Upper middle-bathyal biofacies (500-1500 m)
14. Clark (1966); Brabb, Clark and Throckmorton (1977); McDougall (1991)

13
1. Lambert Shale
2. JC61-6
3. Laurel 7.5' Quad., Lat. 37° 07' 09" N, Long. 121° 59' 49" W
4.
5. Mudstone, thin to medium bedded, olive-gray to dusky-yellowish-brown, organic
6.
7. Miocene
8. Saucesian
9. *Plectofrondicularia miocenica* Zone
10. Foraminifers (B)
11. Clark, J.C., 1966; revised by McDougall, K., 1991
12. Clark, J.C., 1966
13. Upper middle-bathyal biofacies (500-1500 m)
14. Clark (1966); Brabb, Clark and Throckmorton (1977); McDougall (1991)

14
1. Lambert Shale
2. B-4396
3. Laurel 7.5' Quad., Lat. 37° 07' 06" N, Long. 121° 59' 49" W
4.
5. Siltstone, dark-gray, micaceous
6.
7. Oligocene
8. Saucesian, middle
9. *Plectofrondicularia miocenica* Zone
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Unknown
14. Fairchild, Wesendunk and Weaver (1969)

15
1. Lambert Shale
2. JC61-5
3. Laurel 7.5' Quad., Lat. 37° 06' 59" N, Long. 121° 59' 48" W
4.
5. Shale
6.
7. Miocene
8. Saucesian
9. *Uvigerinella obesa* Zone
10. Foraminifers (B)
11. Clark, J.C., 1966; revised by McDougall, K., 1991
12. Clark, J.C., 1966
13. Upper middle-bathyal biofacies (500-1500 m)
14. Clark (1966); Brabb, Clark and Throckmorton (1977); McDougall (1991)

15
1. Lambert Shale
2. Mf1406 (68CB155)
3. Laurel 7.5' Quad., Lat. 37° 07' 00" N, Long. 121° 59' 48" W
4.
5.
6.
7. Oligocene, late through Miocene, early
8. Saucesian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968
12. Brabb, E.E., 1968
13.
14. Internal report

15
1. Lambert Shale
2. Mf1407 (68CB161)
3. Laurel 7.5' Quad., Lat. 37° 06' 57" N, Long. 121° 59' 47" W
4.
5.
6.
7. Probably Oligocene, late through Miocene, early
8. Probably Saucesian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968
12. Brabb, E.E., 1968
13.
14. Internal report

15
1. Lambert Shale
2. Mf1408 (68CB162)
3. Laurel 7.5' Quad., Lat. 37° 06' 55" N, Long. 121° 59' 47" W
4.
5.
6.

7. Probably Oligocene, late through Miocene, early
8. Probably Saucesian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968
12. Brabb, E.E., 1968
13.
14. Internal report

16
1. Vaqueros Formation
2. B-4395
3. Laurel 7.5' Quad., Lat. 37° 07' 03" N, Long. 121° 59' 07" W
4.
5. Shale, dark-gray
6.
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Outer neritic biofacies
14. Fairchild, Wesendunk and Weaver (1969)

17
1. Vaqueros Formation
2. B-4391
3. Laurel 7.5' Quad., Lat. 37° 07' 01" N, Long. 121° 58' 28" W
4.
5. Shale, dark-gray
6.
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Outer neritic biofacies
14. Fairchild, Wesendunk and Weaver (1969)

18
1. Vaqueros Formation
2. B-4392
3. Laurel 7.5' Quad., Lat. 37° 06' 59" N, Long. 121° 58' 29" W
4.
5. Shale, dark-gray
6.
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Outer neritic biofacies
14. Fairchild, Wesendunk and Weaver (1969)

19

1. Vaqueros Formation
2. B-4393
3. Laurel 7.5' Quad., Lat. 37° 06' 53" N, Long. 121° 58' 25" W
4.
5. Shale, dark-gray
6.
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Outer neritic biofacies
14. Fairchild, Wesendunk and Weaver (1969)

20

1. Vaqueros Formation
2. B-4394
3. Laurel 7.5' Quad., Lat. 37° 06' 52" N, Long. 121° 58' 24" W
4.
5. Shale, dark-gray
6.
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Outer neritic biofacies
14. Fairchild, Wesendunk and Weaver (1969)

21

1. Butano Formation
2. B-4384
3. Laurel 7.5' Quad., Lat. 37° 07' 28" N, Long. 121° 57' 53" W
4.
5. Shale, brown
6.
7. Eocene
8. Narizian, late
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Outer neritic to upper bathyal biofacies
14. Fairchild, Wesendunk and Weaver (1969)

22

1. Butano Formation
2. B-4385
3. Laurel 7.5' Quad., Lat. 37° 07' 25" N, Long. 121° 57' 48" W
4.
5. Shale, brown
6.
7. Eocene
8. Narizian, late
9.

10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Outer neritic to upper bathyal biofacies
14. Fairchild, Wesendunk and Weaver (1969)

22
1. Butano Formation?
2. B-7130
3. Laurel 7.5' Quad., Lat. 37° 07' 09" N, Long. 121° 57' 34" W
4.
5. Sandstone, strongly bedded, glauconitic
6. Planktic foraminifers
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

23
1. San Lorenzo Formation, Twobar Shale Member
2. Mf7660 (89CB2761)
3. Laurel 7.5' Quad, Lat. 37° 07' 13" N, Long. 121° 57' 30" W
4.
5. Shale
6.
7. Eocene, late
8. Narizian, late
9.
10. Foraminifers (B)
11. McDougall, K., 1989
12. Brabb, E.E., 1989
13. Neritic biofacies (0-150 m)
14. Internal report; McDougall (1991)

24
1. San Lorenzo Formation
2. B-4387
3. Laurel 7.5' Quad., Lat. 37° 07' 07" N, Long. 121° 57' 37" W
4.
5. Shale, dark-gray
6.
7. Oligocene
8. Zemorrian through Saucesian, early
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Bathyal biofacies
14. Fairchild, Wesendunk and Weaver (1969)

25
1. San Lorenzo Formation
2. B-4388
3. Laurel 7.5' Quad., Lat. 37° 07' 03" N, Long. 121° 57' 38" W,

4. 175 feet stratigraphically above B-4387
5. Shale, dark-gray
6.
7. Oligocene
8. Zemorrian through Saucesian, early
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Bathyal biofacies
14. Fairchild, Wesendunk and Weaver (1969)

26
1. Vaqueros Formation
2. B-4389
3. Laurel 7.5' Quad., Lat. 37° 06' 43" N, Long. 121° 57' 38" W
4.
5. Shale, dark-gray
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13.
14. Fairchild, Wesendunk and Weaver (1969)

26
1. Vaqueros Formation
2. B-4390
3. Laurel 7.5' Quad., Lat. 37° 06' 40" N, Long. 121° 57' 37" W
4.
5. Siltstone, dark-gray
6.
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
12. Fairchild, W.W., Wesendunk, P.R., and Weaver, D.W., 1969
13. Outer neritic biofacies
14. Fairchild, Wesendunk and Weaver (1969)

27
1. San Lorenzo Formation, Rices Mudstone Member
2. Mf7675 (90CB2792)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 05" N, Long. 121° 57' 05" W
4.
5. Mudstone
6.
7. Oligocene, early
8. Zemorrian
9.
10. Foraminifers (B)
11. McDougall, K., 1990

12. Brabb, E.E., 1990
13. Upper bathyal biofacies (150-500 m)
14. Internal report

28
1. San Lorenzo Formation, Rices Mudstone Member
2. Mf7676 (90CB2801)
3. Los Gatos 7.5' Quad., Lat. 37° 07' 60" N, Long. 121° 56' 43" W
4.
5. Mudstone
6. Diatoms, radiolarians, echinoid spines and fish debris
7. Oligocene, early
8. Zemorrian, early
9.
10. Foraminifers (B)
11. McDougall, K., 1990
12. Brabb, E.E., 1990
13. Upper bathyal biofacies (150-500 m)
14. Internal report

29
1. San Lorenzo Formation, Rices Mudstone Member
2. Mf7647 (89CB2574)
3. Laurel 7.5' Quad, Lat. 37° 07' 07" N, Long. 121° 56' 39" W
4.
5. Mudstone
6.
7. Oligocene, early
8. Zemorrian, early
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. McDougall, K., 1989
12. Clark, J., and Brabb, E.E., 1989
13. Upper middle-bathyal biofacies (500-1500 m)
14. Internal report; McDougall (1991)

30
1. San Lorenzo Formation
2. Mf7646 (89CB2573)
3. Laurel 7.5' Quad, Lat. 37° 07' 09" N, Long. 121° 56' 30" W
4.
5. Mudstone, thin-bedded with minor sandstone
6. Diatoms
7. Oligocene, early
8. Zemorrian, early
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. McDougall, K., 1989
12. Clark, J., and Brabb, E.E., 1989
13. Upper middle-bathyal biofacies (500-1500 m)
14. Internal report; McDougall (1991)

31
1. Equivalent to "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1312 (69CB581)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 38" N, Long. 121° 54' 52" W
4.

5. Sandstone and shale
6. Radiolaria and planktic foraminifers
7. Eocene, probably early
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969; revised by McDougall, 1993
12. Brabb, E.E., 1969
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report

32
1. Equivalent to "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1313 (69CB583)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 52" N, Long. 121° 54' 34" W
4.
5. Mudstone, olive-gray
6.
7. Eocene, early
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969; revised by McDougall, K., 1993
12. Brabb, E.E., 1969
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report

32
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2264 (ELB-2-50-2)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 60" N, Long. 121° 54' 29" W,
4. approximately 250 feet S. 30° east of Mf2263 (ELB 2-51-1)
5. Mudstone
6. Planktic foraminifers
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P6b to P9
10. Foraminifers (B)
11. McDougall, K., 1990
12. Berglund, E.L., 1974; Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2264 (ELB-2-50-2)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 60" N, Long. 121° 54' 29" W,
4. approximately 250 feet S. 30° east of Mf2263 (ELB 2-51-1)
5. Mudstone
6. Benthic foraminifers
7. Eocene, early
8.
9. P7 to P8
10. Foraminifers (P)
11. Poore, R., 1974
12. Berglund, E.L., 1974; Brabb, E.E., 1974
13.

14. Internal report

32
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7681 (MSJ-8-90)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 60" N, Long. 121° 54' 29" W,
4. sample corresponds to Mf2264 (ELB 2-50-2) and Mf2263 (ELB 2-51-1)
5. Shale, black
6. Planktic foraminifers?
7. Paleocene to Eocene
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1990
12. Brabb, E.E., 1990
13. Lower bathal to abyssal biofacies (≥ 2000 m)
14. Internal report

33
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2263 (ELB-2-51-1)
3. Los Gatos 7.5' Quad., Lat. 37° 09' 03" N, Long. 121° 54' 37" W
4.
5. Mudstone
6. Planktic foraminifers
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1990
12. Berglund, E.L., 1974; Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2263 (ELB-2-51-1)
3. Los Gatos 7.5' Quad., Lat. 37° 09' 03" N, Long. 121° 54' 37" W
4.
5. Mudstone
6. Benthic foraminifers
7. Paleocene, late to Eocene, early
8.
9. P4 to P7
10. Foraminifers (B)
11. Poore, R., 1974
12. Berglund, E.L., 1974; Brabb, E.E., 1974
13.
14. Internal report

33
1. Equivalent to "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1314 (69CB584)
3. Los Gatos 7.5' Quad., Lat. 37° 09' 03" N, Long. 121° 54' 36" W
4.
5. Mudstone, olive-gray
6. Planktic foraminifers
7. Eocene, early

8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969; revised by McDougall, K., 1993
12. Brabb, E.E., 1969
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report

33
1. Unnamed early (?) Eocene strata
2. Mf7682 (MSJ 6-90)
3. Los Gatos 7.5' Quad., Lat. 37° 09' 05" N, Long. 121° 54' 37" W
4.
5. Shale, black
6. Planktic foraminifers
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zone P8
10. Foraminifers (B)
11. McDougall, K., 1990
12. McLaughlin, R.J., 1990
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report

34
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2262 (ELB-2-5-6)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 57" N, Long. 121° 53' 43" W,
4. taken along dirt road 450 feet south of BM3290
5. Mudstone
6. Planktic foraminifers and ostracodes
7. Probably Eocene
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1990
12. Berglund, E.L., 1974; Brabb, E.E., 1974
13. Unknown
14. Internal report

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2262 (ELB-2-5-6)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 57" N, Long. 121° 53' 43" W,
4. taken along dirt road 450 feet south of BM3290
5. Mudstone
6. Benthic foraminifers and ostracodes
7. Eocene, early
8.
9. P7 to P8
10. Foraminifers (P)
11. Poore, R., 1974
12. Berglund, E.L., 1974; Brabb, E.E., 1974
13.
14. Internal report

35
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2265 (ELB-2-35-7)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 14" N, Long. 121° 53' 48" W,
4. approximately 800 feet east of hill 2793, 40 feet south of road
5. Mudstone
6. Planktic foraminifers
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P7 to P9
10. Foraminifers (B)
11. McDougall, K., 1990
12. Berglund, E.L., 1974; Brabb, E.E., 1974
13. Bathyal to abyssal biofacies
14. Internal report

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2265 (ELB-2-35-7)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 14" N, Long. 121° 53' 48" W,
4. approximately 800 feet east of hill 2793, 40 feet south of road
5. Mudstone
6. Benthic foraminifers
7. Eocene, early
8.
9. P7 to P8
10. Foraminifers (P)
11. Poore, R., 1974
12. Berglund, E.L., 1974; Brabb, E.E., 1974
13.
14. Internal report

36
1. Unnamed marine sandstone and shale northeast of the San Andreas Fault
2. Mf7692 (MSJ-125-90)
3. Los Gatos 7.5' Quad., Lat. 37° 08' 04" N, Long. 121° 53' 57" W
4.
5. Shale, hard, carbonaceous, locally calcareous
6.
7. Tertiary?
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1990
12. McLaughlin, R.J., 1990
13.
14. Internal report

37
1. Unknown
2. Mf7668 (MSJ-121-89)
3. Los Gatos 7.5' Quad., Lat. 37° 07' 58" N, Long. 121° 54' 36" W
4.
5. Shale, micaceous, carbonaceous
6. Benthic and planktic foraminifers
7. Eocene, early

8.
9. CP11
10. Calcareous nannofossils
11. Bukry, D.J., 1989
12. McLaughlin, R.J., 1989
13.
14. Internal report

1. Unknown
2. Mf7668 (MSJ-121-89)
3. Los Gatos 7.5' Quad., Lat. 37° 07' 58" N, Long. 121° 54' 36" W
4.
5. Shale, micaceous, carbonaceous
6. Planktic foraminifers and calcareous nannofossils
7. Eocene, early
8. Penutian
9.
10. Foraminifers (B)
11. McDougall, K., 1989
12. McLaughlin, R.J., 1989
13. Bathyal, probably upper middle-bathyal biofacies (500-1500 m)
14. Internal report

38
1. Unnamed unit
2. Mf1311 (69CB571)
3. Los Gatos 7.5' Quad., Lat. 37° 07' 53" N, Long. 121° 54' 09" W
4.
5. Shale
6. Radiolarians
7. Probably Cretaceous or Paleocene, possibly former
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1971
12. Brabb, E.E., 1969
13.
14. Internal report

39
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2266 (ELB-107A)
3. Laurel 7.5' Quad., Lat. 37° 06' 54" N, Long. 121° 54' 26" W
4.
5. Mudstone
6.
7. Tertiary
8.
9.
10. Foraminfers (B)
11. McDougall, K., 1989
12. Berglund, E.L., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1991)

40

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2267 (ELB-2-21-3)
3. Laurel 7.5' Quad., Lat. 37° 06' 42" N, Long. 121° 54' 02" W
4.
5. Mudstone
6. Radiolarians
7. Tertiary, early
8.
9.
10. Foraminfers (B)
11. McDougall, K., 1989
12. Berglund, E.L., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1991)

41

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7663 (MSJ-124-89)
3. Laurel 7.5' Quad., Lat. 37° 06' 18" N, Long. 121° 53' 56" W
4.
5. Mudstone, mottled
6. Planktic foraminifers (fragments)
7. Tertiary, early
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1989
12. McLaughlin, R.J., 1989
13.
14. Internal report; McDougall (1991)

42

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7665 (MSJ-125-89-2)
3. Laurel 7.5' Quad., Lat. 37° 06' 16" N, Long. 121° 53' 56" W
4.
5. Mudstone, greenish-gray
6. Planktic foraminifers (fragments)
7. Probably Eocene, early
8. Probably Penutian
9.
10. Foraminfers (B)
11. McDougall, K., 1989
12. McLaughlin, R.J., 1989
13.
14. Internal report; McDougall (1991)

43

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7664 (MSJ-152-89-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 16" N, Long. 121° 53' 56" W
4.
5. Mudstone
6. Planktic and benthic foraminifers
7. Eocene, early
8.

9. CP11
10. Calcareous nannofossils
11. Bukry, D.J., 1989
12. McLaughlin, R.J., 1989
13.
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7664 (MSJ-125-89-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 16" N, Long. 121° 53' 56" W
4.
5. Mudstone
6. Planktic foraminifers, calcareous nannofossils
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P7 through P9
10. Foraminfers (B)
11. McDougall, K., 1989
12. McLaughlin, R.J., 1989
13. Bathyal biofacies (150-2000+ m)
14. Internal report; McDougall (1991)

43
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7666 (MSJ-126-89-A)
3. Laurel 7.5' Quad., Lat. 37° 06' 12" N, Long. 121° 53' 52" W
4.
5. Mudstone, greenish-gray
6. Planktic and benthic foraminifers
7. Eocene, early
8.
9. CP11
10. Calcareous nannofossils
11. Bukry, D.J., 1989
12. McLaughlin, R.J., 1989
13.
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7666 (MSJ-126-89-A)
3. Laurel 7.5' Quad., Lat. 37° 06' 12" N., Long. 121° 53' 52" W
4.
5. Mudstone, greenish-gray
6. Planktic foraminifers, calcareous nanofossils
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P7 through P9
10. Foraminfers (B)
11. McDougall, K., 1989
12. McLaughlin, R.J., 1989
13. Lower bathyal to abyssal biofacies ($\geq$ 2000 m)
14. Internal report; McDougall (1991)

43

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7667 (MSJ-126-89-B)
3. Laurel 7.5' Quad., Lat. 37° 06' 12" N., Long. 121° 53' 52" W
4.
5. Shale, dark-gray, hard
6.
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P7 through P9
10. Foraminfers (B)
11. McDougall, K., 1989
12. McLaughlin, R.J., 1989
13. Lower bathyal to abyssal biofacies (≥ 2000 m)
14. Internal report; McDougall (1991)

44

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2268 (ELB-13-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 15" N, Long. 121° 53' 33" W
4.
5. Mudstone
6. Planktic foraminifers
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9, probably P9
10. Foraminfers (B)
11. McDougall, K., 1989
12. Berglund, E.L., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2268 (ELB-13-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 15" N, Long. 121° 53' 33" W
4.
5. Mudstone
6. Benthic foraminifers
7. Eocene, early
8.
9. P8 to P9, probably P9
10. Foraminifers (P)
11. Poore, R., 1974
12. Berglund, E.L., 1974
13.
14. Internal report; McDougall (1991)

44

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2269 (ELB-2-14-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 21" N, Long. 121° 53' 22" W
4.
5. Mudstone
6. Planktic foraminifers, ostracodes and echinoid spines
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P10

10. Foraminifers (B)
11. McDougall, K., 1974
12. Berglund, E.L., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2269 (ELB-2-14-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 21" N, Long. 121° 53' 22" W
4.
5. Mudstone
6. Benthic foraminifers
7. Eocene, early
8.
9. P7 to P8
10. Foraminifers (P)
11. Poore, R., 1974
12. Berglund, E.L., 1974
13.
14. Internal report; McDougall (1991)

44
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2270 (ELB-2-16-5)
3. Laurel 7.5' Quad., Lat. 37° 06' 21" N, Long. 121° 53' 19" W
4.
5. Mudstone
6. Planktic foraminifers
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P7 to P10
10. Foraminifers (B)
11. McDougall, K., 1974
12. Berglund, E.L., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2270 (ELB-2-16-5)
3. Laurel 7.5' Quad., Lat. 37° 06' 21" N, Long. 121° 53' 19" W
4.
5. Mudstone
6. Benthic foraminifers
7. Eocene, early
8.
9. P7 to P8
10. Foraminifers (P)
11. Poore, R., 1974
12. Berglund, E.L., 1974
13.
14. Internal report; McDougall (1991)

45
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2271 (ELB-2-15-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 15" N, Long. 121° 53' 03" W

4.
5. Mudstone
6. Planktic foraminifers
7. Tertiary, early
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1974
12. Berglund, E.L., 1974
13. Bathyal, probably lower bathyal biofacies
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2271 (ELB-2-15-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 15" N, Long. 121° 53' 03" W
4.
5. Mudstone
6. Benthic foraminifers
7. Paleocene, late to Eocene, early
8.
9. P5 to P8
10. Foraminifers (P)
11. Poore, R., 1974
12. Berglund, E.L., 1974
13.
14. Internal report; McDougall (1991)

46

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2272 (ELB-2-8-2)
3. Laurel 7.5' Quad., Lat. 37° 06' 15" N, Long. 121° 52' 49" W
4.
5. Mudstone
6. Planktic foraminifers, ostracodes and echinoid spines
7. Early Eocene
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. McDougall, K., 1974
12. Berglund, E.L., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2272 (ELB-2-8-2)
3. Laurel 7.5' Quad., Lat. 37° 06' 15" N, Long. 121° 52' 49" W
4.
5. Mudstone
6. Benthic foraminifers, ostracodes and echinoid spines
7. Eocene, early
8.
9. P8 to P9
10. Foraminifers (P)
11. Poore, R.Z., 1974
12. Berglund, E.L., 1974

13.
14. Internal report; McDougall (1991)

46
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7658 (MSJ-82-89)
3. Laurel 7.5' Quad., Lat. 37° 06' 16" N, Long. 121° 52' 53" W,
4. 1200 ft. east of BM2375
5. Mudstone, mottled red and green
6. Planktic and benthic foraminifers, echinoid spines
7. Eocene, early to middle
8.
9. CP12
10. Calcareous nannofossils
11. Bukry, D.J., 1989
12. McLaughlin, R.J., 1989
13.
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7658 (MSJ-82-89)
3. Laurel, 7.5' Quad, , Lat. 37° 06' 15" N, Long. 121° 52' 49" W,
4. 1200 ft. east of BM2375
5. Mudstone, mottled red and green
6. Planktic foraminifers, echinoid spines, and calcareous nannofossils
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. McDougall, K., 1989
12. McLaughlin, R.J., 1989
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1991)

47
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2273 (ELB-2-9-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 10" N, Long. 121° 52' 54" W
4.
5. Mudstone
6. Planktic foraminifers
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. McDougall, K., 1974
12. Berglund, E.L., 1974
13. Bathyal, probably lower bathyal biofacies (≥2000 m)
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2273 (ELB-2-9-1)
3. Laurel 7.5' Quad., Lat. 37° 06' 10" N, Long. 121° 52' 54" W
4.
5. Mudstone
6. Benthic foraminifers

7. Paleocene, late to Eocene, early
8.
9. P4 to P8
10. Foraminifers (P)
11. Poore, R., 1974
12. Berglund, E.L., 1974
13.
14. Internal report; McDougall (1991)

47
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2274 (ELB-2-9-2)
3. Laurel 7.5' Quad., Lat. 37° 06' 13" N, Long. 121° 52' 57" W
4.
5. Mudstone
6. Planktic foraminifers, ostracodes
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. McDougall, K., 1974
12. Berglund, E.L., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1991)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2274 (ELB-2-9-2)
3. Laurel 7.5' Quad., Lat. 37° 06' 13" N, Long. 121° 52' 57" W
4.
5. Mudstone
6. Benthic foraminifers
7. Eocene, early
8.
9. P7 to P8
10. Foraminifers (P)
11. Poore, R., 1974
12. Berglund, E.L., 1974
13.
14. Internal report; McDougall (1991)

48
1. Vaqueros Formation
2. B-7092
3. Laurel 7.5' Quad., Lat. 37° 05' 01" N, Long. 121° 54' 31" W
4.
5. Mudstone, greenish-gray, silty
6. Planktic foraminifers
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

48
1. Vaqueros Formation
2. B-7093
3. Laurel 7.5' Quad., Lat. 37° 05' 01" N, Long. 121° 54' 31" W
4.
5. Mudstone, greenish-gray, very fine sandy
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

48
1. Vaqueros Formation
2. B-7094
3. Laurel 7.5' Quad., Lat. 37° 05' 01" N, Long. 121° 54' 31" W
4.
5. Mudstone, greenish-gray, very fine sandy
6. Planktic foraminifers
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

49
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7095
3. Laurel 7.5' Quad., Lat. 37° 05' 06" N, Long. 121° 54' 22" W
4.
5. Mudstone, dark-gray
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

50
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7096
3. Laurel 7.5' Quad., Lat. 37° 05' 11" N, Long. 121° 54' 17" W
4.
5. Mudstone, black to dark-gray, sandy to silty
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone

10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

51
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7097
3. Laurel 7.5' Quad., Lat. 37° 05' 12" N, Long. 121° 54' 14" W
4.
5. Mudstone, dark-gray
6. Planktic foraminifers
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

51
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7098
3. Laurel 7.5' Quad., Lat. 37° 05' 12" N, Long. 121° 54' 14" W
4.
5. Mudstone, dark-gray, shaly
6. Planktic foraminifers
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

52
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7099
3. Laurel 7.5' Quad., Lat. 37° 05' 13" N, Long. 121° 54' 10" W
4.
5. Mudstone, dark-gray
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

52
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7100
3. Laurel 7.5' Quad., Lat. 37° 05' 13" N, Long. 121° 54' 10" W

4.
5. Mudstone, dark-gray
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

53
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7101
3. Laurel 7.5' Quad., Lat. 37° 05' 06" N, Long. 121° 53' 57" W
4.
5. Siltstone, pale-gray and sandstone, very-fine, silty
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

53
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7102
3. Laurel 7.5' Quad., Lat. 37° 05' 11" N, Long. 121° 54' 06" W
4.
5. Mudstone, finely laminated, brownish- and bluish-gray, silty
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

53
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7103
3. Laurel 7.5' Quad., Lat. 37° 05' 14" N, Long. 121° 54' 02" W
4.
5. Mudstone, greenish-gray, silty
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971

13. Bathyal biofacies
14. Smith (1971)

54
1. San Lorenzo Formation, middle sandstone
2. B-7104
3. Laurel 7.5' Quad., Lat. 37° 05' 15" N, Long. 121° 54' 02" W
4.
5. Sandstone, massive, buff-weathering, gray, fine- to medium-grained, argillaceous
6. Mollusks
7. Oligocene
8. Refugian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Neritic biofacies
14. Smith (1971)

54
1. San Lorenzo Formation, Twobar Shale Member
2. B-7105
3. Laurel 7.5' Quad., Lat. 37° 05' 17" N, Long. 121° 53' 58" W
4.
5. Mudstone, finely laminated, black to dark greenish-gray, iron-stained, slightly fissile
6.
7. Eocene
8. Narizian
9. *Bulimina corrigata* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to bathyal biofacies
14. Smith (1971)

54
1. San Lorenzo Formation, Twobar Shale Member
2. B-7106
3. Laurel 7.5' Quad., Lat. 37° 05' 17" N, Long. 121° 53' 58" W
4.
5. Mudstone, finely laminated, black to dark greenish-gray
6.
7. Eocene
8. Narizian
9. *Bulimina corrugata* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritc to bathyal biofacies
14. Smith (1971)

54
1. San Lorenzo Formation, Twobar Shale Member
2. B-7107
3. Laurel 7.5' Quad., Lat. 37° 05' 17" N, Long. 121° 53' 58" W
4.
5. Mudstone, finely laminated, black to dark greenish-gray
6. Mollusks

7. Eocene
8. Narizian
9. *Bulimina corrugata* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to bathyal biofacies
14. Smith (1971)

54
1. San Lorenzo Formation, Twobar Shale Member
2. B-7108
3. Laurel 7.5' Quad., Lat. 37° 05' 19" N, Long. 121° 53' 57" W
4.
5. Mudstone, finely laminated, black to dark greenish-gray
6.
7. Eocene
8. Narizian
9. *Bulimina corrugata* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic biofacies
14. Smith (1971)

54
1. San Lorenzo Formation, Twobar Shale Member
2. B-7109
3. Laurel 7.5' Quad., Lat. 37° 05' 20" N, Long. 121° 53' 56" W
4.
5. Mudstone, finely laminated, black to dark greenish-gray
6.
7. Eocene
8. Narizian
9. *Bulimina corrugata* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic biofacies
14. Smith (1971)

54
1. San Lorenzo Formation
2. Mf1579 (EB622)
3. Laurel 7.5' Quad., Lat. 37° 05' 30" N, Long. 121° 53' 37" W
4.
5.
6.
7. Oligocene or older
8. Zemorrian or older
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968
12. Brabb, E.E., 1968
13.
14. Internal report; McDougall (1991)

55
1. Butano Formation
2. B-8349
3. Laurel 7.5' Quad., Lat. 37° 05' 31" N, Long. 121° 53' 38" W
4.
5. Sandstone, glauconitic
6. Mollusks
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Shallow neritic biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Twobar Shale Member
2. B-7110
3. Laurel 7.5' Quad., Lat. 37° 05' 22" N, Long. 121° 53' 49" W
4.
5. Mudstone, finely laminated, bluish-gray to black to dark greenish-gray
6.
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Twobar Shale Member
2. B-7111
3. Laurel 7.5' Quad., Lat. 37° 05' 22" N, Long. 121° 53' 49" W
4.
5. Shale, bluish-gray, clayey
6. Planktic foraminifers
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Twobar Shale Member
2. B-7112
3. Laurel 7.5' Quad., Lat. 37° 05' 22" N, Long. 121° 53' 49" W
4.
5. Shale, bluish-gray, clayey
6. Planktic foraminifers
7. Eocene
8. Narizian
9.

10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Twobar Shale Member
2. B-7113
3. Laurel 7.5' Quad., Lat. 37° 05' 22" N, Long. 121° 53' 49" W
4.
5. Mudstone, dark brownish-gray, finely laminated
6. Planktic foraminifers
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to bathyal biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Twobar Shale Member
2. B-7114
3. Laurel 7.5' Quad., Lat. 37° 05' 24" N, Long. 121° 53' 48" W
4.
5. Mudstone, dark brownish-gray, finely laminated
6.
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to bathyal biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Twobar Shale Member
2. B-7115
3. Laurel 7.5' Quad., Lat. 37° 05' 25" N, Long. 121° 53' 46" W
4.
5. Mudstone, dark brownish-gray, finely laminated
6.
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to bathyal biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, middle sandstone
2. B-7116
3. Laurel 7.5' Quad., Lat. 37° 05' 26" N, Long. 121° 53' 43" W

4.
5. Sandstone, thick-bedded, glauconitic, argillaceous
6. Mollusks
7. Oligocene
8. Refugian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Neritic biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7117
3. Laurel 7.5' Quad., Lat. 37° 05' 27" N, Long. 121° 53' 41" W,
4. 200 ft. stratigraphically above B-7116
5. Mudstone, greenish-brown, clay-rich
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Upper bathyal biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7118
3. Laurel 7.5' Quad., Lat. 37° 05' 27" N, Long. 121° 53' 41" W,
4. 50 ft. stratigraphically above B-7117
5. Mudstone, dark brownish-gray
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Upper bathyal biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7119
3. Laurel 7.5' Quad., Lat. 37° 05' 27" N, Long. 121° 53' 41" W,
4. 25 ft. stratigraphically above B-7118
5. Mudstone, dark gray, very weakly fissile
6. Fish scales
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971

13. Upper bathyal biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7120
3. Laurel 7.5' Quad., Lat. 37° 05' 27" N, Long. 121° 53' 41" W,
4. 30 ft. stratigraphically above B-7119
5. Mudstone, dark gray, very weakly fissile
6. Planktic foraminifers, fish scales, shark teeth
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Upper bathyal biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7121
3. Laurel 7.5' Quad., Lat. 37° 05' 27" N, Long. 121° 53' 41" W
4.
5. Mudstone, dark gray
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to upper bathyal biofacies
14. Smith (1971)

56
1. San Lorenzo Formation, Rices Mudstone Member
2. B-7122
3. Laurel 7.5' Quad., Lat. 37° 05' 29" N, Long. 121° 53' 39" W
4.
5. Mudstone, fissile, black
6.
7. Oligocene
8. Zemorrian
9. *Uvigerina gallowayi* Zone
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

57
1. Butano Formation?
2. B-7123
3. Laurel 7.5' Quad., Lat. 37° 05' 30" N, Long. 121° 53' 38" W
4.
5. Mudstone, black

6. Planktic foraminifers
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to bathyal biofacies
14. Smith (1971)

57
1. Butano Formation?
2. B-7124
3. Laurel 7.5' Quad., Lat. 37° 05' 34" N, Long. 121° 53' 31" W
4.
5. Mudstone, dark gray, partially laminated
6.
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to upper bathyal biofacies
14. Smith (1971)

57
1. Butano Formation?
2. B-7125
3. Laurel 7.5' Quad., Lat. 37° 05' 34" N, Long. 121° 53' 29" W,
4. 20 ft. stratigraphically above B-7124
5. Mudstone, faintly laminated, black, silty
6. Planktic foraminifers
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to upper bathyal biofacies
14. Smith (1971)

57
1. Butano Formation?
2. B-7126
3. Laurel 7.5' Quad., Lat. 37° 05' 34" N, Long. 121° 53' 29" W,
4. 17 ft. stratigraphically above B-7125
5. Mudstone, dark gray, laminated
6. Planktic foraminifers
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to upper bathyal biofacies
14. Smith (1971)

57
1. Butano Formation?
2. B-7127
3. Laurel 7.5' Quad., Lat. 37° 05' 35" N, Long. 121° 53' 28" W,
4. 45 ft. stratigraphically above B-7126
5. Mudstone, bedded, laminated
6. Planktic foraminifers
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Outer neritic to upper bathyal biofacies
14. Smith (1971)

57
1. Butano Formation?
2. B-7128
3. Laurel 7.5' Quad., Lat. 37° 05' 36" N, Long. 121° 53' 25" W
4.
5. Siltstone, bedded, brownish-gray
6.
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

57
1. Butano Formation?
2. B-7129
3. Laurel 7.5' Quad., Lat. 37° 05' 36" N, Long. 121° 53' 25" W,
4. 5 ft. above B-7128
5. Mudstone, bedded
6.
7. Eocene
8. Narizian
9.
10. Foraminifers (B)
11. Smith, R.K., 1971
12. Smith, R.K., 1971
13. Bathyal biofacies
14. Smith (1971)

58
1. Lambert Shale
2. Mf7649 (JC 89-1)
3. Laurel 7.5' Quad., Lat. 37° 03' 60" N., Long. 121° 54' 24" W
4.
5. Shale
6.
7. Miocene, early
8. Saucesion, Late or Relizian, early

9.
10. Foraminifers (B)
11. McDougall, K., 1989
12. Clark, J., and McLaughlin, R.J., 1989
13. Upper middle-bathyal biofacies (500-1500 m)
14. Internal report; McDougall (1991)

59
1. Vaqueros Formation
2. Mf7438 (88CB2543A)
3. Laurel 7.5' Quad., Lat. 37° 05' 01" N, Long. 121° 52' 35" W
4.
5. Mudstone, interbedded with sandstone
6.
7. Tertiary?
8.
9.
10. Foraminifers (B
11. McDougall, K., 1988
12. Brabb, E.E., 1988
13.
14. Internal report; McDougall (1991)

59
1. Vaqueros Formation
2. Mf7439 (88CB2543B)
3. Laurel 7.5' Quad., Lat. 37° 05' 02" N, Long. 121° 52' 34" W,
4. same locality as Mf7438, 12 in. stratigraphically higher
5. Mudstone
6.
7. Tertiary?
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. Brabb, E.E., 1988
13.
14. Internal report; McDougall (1991)

60
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7481 (MSJ-150-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 09" N, Long. 121° 45' 04" W
4.
5. Mudstone, hard, silty, micaceous, dark brown to black
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Probably abyssal biofacies (≥4000 m)
14. Internal report; McDougall (1989)

61
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7482 (MSJ-152-88)

3. Loma Prieta 7.5' Quad., Lat. 37° 05' 26" N, Long. 121° 51' 54" W
4.
5. Mudstone, hard, silty, micaceous, dark brown to black
6. Planktic and benthic foraminifers
7. Eocene, early
8.
9. CP11
10. Calcareous nannofossils
11. Bukry, D.J., 1988
12. McLaughlin, R.J., 1988
13.
14. Internal report; McDougall (1989)

1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7482 (MSJ-152-88)
3. Loma Prieta, 7.5' Quad., Lat. 37° 05' 26" N, Long. 121° 51' 54" W
4.
5. Mudstone, hard, silty, micaceous, dark brown to black
6. Planktic foraminifers and calcareous nannofossils
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Upper middle-bathyal to abyssal biofacies (≥500 m)
14. Internal report; McDougall (1989)

62
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7485 (MSJ-147-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 05' 14" N, Long. 121° 51' 36" W
4.
5. Mudstone, hard, silty, micaceous, dark brown to black
6. Planktic and benthic foraminifers
7. Eocene, early
8.
9. CP11
10. Calcareous nannofossils
11. Bukry, D.J., 1988
12. McLaughlin, R.J., 1988
13.
14. Internal report; McDougall (1989)

1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7485 (MSJ-152-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 05' 14" N, Long. 121° 51' 36" W
4.
5. Mudstone, hard, silty, micaceous, dark brown tc black
6. Planktic foraminifers and calcareous nannfossils
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. McDougall, K., 1988

12. McLaughlin, R.J., 1988
13. Upper middle-bathyal to abyssal biofacies (≥500 m)
14. Internal report; McDougall (1989)

63
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7486 (MSJ-144-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 05' 06" N, Long. 121° 51' 20" W
4.
5. Mudstone, hard, silty, micaceous, dark brown to black
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Probably abyssal biofacies (≥4000 m)
14. Internal report; McDougall (1989)

64
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7487 (MSJ-146-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 05' 03" N, Long. 121° 51' 10" W
4.
5. Mudstone, hard
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Probably abyssal biofacies (≥4000 m)
14. Internal report; McDougall (1989)

65
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7488 (MSJ-143-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 60" N, Long. 121° 51' 03" W
4.
5. Mudstone, hard
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13.
14. Internal report; McDougall (1989)

66
1. San Lorenzo Formation
2. Mf1529 (EB625)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 09" N, Long. 121° 51' 14" W,
4. taken along Aptos Creek
5. Sandstone and shale

6. Fish debris
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1968
13. Upper middle-bathyal biofacies (500-1500 m)
14. Internal report; McDougall (1989)

66
1. San Lorenzo Formation
2. Mf1583 (EB 625)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 09" N, Long. 121° 51' 14" W,
4. taken along Aptos Creek
5. Sandstone and shale
6.
7. Oligocene
8. Zemorrian, late
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, 1989
12. Brabb, E.E., 1968
13. Upper middle bathyal (500-1500 m)
14. Internal report; McDougall (1989)

67
1. San Lorenzo Formation
2. Mf1584 (EB626)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 49" N, Long. 121° 51' 27" W,
4. taken along Aptos Creek
5. Siltstone and sandstone
6. Fish debris
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1968
13. Upper middle-bathyal biofacies (500-1500 m)
14. Internal report; McDougall (1989)

68
1. San Lorenzo Formation
2. Mf1585 (EB627)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 47" N, Long. 121° 51' 26" W,
4. taken along Aptos Creek
5. Siltstone and sandstone
6. Radiolarians
7. Unknown
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1968
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

69
1. San Lorenzo Formation
2. Mf1586 (EB628A)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 45" N, Long. 121° 51' 26" W,
4. taken along Aptos Creek
5. Mudstone
6. Echinoid spines
7. Eocene, late to Oligocene, early
8. Refugian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1968
13. Outer neritic to upper bathyal biofacies (150-500 m)
14. Internal report; McDougall (1989)

70
1. San Lorenzo Formation
2. Mf1587 (EB629)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 38" N, Long. 121° 51' 28" W
4.
5. Shale
6. Fish debris
7. Eocene, late
8. Probably Narizian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1968
13. Bathyal biofacies (150-200 m)
14. Internal report; McDougall (1989)

71
1. San Lorenzo Formation
2. Mf1588 (EB630)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 59" N, Long. 121° 49' 13" W,
4. taken along Aptos Creek
5. Sandstone and shale
6. Fish debris
7. Eocene, late
8. Narizian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1968
13. Bathyal biofacies (150-200 m)
14. Internal report; McDougall (1989)

72
1. San Lorenzo Formation
2. Mf7444 (88CB2562)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 49" N, Long. 121° 50' 22" W,
4. west side of Buzzard Lagoon Road
5. Shale, laminated, dark brown
6.
7. Unknown
8.

9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. Brabb, E.E., 1988
13. Unknown
14. Internal report; McDougall (1989)

73
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7489 (MSJ-155B-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 06" N, Long. 121° 49' 53" W
4.
5. Mudstone
6.
7. Unknown
8.
9. Equivalent to planktic foraminiferal zones P9 to P10
10. Foraminifers(B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Probably abyssal biofacies (≥4000 m)
14. Internal report; McDougall (1989)

73
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7490 (MSJ-155A-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 06" N, Long. 121° 49' 53" W
4.
5. Mudstone
6. Planktic foraminifers
7. Eocene
8. Penutian
9. Equivalent to planktic foraminiferal zones P9 to P10
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Upper middle-bathyal to abyssal biofacies (≥500 m)
14. Internal report

74
1. Butano Formation
2. Mf7443 (88CB2561)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 11" N, Long. 121° 50' 09" W,
4. east side of Buzzard Lagoon Road
5. Sandstone and mudstone
6.
7. Cenozoic, probably Eocene
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. Brabb, E.E., 1988
13. Lower middle-bathyal to lower bathyal biofacies (≥1500 m)
14. Internal report; McDougall (1989)

75
1. San Lorenzo Formation
2. Mf1582 (EB619)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 01" N, Long. 121° 50' 19" W
4.
5. Mudstone
6. Planktic foraminifers
7. Eocene
8. Narizian, early, or older
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1968
13. Upper middle-bathyal biofacies (500-1500 m)
14. Internal report; McDougall (1989)

75
1. San Lorenzo Formation
2. Mf7442 (88CB2552B)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 02" N, Long. 121° 50' 15" W,
4. west side of Buzzard Lagoon Road
5. Sandstone and mudstone, well-bedded
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. Brabb, E.E., 1988
13.
14. Internal report; McDougall (1989)

76
1. San Lorenzo Formation, Twobar Shale Member
2. Mf1581 (EB618A)
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 52" N, Long. 121° 50' 25" W
4.
5. Mudstone
6. Diatoms, radiolarians, sponge spicules and fish debris
7. Unknown
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; reviewed by McDougall, K., 1988
12. Brabb, E.E., 1968
13.
14. Internal report, McDougall (1989)

77
1. San Lorenzo Formation
2. Mf7440 (88CB2551)
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 45" N, Long. 121° 50' 29" W,
4. west side of Buzzard Lagoon Road
5. Sandstone and mudstone, well-bedded
6.
7. Unknown
8.
9.

10. Foraminifers (B)
11. McDougall, K., 1988
13. Brabb, E.E., 1988
13.
14. Internal report; McDougall (1989)

78
1. Butano Formation
2. Mf4498 (77CB1762)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 12" N, Long. 121° 46' 50" W
4.
5. Shale and sandstone
6.
7. Paleocene, late to Eocene, probably early
8.
9. Equivalent to planktic foraminiferal zones P4 to P6b
10. Foraminifers (B)
11. Anderson, Warren and Associates, 1977; revised by McDougall, K., 1989
12. Brabb, E.E., 1977
13. Lower middle-bathyal to lower bathyal biofacies (≥1500 m)
14. Internal report; McDougall (1989)

78
1. Butano Formation
2. Mf4499 (77CB1762A)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 12" N, Long. 121° 49' 18" W
4.
5. Shale and sandstone
6.
7. Cenozoic, probably Eocene
8.
9.
10. Foraminifers (B)
11. Anderson, Warren and Associates, 1973; revised by McDougall, K., 1977
12. Brabb, E.E., 1977
13. Lower middle-bathyal to lower bathyal biofacies (≥1500 m)
14. Internal report; McDougall (1989)

78
1. Butano Formation
2. Mf7679 (90CB2803)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 14" N, Long. 121° 49' 17" W,
4. along Corralitos Creek, about 500 feet upstream from Diablo Gulch
5. Shale and sandstone
6. Planktic foraminifers, diatoms, radiolarians and fish debris
7. Eocene, late
8. Narizian
9. Equivalent to planktic foraminiferal zones P11(Late) to P15
10. Foraminifers (B)
11. McDougall, K., 1990
12. Brabb, E.E., 1990
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report

79
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf1053 (EB673)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 55" N, Long. 121° 48' 53" W

4.
5. Sandstone and shale, rhythmically bedded
6. Radiolarians
7. Eocene
8.
9. Equivalent to planktic foraminiferal zones P6b to P16
10. Foraminifers (B)
11. Pierce, R.L., 1967; revised by McDougall, K., 1989
12. Brabb, E.E., 1967
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

80
1. San Lorenzo Formation
2. Mf7680 (90CB2804)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 02" N, Long. 121° 49' 09" W, along
4. Corralitos Creek, about 300 feet upstream from houses
5. Shale and siltstone, thinly bedded to laminated
6. Radiolarians and fish debris
7. Oligocene, early
8. Zemorrian, early
9.
10. Foraminifers (B)
11. McDougall, K., 1990
12. Brabb, E.E.., 1990
13. Upper middle-bathyal biofacies (500-1500 m)
14. Internal report

81
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7496 (MSJ-200-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 34" N, Long. 121° 48' 32" W
4.
5. Shale, siliceous, micaceous
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13.
14. Internal report; McDougall (1989)

82
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7497 (MSJ-202-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 35" N, Long. 121° 48' 29" W
4.
5. Shale
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988

13. Probably abyssal biofacies (≥4000 m)
14. Internal report; McDougall (1989)

83
1. Vaqueros Formation
2. Mf4501 (77CB1771)
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 10" N, Long. 121° 49' 06" W
4.
5. Shale, well-bedded
6.
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Anderson, Warren and Associates, 1977; McDougall, K., 1977
12. Brabb, E.E., 1977
13.
14. Internal report; McDougall (1989)

84
1. Vaqueros Formation
2. Mf4502 (77CB1773)
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 08" N, Long. 121° 49' 08" W
4.
5. Shale
6.
7. Oligocene
8. Zemorrian, early
9.
10. Foraminifers (B)
11. Anderson, Warren and Associates, 1977; McDougall, K., 1977
12. Brabb, E.E., 1977
13.
14. Internal report; McDougall (1989)

85
1. Monterey Formation
2. Mf1418 (68CB274)
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 18" N, Long. 121° 47' 01" W
4.
5. Shale
6.
7. Miocene or older
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969
12. Brabb, E.E., 1968
13.
14. Internal report

86
1. Monterey Formation
2. Mf1419 (68CB281)
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 11" N, Long. 121° 46' 48" W
4.
5. Shale
6.

7. Eocene, early, late
8. Narizian or Ulatisian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969
12. Brabb, E.E., 1968
13.
14. Internal report

86
1. Monterey Formation
2. Mf1420 (68CB282)
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 14" N, Long. 121° 46' 45" W
4.
5. Shale
6.
7. Oligocene
8. Zemorrian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969
12. Brabb, E.E., 1968
13.
14. Internal report

86
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2649 (RMH-60-71)
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 09" N, Long. 121° 46' 50" W
4.
5. Mudstone, red and green mottled
6. Benthic foraminifers
7. Eocene, middle to late
8.
9. Post P14
10. Foraminifers (P)
11. Poore, R., 1976
12. Brabb, E.E., 1976
13.
14. Internal report; McDougall (1989)

87
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7495 (MSJ-189-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 01' 50" N, Long. 121° 45' 58" W
4.
5. Shale
6. Planktic foraminifers
7. Oligocene, late
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Upper bathyal biofacies (150-500 m)
14. Internal report; McDougall (1989)

88
1. "Marine shale and sandstone of Highland Way" (Tme)
2. RMH-55-71
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 04" N, Long. 121° 46' 02" W
4.
5. Mudstone
6. Fish
7. Oligocene, late through Miocene, early
8. Saucesian or Zemorrian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1971; revised by McDougall, K., 1988
12. McLaughlin, R.J., 1971
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

89
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7492 (MSJ-183-88)
3. Loma Prieta,7.5' Quad., Lat. 37° 02' 15" N, Long. 121° 45' 59" W
4.
5. Shale
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Unknown
14. Internal report; McDougall (1989)

90
1. "Marine shale and sandstone of Highland Way" (Tme)
2. Mf7493 (MSJ-184-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 02' 12" N, Long. 121° 46' 10" W
4.
5. Mudstone
6. Radiolarians?, echinoid spines
7. Eocene
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Probably abyssal biofacies (≥4000 m)
14. Internal report; McDougall (1989)

91
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7475 (MSJ-122-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 11" N, Long. 121° 45' 10" W
4.
5. Mudstone
6. Planktic and benthic foraminifers
7. Eocene, early
8.
9. CP11?

10. Calcareous nannofossils
11. Bukry, D.J., 1988
12. McLaughlin, R.J., 1988
13.
14. Internal report; McDougall (1989)

1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7475 (MSJ-122-88)
3. Loma Prieta 7.5' Quad., Lat.. 37° 03' 11" N, Long 121° 45' 10" W
4.
5. Mudstone
6. Planktic foraminifers and calcareous nannofossils
7. Eocene, early
8. Penutian
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

92
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7501 (MSJ-123-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 23" N, Long. 121° 45' 15" W, along road at
4. 2057' elevation
5. Limestone, coarse bioclastic
6. Large foraminifers, gastropods, bivalve fragments
7. Paleogene
8. Eocene, early
9. P7 to P8
10. Foraminifers (P)
11. Sliter, W.V., 1988
12. McLaughlin, R.J., 1988
13. Probably bathyal
14. Internal report

93
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7480 (MSJ-121-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 03' 10" N, Long. 121° 45' 05" W
4.
5. Mudstone
6. Planktic foraminifers, echinoid spines and fish debris
7. Eocene, early
8. Penutian
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

94
1. Probably equivalent to "Mt. Madonna Formation"
2. Mf1603 (RM 431-70)
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 44" N, Long. 121° 43' 23" W

4.
5. Mudstone
6.
7. Probably Eocene, early, or older
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970
12. Brabb, E.E., 1970 (for R.J. McLaughlin, 1970)
13.
14. Internal report; McLaughlin (1973); Simoni (1974)

95
1. "Mt. Madonna Formation"
2. Mf1306 (69CB542)
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 26" N, Long. 121° 43' 03" W
4.
5. Sandstone and shale
6.
7. Cretaceous or Tertiary, undifferentiated
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969; revised by McDougall, 1993
12. Brabb, E.E., 1969
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bauer (1971); McLaughlin (1973); Simoni (1974)

96
1. "Mt. Madonna Formation"
2. Mf1305 (69CB541)
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 33" N, Long. 121° 42' 57" W
4.
5. Shale
6. Radiolarians
7. Eocene, early
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969; revised by McDougall, K., 1993
12. Brabb, E.E., 1969
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bauer (1971); McLaughlin (1973); Simoni (1974)

97
1. "Mt. Madonna Formation"
2. Mf1304 (69CB537)
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 46" N, Long. 121° 42' 52" W,
4. 625 ft. N, 375 feet west of SW corner of Sec. 26, T10S, R3G
5. Sandstone and shale, gray
6. Questionable *Inoceramus* prisms
7. Eocene, early
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969; revised by McDougall, K., 1993
12. Brabb, E.E., 1969

13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bauer (1971); McLaughlin (1973); Simoni (1974)

98
1. "Mt. Madonna Formation"
2. Mf1307 (69CB543)
3. Mt. Madonna 7.5' Quad., Lat. 37° 00' 06" N, Long. 121° 43' 42" W
4.
5. Shale, semisiliceous
6. Radiolaria and fish scales
7. Possibly Miocene, early
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969
12. Brabb, E.E., 1969
13.
14. Internal report

99
1. "Mt. Madonna Formation"
2. Mf1596 (RM 151-70, SF-151-70)
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 03" N, Long. 121° 42' 22" W
4.
5. Mudstone
6. Planktic foraminifers
7. Paleocene, late or Eocene, early, probably the latter
8. Penutian or Bulitian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970; Warren, A.D., 1970
12. Brabb, E.E., 1970 (for R.J. McLaughlin, 1970)
13.
14. Internal report; McLaughlin (1973)

100
1. "Mt. Madonna Formation"
2. Mf1595 (RM 145-70, SF-145-70)
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 08" N, Long. 121° 42' 02" W
4.
5. Mudstone
6.
7. Eocene or older, possibly Eocene, early or Paleocene
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970; Warren, A.D., 1970
12. Brabb, E.E., 1970 (for R.J. McLaughlin, 1970)
13.
14. Internal report; McLaughlin (1973); Simoni (1974)

101
1. "Mt. Madonna Formation"
2. Mf1594 (RM 80-69, SF-80-69)
3. Mt. Madonna 7.5' Quad., Lat. 01' 07" N, Long. 121° 41' 32" W
4.
5. Mudstone
6. Planktic foraminifers

7. Eocene, middle or older, probably Eocene, early
8. Ulatisian, Penutian or Bulitian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970
12. Brabb, E.E., 1970 (for R.J. McLaughlin, 1969)
13.
14. Internal report; McLaughlin (1973); Simoni (1974)

102
1. "Mt. Madonna Formation"
2. Mf1593 (RM 39-69, SF-39-69)
3. Mt. Madonna 7.5' Quad., Lat. 37° 00' 32" N, Long. 121° 41' 18" W
4.
5. Mudstone
6.
7. Eocene or older, possibly early Eocene, Paleocene or Cretaceous?
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970
12. Brabb, E.E., 1970 (for R.J. McLaughlin, 1969)
13.
14. Internal report; Simoni (1974); McLaughlin (1973)

103
1. "Mt. Madonna Formation"
2. Mf1592 (RM 7-69, SF-7-9)
3. Mt. Madonna 7.5' Quad., Lat. 37° 00' 11" N, Long. 121° 40' 59" W
4.
5. Mudstone
6.
7. Probably Eocene?, middle or early
8. Ulatisian or Penutian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970
12. Brabb, E.E., 1970 (for R.J. McLaughlin , 1969)
13.
14. Internal report; Simoni (1974) ; McLaughlin (1973)

104
1. "Little Arthur Creek Formation"
2. RM 192-70
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 11" N, Long. 121° 40' 35" W
4.
5. Shale
6. Planktic foraminifers
7. Miocene and Oligocene, late
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970
12. Brabb, E.E., 1970
13.
14. Internal report

104
1. "Little Arthur Creek Formation"
2. RM 263-70 (SF-263-70)
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 10" N, Long. 121° 40' 28" W
4.
5. Mudstone
6.
7. Miocene, middle or older
8. Possibly Saucesian or Zemorrian, late
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970
12. Brabb, E.E., 1970 (for R.J. McLaughlin, 1970)
13.
14. Internal report; McLaughlin (1973)

105
1. "Little Arthur Creek Formation"
2. Mf1601 (RM 395-70)
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 39" N, Long. 121° 40' 31" W
4.
5. Sandstone
6. Diatoms?
7. Unknown
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970; revised by McDougall, K., 1990
12. Brabb, E.E., 1970 (for McLaughlin, R.J.)
13.
14. Internal report

106
1. "Little Arthur Creek Formation"
2. Mf1600 (RM 396-70)
3. Mt. Madonna 7.5' Quad., Lat. 37° 01' 41" N, Long. 121° 40' 38" W
4.
5. Sandstone
6. Planktic foraminifers and diatoms
7. Oligocene
8. Zemorrian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970; revised by McDougall, K., 1990
12. Brabb, E.E., 1970 (for McLaughlin, R.J.)
13.
14. Internal report; McLaughlin (1973)

107
1. Franciscan Complex
2. MR8176 (CJC-16A-SJ-91B)
3. Mt. Madonna 7.5' Quad., Lat. . 37° 03' 45" N, Long. 121° 40' 23" W
4.
5. Chert, bedded, red, associated with pelagic limestone
6.
7. Cretaceous, Early
8. Hauterivian to Albian
9. Correlative with MH-6? of Murchey (1984)

10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1991
13. Deep marine
14. Internal report

108
1. Franciscan Complex
2. MR8175 (CJC-17-SJ-91B)
3. Mt. Madonna 7.5' Quad., Lat. 37° 03' 49" N, Long. 121° 40' 15" W
4.
5. Chert, bedded, red, associated with pelagic limestone
6.
7. Jurassic? or Cretaceous
8. Callovian to Albian
9. Correlative with MH-5? or MH-6? of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1991
13. Deep marine
14. Internal report

109
1. Franciscan Complex
2. MR7681 (S-89-26)
3. Mt. Madonna 7.5' Quad., Lat. 37° 04' 04" N, Long. 121° 41' 43" W
4.
5. Chert, bedded, associated with pelagic limestone
6.
7. Jurassic? late Middle or Cretaceous, Early
8. Probably Valanginian to Albian
9. Correlative with MH-5 or MH-6 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Sliter, W.V., and McLaughlin, R.J., 1989
13. Deep marine
14. Internal report

109
1. Franciscan Complex
2. S89-24 to S89-25
3. Mt. Madonna 7.5' Quad., Lat. 37° 04.07' N, Long. 121° 41.73' W, exposed in a 2m
4. thick section at the crest of a small hill at Uvas Reservoir.
5. Calera Limestone; medium-grey limestone and black chert
6.
7. Cretaceous
8. Barremian, late to Aptian, early
9. *Globigerinelloides duboisi* Zone to *G. blowi* Zone
10. Foraminifers (P)
11. Sliter, W.V., 1991
12. Sliter, W.V., 1989
13. Bathyal
14. Sliter and McGann (1992)

110
1. Franciscan Complex
2. MR8177 (CJC-18, MSJ-91B)
3. Mt. Madonna 7.5' Quad., Lat. 37° 04' 44" N, Long. 121° 41' 03" W,
4. from Twin Peaks section above Uvas Reservoir
5. Chert, bedded, associated with pelagic limestone
6.
7. Cretaceous, Early
8. Barremian to Albian
9. Correlative with MH-6? of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1991
13. Deep marine
14. Internal report

111
1. Temblor Formation
2. Osbun 1-1
3. Loma Prieta 7.5' Quad., Lat. 37° 05' 28" N, Long. 121° 45' 02' W,
4. from conglomerate at base of formation, outcrop on north side of road to Sveadal
5. Limestone
6.
7. Eocene, early to middle
8.
9.
10. Foraminifers (L)
11. Blondeau, A., and Brabb, E.E., 1983
12. Osbun, E.D., 1971
13.
14. Blondeau and Brabb (1983); also see Osbun (1975)

112
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1590 (EO 6-4)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 55" N, Long. 121° 47' 40" W
4.
5. Mudstone
6.
7. Eocene
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970; revised by McDougall, K., 1988
12. Brabb, E.E., 1970 (for E. Osbun)
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Osbun (1975); McDougall (1989)

113
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1591 (EO 7-1)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 43" N, Long. 121° 47' 32" W
4.
5. Mudstone
6. Radiolarians
7. Cretaceous to Eocene
8.
9.

10. Foraminifers (B)
11. Pierce, R.L., 1970; revised by McDougall, K., 1988
12. Brabb, E.E., 1970
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

114
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1052 (EB621A)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 54" N, Long. 121° 49' 00" W
4.
5. Shale, greenish
6.
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. Pierce, R.L., 1967; revised by McDougall, K., 1989
12. Brabb, E.E., 1967
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

114
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1052A (EB621B)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 54" N, Long. 121° 49' 00" W,
4. 50 ft. stratigraphically above Mf1052
5. Shale, greenish
6. Planktic foraminifers, ostracodes
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P11
10. Foraminifers (B)
11. Pierce, R.L., 1967; revised by McDougall, K., 1989
12. Brabb, E.E., 1967
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

115
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1310 (69CB547)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 56" N, Long. 121° 49' 00" W
4.
5. Mudstone
6. Planktic foraminifers
7. Eocene, early
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969; revised by McDougall, K., 1993
12. Brabb, E.E., 1969
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report

116
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1309 (69CB546)
3. Loma Prieta 7.5' Quad., Lat. 37° 04' 60" N, Long. 121° 49' 01" W

4.
5. Similar to "Poppin Shale"
6. Planktic foraminifers
7. Paleocene or Eocene
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1969
12. Brabb, E.E., 1969
13.
14. Internal report

117
1. Unnamed (Great Valley sequence, basal part)
2. MR7625 (MSJ -81-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 23" N, Long. 121° 51' 16" W
4.
5. Shale
6.
7. Jurassic?, Late?
8.
9.
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1988
13. Deep marine
14. Internal report

118
1. "Loma Prieta ophiolite"
2. MR7593 (MSJ-225-88A)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 33" N, Long. 121° 50' 38" W
4.
5. Tuffaceous chert, in upper part of ophiolite sequence
6.
7. Jurassic, Middle to Late
8. Bajocian to Tithonian
9.
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1988
13. Deep marine
14. Internal report

118
1. "Loma Prieta ophiolite"
2. MR7594 (MSJ -225 -88B)
3. Loma Prieta 7.5" Quad., Lat. 37° 06' 33" N, Long. 121° 50' 38" W
4.
5. Tuffaceous chert, in upper part of ophiolite sequence
6.
7. Jurassic, Middle to late
8. Bathonian to Tithonian
9.
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1988

13. Deep marine
14. Internal report

118
1. "Loma Prieta ophiolite"
2. MR7596 (MSJ -225 -88D)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 33" N, Long. 121° 50' 38" W
4.
5. Tuffaceous chert, in upper part of ophiolite sequence
6.
7. Jurassic, Late
8. Oxfordian?
9. Correlative with Zone B? of Baumgartner, 1984
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1988
13. Deep marine
14. Internal report

119
1. "Marine sandstone and shale" (Te_2)
2. Mf1582A (TS-61, 69LP61)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 24" N, Long. 121° 49' 43" W
4.
5. Shale
6. Planktic foraminifers and fish debris
7. Eocene
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1970 (for T.R. Simoni)
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Simoni (1974); McDougall (1989)

120
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7474 (MSJ-66-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 32" N, Long. 121° 48' 51" W
4.
5. Mudstone
6. Planktic foraminifers
7. Eocene, early
8. Penutian
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

121
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7473 (MSJ-59-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 34" N, Long. 121° 48' 21" W
4.
5. Mudstone
6. Benthic and planktic foraminifers

7. Eocene, early
8.
9. CP11?
10. Calcareous nannofossils
11. Bukry, D.J., 1988
12. McLaughlin, R.J., 1988
13.
14. Internal report; McDougall (1989)

122
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf2648 (RMH-15)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 49" N, Long. 121° 48' 23" W
4.
5. Mudstone, red and green mottled
6. Benthic foraminifers
7. Eocene, early
8.
9. P7 to P8
10. Foraminfers (P)
11. Poore, R., 1976
12. Brabb, E.E., 1976
13.
14. Internal report; McDougall (1989)

123
1. Franciscan Complex
2. Mf7500 (MSJ-43-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 16" N, 121° 48' 34" W,
4. at 1760' elevation
5. Calera Limestone; medium-gray, planktic foraminiferal biomicrite
6. Radiolarians
7. Cretaceous
8. Aptian
9. *Globigerinelloides algerianus* Zone to *Ticinella bejaouaensis* Zone
10. Foraminifers (P)
11. Sliter, W.V., 1988
12. McLaughlin, R.J., 1988
13. Bathyal
14. Internal report

124
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7471 (MSJ-36-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 01" N, Long. 121° 49' 15" W
4.
5. Mudstone
6. Benthic and planktic foraminifers
7. Paleogene
8.
9. CP11?
10. Calcareous nannofossils
11. Bukry, D.J., 1988
12. McLaughlin, R.J., 1988
13.
14. Internal report; McDougall (1989)

124
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7471 (MSJ-36-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 01" N, Long. 121° 49' 15" W
4.
5. Mudstone
6. Planktic foraminifers and calcareous nannofossils
7. Eocene, early
8. Penutian
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McLaughlin, R.J., 1988
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

124
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1588A (TS-315)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 59" N, Long. 121° 49' 13" W
4.
5. Mudstone
6. Planktic foraminifers, ostracodes and echinoid spines
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1970 (for T.R. Simoni)
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Simoni (1974); McDougall (1989)

124
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf1589 (TS-315A)
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 59" N, Long. 121° 49' 13" W,
4. same locality as Mf1588A
5. Mudstone
6. Planktic foraminifers
7. Eocene
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. Pierce, R.L., 1968; revised by McDougall, K., 1988
12. Brabb, E.E., 1970
13. Upper middle-bathyal biofacies (150-200 m)
14. Internal report; McDougall (1989)

125
1. "Cretaceous Shale" (Ku_1); probably a younger Tertiary unit
2. Mf1586A (LP-295)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 04" N, Long. 121° 49' 59" W,
4. 3,200 ft. S, 1,300 ft. E of NW corner of Sec. 26, T9S, R1E
5. Shale
6. Planktic foraminifers
7. Eocene
8.
9.

10. Foraminifers (B)
11. Pierce, R.L., 1970; revised by McDougall, K., 1988
12. Brabb, E.E., 1970 (for T.R. Simoni)
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Simoni (1974); McDougall (1989)

125
1. "Cretaceous Shale" (Ku1); probably a younger Tertiary unit
2. Mf1587A (TS-295)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 04" N, Long. 121° 49' 59" W,
4. same locality as Mf1586A
5. Shale
6. Planktic foraminifers
7. Eocene
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970; revised by McDougall, K., 1988
12. Brabb, E.E., 1970 (for T.R. Simoni)
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Simoni (1974); McDougall (1989)

126
1. Conglomerate in "Mt. Chual" sequence
2. MR7627 (MSJ -25-88)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 05" N, Long. 121° 49' 57" W
4.
5. Chert, clasts in Tertiary conglomerate
6.
7. Jurassic, Late Middle
8. Bathonian to Callovian?
9. Correlative with MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1988
13. Deep marine
14. Internal report

127
1. "Mottled mudstone of Mt. Chual" (Te1) (Formation 2 of Simoni, 1974)
2. Mf1583A (TS-273, 70LP273)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 04" N, Long. 121° 49' 57" W
4.
5. Mudstone
6. Planktic foraminifers, ostracodes and echinoid spines
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. Pierce, R.L., 1970; revised by McDougall, K., 1988
12. Brabb, E.E., 1970 (for T.R. Simoni)
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Simoni (1974); McDougall (1989)

127
1. "Mottled mudstone of Mt. Chual" (Te1)
2. Mf1584A (LP-273A)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 04" N, Long. 121° 49' 54" W,

4. same locality as Mf1583A
5. Mudstone
6. Planktic foraminifers, ostracodes, echinoid spines, fish debris
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. Pierce, R.L., 1970; revised by McDougall, K., 1988
12. Brabb, E.E., 1970 (for T.R. Simoni)
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Simoni (1974); McDougall (1989)

127
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7453 (88KM-9)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 05" N, Long. 121° 49' 57" W
4.
5. Mudstone, red mottled
6. Planktic foraminifers
7. Eocene
8. Penutian
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McDougall, K., 1988
13.
14. Internal report; McDougall (1989)

127
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7454 (88KM-10)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 06" N, Long. 121° 49' 55" W
4.
5. Mudstone, green mottled
6. Planktic foraminifers
7. Eocene, early
8. Penutian
9.
10. Foraminifers (B)
11. McDougall, K., 1988
12. McDougall, K., 1988
13.
14. Internal report; McDougall (1989)

128
1. "Mottled mudstone of Mt. Chual" (Te_1) (Formation 2 of Simoni, 1974)
2. Mf1585A (LP-275, 70LP275)
3. Loma Prieta 7.5' Quad., Lat. 37° 07' 10" N, Long. 121° 49' 57" W
4.
5. Mudstone
6.
7. Cretaceous through Eocene, probably Eocene, early
8.
9.
10. Foraminifers (B)
11. Pierce, R.L., 1970; revised by McDougall, K., 1988
12. Brabb, E.E., 1970 (for T.R. Simoni)

13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Simoni (1974); McDougall (1989)

129
1. Formation 2 of Simoni (1974)
2. Mf2647 (RMH-3-71)
3. Santa Teresa 7.5' Quad., Lat. 37° 07' 39" N, Long. 121° 49' 31" W
4.
5. Mudstone, red and green mottled
6. Benthic foraminifers
7. Eocene, early
8.
9. P7 to P8
10. Foraminifers (P)
11. Poore, R., 1976
12. Brabb, E.E., 1976
13.
14. Internal report

130
1. Temblor Formation
2. Osbun 49-3
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 16" N, Long. 121° 45' 41" W,
4. from conglomerate at base of formation, from nose of hill about 1160 ft. elevation
5. Limestone, clasts in conglomerate
6.
7. Eocene, early to middle
8.
9.
10. Foraminifers (L)
11. Blondeau, A., and Brabb, E.E., 1983
12. Osbun, E.D., 1971
13.
14. Blondeau and Brabb (1983); also see Osbun (1975)

131
1. Temblor Formation
2. Osbun 49-6
3. Loma Prieta 7.5' Quad., Lat. 37° 06' 18" N, Long. 121° 45' 30" W,
4. from conglomerate at base of formation, from nose of hill about 1160 ft. elevation
5. Limestone, clasts in conglomerate
6.
7. Eocene, early to middle
8.
9.
10. Foraminifers (L)
11. Blondeau, A., and Brabb, E.E., 1983
12. Osbun, E.D., 1971
13.
14. Blondeau and Brabb (1983); also see Osbun (1975)

132
1. Franciscan Complex
2. S84-32 to S84-35
3. Santa Theresa 7.5' Quad., Lat. 37° 09.80' N, Long. 121° 46.32' W,
4. 10m thick exposed in an abandoned quarry south of Calero Resevoir
5. Calera Limestone; light to dark grey limestone and black chert
6.

7. Cretaceous
8. Aptian, Albian, and Cenomanian
9. *Ticinella bejaouaensis* Zone to *Rotalipora cushmani* Zone
10. Foraminifers (P)
11. Sliter, W.V., 1984
12. Sliter, W.V., 1984
13. Bathyal
14. Sliter and McGann (1992)

133
1. Franciscan Complex
2. MR7597 to MR7607
3. Santa Teresa Hills 7.5' Quad., Lat. 37° 09' 34" N, Long. 121° 52' 30" W,
4. roadcut on E side of road at curve
5. Chert, bedded, maroon, red and green
6.
7. Jurassic and Cretaceous
8. Pliensbachian, Toarcian, and Valanginian to Barremian
9. Correlative with MH-1, MH-2, and MH-5 *sensu stricto* of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Murchey, B., 1970
13. Deep marine
14. Internal report

134
1. Franciscan Complex
2. S84-39 to S84-48
3. Los Gatos 7.5' Quad., Lat. 37° 11.25' N, Long. 121° 52.50' W, 11m thick outcrop
4. exposed on the NE hillside of Mt. El Sombroso in the Ben Travato shear zone
5. Calera Limestone; light- to medium-grey limestone and black chert
6.
7. Cretaceous
8. Aptian and Albian
9. *Globigerinelloides algerianus* Zone and *Biticinella breggiensis* Zone
10. Foraminifers (P)
11. Sliter, W.V., 1984
12. Sliter, W.V., 1984
13. Bathyal
14. Sliter and McGann (1992)

135
1. Franciscan Complex
2. S84-49
3. Los Gatos 7.5' Quad., Lat. 37° 12.05' N, Long. 121° 53.47' W, exposed in an
4. abandoned quarry about 400 m due east of locality 19 in the Ben Travato shear zone
5. Calera Limestone; light-grey, heavily fractured limestone blocks 1-3m thick
6.
7. Cretaceous
8. Aptian
9. *Globigerinelloides algerianus* Zone
10. Foraminifers (P)
11. Sliter, W.V., 1984
12. Sliter, W.V., 1984
13. Bathyal
14. Sliter and McGann (1992)

136
1. Franciscan Complex
2. S84-50
3. Los Gatos 7.5' Quad., Lat. 37° 12.03' N, Long. 121° 53.87' W, sm. 1 to 3m
4. exposures along Reynolds Stream SW of Hicks Rd. in the Ben Trovato shear zone
5. Calera Limestone; fractured and heavily-veined limestone and chert
6.
7. Cretaceous
8. Aptian
9. *Globigerinelloides algerianus* Zone
10. Foraminifers (P)
11. Sliter, W.V., 1984
12. Sliter, W.V., 1984
13. Bathyal
14. Sliter and McGann (1992)

137
1. Franciscan Complex
2. MR8397 (MSJ -209-90)
3. Los Gatos 7.5' Quad., Lat. 37° 12' 28" N, Long. 121° 55' 57" W
4.
5. Chert, bedded, manganiferous
6.
7. Jurassic, Late Middle
8. Bathonian or Callovian
9. Correlative with MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

138
1. Franciscan Complex
2. MR8395 (MSJ -184-90A)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 16" N, Long. 121° 55' 35" W
4.
5. Chert, bedded, lens in mélange
6.
7. Jurassic, Middle
8. Bajocian?
9. Correlative with upper MH-3? of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

138
1. Franciscan Complex
2. MR8400 (MSJ -184-90B)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 16" N, Long. 121° 55 34" W
4.
5. Chert, bedded
6.
7. Jurassic
8. Toarcian or Aalenian

9. Correlative with MH-2 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

138
1. Franciscan Complex
2. MR8402 (MSJ -182-90)
3. Los Gatos 7.5' Quad., Lat. 37° 11' 19" N, Long. 121° 55' 41" W
4.
5. Chert, clasts in sandstone
6.
7. Jurassic, Late or Cretaceous?, Early
8. Kimmeridgian/Tithonian or younger?
9. Correlative with lower MH-5 and possible reworking of MH-4; Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. McLaughlin, R.J., 1990
13. Deep marine
14. Internal report

139
1. Franciscan Complex
2. MR5565 (84S-55d)
3. Los Gatos 7.5' Quad., Lat. 37° 13.15' N, Long. 121° 55.58' W,
4. Site S84-52 of Sliter on west side of Kennedy Rd.
5. Calera Limestone; chert possibly tuffaceous, at top of limestone sequence
6. Foraminifers (P) in adjacent strata
7. Cretaceous, Late
8. Turonian, late, to Coniacian
9. *Dictyomitra koslovae*
10. Radiolarians
11. Murchey, B., and Sliter, W.V., 1984
12. Murchey, B., 1984
13. Deep marine
14. Murchey and Jones (1984)

139
1. Franciscan Complex
2. S84-52 to S84-57
3. Los Gatos 7.5' Quad., Lat. 37° 13.15' N, Long. 121° 55.58' W, 22m section in
4. road cut on the western side of Kennedy Road east of Los Gatos
5. Calera Limestone; light-grey limestone and interbedded medium-grey chert
6.
7. Cretaceous
8. Cenomanian to Turonian,
9. *Rotalipora cushmani* Zone to *Marginotruncana sigali* Zone
10. Foraminifers (P)
11. Sliter, W.V., 1984
12. Sliter, W.V., 1984
13. Bathyal
14. Sliter and McGann (1992)

140
1. Temblor Formation
2. Mf7659 (T-3[2])
3. Los Gatos 7.5' Quad., Lat. 37° 12' 53" N, Long. 121° 53' 33" W
4.
5. Sandstone
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1989
12. McLaughlin, R.J., 1989
13.
14. Internal report

140
1. Temblor Formation
2. Mf7669 (T-3 [1])
3. Los Gatos 7.5' Quad., Lat. 37° 07' 58" N, Long. 121° 54' 36" W
4.
5. Sandstone
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1989
12. McLaughlin, R.J., 1989
13. Unknown
14. Internal report

141
1. Unnamed sedimentary rocks
2. Mf2642 (71CB983A)
3. Los Gatos 7.5' Quad., Lat. 37° 13' 27" N, Long. 121° 53' 17" W,
4. one-half km northwest of LSJU locality 309
5. Mudstone, green
6. Benthic foraminifers and larger foraminifers
7. Eocene, early?
8.
9. P6 to P7
10. Foraminifers (P)
11. Breggren, W.A.; reviewed by Poore, R.Z., 1977
12. Brabb, E.E., 1971
13. Bathyal
14. Internal report; Brabb, Clark and Throckmorton (1977); Blondeau and Brabb (1983)

141
1. Unnamed strata
2. 71CB983C
3. Los Gatos 7.5' Quad., Lat. 37° 13.44' N, Long. 121° 53.29' W,
4. a few centimeters from 71CB983A
5. Limestone
6.
7. Eocene, middle
8.
9.

10. Foraminifers (L)
11. Blondeau, A., and Brabb, E.E., 1983
12. Brabb, E.E., 1971
13.
14. Blondeau and Brabb (1983)

142
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7447 (88KM-3)
3. Santa Teresa Hills 7.5' Quad., Lat. 37° 13' 17" N, Long. 121° 50' 21" W
4.
5. Mudstone, green
6. Planktic foraminifers, ostracodes and echinoid spines
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P7 to P9
10. Foraminifers (B)
11. McDougall, K., 1988
12. McDougall, K., 1988
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

142
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7448 (88KM-4)
3. Santa Teresa Hills 7.5' Quad., Lat. 37° 13' 17" N, Long. 121° 50' 21" W
4.
5. Mudstone, green
6. Planktic foraminifers, ostracodes and fish teeth
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P7 to P9
10. Foraminifers (B)
11. McDougall, K., 1988
12. McDougall, K., 1988
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

142
1. "Mottled mudstone of Mt. Chual" (Te_1)
2. Mf7449 (88KM-5)
3. Santa Teresa Hills 7.5' Quad., Lat. 37° 13' 17" N, Long. 121° 50' 21" W
4.
5. Mudstone, red
6. Planktic foraminifers, ostracodes and echinoid spines
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P7 to P9
10. Foraminifers (B)
11. McDougall, K., 1988
12. McDougall, K., 1988
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; McDougall (1989)

143
1. Unnamed shale, Santa Teresa Hills
2. Mf2051 (71CB977D)
3. Santa Teresa Hills 7.5' Quad., Lat. 37° 13' 00" N, Long. 121° 49' 31" W,

4. 0.9 km NW of Stile Ranch on east side of Buena Monte Drive
5. Shale, within thinly-bedded glauconite sandstone
6. Planktic and benthic foraminifers
7. Eocene, early
8.
9. *Discoasteroides lodoensis* Zone
10. Calcareous nannfossils
11. Bukry, D.J., 1977
12. Brabb, E.E., 1971
13.
14. Short, 1986; Bukry, Brabb and Vedder, 1977

144
1. Unnamed mudstone, Santa Teresa Hills
2. Mf2052 (71CB974)
3. Santa Teresa Hills 7.5' Quad., Lat. 37° 13' 08" N, Long. 121° 49' 21" W,
4. 0.4 km NE of Mf2051, on W side of Scenic Drive, opposite Dunkerel mailbox
5. Mudstone, olive-green
6. Planktic and benthic foraminifers
7. Eocene, early
8.
9. *Discoasteroides kuepperi* Subzone
10. Calcareous nannfossils
11. Bukry, D.J., 1977
12. Brabb, E.E., 1971
13.
14. Short, 1986; Bukry, Brabb and Vedder, 1977

145
1. Unnamed sedimentary rocks
2. 71CB971B
3. Santa Teresa Hills 7.5' Quad, Lat. 37° 47' 07" N, Long. 121° 13' 18" W,
4. from abandoned limestone quarry about 0.6 km east of the portal of Bernal Mine
5. Limestone
6.
7. Eocene
8.
9.
10. Foraminifers (L)
11. Blondeau, A., and Brabb, E.E., 1983
12. Brabb, E.E., 1983
13.
14. Blondeau and Brabb (1983)

146
1. Claremont Shale
2. Mf3340 (5-19-4)
3. Calaveras Reservoir 7.5' Quad., Lat. 37° 27' 01" N, Long. 121° 52' 20" W
4.
5. Shale
6.
7. Miocene, early to middle
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1976
12. Hill, J.M., 1976

13.
14. Internal report

147
1. Tice Shale
2. Mf3339 (5-19-3)
3. Calaveras Reservoir 7.5' Quad., Lat. 37° 26' 54" N, Long. 121° 52' 20" W
4.
5. Shale
6. Planktic foraminifers
7. Miocene, middle
8. Luisian
9.
10. Foraminifers (B)
11. McDougall, K., 1976, 1991
12. Hill, J.M., 1976
13. Upper bathyal biofacies (150-500 m)
14. Internal report; Hill, 1979

148
1. Sobrante Formation
2. Mf3261 (11-18-4)
3. Calaveras Reservoir 7.5' Quad., Lat. 37° 26' 36" N, Long. 121° 51' 53" W,
4. Sec. 4, T6S, R1E, quarry on Calaveras Road
5. Siltstone
6.
7. Miocene, middle
8. Relizian through Luisian
9.
10. Foraminifers (B)
11. McDougall, K., 1976, 1991
12. Hill, J.M., 1976
13. Upper bathyal or deeper biofacies (≥150 m)
14. Internal report

148
1. Unnamed sedimentary rocks
2. Mf7812 (91CB3041A)
3. Calaveras Reservoir 7.5' Quad., Lat. 37° 26' 36" N, Long. 121° 51' 53" W, along
4. quarry road
5. Interbedded cabonaceous shale, siltstone and sandstone
6. Radiolarians, fish debris
7. Cretaceous
8. Campanian to Maastrichtian
9. Possible E to D2 zones of Goudkoff
10. Foraminifers (B)
11. Sliter, W.V., 1991
12. Brabb, E.E., 1991
13. Bathyal
14. Internal report

148
1. Claremont Shale
2. Mf8046 (91CB3041B)
3. Calaveras Reservoir 7.5' Quad., Lat. 37° 26' 36" N, Long. 121° 51' 53" W,
4. along Quarry Road in faulted section.
5. Siliceous mudstone
6.

7. Miocene
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1991
12. Brabb, E.E., and Jones, D.L., 1991
13.
14. Internal report

149
1. Berryessa Formation
2. N9-4-1
3. Calaveras Reservoir 7.5' Quad., Lat. 37° 23' 51" N, Long. 121° 47' 49" W,
4. in Alum Rock Canyon
5. Siltstone
6.
7. Cretaceous, Late
8. Cenomanian or Turonian
9.
10. Calcareous nannfossils
11. Bukry, J.D.,
12. Hill, J.M., 1976
13.
14. Hill (1979)

150
1. Claremont Shale (?)
2. Mf3263 (7-25-9)
3. Calaveras Reservoir 7.5' Quad., Lat. 37° 24' 03" N, Long. 121° 47' 44" W,
4. measured section in Alum Rock Canyon
5. Shale
6. Planktic foraminifers, radiolarians
7. Miocene
8.
9.
10. Foraminifers (B)
11. McDougall, K., 1976
12. McDougall, K., 1976
13.
14. Internal report; Hill (1979)

150
1. Claremont Shale (?)
2. Mf3263 (7-25-9)
3. Calaveras Reservoir 7.5' Quad., Lat. 37° 24' 03" N, Long. 121° 47' 44" W,
4. measured section in Alum Rock Canyon
5. Shale
6. Benthic foraminifers, radiolarians
7. Miocene, middle through late
8.
9.
10. Foraminifers (P)
11. Poore, R.Z., 1976
12. Hill, J.M., 1976
13.
14. Internal report; Hill (1979)

151
1. Franciscan Complex
2. MR8375 (LO1219)
3. Mt. Day 7.5' Quad., Lat. 37° 22' 36" N, Long. 121° 42' 39" W
4.
5. Chert, bedded
6.
7. Jurassic, Latest to Cretaceous, Early
8. Kimmeridgian? to Barremian
9. Correlative with MH-5 *sensu Lat.o* of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Page, B., 1992
13. Deep marine
14. Internal report

152
1. Franciscan Complex
2. MR8374 (LO1163)
3. Lick Observatory 7.5' Quad., Lat. 37° 20' 23" N, Long. 121° 42' 29" W
4.
5. Chert, red, bedded; radiolarians deformed
6. Radiolarians
7. Jurassic
8. Bajocian?
9. Correlative with MH-3 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Page, B., 1992
13. Deep marine
14. Internal report

153
1. Berryessa Formation
2. R1318 (317)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 48" N, Long. 121° 34' 25" W
4.
5. Shale
6.
7. Cretaceous, Late
8. Campanian
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

154
1. "Larios Canyon Sandstone"
2. R1320 (417)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 43" N, Long. 121° 34' 25" W
4.
5. Shale
6.
7. Probably Cretaceous, Late
8.
9.

10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

155
1. Unnamed mudstone
2. R1295 (21B)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 57" N, Long. 121° 33' 57" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

156
1. Unnamed mudstone
2. R1294 (20)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 57" N, Long. 121° 33' 57" W
4.
5. Mudstone, red and green
6.
7. Probably Eocene, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

157
1. Unnamed mudstone
2. R1293 (16B)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 4" N, Long. 121° 33' 59" W
4.
5. Mudstone, red and green
6.
7. Probably Eocene, early
8. Probably Penutian
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

158
1. Unknown
2. A-9158
3. Mt. Sizer Quad., Lat. 37° 10' 19" N, Long. 121° 33' 55" W

4.
5. Shale
6. Planktic foraminifers
7. Eocene
8. Penutian
9.
10. Foraminifers (B)
11. Mallory, V.S., *in* Frames (1955); modified by McDougall, K., 1993
12. ?Frames, D.W., 1955
13. Warm, deep marine (lower bathyal to abyssal biofacies, ≥2000 m)
14. Frames (1955)

159
1. Unknown
2. A-9325
3. Mt. Sizer Quad., Lat. 37° 10' 15" N, Long. 121° 34' 11" W
4.
5. Shale
6.
7. Eocene
8.
9.
10. Foraminifers (B)
11. Mallory, V.S., *n* Frames (1955); modified by McDougall, K., 1993
12. ?Frames, D.W., 1955
13. Warm, deep marine (lower bathyal to abyssal biofacies, ≥2000 m)
14. Frames (1955)

160
1. Undifferentiated sedimentary rocks
2. R1322 (561)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 47" N, Long. 121° 33' 44" W
4.
5. Mudstone, red and green
6. Planktic foraminifers
7. Cretaceous or Tertiary undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

161
1. Undifferentiated sedimentary rocks
2. R1327 (590)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 18" N, Long. 121° 33' 19" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974

13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

162
1. Undifferentiated sedimentary rocks
2. R1330 (634)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 8" N, Long. 121° 33' 10" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

163
1. Undifferentiated sedimentary rocks
2. R1328 (629)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 20" N, Long. 121° 33' 02" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

163
1. Undifferentiated sedimentary rocks
2. R1329 (630)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 19" N, Long. 121° 33' 03" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

164
1. Undifferentiated sedimentary rocks
2. R1337 (707)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 04" N, Long. 121° 32' 58" W
4.
5. Mudstone, red and green
6.

7. Tertiary, undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

164
1. Undifferentiated sedimentary rocks
2. R1338 (708)
3. Mt. Sizer 7.5' Quad., Lat. 37° 20' 05" N, Long. 121° 33' 01" W
4.
5. Mudstone, red and green
6.
7. Tertiary, undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

165
1. Undifferentiated sedimentary rocks
2. R1336 (706)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 03" N, Long. 121° 32' 40" W
4.
5. Mudstone, red and green
6.
7. Tertiary, undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

166
1. Undifferentiated sedimentary rocks
2. R1333 (702)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 03" N, Long. 121° 32' 27" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

166
1. Undifferentiated sedimentary rocks
2. R1334 (703)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 02" N, Long. 121° 32' 03" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

166
1. Undifferentiated sedimentary rocks
2. R1335 (704)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 02" N, Long. 121° 32' 37" W
4.
5. Mudstone, red and green
6.
7. Tertiary, undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

167
1. Undifferentiated sedimentary rocks
2. R1331 (700)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 10" N, Long. 121° 32' 22" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

168
1. Claremont Shale
2. A-9168
3. Mt. Sizer Quad., Lat. 37° 10' 39" N, Long. 121° 32' 33" W
4.
5. Shale
6.
7. Eocene, middle
8. Penutian
9.

10. Foraminifers (B)
11. Kleinpell, R.M., *in* Frames (1955); modified by McDougall, K., 1993
12. ?Frames, D.W., 1955
13. Shallow warm water (outer neritic to upper bathyalbiofacies, 100-500 m)
14. Frames (1955)

168
1. Sobrante Formation
2. Mf1847 (SB-71-81)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 31" N, Long. 121° 32' 26" W
4.
5. Sandstone
6. Fish scales
7. Miocene
8. Saucesian, Relizian, Luisian
9.
10. Foraminifers (B)
11. Pierce, R.L., 1971
12. Bartsch, S., 1971
13.
14. Internal report

169
1. Undifferentiated sedimentary rocks
2. R1301 (137)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 57" N, Long. 121° 32' 12" W
4.
5. Mudstone
6.
7. Cretaceous or Tertiary, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

170
1. Undifferentiated sedimentary rocks
2. R1302 (138)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 35" N, Long. 121° 32' 05" W
4.
5. Mudstone
6.
7. Cretaceous or Tertiary, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

171
1. Undifferentiated sedimentary rocks
2. R1299 (91)
3. Mt. Sizer 7.5' Quad., Lat. 37° 10' 15" N, Long. 121° 31' 53" W

4.
5. Mudstone
6.
7. Cretaceous or Paleogene
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

172
1. "Larios Canyon Sandstone"
2. R1303 (174)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 24" N, Long. 121° 33' 11" W
4.
5. Shale
6.
7. Cretaceous or Tertiary, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

173
1. "Larios Canyon Sandstone"
2. R1296 (26)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 37" N, Long. 121° 33' 40" W
4.
5. Mudstone and sandstone
6.
7. Cretaceous, Late
8. Campanian, late or Maastrichtian
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

174
1. Unnamed mudstone
2. R1304 (177)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 23" N, Long. 121° 31' 12" W
4.
5. Mudstone, red and green
6.
7. Probably Eocene, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974

13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

175
1. Berryessa Formation
2. R1309 (247)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 57" N, Long. 121° 34' 25" W
4.
5. Shale
6.
7. Cretaceous, Late
8. Probably Campanian, late
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

176
1. "Larios Canyon Sandstone"
2. R1319 (405)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 00" N, Long. 121° 33' 23" W
4.
5.
6.
7. Probably Cretaceous, Late
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

177
1. Berryessa Formation
2. R1308 (243)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 27" N, Long. 121° 33' 37" W
4.
5. Shale
6.
7. Cretaceous, late
8. Probably Campanian, late
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

178
1. Berryessa Formation
2. R1306 (237)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 33" N, Long. 121° 33' 22" W
4.
5. Shale

6.
7. Probably Cretaceous, Late
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

179
1. Berryessa Formation
2. R1298 (80)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 35" N, Long. 121° 33' 15" W
4.
5. Mudstone
6.
7. Cretaceous, Late
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

180
1. "Larios Canyon Sandstone"
2. R1305 (230)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 29" N, Long. 121° 33' 00" W
4.
5. Sandstone
6.
7. Cretaceous, Late
8. Campanian or Maastrichtian
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

181
1. Unnamed mudstone
2. R1317 (287)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 37" N, Long. 121° 32' 41" W
4.
5. Mudstone
6. Planktic foraminifers
7. Eocene, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

182
1. Unnamed mudstone
2. R1316 (286)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 39" N, Long. 121° 32' 43" W
4.
5. Mudstone
6.
7. Probably Eocene, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

183
1. Unnamed mudstone
2. R1315 (285)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 44" N, Long. 121° 32' 47" W
4.
5. Mudstone
6.
7. Probably Eocene, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

184
1. "Larios Canyon Sandstone"
2. R1297 (45)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 37" N, Long. 121° 32' 52" W
4.
5. Mudstone and sandstone
6.
7. Cretaceous, Late
8. Campanian, late or Maastrichtian
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

185
1. Unnamed mudstone
2. R1313 (282)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 49" N, Long. 121° 32' 34" W
4.
5. Mudstone
6.
7. Cretaceous or Tertiary undifferentiated
8.

9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

185
1. Unnamed mudstone
2. R1314 (283)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 48" N, Long. 121° 32' 42" W
4.
5. Mudstone
6.
7. Probably Eocene, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

186
1. Berryessa Formation
2. R1311 (280)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 50" N, Long. 121° 33' 22" W
4.
5. Shale
6.
7. Cretaceous or Paleocene undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

186
1. "Larios Canyon Sandstone"
2. R1312 (281)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 50" N, Long. 121° 32' 34" W
4.
5. Shale
6.
7. Cretaceous or Paleocene undifferentiated
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

187
1. Unnamed mudstone
2. R1300 (100)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 09" N, Long. 121° 32' 03" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Paleogene
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

188
1. Unnamed mudstone
2. R1321 (550)
3. Mt. Sizer 7.5' Quad., Lat. 37° 09' 07" N, Long. 121° 32' 01" W
4.
5. Mudstone, red and green
6. Planktic foraminifers
7. Paleocene through Eocene
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

189
1. Unnamed mudstone
2. R1310 (274)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 50" N, Long. 121° 32' 32" W
4.
5. Mudstone, red and green
6.
7. Unknown
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13.
14. Internal report; Bartsch-Winkler (1976)

190
1. Unnamed mudstone
2. R1325 (574)
3. Mt. Sizer 7.5' Quad., Lat. 37° 07' 54" N, Long. 121° 32' 11" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary undifferentiated
8.
9.

10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

191
1. Unnamed mudstone
2. R1323 (572)
3. Mt. Sizer 7.5' Quad., Lat. 37° 07' 53" N, Long. 121° 32' 22" W
4.
5. Mudstone, red and green
6.
7. Paleocene or Eocene
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; McDougall, 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

191
1. Unnamed mudstone
2. R1324 (573)
3. Mt. Sizer 7.5' Quad., Lat. 37° 08' 53" N, Long. 121° 32' 17" W
4.
5. Mudstone, red and green
6.
7. Cretaceous or Tertiary, early
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1974; revised by McDougall, K., 1993
12. Bartsch, S., and Brabb, E.E., 1974
13. Lower bathyal to abyssal biofacies (≥2000 m)
14. Internal report; Bartsch-Winkler (1976)

192
1. "Mudstone of Nesbit Ridge" or "mudstone of Bolado Park"
2. A-9164
3. Mt. Sizer Quad., Lat. 37° 07' 49" N, Long. 121° 32' 21" W,
4. from Nesbit Ridge
5. Shale
6.
7. Eocene, early
8. Penutian
9. Equivalent to planktic foraminiferal zones P8 to P9
10. Foraminifers (B)
11. Mallory, V.S., *in* Frames (1955); modified by McDougall, K., 1993
12. ?Frames, D.W., 1955
13. Warm, deep marine (lower bathyal to abyssal biofacies, ≥2000 m)
14. Frames (1955); Carter, (1970)

193
1. "Mudstone of Nesbit Ridge" or "mudstone of Bolado Park"
2. A-9166
3. Gilroy 7.5' Quad., Lat. 37° 06' 32" N, Long. 121° 31' 27" W,

4. from Sheep Ridge
5. Mudstone, red and green
6. Planktic foraminifers
7. Eocene, early to middle
8. Penutian, possibly Ulatisian
9.
10. Foraminifers (B)
11. Mallory, V.S., *in* Frames (1955); modified by McDougall, K., 1993
12. ?Frames, D.W., 1955
13. Warm, deep marine (lower bathyal to abyssal, ≥2000 m)
14. Frames (1955); Carter, (1970); Bennett, (1972)

194
1. "Mudstone of Nesbit Ridge" or "mudstone of Bolado Park"
2. A-9165
3. Gilroy 7.5' Quad., Lat. 37° 06' 30" N, Long. 121° 31' 20" W,
4. from Sheep Ridge
5. Mudstone, red and green
6. Planktic foraminifers
7. Eocene, early
8.
9.
10. Foraminifers (B)
11. Mallory, V.S., *in* Frames (1955); modified by McDougall, K., 1993
12. ?Frames, D.W., 1955
13. Warm, deep marine (lower bathyal to abyssal biofacies ≥2000 m)
14. Frames (1955); Carter, (1970); Bennett, (1972)

195
1. Franciscan Complex
2. MR8161 (89-MtB-1)
3. Mt. Boardman 7.5' Quad., Lat. 37° 23' 32" N, Long. 121° 26' 58" W
4.
5. Chert, bedded, knocker in mélange belt
6.
7. Jurassic, late Middle
8. Bathonian or Callovian
9. Correlative with MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1989
13. Deep marine
14. Internal report

196
1. Franciscan Complex
2. MR8159 (89-MS-33)
3. Mt. Stakes 7.5' Quad., Lat. 37° 16' 45" N, Long. 121° 27' 06" W
4.
5. Chert, bedded
6.
7. Jurassic, Late or Cretaceous, Early
8. Oxfordian? to Barremian
9. Correlative with upper MH-4 to MH-5 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1989

13. Deep marine
14. Internal report

197
1. Franciscan Complex
2. MR8160 (90-MC-1)
3. Mississippi Creek 7.5' Quad., Lat. 37° 14' 25" N, Long. 121° 22' 35" W
4.
5. Chert, bedded
6.
7. Jurassic?
8.
9.
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1990
13. Deep marine
14. Internal report

198
1. Franciscan Complex
2. MR8163 (90-MP-22)
3. Mustang Peak 7.5' Quad., Lat. 37° 14' 37" N, Long. 121° 21' 22" W
4.
5. Chert, bedded; deformed radiolarians
6.
7. Mesozoic
8.
9.
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1990
13. Deep marine
14. Internal report

199
1. Franciscan Complex
2. MR8210 (92-MP-8)
3. Mustang Peak 7.5' Quad., Lat. 37° 20' 50" N, Long. 121° 12' 17" W
4.
5. Chert, bedded
6.
7. Jurassic or Cretaceous
8. Callovian to Albian
9.
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1992
13. Deep marine
14. Internal report

200
1. Franciscan Complex
2. MR7631 (89-MP-16A)
3. Mustang Peak 7.5' Quad., Lat. 37° 12' 11" N, Long. 121° 20' 52" W
4.
5. Chert, bedded
6.

7. Jurassic, latest Late or Cretaceous, Early
8. Tithonian? to Albian
9. Correlative with MH-5 or MH-6 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1988
13. Deep marine
14. Internal report

201
1. Franciscan Complex
2. MR7610 (88-MP-2C)
3. Mustang Peak 7.5' Quad., Lat. 37° 10' 37" N, Long. 121° 22' 23" W
4.
5. Chert, bedded
6.
7. Jurassic, Middle
8. Bajocian?, Bathonian or Callovian
9. Correlative with MH-3? or MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1988
13. Deep marine
14. Internal report

201
1. Franciscan Complex
2. MR7611 (88-MP-2B)
3. Mustang Peak 7.5' Quad., Lat. 37° 10' 37" N, Long. 121° 22' 23" W
4.
5. Chert, bedded
6.
7. Jurassic, Middle
8. Bajocian to Callovian
9. Correlative with MH-3 or MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1988
13. Deep marine
14. Internal report

201
1. Franciscan Complex
2. MR7630 (88-MP-2D)
3. Mustang Peak 7.5' Quad., Lat. 37° 10' 37" N, Long. 121° 22' 23" W
4.
5. Chert, bedded
6.
7. Jurassic, Middle
8. Probably Bajocian
9. Correlative with MH-3 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1988
13. Deep marine
14. Internal report

202
1. Franciscan Complex
2. MR8164 (91-MC-16A)
3. Mississippi Creek 7.5' Quad., Lat. 37° 08' 31" N, Long. 121° 24' 25" W
4.
5. Chert, rip-up clasts in conglomerate of Franciscan Complex
6.
7. Jurassic, Middle
8. Bajocian
9. Correlative with MH-3 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1991
13. Deep marine
14. Internal report

203
1. Franciscan Complex
2. MR8167 (91-GHS-2)
3. Gilroy Hot Spring 7.5' Quad., Lat. 37° 06' 59" N, Long. 121° 24' 41" W
4.
5. Chert, bedded in melange block
6.
7. Jurassic, Middle?
8. Bajocian? to Callovian?
9. Possibly Correlative with MH-3 or MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1991
13. Deep marine
14. Internal report

204
1. Franciscan Complex
2. MR8208 (92-MP-6)
3. Mustang Peak 7.5' Quad., Lat. 37° 08' 27" N, Long. 121° 20' 07" W
4.
5. Chert, bedded, in mélange
6.
7. Jurassic, Middle
8. Bajocian
9. Correlative with lower part of MH-3 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1992
13. Deep marine
14. Internal report

205
1. Franciscan Complex
2. MR8209 (92-MP-7a)
3. Mustang Peak 7.5' Quad., Lat. 37° 10' 07" N, Long. 121° 18' 50" W
4.
5. Chert, bedded, in mélange
6.
7. Jurassic to Cretaceous, Early
8. Not determined
9.

10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1992
13. Deep marine
14. Internal report

206
1. Franciscan Complex
2. MR8202 (92-MP-9)
3. Mustang Peak 7.5' Quad., Lat. 37° 08' 48" N, Long. 121° 18' 37" W
4.
5. Chert, bedded
6.
7. Jurassic
8. Toarcian to Bajocian
9. Correlative with MH-2 or lower MH-3 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1992
13. Deep marine
14. Internal report

207
1. Franciscan Complex
2. MR8203 (92-MP-11)
3. Mustang Peak 7.5' Quad., Lat. 37° 08' 52" N, Long. 121° 18' 16" W
4.
5. Chert, bedded, red
6.
7. Jurassic, Middle?
8.
9.
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1992
13. Deep marine
14. Internal report

208
1. Franciscan Complex
2. MR8205 (92-MP-14A)
3. Mustang Peak 7.5' Quad., Lat. 37° 08' 10" N, Long. 121° 18' 49" W
4.
5. Chert, bedded
6.
7. Jurassic, Middle
8. Bajocian to Callovian
9. Correlative with MH-3 or MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1992
13. Deep marine
14. Internal report

209
1. Franciscan Complex
2. MR8206 (92-MP-15)
3. Mustang Peak 7.5' Quad., Lat. 37° 07' 51" N, Long. 121° 18' 44" W

4.
5. Chert, bedded
6.
7. Jurassic? or Cretaceous, Early
8. Callovian? to Albian
9.
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1992
13. Deep marine
14. Internal report

210
1. Franciscan Complex
2. MR8406 (92-PP-3C)
3. Pacheco Peak 7.5' Quad., Lat. 37° 06' 24" N, Long. 121° 17' 47" W
4.
5. Chert, bedded; 20m block in mélange
6.
7. Jurassic, Middle
8. Bajocian to Callovian
9. Correlative with MH-3 or MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1992
13. Deep marine
14. Internal report

211
1. Franciscan Complex
2. MR8371 (92-PP-1)
3. Pacheco Peak 7.5' Quad., Lat. 37° 05' 25" N, Long. 121° 17' 09" W
4.
5. Chert, bedded
6.
7. Jurassic, Middle
8. Bajocian to Callovian
9. Correlative with MH-3 or MH-4 of Murchey (1984)
10. Radiolarians
11. Murchey, B., 1993
12. Blake, M.C., Jr., 1992
13. Deep marine
14. Internal report

212
1. Panoche Formation
2. Mf7741 (BX-130-1B)
3. Crevison Peak 7.5 ' Quad., Lat. 37° 14' 44.5" N, Long. 121° 12' 19" W
4.
5. Shale
6. Radiolarians
7. Cretaceous or Paleogene
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1992
12. Cox, B., 1992

13.
14. Internal report

212
1. Panoche Formation
2. Mf7742 (BX-130-1C)
3. Crevison Peak 7.5' Quad., Lat. 37° 14' 44.5" N, Long. 121° 12' 11.2" W
4.
5. Shale
6.
7. Cretaceous or Paleogene
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1992
12. Cox, B., 1992
13.
14. Internal report

213
1. Panoche Formation
2. Mf7730 (BX-101-1B)
3. Crevison Peak 7.5' Quad., Lat. 37° 14' 11" N, Long. 121° 12' 11.2" W
4.
5. Shale
6. Radiolarians
7. Cretaceous or Paleogene
8.
9.
10. Foraminifers (B)
11. Sliter, W.V., 1992
12. Cox, B., 1992
13.
14. Internal report

214
1. Moreno Formation
2. Mf7702 (BX-52-1)
3. Crevison Peak 7.5' Quad., Lat. 37° 14' 59.5" N, Long. 121° 09' 49.5" W
4.
5. Sandstone, poorly laminted
6. Fish debris, *Inoceramus* prisms
7. Cretaceous
8. Maastrichtian
9. D1 to D2 zones of Goudkoff, probably D-1 based in abundance of *P. joaquinensis*
10. Foraminifers (B)
11. Sliter, W.V., 1992
12. Cox, B., 1992
13. Upper bathyal to outer neritic
14. Internal report

215
1. Panoche Formation
2. Mf7723 (BX-94-1A)
3. Crevison Peak 7.5' Quad., Lat. 37° 14' 14" N, Long. 121° 09' 47" W
4.
5. Shale
6.

7. Cretaceous
8. Campanian to Maastrichtian
9.
10. Foraminifers (P)
11. Sliter, W.V., 1991
12. Cox, B., 1991
13. Bathyal
14. Internal report

216
1. Panoche Formation
2. Mf7709 (BX-88-2C)
3. Crevison Peak 7.5' Quad., Lat. 37° 14' 9.5" N, Long. 121° 10' 3.5" W
4.
5. Shale
6. Radiolarians, *Inoceramus* prisms
7. Cretaceous
8. Campanian
9. Probably lower E zone of Goudkoff
10. Foraminifers (B)
11. Sliter, W.V., 1991
12. Cox, B., 1991
13.
14. Internal report

216
1. Panoche Formation
2. Mf7720 (BX-88-2P)
3. Crevison Peak 7.5' Quad., Lat. 37° 14' 9.5" N, Long. 121° 10' 3.5" W
4.
5. Shale
6. Planktic foraminifers
7. Cretaceous
8. Campanian
9. Probably lower E zone of Goudkoff
10. Foraminifers (B)
11. Sliter, W.V., 1991
12. Cox, B., 1991
13. Bathyal
14. Internal report

217
1. Moreno Formation
2. Mf7699 (BX-18-3)
3. Crevison Peak 7.5' Quad., Lat. 37° 13' 48.9" N, Long. 121° 08' 37.1" W
4.
5. Shale
6. Radiolarians, fish debris
7. Cretaceous
8. Campanian to Maastrichtian
9.
10. Foraminifers (B)
11. Sliter, W.V., 1992
12. Cox, B., 1992
13. Bathyal
14. Internal report

218
1. Moreno Formation
2. Mf7697 (BX-17-3)
3. Crevison Peak 7.5' Quad., Lat. 37° 13' 57.8" N, Long. 121° 07' 28.5" W
4.
5. Shale
6. Diatoms
7. Cretaceous
8. Maastrichtian
9. D-1 zone of Goudkoff
10. Foraminifers (B)
11. Sliter, W.V., 1992
12. Cox, B., 1992
13. Bathyal
14. Internal report

219
1. Kreyenhagen Shale
2. Mf7756 (BX-165-5A)
3. Howard Ranch 7.5' Quad., Lat. 37° 13' 02" N, Long. 121° 05' 37.5" W
4.
5. Shale
6. Radiolarians
7. Cretaceous or Paleogene
8.
9.
10. Foraminifers
11. Sliter, W.V., 1992
12. Cox, B., 1992
13.
14. Internal report

220
1. Moreno Formation
2. DMG-SOL 111
3. Patterson 7.5' Quad., Lat. 37° 25' 38" N, Long. 121° 12' 03" W,
4. along Salado Creek Road
5. Claystone
6. Radiolarians
7. Cretaceous
8. Maastrichtian
9. D-2 zone of Goudkoff
10. Foraminifers (B)
11. Bishop, C.C., 1970
12. Bishop, C.C., 1970
13. Bathyal
14. Bishop (1970)

221
1. Moreno Formation
2. DMG-BG 101
3. Patterson 7.5' Quad., Lat. 37° 27' 12" N, Long. 121° 12' 52" W,
4. near head of Blade Gulch
5. Claystone
6. *Inoceramus* prisms, sponge spicules, radiolarians
7. Cretaceous
8. Maastrichtian
9. D-2 zone of Goudkoff, probably

10. Foraminifers (B)
11. Bishop, C.C., 1970
12. Bishop, C.C., 1970
13. Bathyal
14. Bishop (1970)

222
1. Panoche Formation
2. DMG-DP 302
3. Patterson 7.5' Quad., Lat. 37° 28' 26" N, Long. 121° 14' 16" W,
4. along road in Del Puerto Canyon
5. Sandstone
6.
7. Cretaceous
8. Campanian
9. E zone of Goudkoff
10. Foraminifers (B)
11. Bishop, C.C., 1970
12. Bishop, C.C., 1970
13. Bathyal
14. Bishop (1970)

223
1. Moreno Formation
2. DMG-DP 108
3. Patterson 7.5' Quad., Lat. 37° 28' 37" N, Long. 121° 13' 58" W,
4. from north side of Del Puerto Canyon
5. Claystone
6.
7. Cretaceous
8. Campanian, probably
9. E zone of Goudkoff
10. Foraminifers (B)
11. Bishop, C.C., 1970
12. Bishop, C.C., 1970
13. Bathyal
14. Bishop (1970)

224
1. Moreno Formation
2. DMG-DP 715
3. Patterson 7.5' Quad., Lat. 37° 28' 51" N, Long. 121° 14' 08" W,
4. just north of Del Puerto Canyon
5. Claystone
6. *Inoceramus* prisms, sponge spicules and radiolarians
7. Cretaceous
8. Maastrichtian
9. D-2 of Goudkoff, probably
10. Foraminifers (B)
11. Bishop, C.C., 1970
12. Bishop, C.C., 1970
13. Bathyal
14. Bishop (1970)

225
1. Moreno Formation
2. DMG-DP 707
3. Patterson 7.5' Quad., Lat. 37° 28' 51" N, Long. 121° 14' 08" W,

4. just north of Del Puerto Canyon
5. Claystone
6. *Inoceramus* prisms, sponge spicules and radiolarians
7. Cretaceous
8. Maastrichtian
9. D-2 of Goudkoff, probably
10. Foraminifers (B)
11. Bishop, C.C., 1970
12. Bishop, C.C., 1970
13. Bathyal
14. Bishop (1970)

226
1. Moreno Formation
2. DMG-DP 403-404
3. Patterson 7.5' Quad., Lat. 37° 28' 52" N, Long. 121° 13' 30" W,
4. north side of Del Puerto Canyon
5. Claystone
6.
7. Cretaceous
8. Maastrichtian
9. C and /or D-1 zone of Goudkoff
10. Foraminifers (B)
11. Bishop, C.C., 1970
12. Bishop, C.C., 1970
13. Bathyal
14. Bishop (1970)