




| Depth interval (feet) and description | Depth interval (feet) and description |
|---|--|
|  <p>0–20: Sand (S); medium to very coarse sand; poorly to moderately sorted; angular to subangular; dark yellowish brown (10YR 4/4).</p> |  <p>80–100: Sand (S); medium to coarse sand; well to very well sorted; angular to subangular; light olive brown (2.5Y 5/3); <i>micaceous</i>.</p> |
|  <p>20–26: No sieve sample collected.</p> |  <p>100–105: No sieve sample collected; <i>core 4</i>.</p> |
|  <p>26–31: No sieve sample collected; <i>core 1, no recovery</i>.</p> |  <p>105–120: Sand (S); fine to coarse sand; moderately sorted; angular to subangular; light olive brown (2.5Y 5/3); <i>micaceous</i>.</p> |
|  <p>31–35: Clayey sand (cS); fine to very coarse sand and clay with trace granules to small pebbles; poorly sorted; subangular to subrounded; light yellowish brown (2.5Y 6/3).</p> |  <p>120–140: Sand (S); fine to very coarse sand with trace small pebbles; poorly to moderately sorted; angular; light olive brown (2.5 5/4); <i>micaceous</i>.</p> |
|  <p>35–45: No sieve sample collected; <i>cores 2 and 3, modest recovery</i>.</p> |  <p>140–150: No sieve sample collected; <i>cores 5 and 6</i>.</p> |
|  <p>45–60: Sand (S); fine to medium sand; well to very well sorted; subangular; light olive brown (2.5Y 5/3); <i>micaceous</i>.</p> |  <p>150–160: Sand (S); very fine to coarse sand with minor silt; moderately to well sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>micaceous</i>.</p> |
|  <p>60–80: Sand (S); medium sand; very well sorted; subangular; light olive brown (2.5Y 5/3); <i>micaceous</i>.</p> |  <p>160–170: Sand (S); very fine to medium sand with trace granules; moderately to well sorted; subangular to subrounded; very dark grayish brown (2.5Y 3/2); <i>micaceous</i>; <i>trace <2 mm shell fragments</i>.</p> |

Figure 18M. Lithologic descriptions and photographs of **sieve** drill cuttings collected from the borehole at 16 USGS multiple-depth, monitoring-well sites in San Diego County, California, 1995, 2003–2017: (A) SDGD; (B) SDSY; (C) SDLH; (D) SDAQ; (E) SDGP; (F) SDBP; (G) SDHF; (H) SDEP; (I) SDNB; (J) SDSW; (K) SDMC; (L) SDLD; **(M) SDCC**; (N) SDOR; (O) SDOT; and (P) SDBW.






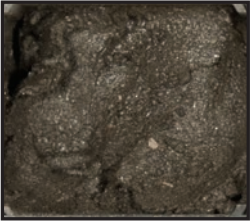



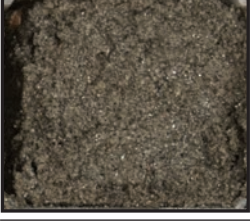


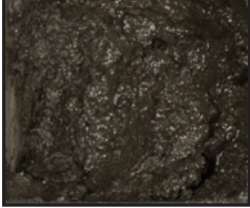
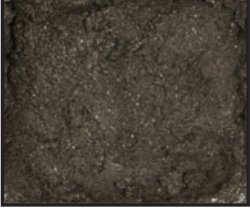
| Depth interval (feet) and description | Depth interval (feet) and description |
|---|--|
|  170–180: No sieve sample collected; cores 7 and 8. |  300–310: No sieve sample collected; cores 9 and 10. |
|  180–200: Silty sand (zS); fine to medium sand with silt and trace granules; moderately to well sorted; angular to subangular; very dark gray (2.5Y 3/1); <i>calcareous; micaceous; <3 mm shell fragments.</i> |  310–320: Clayey sandy silt (sM); silt with very fine to coarse sand, clay, and trace granules to small pebbles; poorly to moderately sorted; very dark gray (2.5Y 3/1); <i>calcareous; micaceous; <2 mm shell fragments.</i> |
|  200–220: Silty sand (zS); fine to medium sand with silt; moderately to well sorted; subangular to subrounded; very dark gray (2.5Y 3/1); <i>calcareous; micaceous; gastropod and bivalve shell fragments, <3 mm.</i> |  320–340: Clayey sandy silt (sM); silt with very fine to medium sand and clay; poorly to moderately sorted; very dark gray (5Y 3/1); <i>slightly calcareous; micaceous; trace <8 mm shell fragments.</i> |
|  220–240: Sandy silt (sZ); silt with very fine to medium sand; moderately to well sorted; very dark gray (5Y 3/1); <i>calcareous; micaceous; <2 mm shell fragments.</i> |  340–360: Clayey sandy silt (sM); silt with very fine to medium sand, clay, and trace granules to medium pebbles; poorly to moderately sorted; very dark gray (2.5Y 3/1); <i>slightly calcareous; micaceous.</i> |
|  240–260: Sandy silt (sZ); silt with very fine to medium sand; moderately to well sorted; very dark gray (5Y 3/1); <i>calcareous; micaceous; trace <16 mm shell fragments.</i> |  360–380: Sand (S); fine to coarse sand; well sorted; subangular to subrounded; very dark gray (2.5Y 3/1); <i>micaceous; trace <3 mm shell fragments.</i> |
|  260–280: Sandy silt (sZ); silt with very fine to medium sand; moderately to well sorted; very dark grayish brown (2.5Y 3/2); <i>slightly calcareous; micaceous; trace <1 mm shell fragments.</i> |  380–385: No sieve sample collected; core 11. |
|  280–300: Sandy silt (sZ); silt with very fine to coarse sand and trace granules to small pebbles; moderately sorted; very dark gray (5Y 3/1); <i>calcareous; micaceous; <3 mm shell fragments.</i> |  385–400: Sandy clayey silt (sM); silt with clay and very fine to coarse sand; poorly to moderately sorted; very dark gray (5Y 3/1); <i>calcareous; micaceous; trace <1 mm shell fragments.</i> |

Figure 18M. Lithologic descriptions and photographs of **sieve** drill cuttings collected from the borehole at 16 USGS multiple-depth, monitoring-well sites in San Diego County, California, 1995, 2003–2017: (A) SDCD; (B) SDSY; (C) SDLH; (D) SDAQ; (E) SDGP; (F) SDBP; (G) SDHF; (H) SDEP; (I) SDNB; (J) SDSW; (K) SDMC; (L) SDLD; **(M) SDCC**; (N) SDOR; (O) SDOT; and (P) SDBW. —Continued.

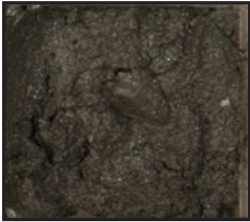

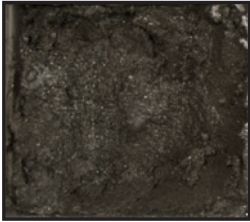
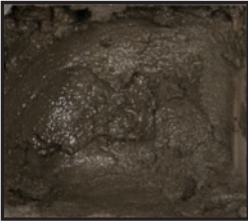




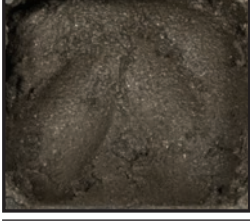





| Depth interval (feet) and description | Depth interval (feet) and description |
|--|---|
|  <p>400–420: Sandy silt (sZ); silt with very fine to medium sand and trace granules to medium pebbles; moderately sorted; very dark gray (5Y 3/1); <i>calcareous</i>; <i>micaceous</i>; trace <1 mm shell fragments.</p> |  <p>540–550: No sieve sample collected; cores 12 and 13.</p> |
|  <p>420–440: Sandy silt (sZ); silt with very fine to medium sand; moderately to well sorted; very dark gray (5Y 3/1); <i>calcareous</i>; <i>micaceous</i>; trace <1 mm shell fragments.</p> |  <p>550–560: Silty clay (M); clay with silt and minor very fine to medium sand; well sorted; dark olive gray (5Y 3/2); <i>micaceous</i>.</p> |
|  <p>440–460: Sandy clayey silt (sM); silt with clay and very fine to medium sand; moderately sorted; very dark gray (5Y 3/1); <i>calcareous</i>; <i>micaceous</i>; trace <1 mm shell fragments.</p> |  <p>560–580: Sandy silty clay (sM); clay with silt and very fine to medium sand; moderately sorted; very dark gray (5Y 3/1); <i>calcareous</i>; <i>micaceous</i>; trace <1 mm shell fragments.</p> |
|  <p>460–480: Sandy clayey silt (sM); silt with clay and very fine to medium sand; moderately sorted; very dark gray (5Y 3/1); <i>calcareous</i>; <i>micaceous</i>; trace <1 mm shell fragments.</p> |  <p>580–600: Sandy silty clay (sM); clay with silt and very fine to medium sand; moderately sorted; very dark gray (5Y 3/1); <i>calcareous</i>; <i>micaceous</i>; trace <1 mm shell fragments.</p> |
|  <p>480–500: Sandy silty clay (sM); clay with silt and very fine to medium sand; moderately sorted; very dark gray (5Y 3/1); <i>calcareous</i>; <i>micaceous</i>; trace <2 mm shell fragments.</p> |  <p>600–605: No sieve sample collected.</p> |
|  <p>500–520: Sandy clayey silt (sM); silt with clay and very fine to medium sand; moderately sorted; very dark gray (5Y 3/1); <i>calcareous</i>; <i>micaceous</i>; trace <1 mm shell fragments.</p> |  <p>605–620: Silty sand (zS); very fine to coarse sand with silt; moderately sorted; subangular to subrounded; very dark grayish brown (2.5Y 3/2); <i>calcareous</i>; <i>micaceous</i>; <5 mm shell fragments.</p> |
|  <p>520–540: Sandy silty clay (sM); clay with silt and very fine to medium sand; moderately sorted; very dark gray (5Y 3/1); <i>calcareous</i>; <i>micaceous</i>.</p> |  <p>620–640: Silty clayey sand (mS); fine to coarse sand with clay, silt, and trace granules to small pebbles; poorly to moderately sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>calcareous</i>.</p> |

Figure 18M. Lithologic descriptions and photographs of **sieve** drill cuttings collected from the borehole at 16 USGS multiple-depth, monitoring-well sites in San Diego County, California, 1995, 2003–2017: (A) SDCD; (B) SDSY; (C) SDLH; (D) SDAQ; (E) SDGP; (F) SDBP; (G) SDHF; (H) SDEP; (I) SDNB; (J) SDSW; (K) SDMC; (L) SDLD; **(M) SDCC**; (N) SDOR; (O) SDOT; and (P) SDBW. —Continued.

| Depth interval (feet) and description | Depth interval (feet) and description | Depth interval (feet) and description | Depth interval (feet) and description |
|---|---|--|--|
|  | 640–660: Sand (S); very fine to coarse sand with minor silt; moderately sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>calcareous</i> ; <i>micaceous</i> . |  | 760–780: Silty clay (M); clay with silt and trace very fine to medium sand; well to very well sorted; dark grayish brown (2.5Y 4/2); <i>calcareous</i> ; <i>micaceous</i> ; <i>trace shell fragments</i> . |
|  | 660–680: Sandy clay (sC); clay with very fine to medium sand, minor silt, coarse sand, and trace granules to small pebbles; poorly to moderately sorted; grayish brown (10YR 5/2); <i>calcareous</i> . |  | 780–800: Silty clay (M); clay with silt and minor very fine to medium sand; moderately to well sorted; light olive brown (2.5Y 5/3); <i>calcareous</i> . |
|  | 680–700: Silty sand (zS); very fine to medium sand with silt and minor clay; moderately to well sorted; subangular to subrounded; dark grayish brown (10YR 4/2); <i>calcareous</i> ; <i>micaceous</i> . |  | 800–820: Sand (S); very fine to medium sand with minor silt; moderately to well sorted; angular to subangular; dark grayish brown (2.5Y 4/2); <i>calcareous</i> ; <i>micaceous</i> . |
|  | 700–710: Sandy silty clay (sM); clay with silt and very fine to medium sand; moderately sorted; dark grayish brown (2.5Y 4/2); <i>calcareous</i> ; <i>minor mica</i> . |  | 820–840: Sandy silty clay (sM); clay with silt and very fine to medium sand; moderately to well sorted; light olive brown (2.5Y 5/2); <i>slightly calcareous</i> ; <i>minor mica</i> . |
|  | 710–725: No sieve sample collected; cores 14, 15, and 16. |  | 840–860: Silty sand (zS); very fine to coarse sand with silt and minor clay; moderately sorted; angular to subangular; dark grayish brown (2.5Y 4/2); <i>slightly calcareous</i> ; <i>micaceous</i> . |
|  | 725–740: Silty clay (M); clay with silt and trace very fine to medium sand; well to very well sorted; grayish brown (2.5Y 5/2); <i>extremely calcareous</i> . |  | 860–880: Sandy silty clay (sM); clay with silt and very fine to medium sand; moderately to well sorted; grayish brown (2.5Y 5/2); <i>calcareous</i> ; <i>minor mica</i> . |
|  | 740–760: Silty clay (M); clay with silt and trace very fine to medium sand; well to very well sorted; grayish brown (2.5Y 5/2); <i>calcareous</i> ; <i>minor mica</i> . |  | 880–900: Silty sand (zS); very fine to coarse sand with silt and trace clay; moderately to well sorted; angular to subangular; grayish brown (2.5Y 5/2); <i>calcareous</i> ; <i>micaceous</i> . |

Figure 18M. Lithologic descriptions and photographs of **sieve** drill cuttings collected from the borehole at 16 USGS multiple-depth, monitoring-well sites in San Diego County, California, 1995, 2003–2017: (A) SDCD; (B) SDSY; (C) SDLH; (D) SDAQ; (E) SDGP; (F) SDBP; (G) SDHF; (H) SDEP; (I) SDNB; (J) SDSW; (K) SDMC; (L) SDLD; **(M) SDCC**; (N) SDOR; (O) SDOT; and (P) SDBW. —Continued.


| Depth interval (feet) and description | Depth interval (feet) and description |
|---|--|
|  <p>900–920: Sand (S); very fine to coarse sand with trace silt; moderately to well sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>micaceous</i>.</p> |  <p>1,040–1,049: No sieve sample collected; <i>cores 17 and 18</i>.</p> |
|  <p>920–940: Silty sand (zS); very fine to coarse sand with silt; moderately to well sorted; subangular to subrounded; grayish brown (2.5Y 5/2); <i>calcareous; micaceous</i>.</p> |  <p>1,049–1,060: Sand (S); very fine to coarse sand with minor silt; moderately to well sorted; subangular to subrounded; olive brown (2.5Y 4/3); <i>calcareous; micaceous</i>.</p> |
|  <p>940–960: Silty sand (zS); very fine to coarse sand with silt; moderately to well sorted; subangular to subrounded; grayish brown (2.5Y 5/2); <i>slightly calcareous; micaceous</i>.</p> |  <p>1,060–1,080: Clayey sand (cS); fine to very coarse sand with clay; very poorly to poorly sorted; angular to subangular; grayish brown (2.5Y 5/2); <i>slightly calcareous; minor mica</i>.</p> |
|  <p>960–980: Silty sand (zS); very fine to coarse sand with silt; moderately to well sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>slightly micaceous</i>.</p> |  <p>1,080–1,100: Sand (S); very fine to coarse sand; moderately to well sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>calcareous; minor mica</i>.</p> |
|  <p>980–1,000: Clayey silty sand (mS); very fine to coarse sand with silt and clay; poorly to moderately sorted; angular to subangular; light olive brown (2.5Y 5/3); <i>slightly calcareous</i>.</p> |  <p>1,100–1,120: Sand (S); fine to very coarse sand with trace granules; moderately to well sorted; subangular to subrounded; grayish brown (2.5Y 5/2); <i>slightly calcareous; minor mica</i>.</p> |
|  <p>1,000–1,020: Silty sand (zS); very fine to medium sand with silt and minor clay; moderately to well sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>slightly calcareous; minor mica</i>.</p> |  <p>1,120–1,140: Sandy silty clay (sM); clay with silt, very fine to coarse sand, and trace granules to small pebbles; poorly sorted; light olive brown (2.5Y 5/3); <i>slightly calcareous; minor mica</i>.</p> |
|  <p>1,020–1,040: Silty sand (zS); very fine to coarse sand with silt; moderately to well sorted; subangular to subrounded; light olive brown (2.5Y 5/3).</p> |  <p>1,140–1,160: Gravelly sand (gS); fine to very coarse sand with granules to medium pebbles and trace silt; very poorly sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>calcareous</i>.</p> |

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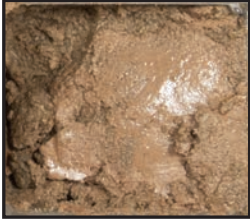











| Depth interval (feet) and description | Depth interval (feet) and description |
|--|---|
|  <p>1,160–1,180: Silty sand (zS); fine to coarse sand with silt and minor clay; poorly to moderately sorted; subangular to subrounded; light olive gray (2.5Y 5/3); <i>slightly micaceous</i>.</p> |  <p>1,300–1,320: Sand (S); fine to coarse sand with minor silt; moderately to well sorted; subrounded to rounded; light olive brown (2.5Y 5/3); <i>calcareous</i>; <i>minor mica</i>.</p> |
|  <p>1,180–1,200: Sandy silty clay (sM); clay with silt and fine to coarse sand; poorly to moderately sorted; brown (10YR 4/3); <i>slightly micaceous</i>; <i>oxidized</i>.</p> |  <p>1,320–1,340: Silty sand (zS); very fine to coarse sand with silt, trace clay, and granules to small pebbles; very poorly to poorly sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>slightly calcareous</i>; <i>minor mica</i>.</p> |
|  <p>1,200–1,220: Silty sand (zS); fine to coarse sand with silt; moderately to well sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>calcareous</i>; <i>slightly micaceous</i>.</p> |  <p>1,340–1,360: Sand (S); very fine to coarse sand with minor silt; moderately to well sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>calcareous</i>; <i>micaceous</i>.</p> |
|  <p>1,220–1,240: Sand (S); fine to coarse sand; moderately to well sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>calcareous</i>; <i>slightly micaceous</i>.</p> |  <p>1,360–1,380: Sand (S); very fine to coarse sand; well sorted; angular to subangular; light olive brown (2.5Y 5/3).</p> |
|  <p>1,240–1,260: Clayey silty sand (mS); fine to coarse sand with silt and clay; moderately sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>calcareous</i>; <i>minor mica</i>.</p> |  <p>1,380–1,400: Silty sand (zS); fine to coarse sand with silt, minor clay, and trace granules to medium pebbles; moderately sorted; angular to subangular; olive brown (2.5Y 4/3); <i>slightly calcareous</i>.</p> |
|  <p>1,260–1,280: Sand (S); fine to coarse sand with minor silt; moderately to well sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>slightly calcareous</i>; <i>micaceous</i>.</p> |  <p>1,400–1,420: Sand (S); very fine to coarse sand with trace granules to small pebbles; well sorted; angular to subrounded; olive brown (2.5Y 4/3); <i>calcareous</i>.</p> |
|  <p>1,280–1,300: Sand (S); fine to coarse sand with trace granules to medium pebbles; moderately sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>slightly calcareous</i>; <i>minor mica</i>.</p> |  <p>1,420–1,440: Sand (S); fine to coarse sand with trace silt; well sorted; angular to subrounded; olive brown (2.5Y 4/3); <i>slightly calcareous</i>; <i>minor mica</i>.</p> |

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| Depth interval (feet) and description | Depth interval (feet) and description |
|---|---|
|  <p>1,440–1,460: Sand (S); fine to coarse sand; well sorted; angular to subangular; light olive brown (2.5Y 5/3); <i>calcareous</i>.</p> |  <p>1,580–1,600: Sand (S); very fine to medium sand; well sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>calcareous</i>; <i>minor mica</i>.</p> |
|  <p>1,460–1,480: Silty sand (zS); fine to coarse sand with silt and minor clay; moderately sorted; subangular to subrounded; olive brown (2.5Y 4/3); <i>calcareous</i>; <i>trace mica</i>.</p> |  <p>1,600–1,610: No sieve sample collected.</p> |
|  <p>1,480–1,500: Sand (S); fine to coarse sand; moderately to well sorted; subangular to subrounded; light olive brown (2.5Y 5/3); <i>slightly calcareous</i>; <i>minor mica</i>.</p> |  <p>1,610–1,620: Silty sand (zS); very fine to medium sand with silt and trace coarse sand; moderately to well sorted; subrounded to rounded; dark gray (2.5Y 4/1); <i>slightly calcareous</i>; <i>micaceous</i>.</p> |
|  <p>1,500–1,520: Sand (S); fine to coarse sand; moderately to well sorted; angular to subangular; olive brown (2.5Y 4/3); <i>slightly calcareous</i>; <i>micaceous</i>.</p> |  <p>1,620–1,640: Silty sand (zS); very fine to medium sand with silt and trace coarse sand; moderately to well sorted; subrounded to rounded; dark gray (2.5Y 4/1); <i>calcareous</i>; <i>micaceous</i>.</p> |
|  <p>1,520–1,540: Sand (S); very fine to medium sand with minor silt; well sorted; angular to subangular; olive brown (2.5Y 4/3); <i>slightly calcareous</i>; <i>micaceous</i>.</p> |  <p>1,640–1,660: Silty sand (zS); fine to coarse sand with silt; moderately to well sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>calcareous</i>; <i>micaceous</i>; <i>trace <1 mm shell fragments</i>.</p> |
|  <p>1,540–1,560: Sand (S); very fine to coarse sand; moderately to well sorted; angular to subangular; dark grayish brown (2.5Y 4/2); <i>calcareous</i>; <i>slightly micaceous</i>.</p> |  <p>1,660–1,680: Silty sand (zS); very fine to medium sand with silt; moderately to well sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>calcareous</i>; <i>micaceous</i>.</p> |
|  <p>1,560–1,580: Sand (S); very fine to coarse sand; well sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>slightly calcareous</i>.</p> |  <p>1,680–1,700: Silty sand (zS); very fine to medium sand with silt; moderately to well sorted; subangular to subrounded; dark grayish brown (2.5Y 4/2); <i>calcareous</i>; <i>micaceous</i>; <i>trace <1 mm shell fragments</i>.</p> |

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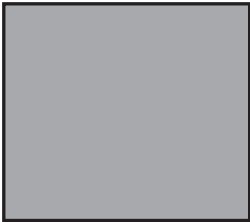
| Depth interval (feet) and description | |
|---|--|
|  | 1,700–1,720: No sieve sample collected; <i>cores 19, 20, 21, 22, and 23.</i> |

Figure 18M. Lithologic descriptions and photographs of **sieve** drill cuttings collected from the borehole at 16 USGS multiple-depth, monitoring-well sites in San Diego County, California, 1995, 2003–2017: (A) SDCD; (B) SDSY; (C) SDLH; (D) SDAQ; (E) SDCP; (F) SDBP; (G) SDHF; (H) SDEP; (I) SDNB; (J) SDSW; (K) SDMC; (L) SDLD; **(M) SDCC**; (N) SDOR; (O) SDOT; and (P) SDBW. —Continued.

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SDCC Sieve

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