Oil Quality Bank

The Trans-Alaska Pipeline System carries crude oil from Prudhoe Bay on Alaska’s North Slope 800 miles to the port of Valdez, on the southern coast of Alaska. The pipeline carries a mixture of different qualities of oil. Quality of oil is measured in API gravity degrees – the higher the degrees APT, the higher the quality. Because the pipeline mixed oils of different degrees, shippers in Valdez receive oil of different quality than they purchased. To compensate shippers, a “Quality Bank” was established. The owners of the pipeline proposed compensating shippers 15 cents per barrel for every degree below the level to which the shippers agreed. However, a refinery near Fairbanks, which receives 26-degree oil and mixes it with 20-degree oil, objected to the proposal. It suggested a 3.09 – to 5.35-cent differential. Because oil carriers are required to establish “just and reasonable” rates, a hearing before an administrative law judge was held. At the hearing, an expert hired by the shippers produced the accompanying table to show the relationship between quality and price per barrel of Mideast oil. Draw the least squares line to determine the appropriate compensation. (Source: M.O. Finkelstein and B. Levin, *Statistics for Lawyers*. Springer-Verlag, 1990, 338-339)

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| --- | --- | --- | --- | --- | --- | --- |
| Mideast Oil Degrees API | | | | | | |
| 27.0 | 28.5 | 30.8 | 31.3 | 31.9 | 34.5 | 34.0 |
| 34.7 | 37.0 | 41.1 | 41.0 | 38.8 | 39.3 |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Price | | | | | | |
| 12.02 | 12.04 | 12.32 | 12.27 | 12.49 | 12.70 | 12.80 |
| 13.00 | 13.00 | 13.17 | 13.19 | 13.22 | 13.27 |  |