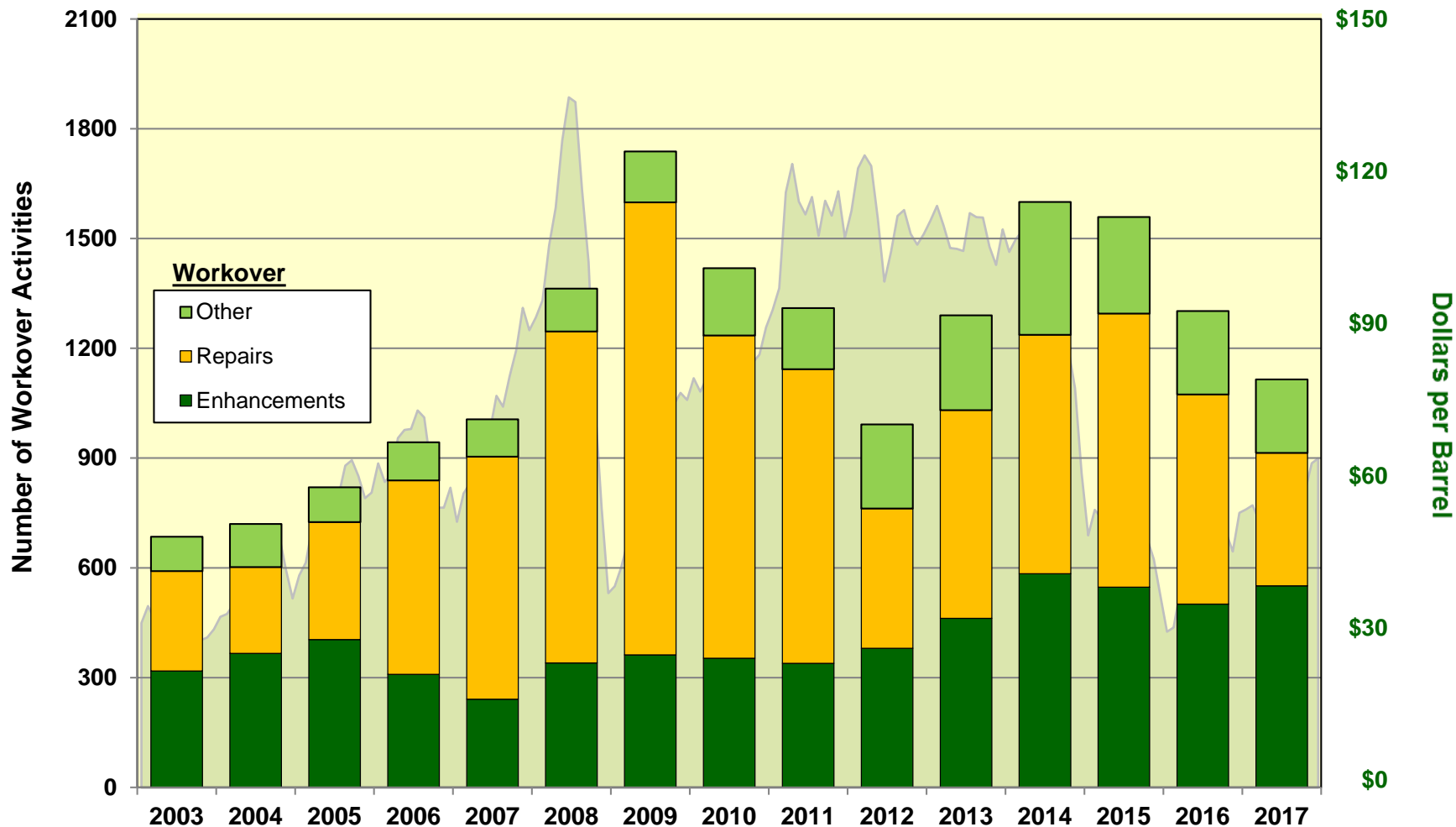


# Workover Activities (2003 – 2017\*)

## Statewide: Conventional Oil and Gas Only\*\*

Background: West Coast Monthly Average Spot Price for Alaska North Slope Crude Oil (Dollars per Barrel)



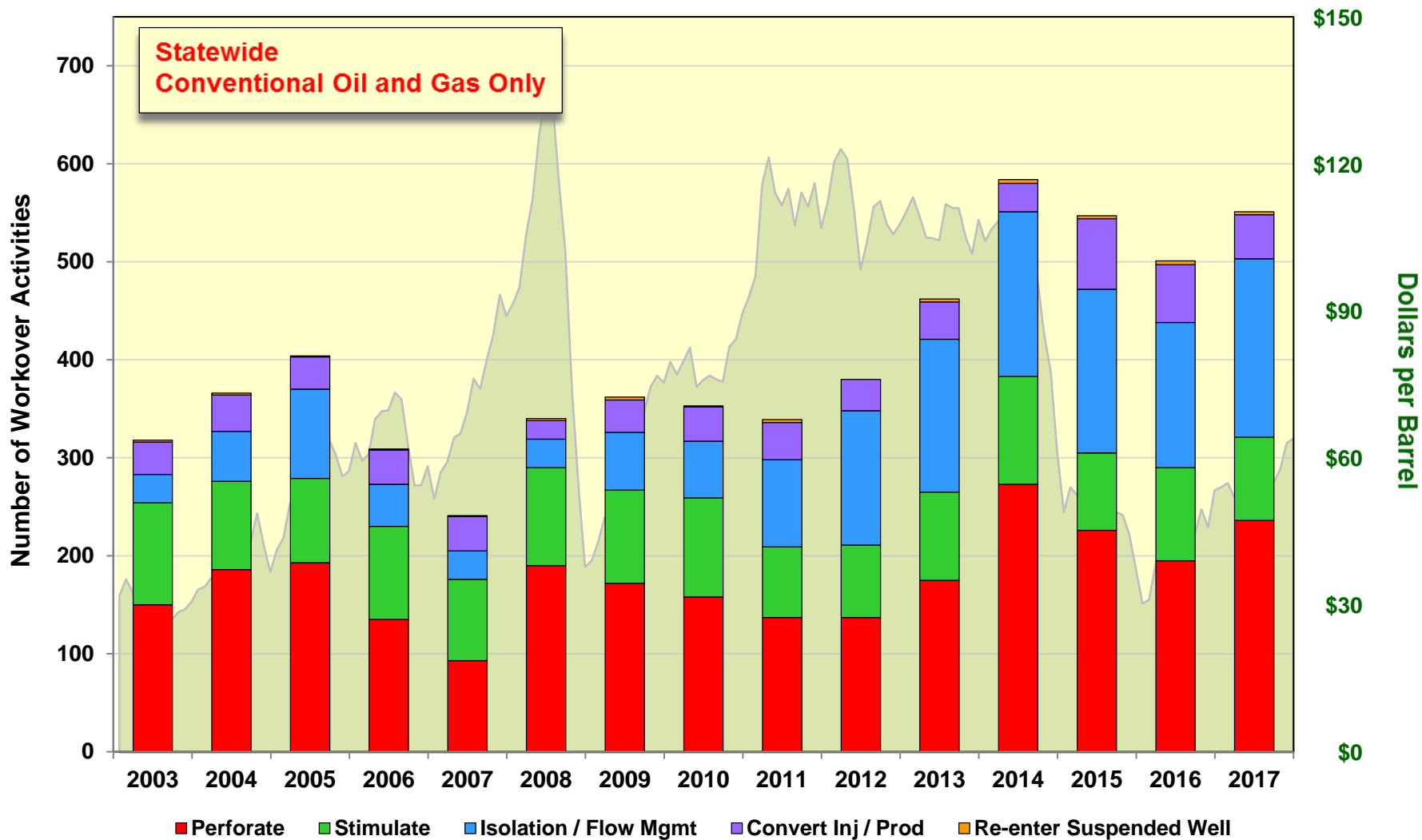
Total Activities since 2003 = 17,917

\*\*Does not include coal- or shale-bed natural gas, or gas hydrate wells

# Workover Activity by Type (2003 – 2017\*)

## Alaska Wells: Production Enhancements

Background: West Coast Monthly Average Spot Price for Alaska North Slope Crude Oil (Dollars per Barrel)



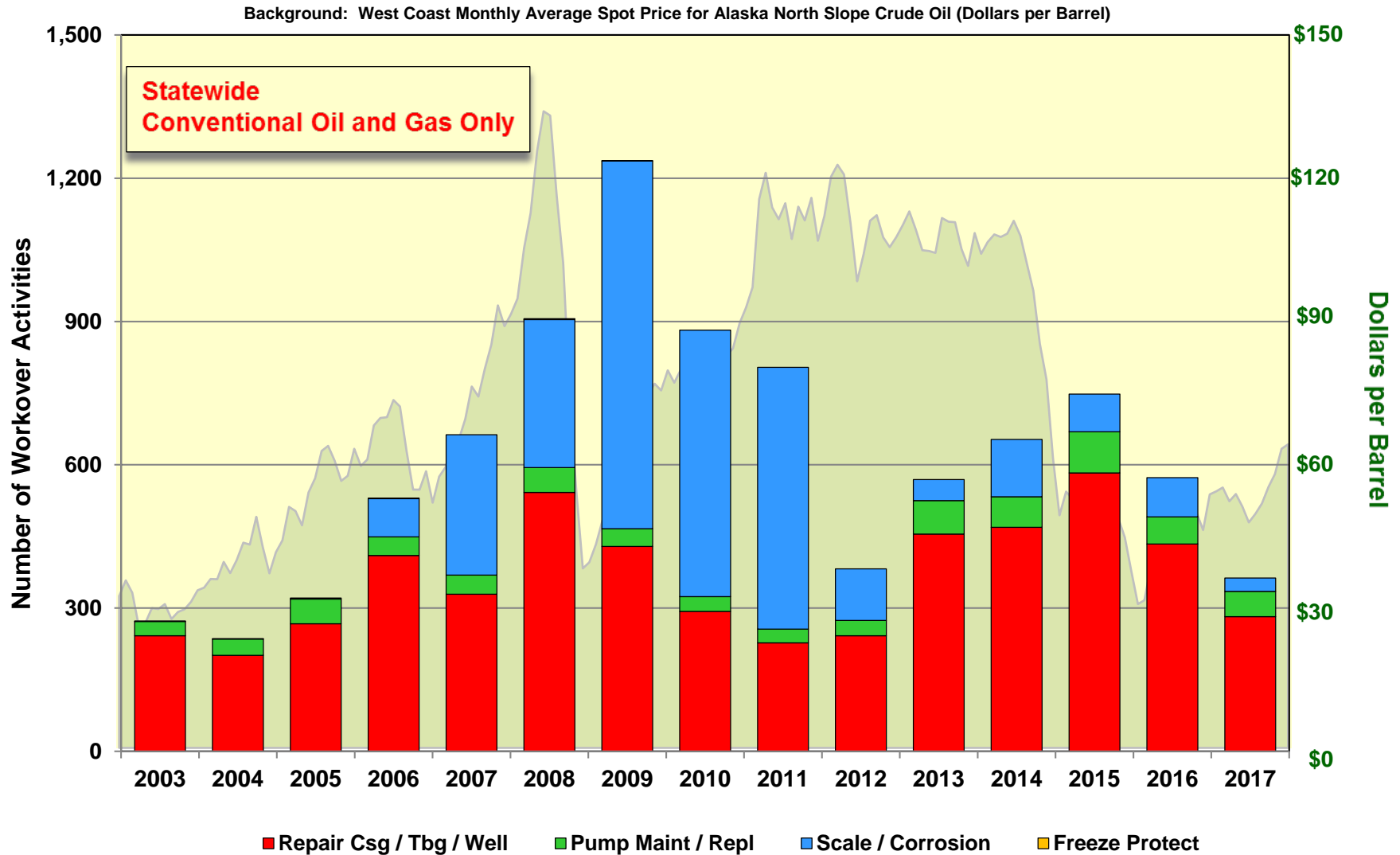
Total Maintenance Activities Since 2003 = 6,105

\*\*Does not include coal- or shale-bed natural gas, or gas hydrate wells

\* Preliminary Count February 28, 2018

# Workover Activity by Type (2003 – 2017\*)

## Alaska Wells: Maintenance



# Workover Activities (2003 – 2017\*)

Statewide: Conventional Oil and Gas Only\*\*

| Operation Type     | 2003       | 2004       | 2005       | 2006       | 2007         | 2008         | 2009         | 2010         | 2011         | 2012         | 2013         | 2014         | 2015         | 2016         | 2017         | Grand Total   |
|--------------------|------------|------------|------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Enhancement        | 321        | 367        | 405        | 310        | 241          | 348          | 366          | 360          | 345          | 387          | 468          | 588          | 547          | 501          | 551          | 6105          |
| Maintenance        | 273        | 236        | 321        | 530        | 663          | 906          | 1237         | 882          | 804          | 382          | 569          | 653          | 748          | 573          | 363          | 9140          |
| Other              | 94         | 118        | 95         | 109        | 102          | 117          | 139          | 184          | 168          | 231          | 259          | 363          | 264          | 228          | 201          | 2672          |
| <b>Grand Total</b> | <b>688</b> | <b>721</b> | <b>821</b> | <b>949</b> | <b>1,006</b> | <b>1,371</b> | <b>1,742</b> | <b>1,426</b> | <b>1,317</b> | <b>1,000</b> | <b>1,296</b> | <b>1,604</b> | <b>1,558</b> | <b>1,288</b> | <b>1,115</b> | <b>17,917</b> |

Total Activities since 2003 = 17,917

\*\*Does not include coal- or shale-bed natural gas, or gas hydrate wells

## Workover Operations Class and Category Table

| Definition                     | Class                     | Category    |
|--------------------------------|---------------------------|-------------|
| Acid Treatment                 | Stimulate                 | Enhancement |
| Annulus Corrosion Inhibitor    | Scale / Corrosion         | Maintenance |
| Capillary String               | Stimulate                 | Enhancement |
| Cement Squeeze                 | Isolation / Flow Mgmt     | Enhancement |
| Cement Squeeze                 | Isolation / Flow Mgmt     | Enhancement |
| Cement Squeeze                 | Isolation / Flow Mgmt     | Enhancement |
| Control Flow Mgt Zone          | Isolation / Flow Mgmt     | Enhancement |
| Convert to Injection           | Convert Inj / Prod        | Enhancement |
| Convert to Producer            | Convert Inj / Prod        | Enhancement |
| ESP Maintenance or Replacement | Pump Maint / Repl         | Maintenance |
| Freeze Protect Well            | Freeze Protect            | Maintenance |
| Gravel Pack Maintenance        | Stimulate                 | Enhancement |
| Isolation Sleeve               | Isolation / Flow Mgmt     | Enhancement |
| Jet Pump Maint or Replacement  | Pump Maint / Repl         | Maintenance |
| K Valve Maintenance            | Repair Csg / Tbg / Well   | Maintenance |
| Kill String Maintenance        | Repair Csg / Tbg / Well   | Maintenance |
| Outer Annulus Cement Maint     | Repair Csg / Tbg / Well   | Maintenance |
| Packer Maintenance             | Repair Csg / Tbg / Well   | Maintenance |
| Perforate New Pool             | Perforate                 | Enhancement |
| Perforated                     | Perforate                 | Enhancement |
| Plug Milling Operations        | Other                     | Enhancement |
| Plug Perforations              | Isolation / Flow Mgmt     | Enhancement |
| Re-enter Op Shutdown Well      | Re-enter Op Shutdown Well | Enhancement |
| Re-enter Suspended Well        | Re-enter Suspended Well   | Enhancement |
| Repair / Replace Casing        | Repair Csg / Tbg / Well   | Maintenance |
| Repair / Replace Tubing        | Repair Csg / Tbg / Well   | Maintenance |
| Repair Well                    | Repair Csg / Tbg / Well   | Maintenance |
| Replace Tubing                 | Repair Csg / Tbg / Well   | Maintenance |
| Rod Pump Maint or Replacement  | Repair Csg / Tbg / Well   | Maintenance |
| Scale Inhibitor Squeeze        | Scale / Corrosion         | Maintenance |
| Scale Removal                  | Scale / Corrosion         | Maintenance |
| Stimulate                      | Stimulate                 | Enhancement |
| Tubing Patch                   | Repair Csg / Tbg / Well   | Maintenance |
| Velocity String                | Stimulate                 | Enhancement |
| Water Wash                     | Stimulate                 | Enhancement |
| Well Fractured                 | Stimulate                 | Enhancement |

## Operations Included in “Other” Class and Category

| Definition              | Class | Category |
|-------------------------|-------|----------|
| Abandon                 | Other | Other    |
| Annular Disposal        | Other | Other    |
| Change Approved Program | Other | Other    |
| Change Completion Type  | Other | Other    |
| Change Method Operation | Other | Other    |
| Modify Well Marker      | Other | Other    |
| Operational Shutdown    | Other | Other    |
| Other                   | Other | Other    |
| Surface Plug            | Other | Other    |
| Suspend                 | Other | Other    |
| Temperature Survey      | Other | Other    |
| Well Secure or Plug Set | Other | Other    |
| Well Testing Completed  | Other | Other    |

## West Coast Monthly Average Spot Price for Alaskan North Slope Crude Oil (Dollars per Barrel)

| YEAR | Jan      | Feb      | Mar      | Apr      | May      | Jun      | Jul      | Aug      | Sep      | Oct      | Nov      | Dec      |
|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1988 | \$14.23  | \$14.03  | \$13.79  | \$15.29  | \$14.86  | \$14.14  | \$13.70  | \$13.63  | \$12.58  | \$11.34  | \$11.36  | \$13.23  |
| 1989 | \$15.11  | \$15.99  | \$17.25  | \$19.37  | \$17.64  | \$17.00  | \$16.78  | \$16.04  | \$16.62  | \$17.27  | \$17.49  | \$19.07  |
| 1990 | \$20.00  | \$19.30  | \$17.91  | \$14.82  | \$14.38  | \$13.20  | \$15.55  | \$25.99  | \$32.16  | \$31.53  | \$28.79  | \$24.02  |
| 1991 | \$20.57  | \$15.74  | \$17.02  | \$17.56  | \$16.67  | \$16.36  | \$17.25  | \$17.18  | \$17.37  | \$18.47  | \$17.57  | \$14.83  |
| 1992 | \$14.92  | \$15.30  | \$15.50  | \$16.96  | \$18.03  | \$20.20  | \$19.40  | \$17.97  | \$18.46  | \$18.71  | \$17.46  | \$16.33  |
| 1993 | \$15.62  | \$16.78  | \$17.35  | \$18.17  | \$17.47  | \$16.02  | \$14.84  | \$15.42  | \$14.98  | \$15.39  | \$13.07  | \$10.29  |
| 1994 | \$11.66  | \$12.59  | \$12.91  | \$14.96  | \$16.47  | \$16.43  | \$16.52  | \$16.66  | \$16.11  | \$16.02  | \$16.71  | \$15.38  |
| 1995 | \$16.16  | \$17.14  | \$17.31  | \$18.36  | \$18.43  | \$17.43  | \$16.23  | \$16.72  | \$16.65  | \$15.96  | \$15.88  | \$16.94  |
| 1996 | \$17.23  | \$17.78  | \$20.40  | \$22.04  | \$19.65  | \$18.98  | \$19.79  | \$19.90  | \$21.69  | \$22.60  | \$21.50  | \$23.66  |
| 1997 | \$23.57  | \$21.03  | \$20.07  | \$18.54  | \$19.41  | \$17.30  | \$17.48  | \$17.98  | \$18.09  | \$19.59  | \$18.33  | \$16.39  |
| 1998 | \$14.79  | \$13.39  | \$12.25  | \$12.41  | \$12.31  | \$11.62  | \$12.92  | \$12.49  | \$14.13  | \$13.38  | \$11.47  | \$9.39   |
| 1999 | \$10.69  | \$10.43  | \$13.07  | \$15.64  | \$15.86  | \$15.82  | \$18.16  | \$20.08  | \$22.96  | \$21.83  | \$23.65  | \$24.54  |
| 2000 | \$25.74  | \$27.65  | \$28.01  | \$23.83  | \$27.15  | \$29.62  | \$27.63  | \$29.40  | \$32.25  | \$31.56  | \$32.74  | \$23.72  |
| 2001 | \$24.37  | \$26.02  | \$24.70  | \$25.55  | \$26.70  | \$25.82  | \$24.60  | \$24.12  | \$23.21  | \$19.45  | \$17.23  | \$16.69  |
| 2002 | \$17.52  | \$19.14  | \$22.76  | \$24.99  | \$25.87  | \$24.16  | \$25.82  | \$27.39  | \$28.76  | \$27.53  | \$24.69  | \$28.03  |
| 2003 | \$31.91  | \$35.20  | \$32.59  | \$25.59  | \$26.19  | \$29.35  | \$29.17  | \$30.22  | \$27.09  | \$28.55  | \$29.11  | \$30.67  |
| 2004 | \$33.10  | \$33.66  | \$35.50  | \$35.43  | \$39.07  | \$36.73  | \$39.44  | \$43.12  | \$42.71  | \$48.56  | \$42.15  | \$36.66  |
| 2005 | \$41.12  | \$43.59  | \$50.63  | \$49.75  | \$46.77  | \$53.67  | \$56.67  | \$62.40  | \$63.47  | \$60.37  | \$56.11  | \$57.17  |
| 2006 | \$62.85  | \$59.26  | \$60.61  | \$67.74  | \$69.32  | \$69.50  | \$73.10  | \$71.74  | \$62.33  | \$54.27  | \$54.26  | \$58.13  |
| 2007 | \$51.52  | \$57.00  | \$59.01  | \$63.92  | \$64.76  | \$69.11  | \$75.93  | \$73.83  | \$79.72  | \$84.77  | \$92.98  | \$88.64  |
| 2008 | \$91.16  | \$94.42  | \$105.06 | \$112.37 | \$125.41 | \$133.78 | \$132.87 | \$115.98 | \$101.86 | \$73.65  | \$53.94  | \$37.70  |
| 2009 | \$39.01  | \$42.78  | \$47.75  | \$46.56  | \$58.23  | \$69.80  | \$64.53  | \$71.52  | \$69.20  | \$74.28  | \$76.52  | \$75.12  |
| 2010 | \$79.34  | \$76.74  | \$79.45  | \$82.23  | \$74.23  | \$75.66  | \$76.53  | \$75.78  | \$75.27  | \$82.41  | \$83.93  | \$89.75  |
| 2011 | \$92.56  | \$96.79  | \$115.34 | \$120.86 | \$113.57 | \$111.08 | \$114.47 | \$106.95 | \$113.74 | \$110.84 | \$115.58 | \$106.55 |
| 2012 | \$111.87 | \$119.65 | \$122.68 | \$120.95 | \$110.55 | \$98.06  | \$103.75 | \$110.79 | \$111.94 | \$107.30 | \$105.24 | \$107.31 |
| 2013 | \$109.88 | \$112.76 | \$108.93 | \$104.58 | \$104.42 | \$104.01 | \$111.34 | \$110.57 | \$110.48 | \$104.82 | \$101.28 | \$108.19 |
| 2014 | \$103.82 | \$106.30 | \$107.91 | \$107.36 | \$108.06 | \$110.76 | \$107.63 | \$101.78 | \$96.05  | \$84.91  | \$77.41  | \$60.90  |
| 2015 | \$48.87  | \$53.85  | \$52.28  | \$58.49  | \$64.37  | \$64.40  | \$56.20  | \$48.26  | \$48.83  | \$48.20  | \$44.24  | \$37.15  |
| 2016 | \$30.22  | \$31.14  | \$38.10  | \$41.79  | \$46.61  | \$47.40  | \$44.07  | \$44.17  | \$44.51  | \$49.39  | \$45.76  | \$53.26  |
| 2017 | \$53.90  | \$54.72  | \$51.81  | \$53.34  | \$50.72  | \$47.38  | \$49.18  | \$51.37  | \$54.82  | \$57.55  | \$62.86  | \$63.79  |

Source: Alaska Department of Revenue, Tax Division, 2017, *ANS West Coast Average Spot Price (for the period from 1988 through 2017)*, available online at: <http://www.tax.alaska.gov/programs/oil/prevaling/ans.aspx>.