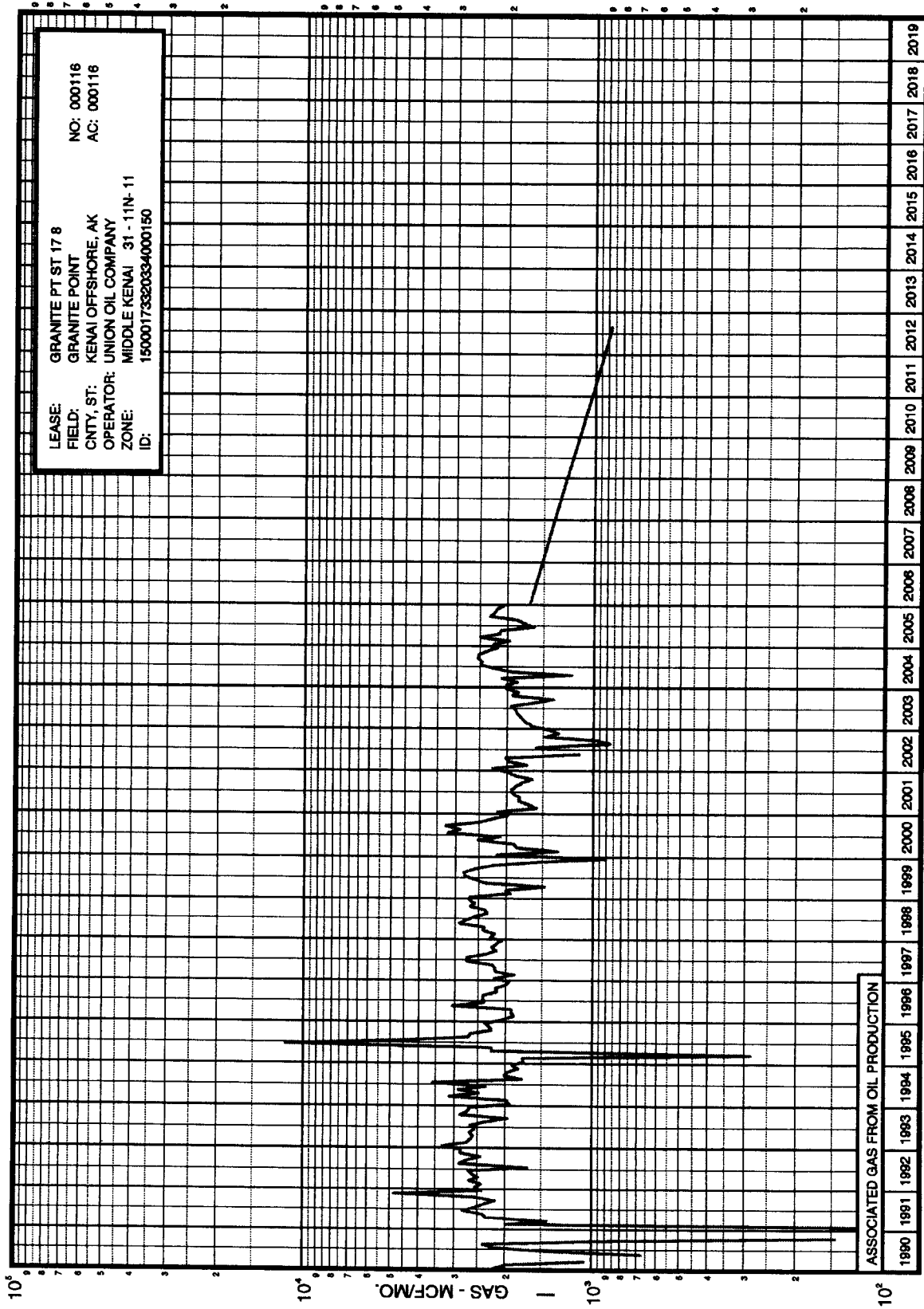


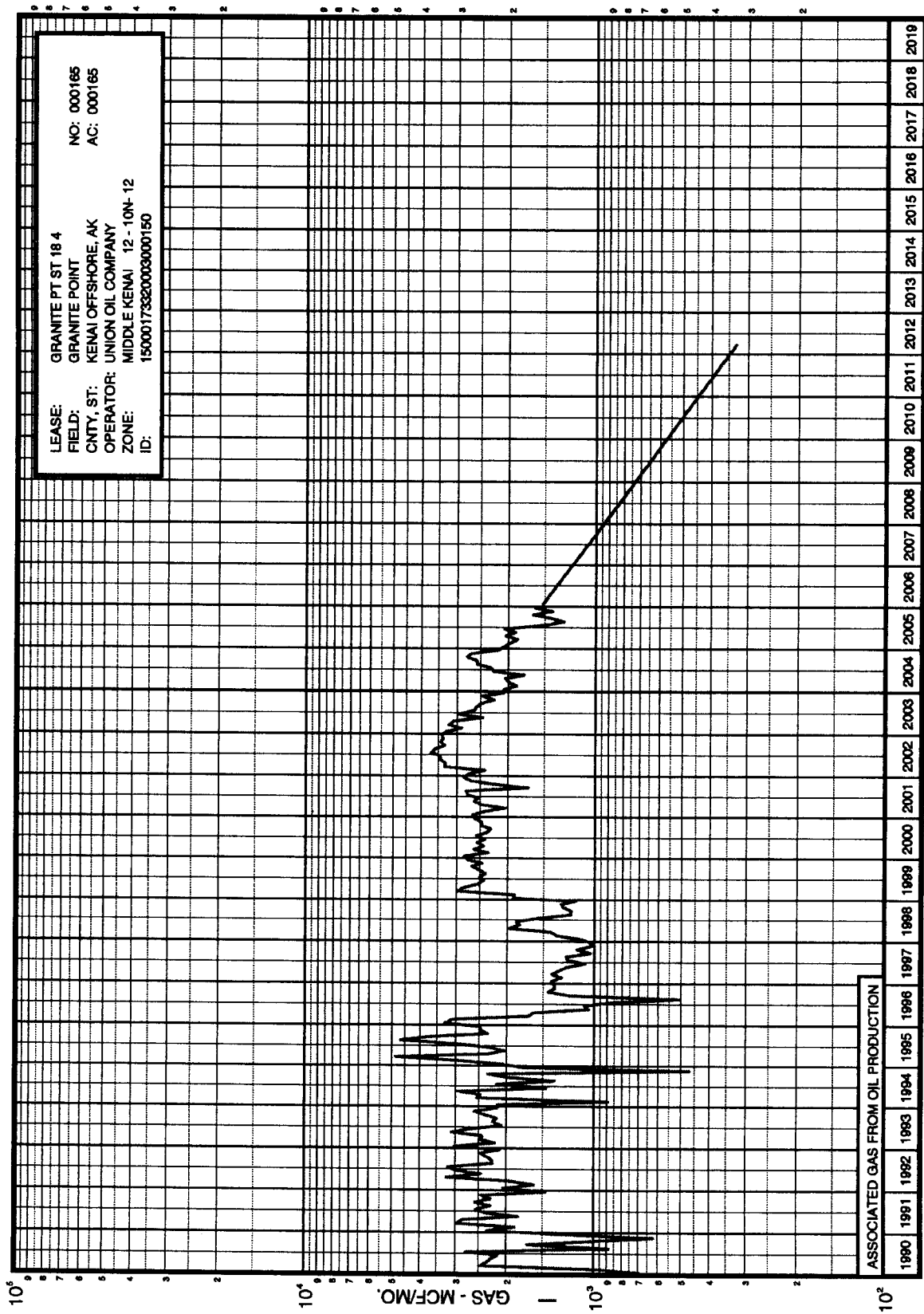
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.27



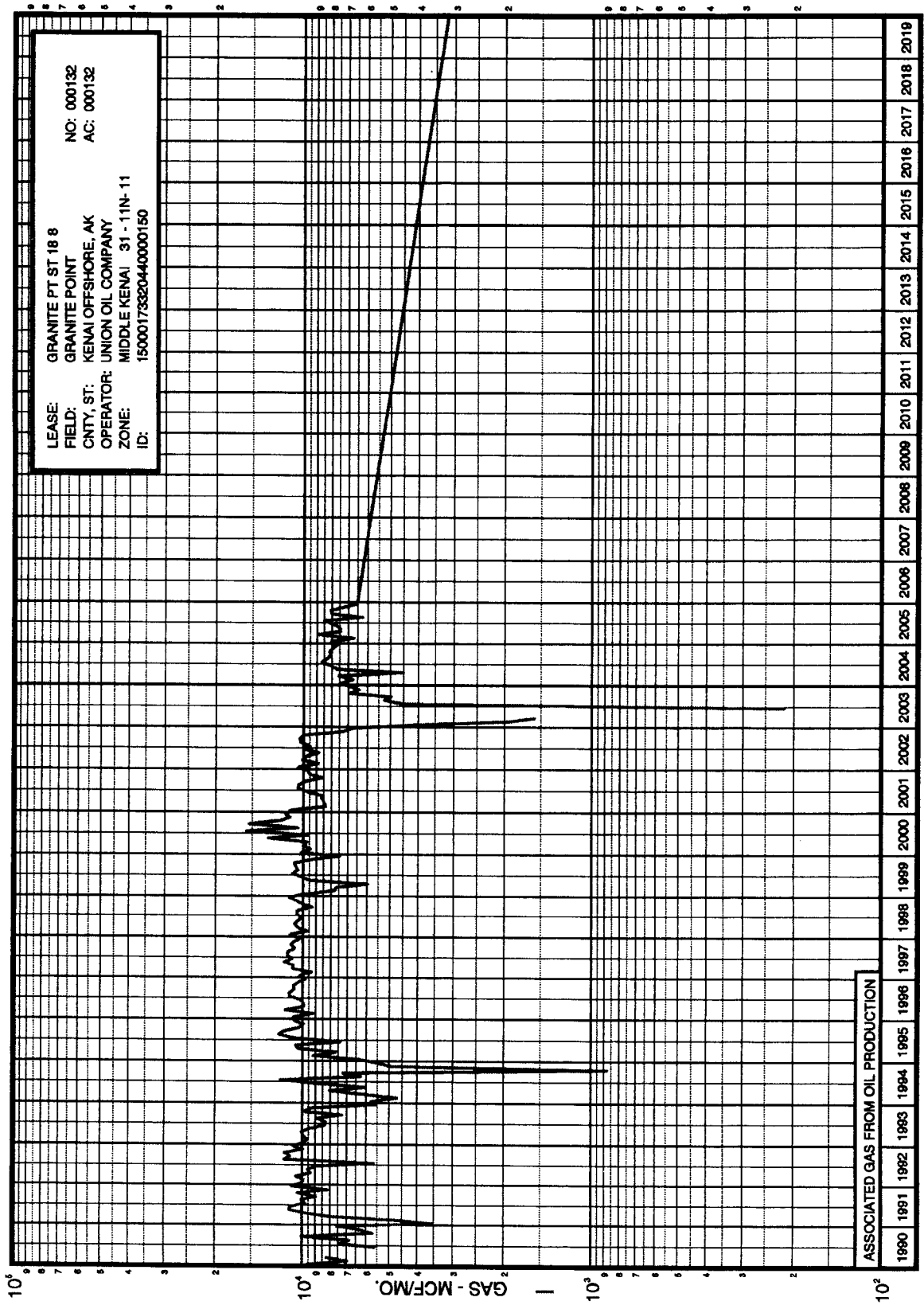
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.28



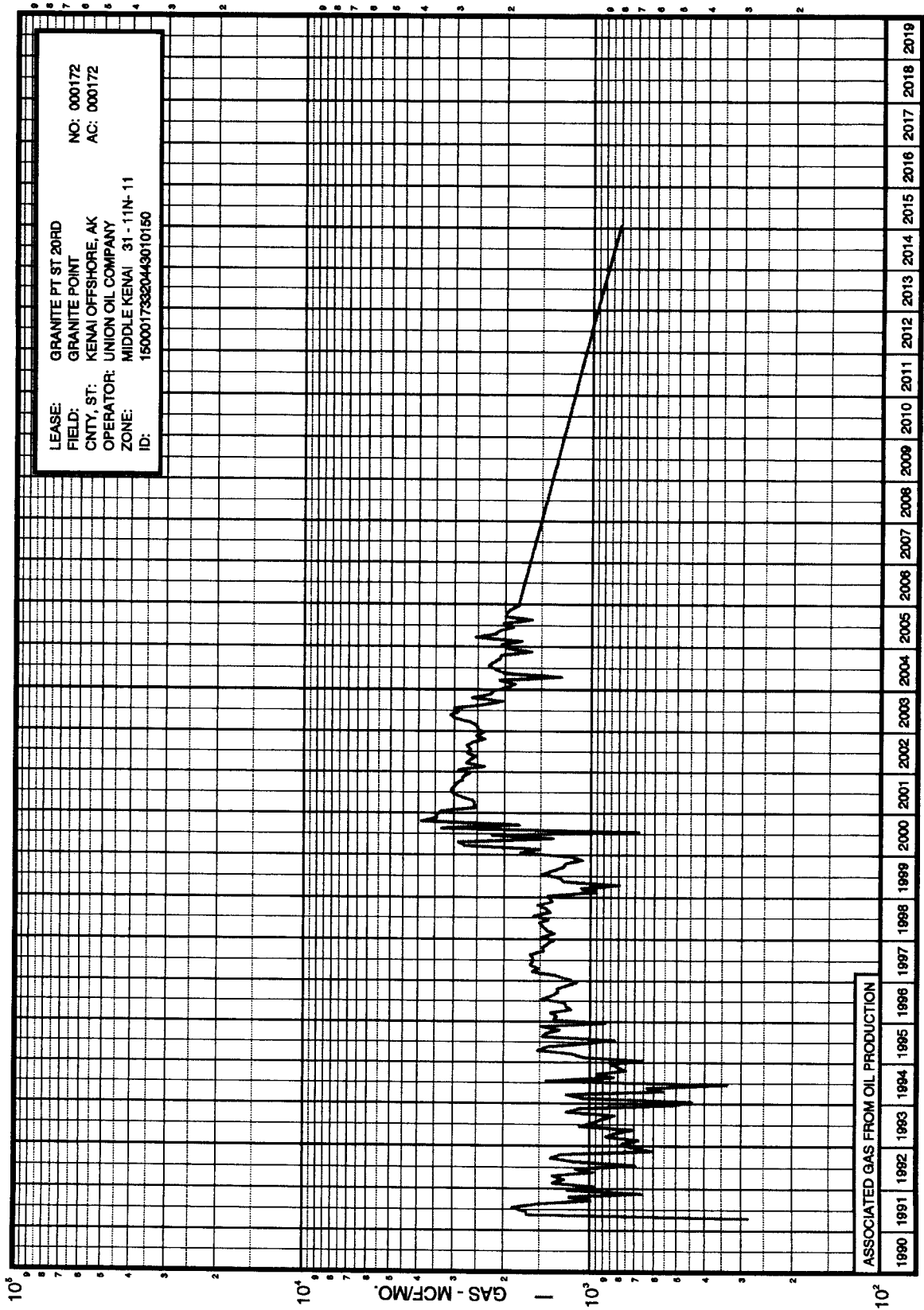
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.29



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

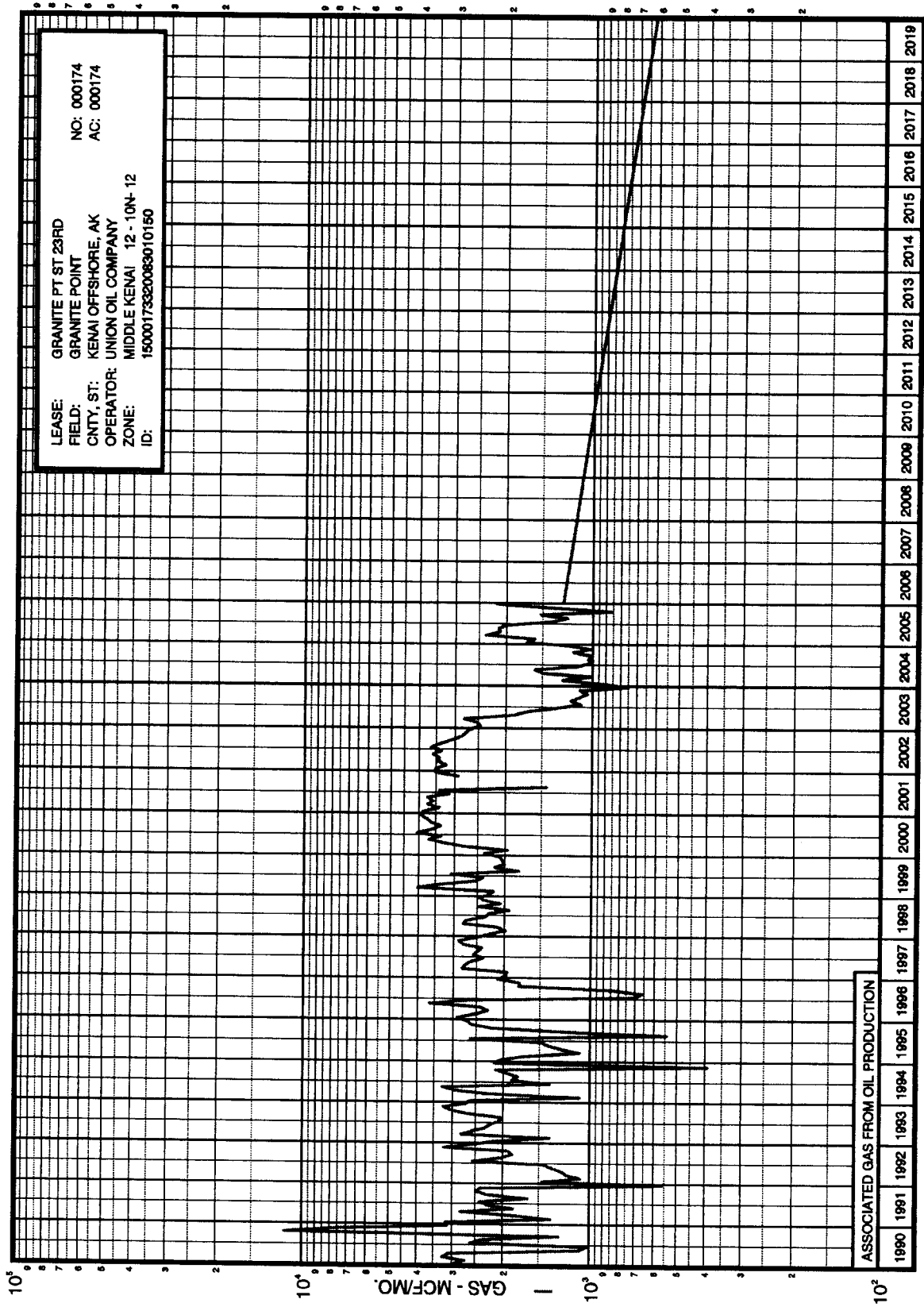
Figure 10.4.1.30



LEASE: GRANITE PT ST 20RD NO: 000172  
 FIELD: GRANITE POINT AC: 000172  
 CNTY, ST: KENAI OFFSHORE, AK  
 OPERATOR: UNION OIL COMPANY  
 ZONE: MIDDLE KENAI 31-11N-11  
 ID: 15000173320443010150

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.31

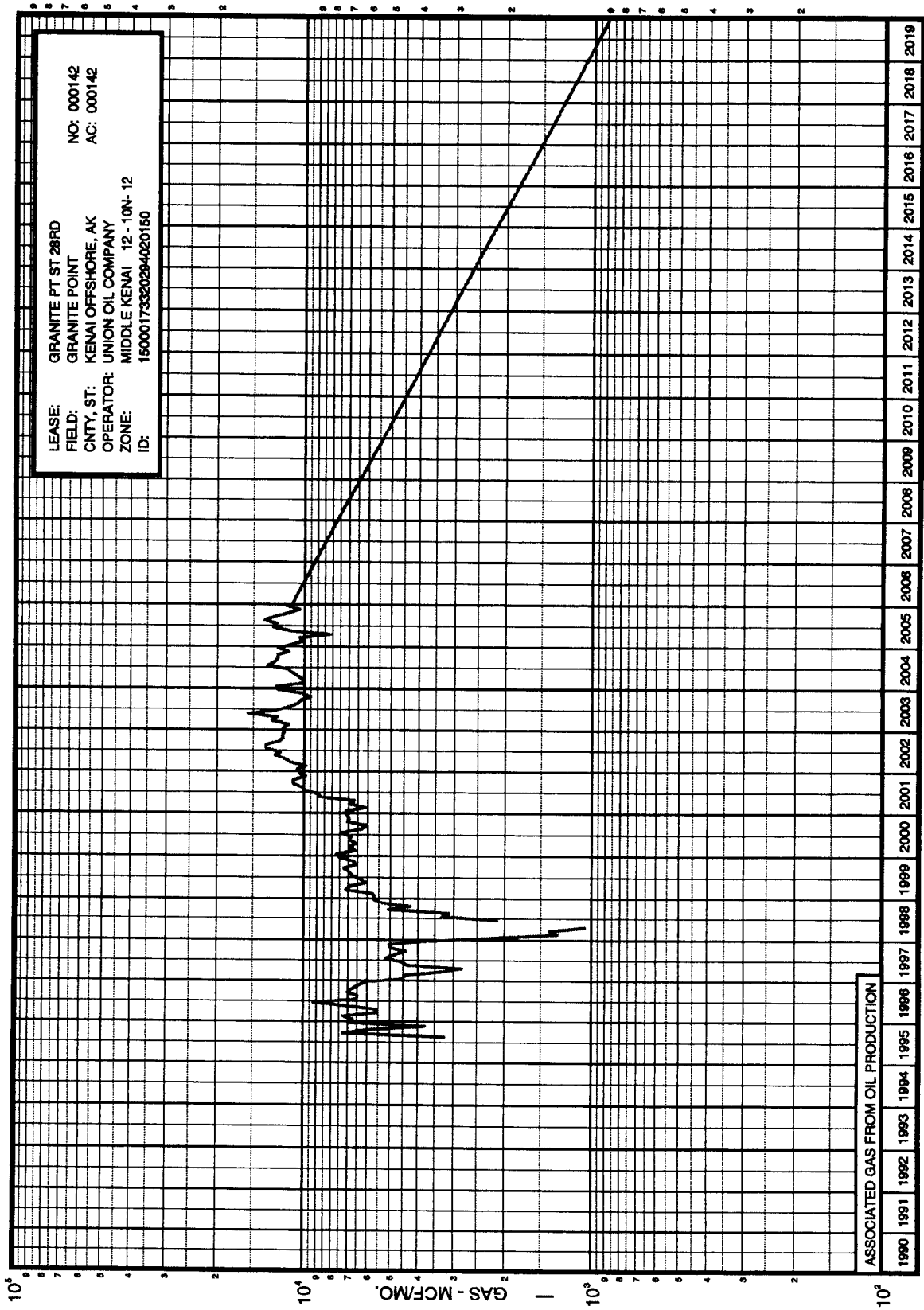


LEASE: GRANITE PT ST 23RD NO: 000174  
 FIELD: GRANITE POINT AC: 000174  
 CNTY, ST: KENAI OFFSHORE, AK  
 OPERATOR: UNION OIL COMPANY  
 ZONE: MIDDLE KENAI 12 - 10N- 12  
 ID: 15000173320083010150

ASSOCIATED GAS FROM OIL PRODUCTION

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

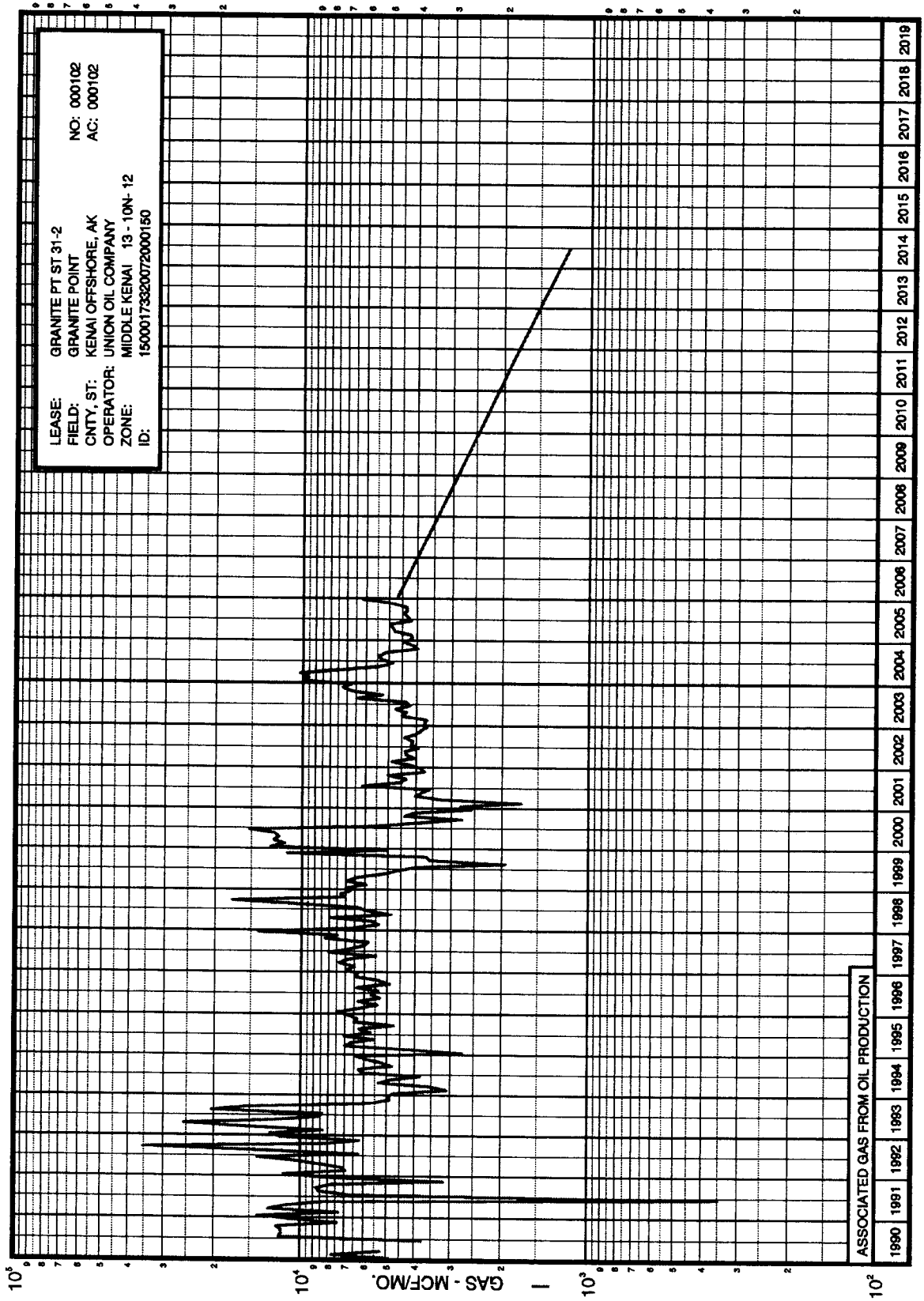
Figure 10.4.1.32



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

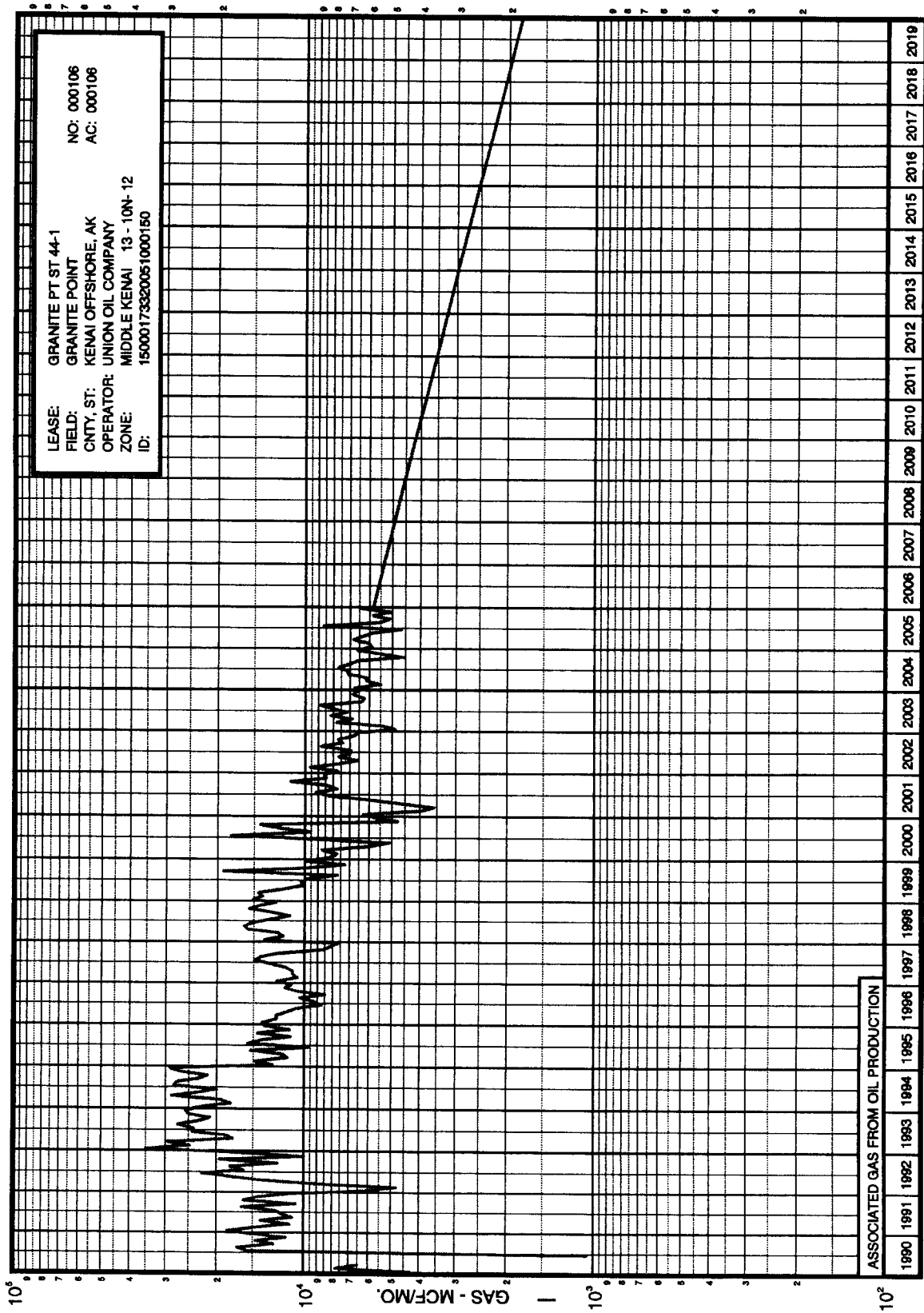
Figure 10.4.1.33





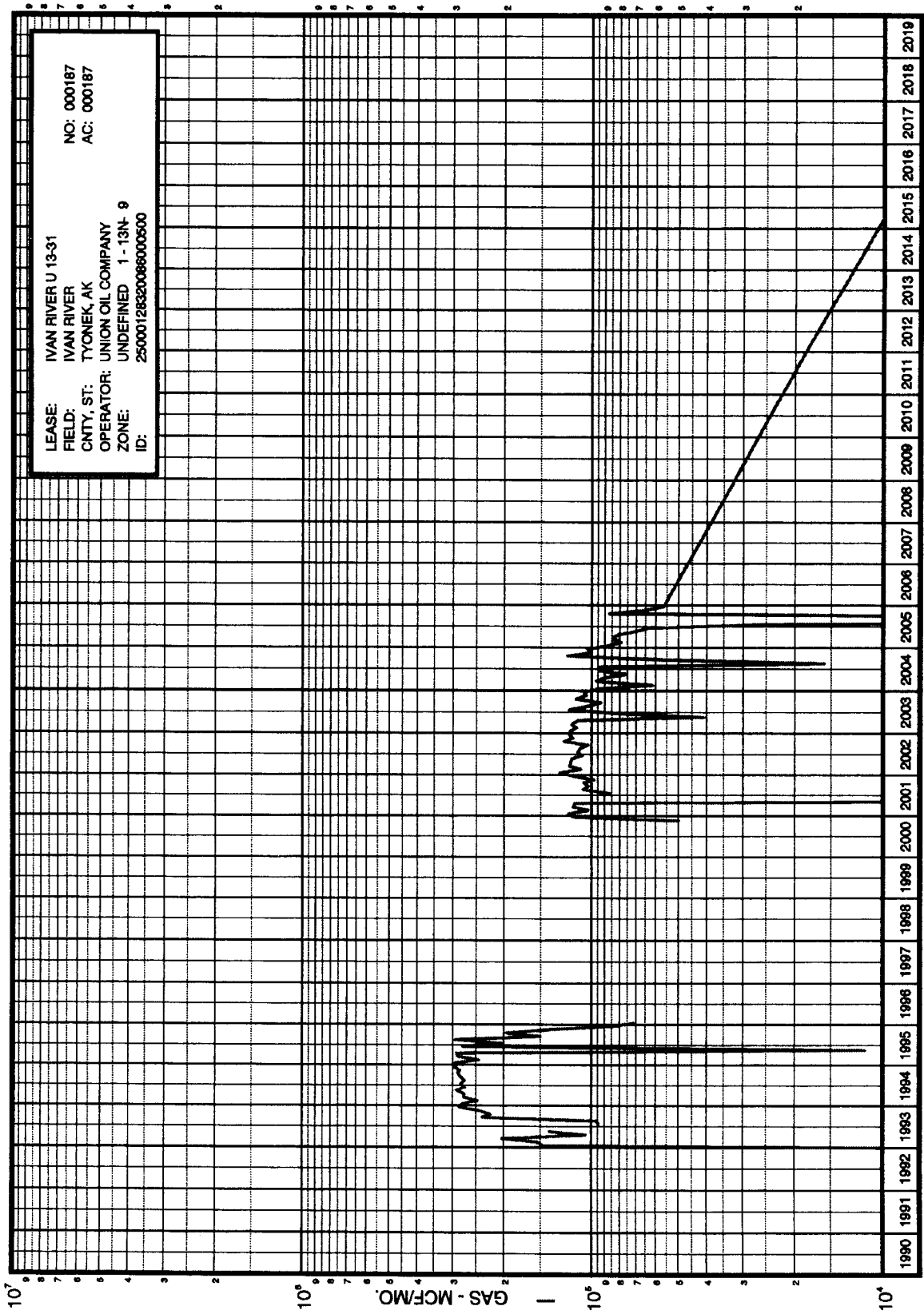
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.34



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

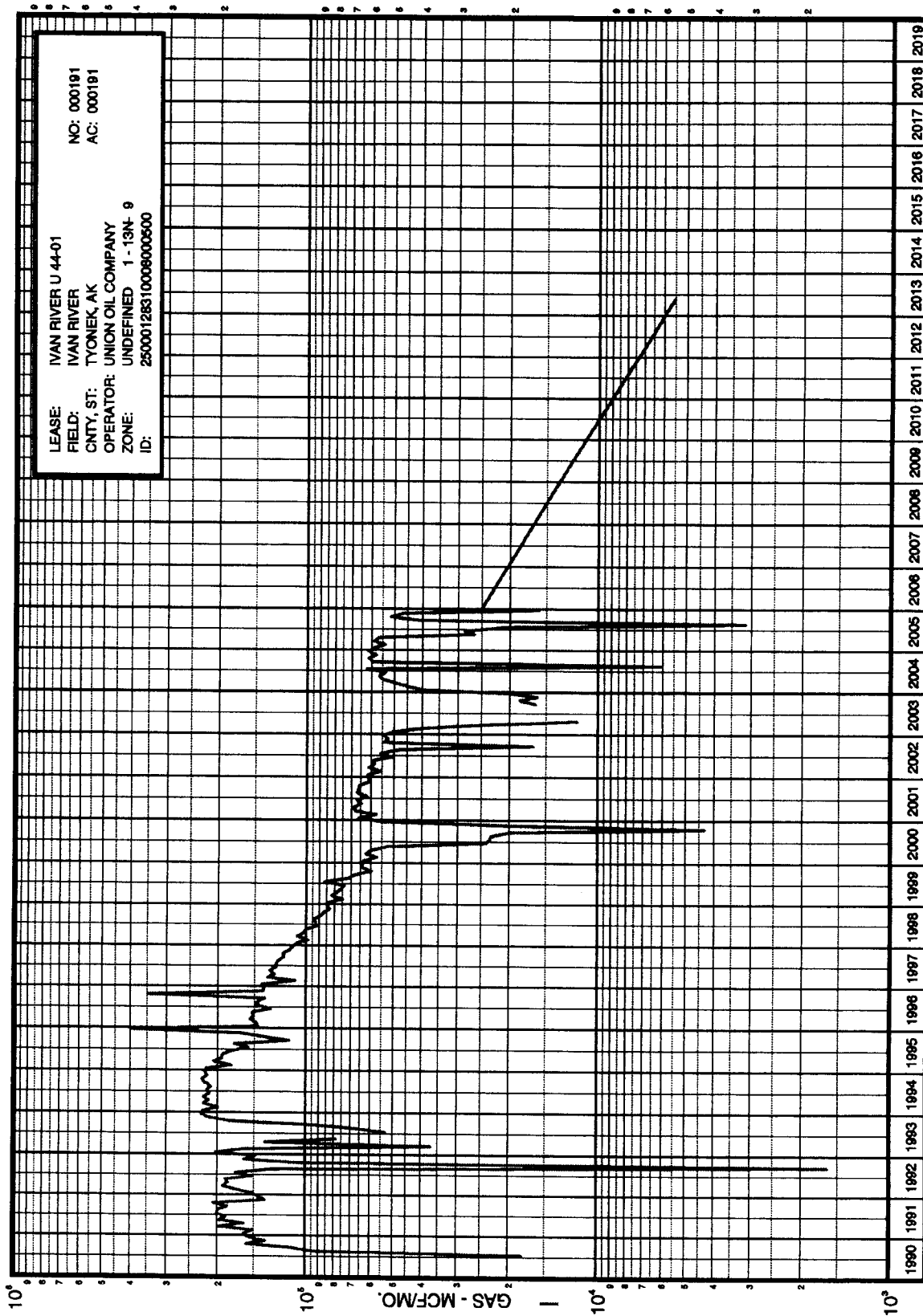
Figure 10.4.1.35



LEASE: IVAN RIVER U 13-31  
 FIELD: IVAN RIVER  
 CNTY, ST: TYONEK, AK  
 OPERATOR: UNION OIL COMPANY  
 ZONE: UNDEFINED 1 - 13N- 9  
 ID: 25000126320066000500  
 NO: 000187  
 AC: 000187

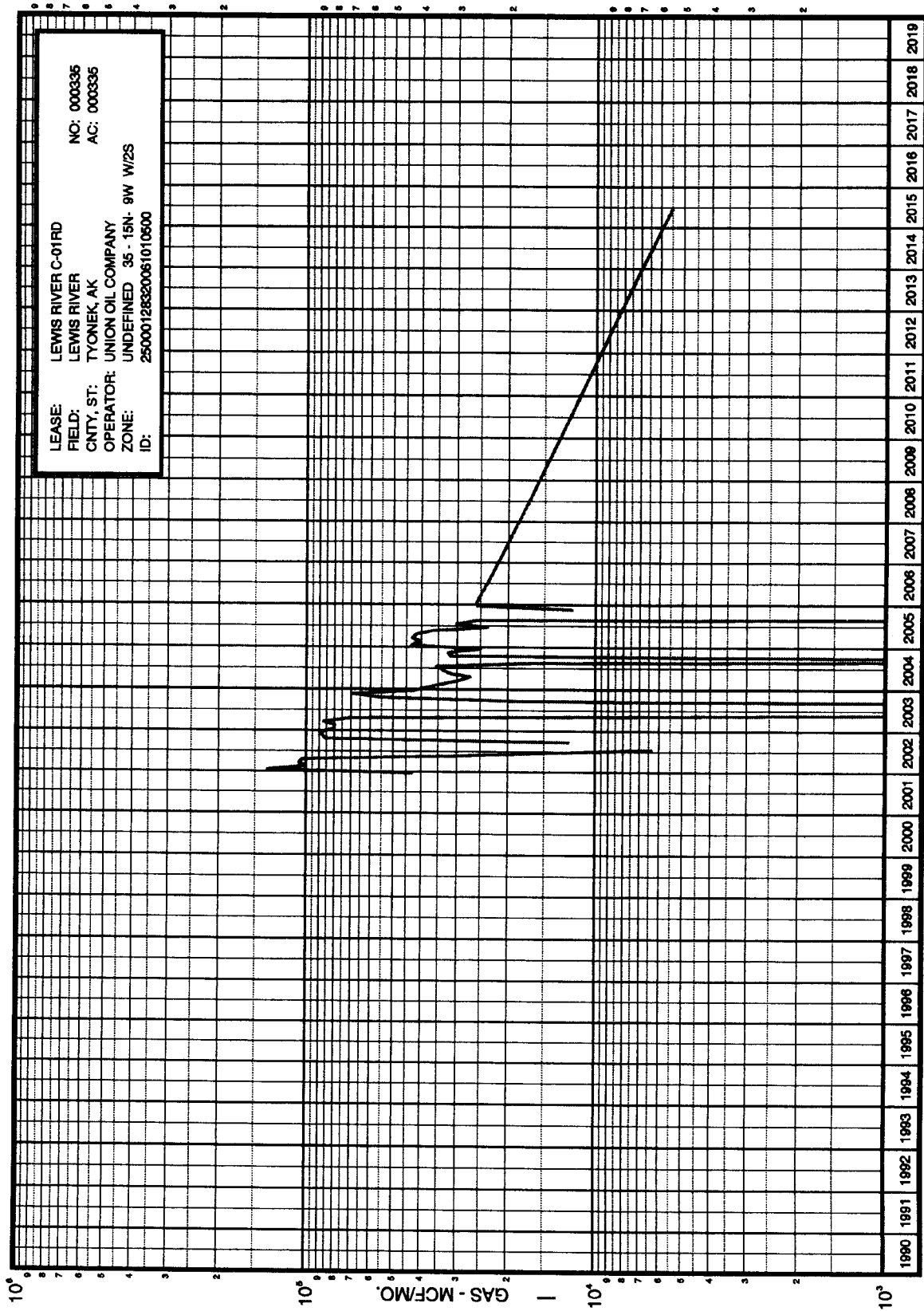
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.36



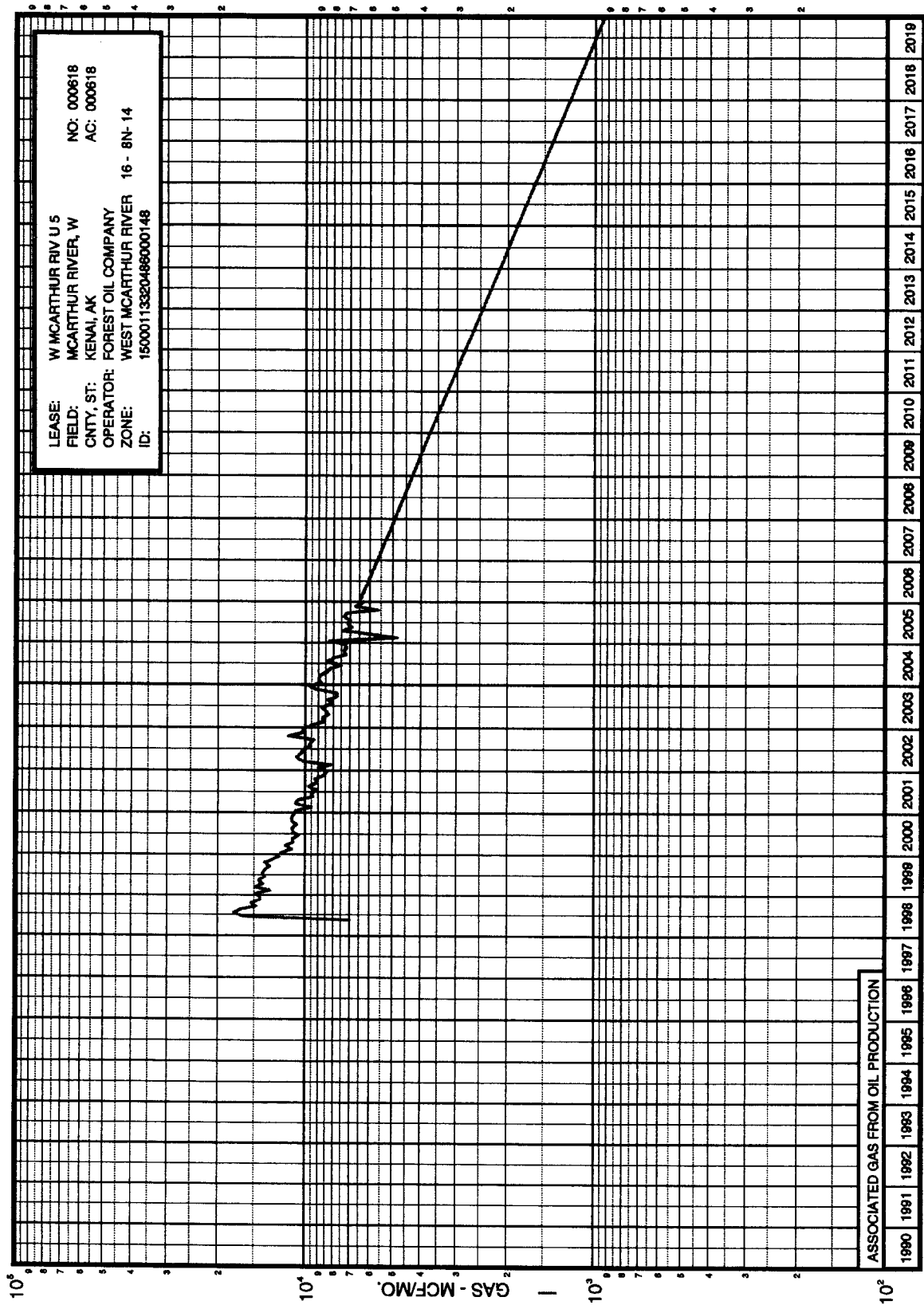
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.37



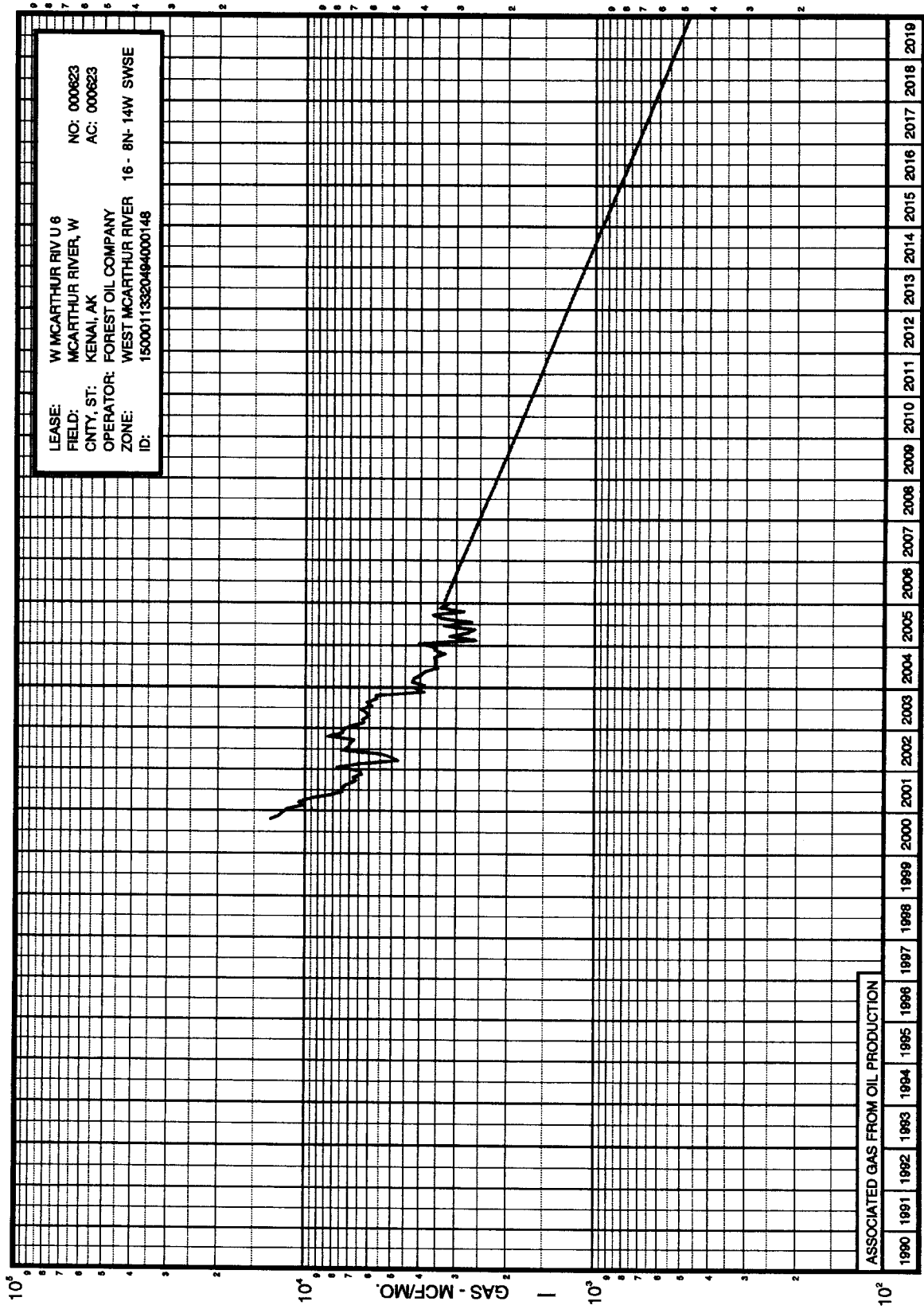
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.38



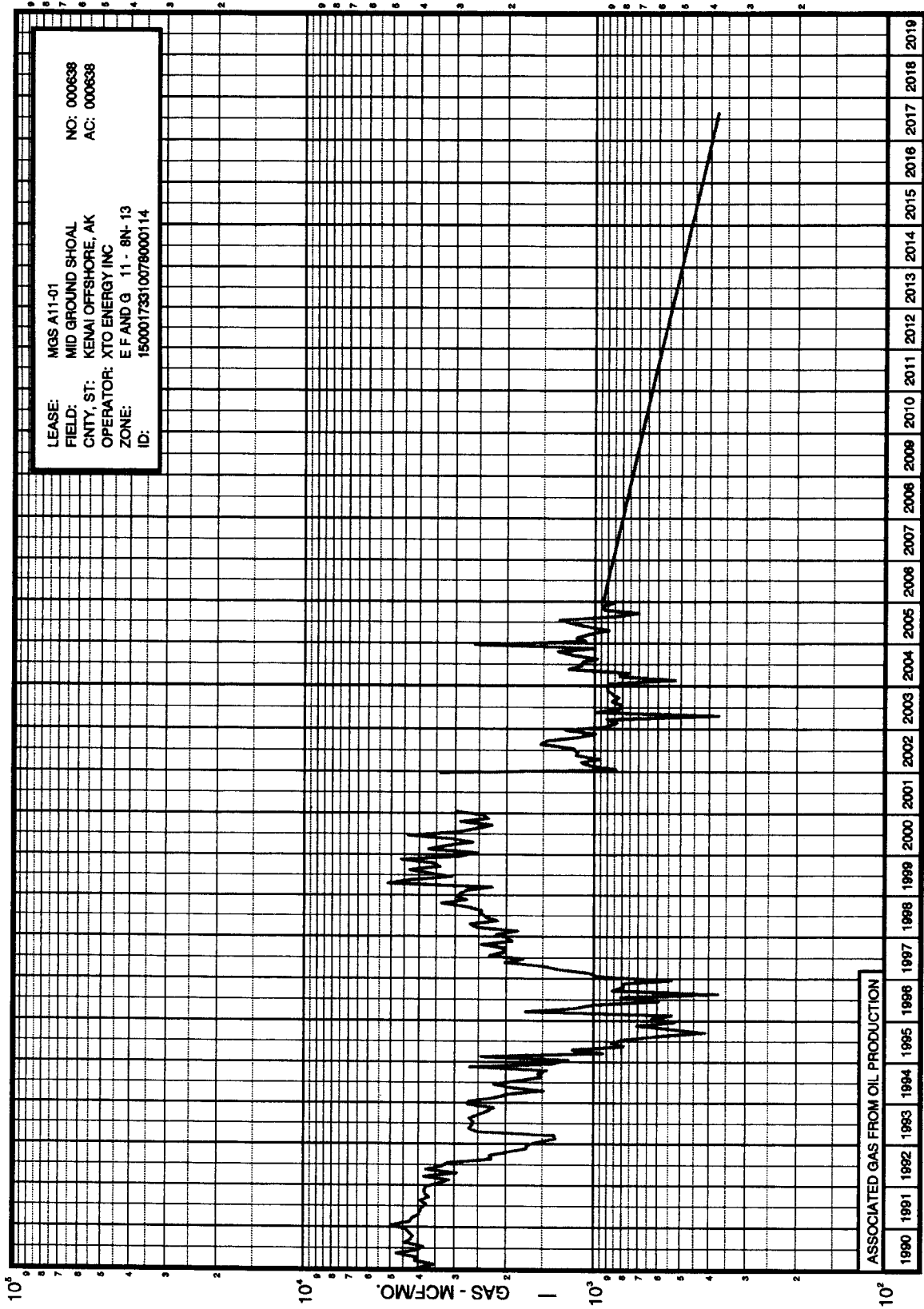
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.39



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

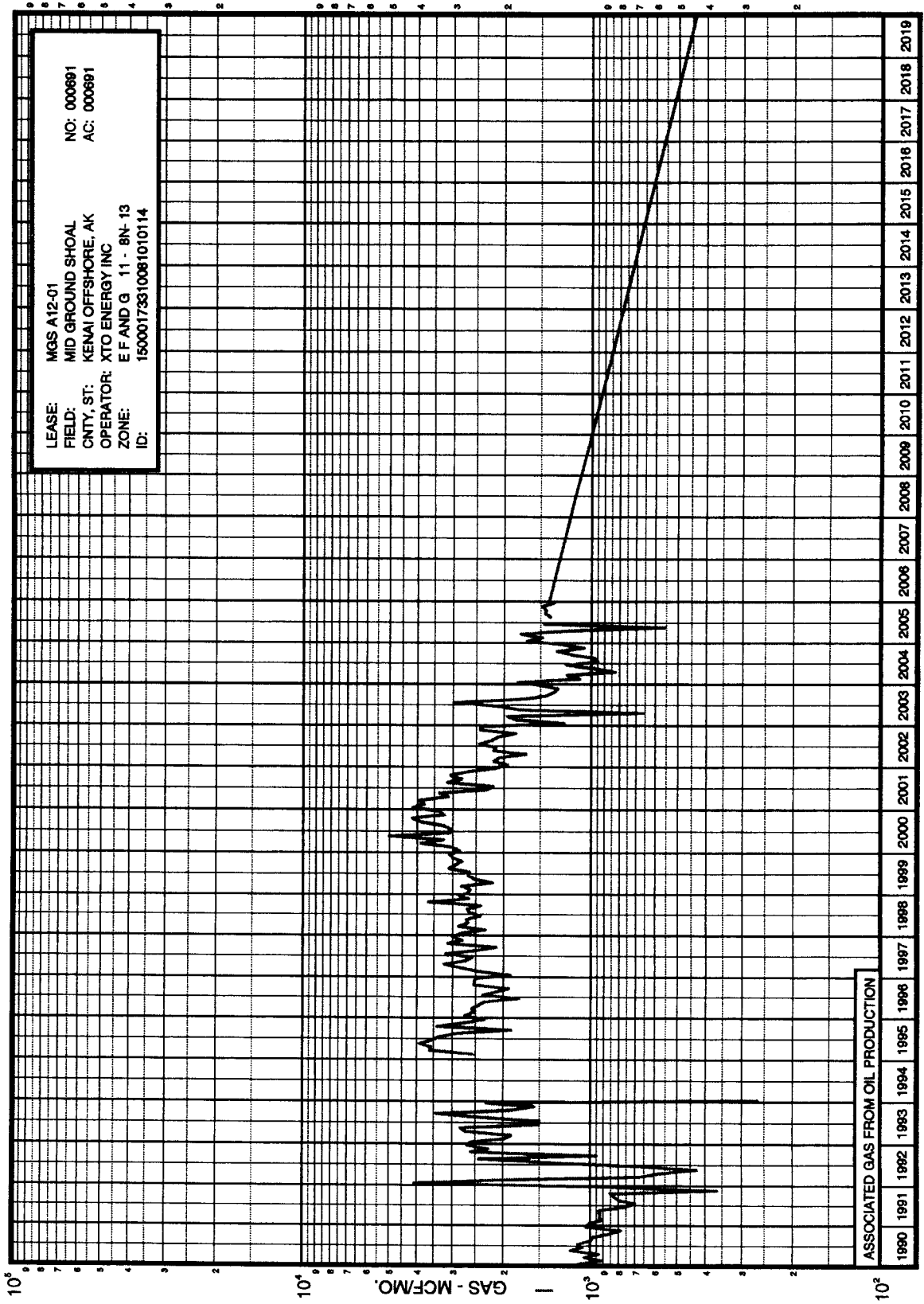
Figure 10.4.1.40



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

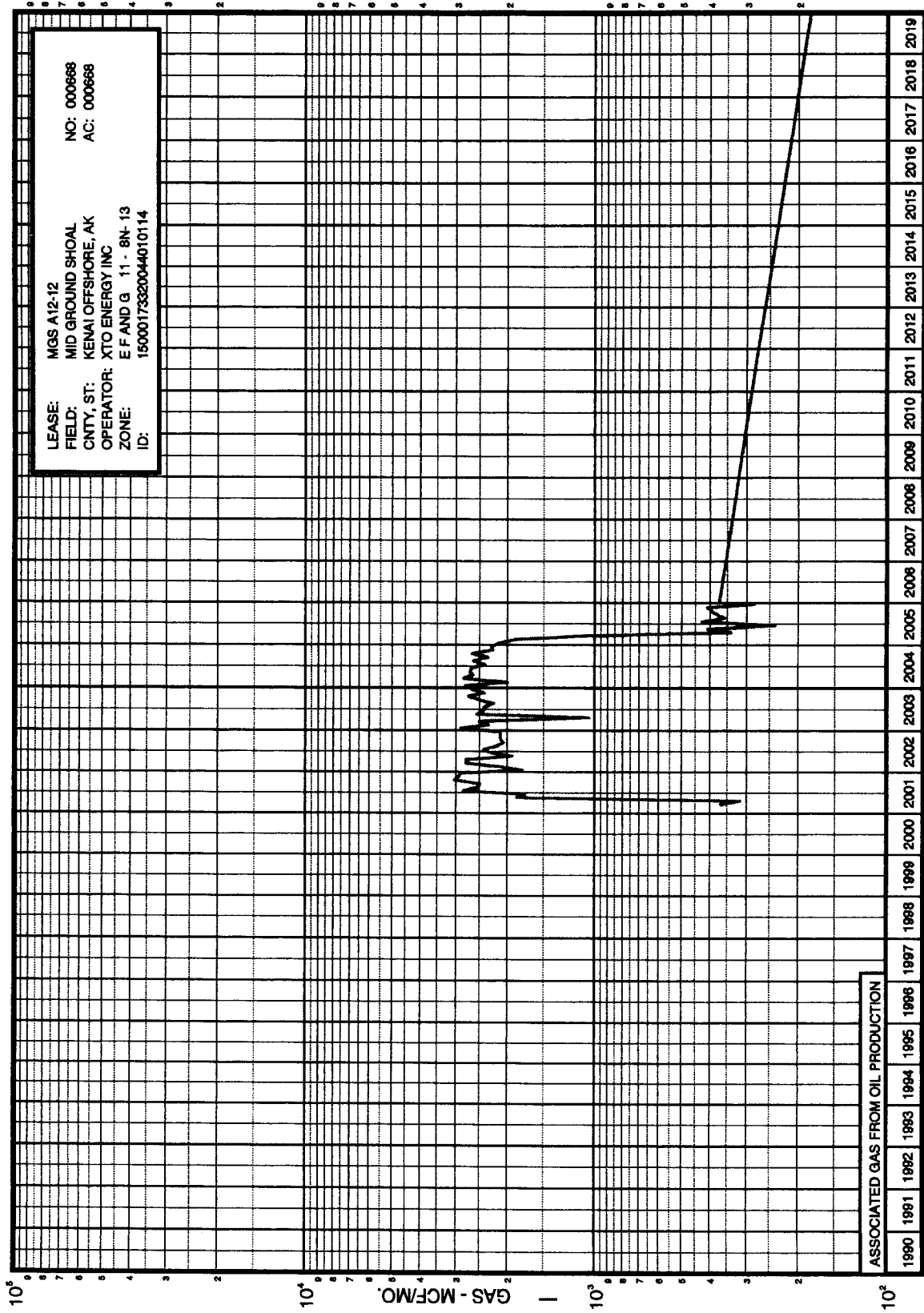
Figure 10.4.1.41





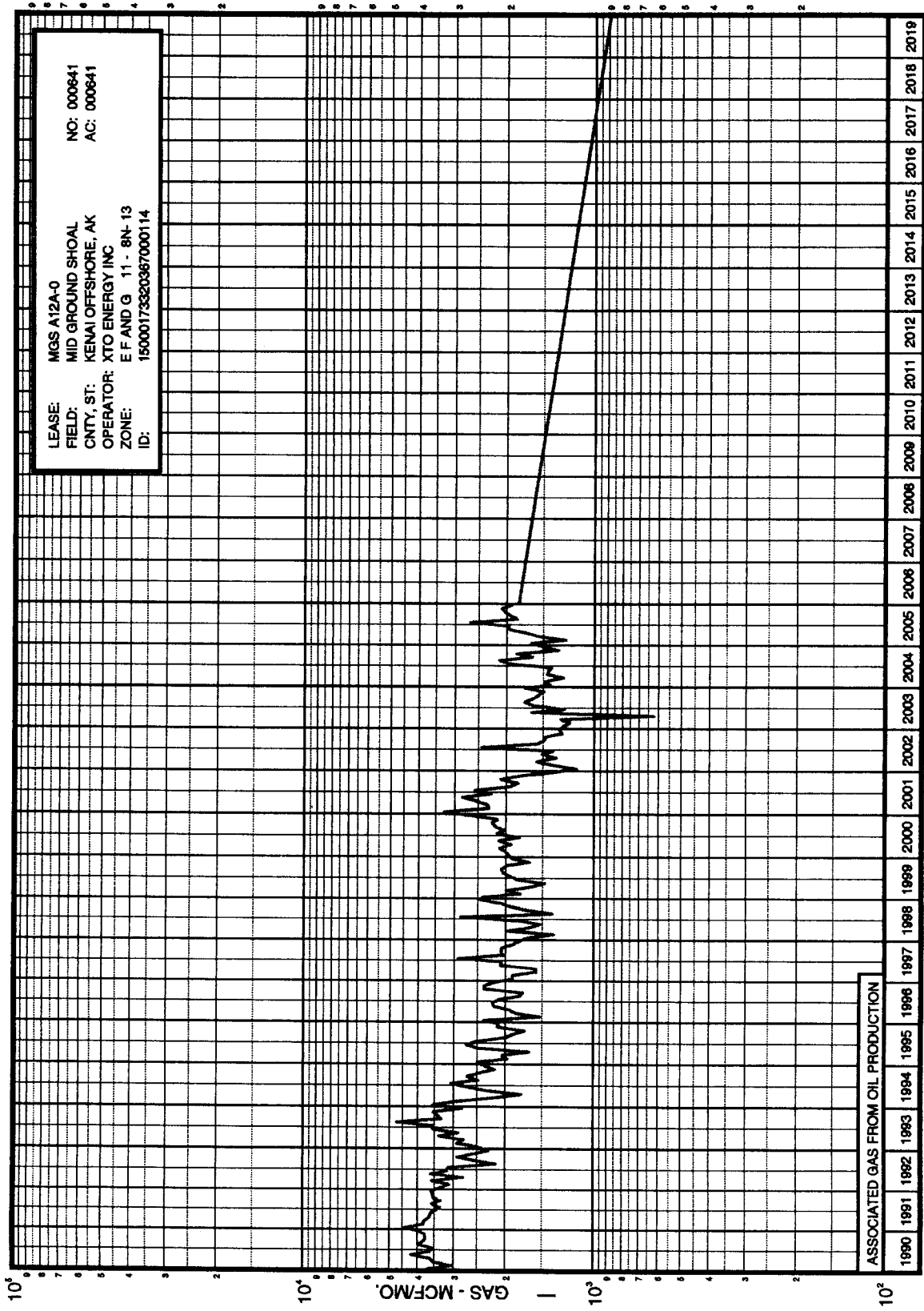
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.42



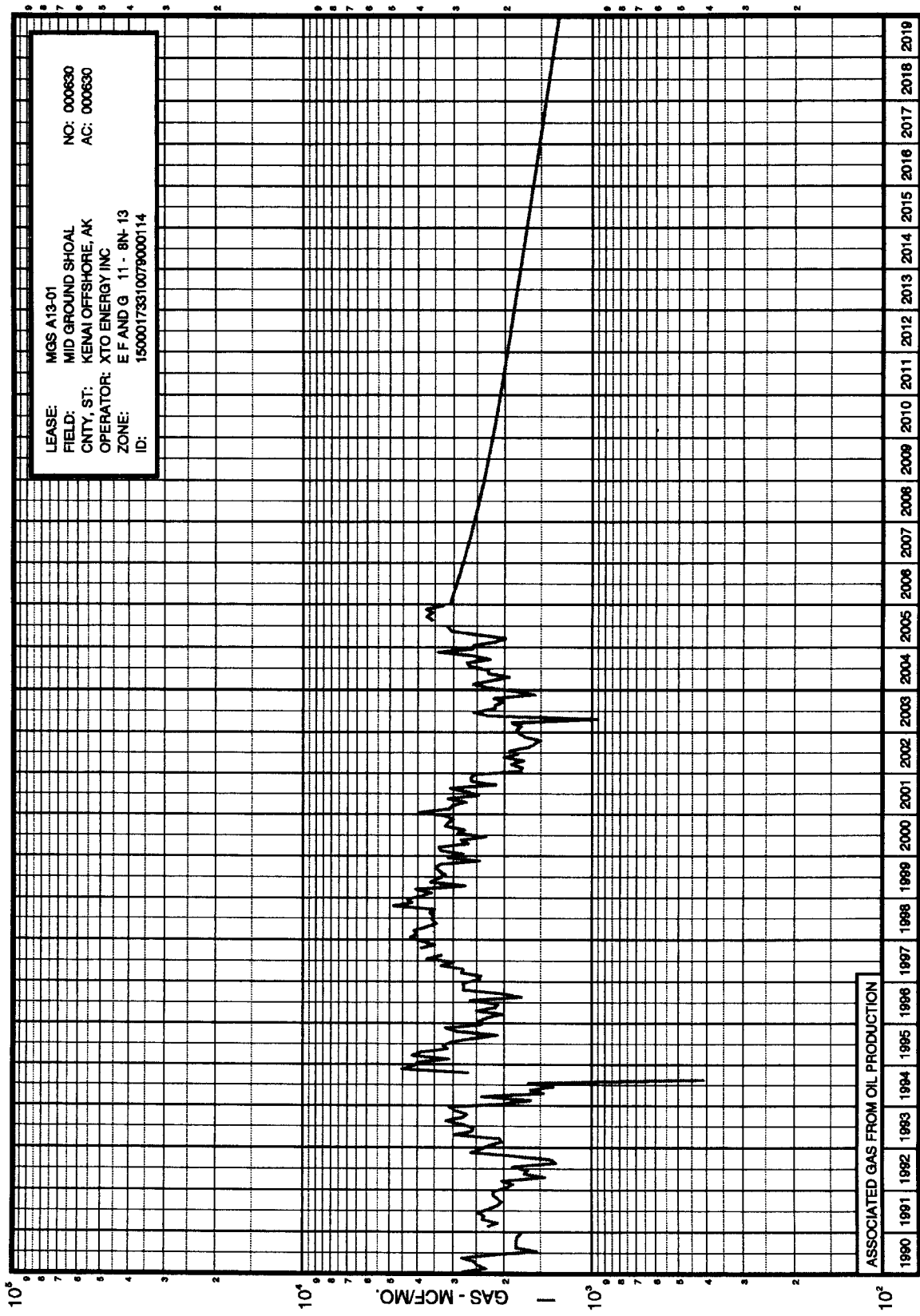
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.43



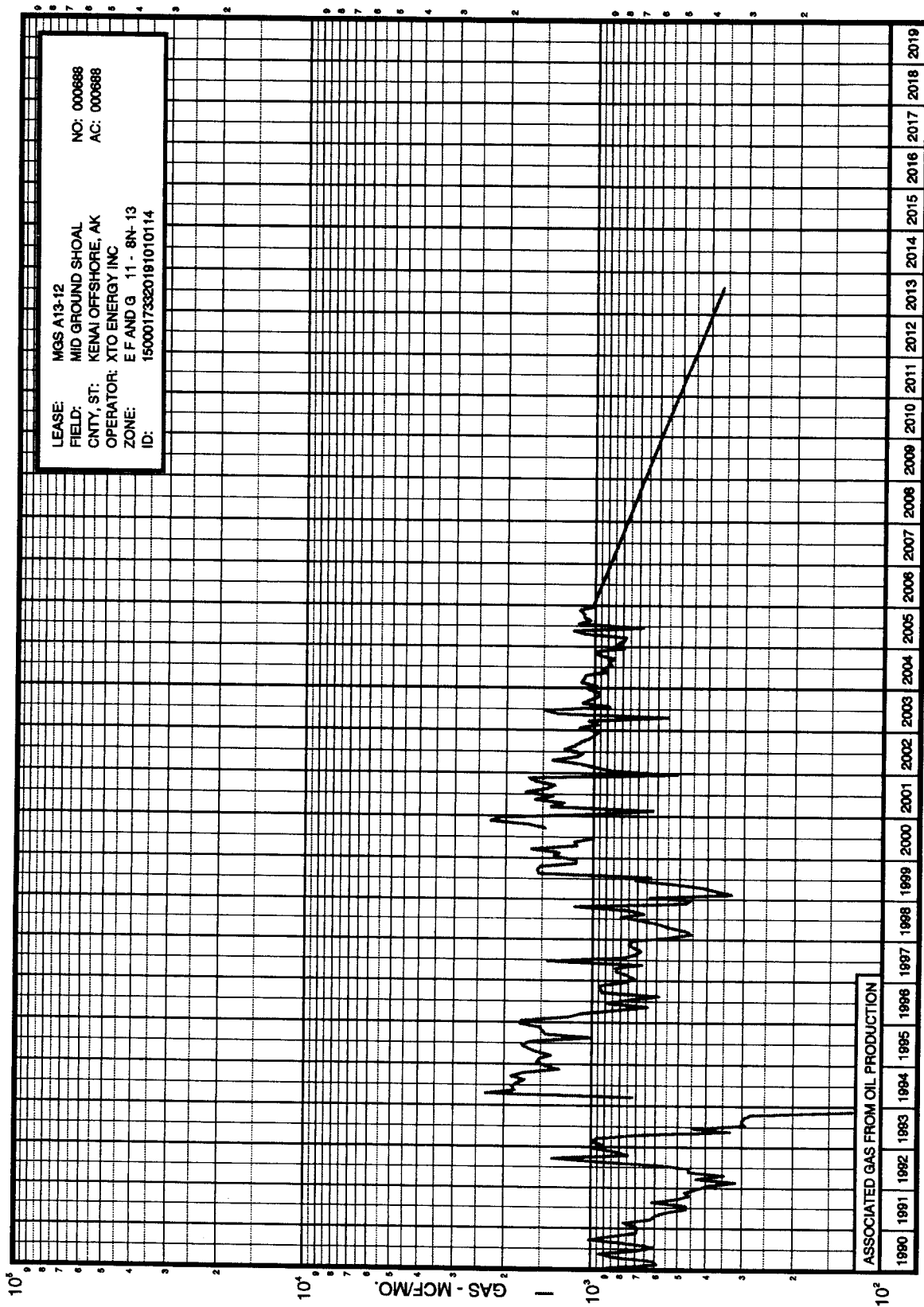
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.44



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.45



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.46

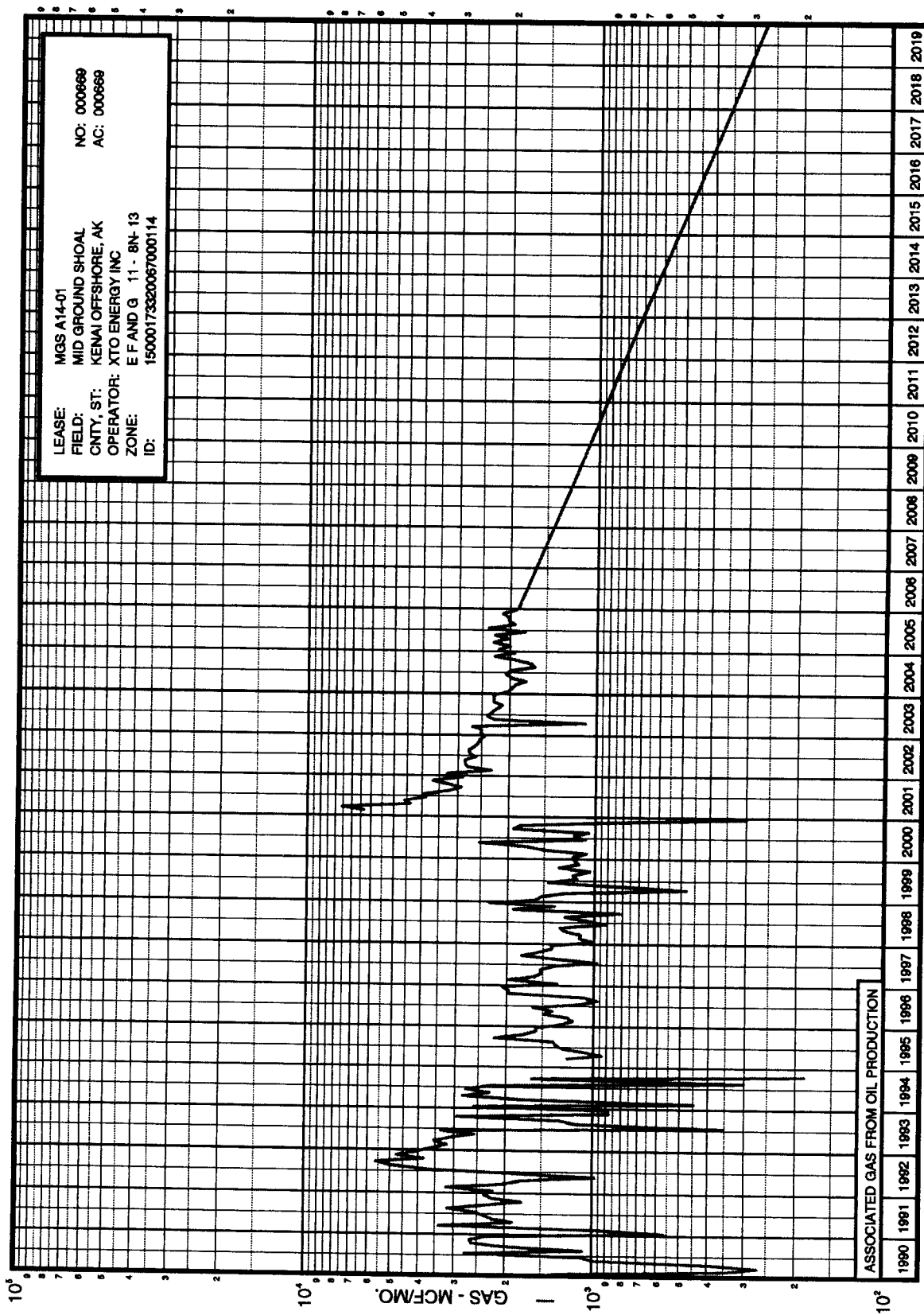
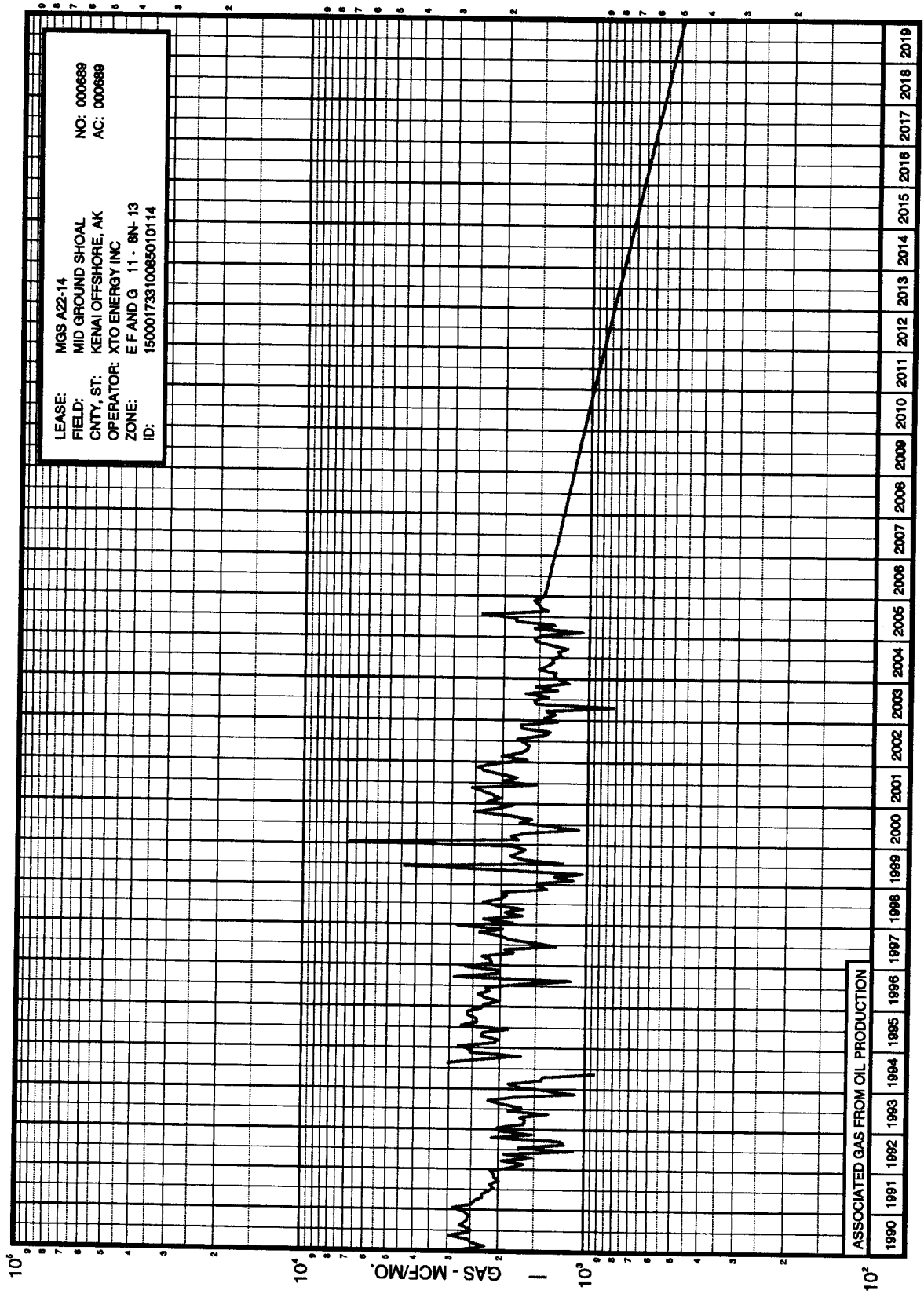


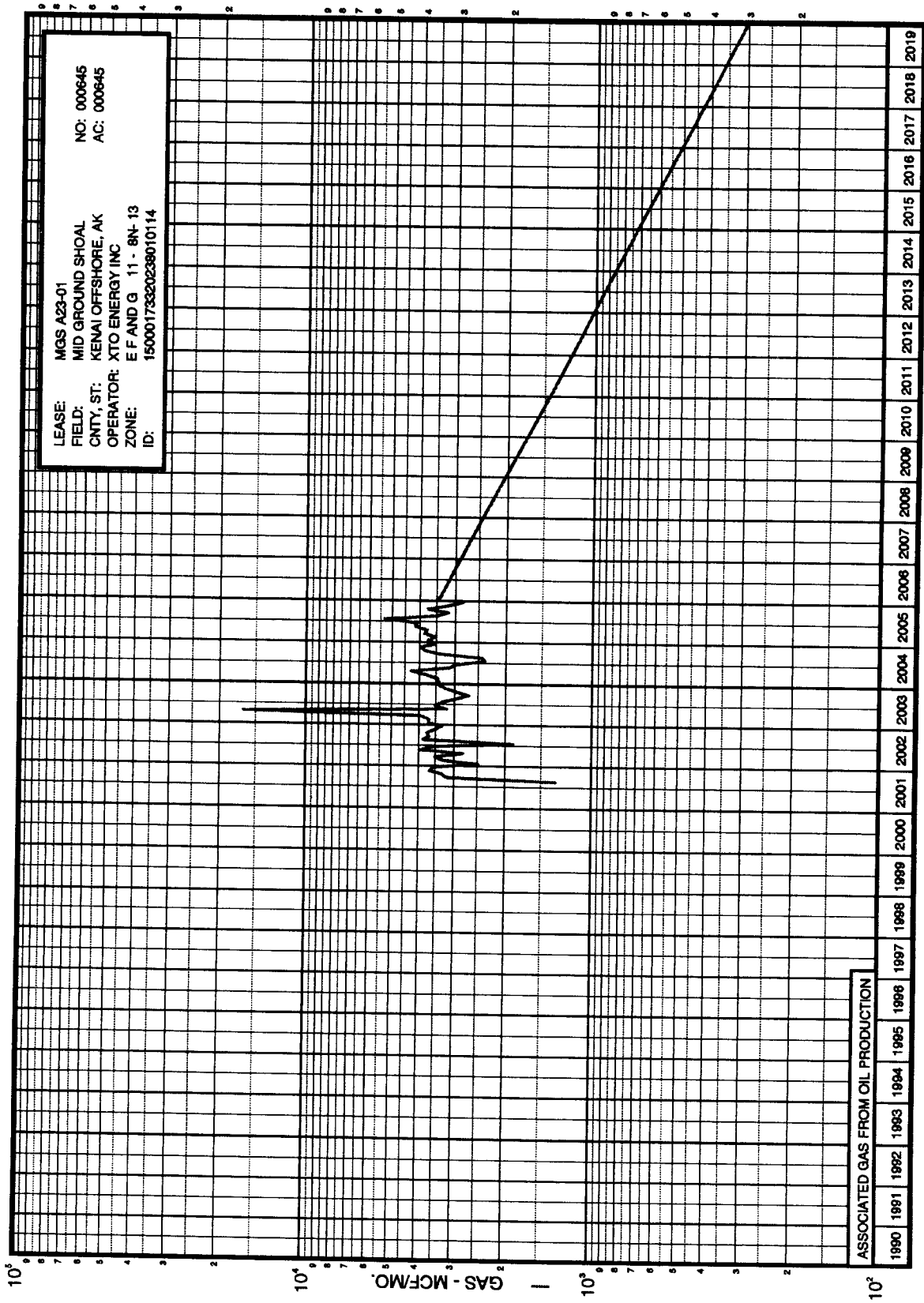
Figure 10.4.1.47

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

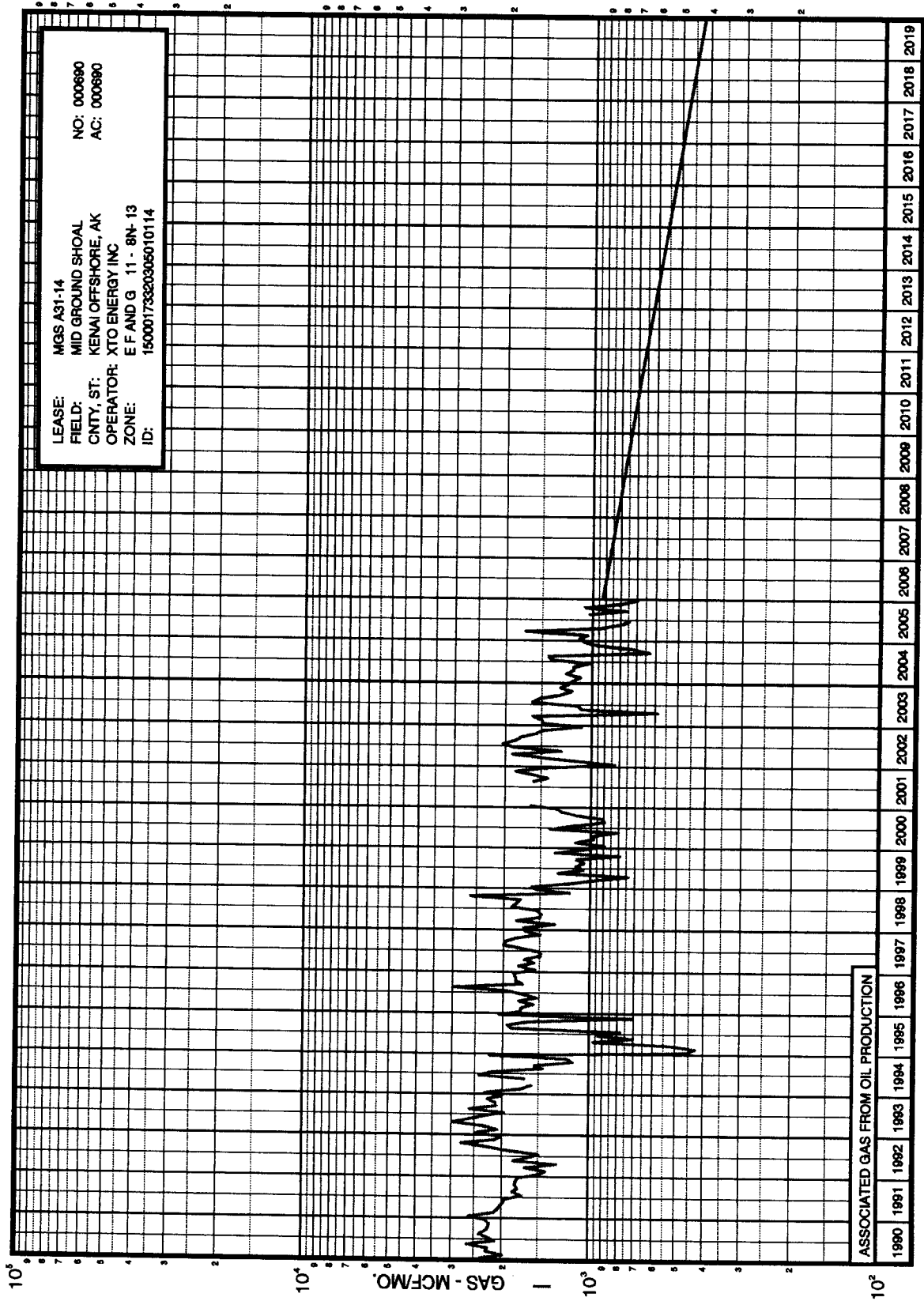
Figure 10.4.1.48



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

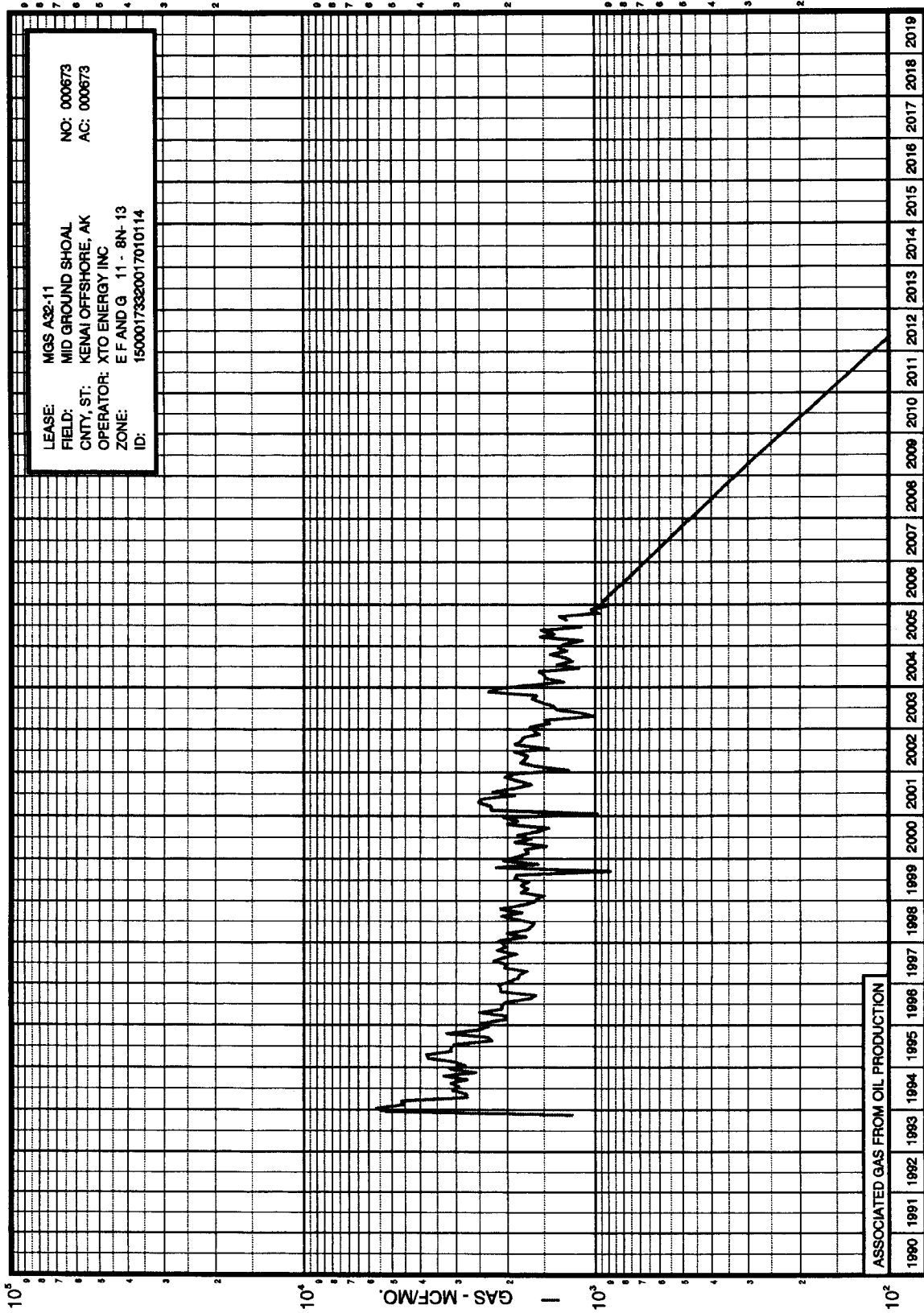
Figure 10.4.1.49





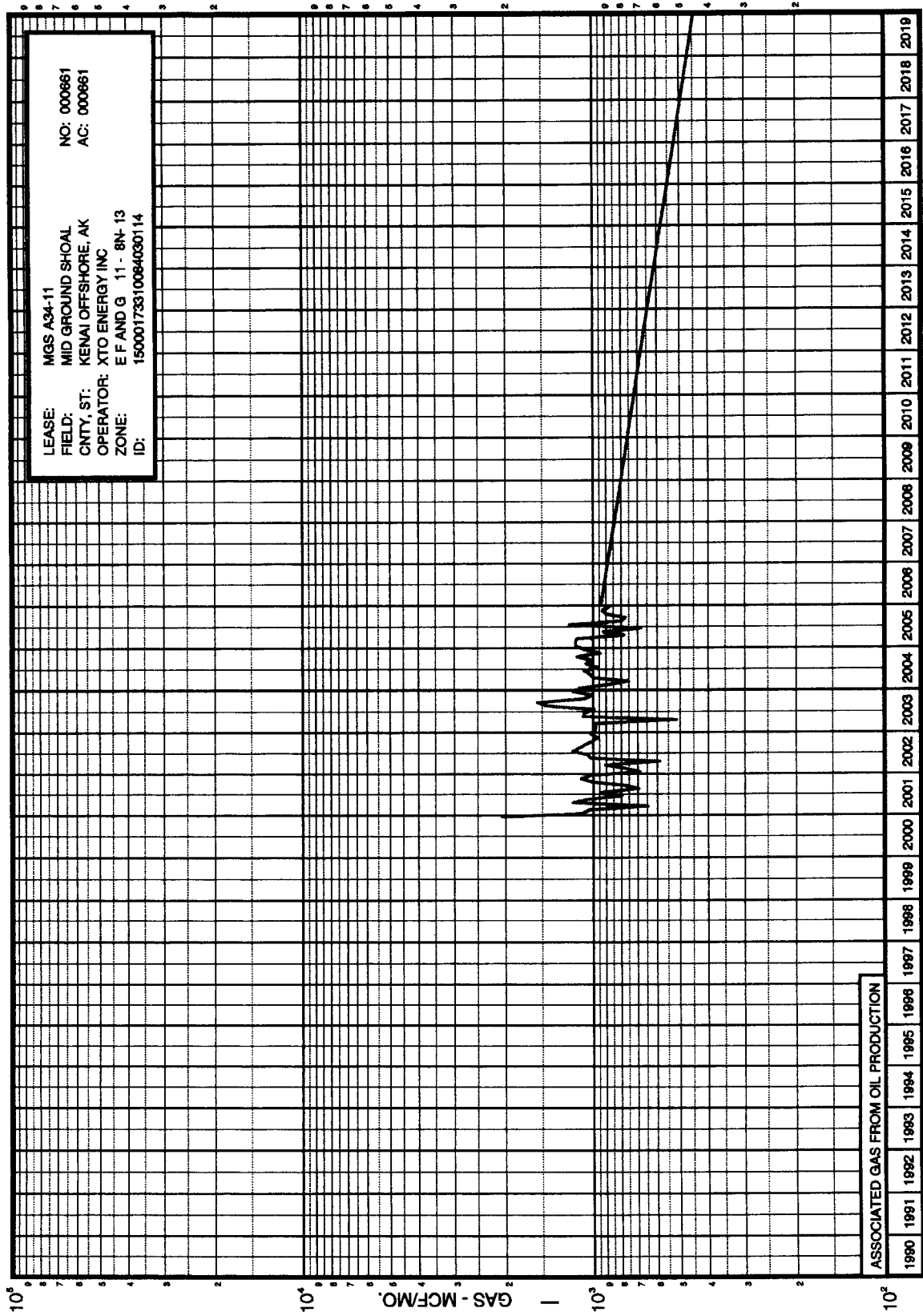
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.50



All estimates and exhibits herein are part of this NSA report and are subject to its parameters and conditions.

Figure 10.4.1.51

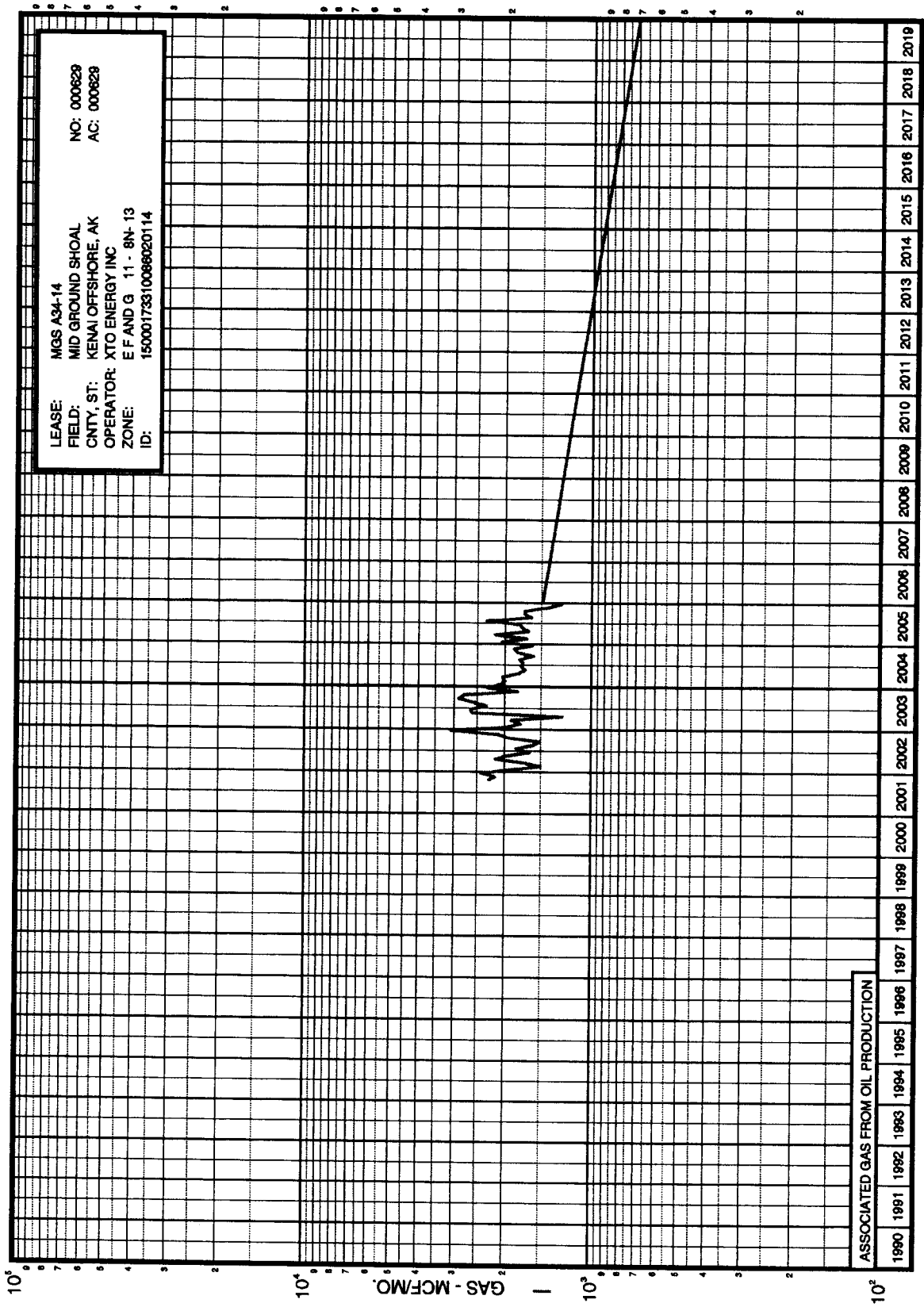


LEASE: MGS A34-11 NO: 000661  
 FIELD: MID GROUND SHOAL AC: 000661  
 CNTY, ST: KENAI OFFSHORE, AK  
 OPERATOR: XTO ENERGY INC  
 ZONE: E F AND G 11 - 8N- 13  
 ID: 15000173310084030114

ASSOCIATED GAS FROM OIL PRODUCTION

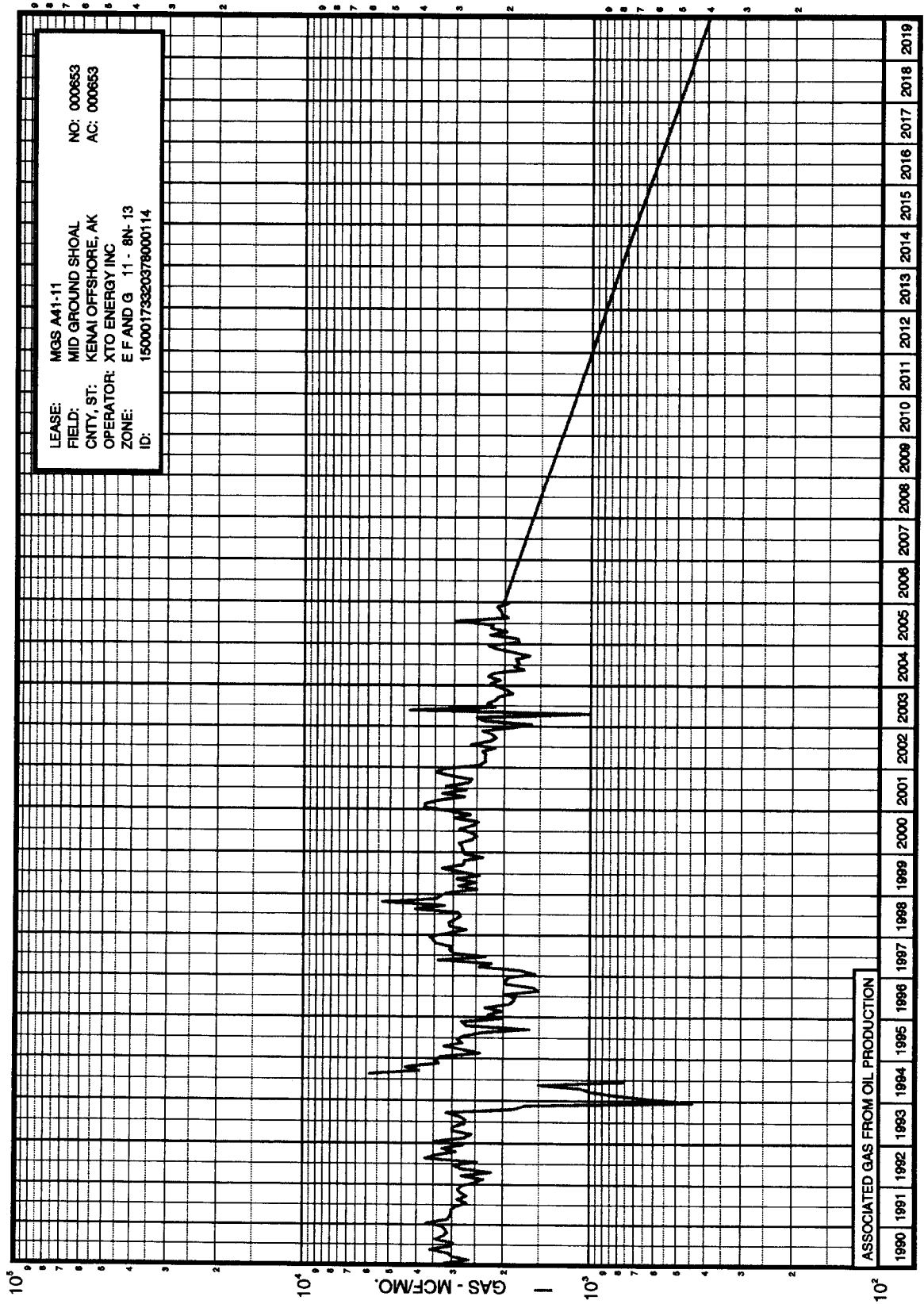
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.52



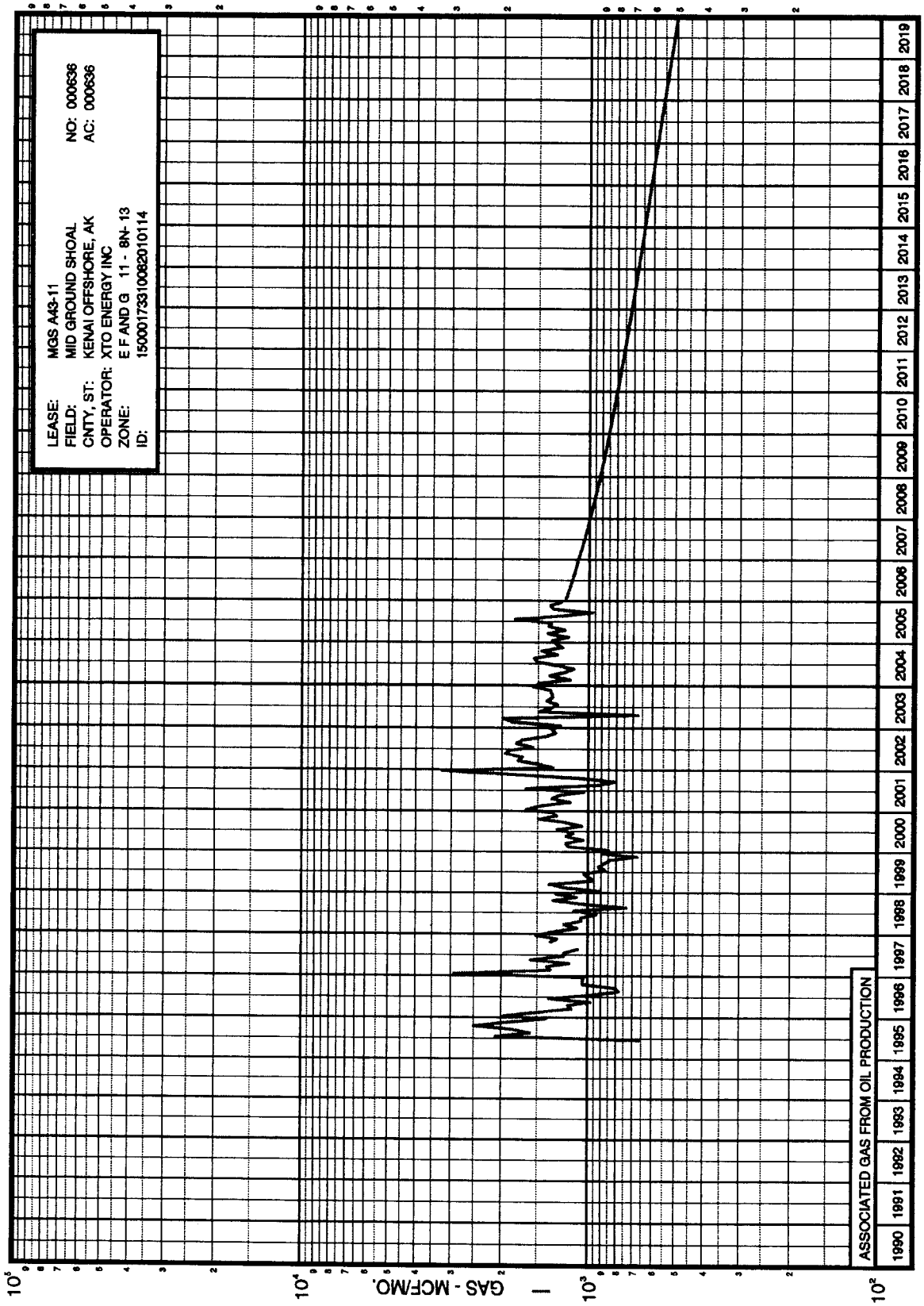
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.53



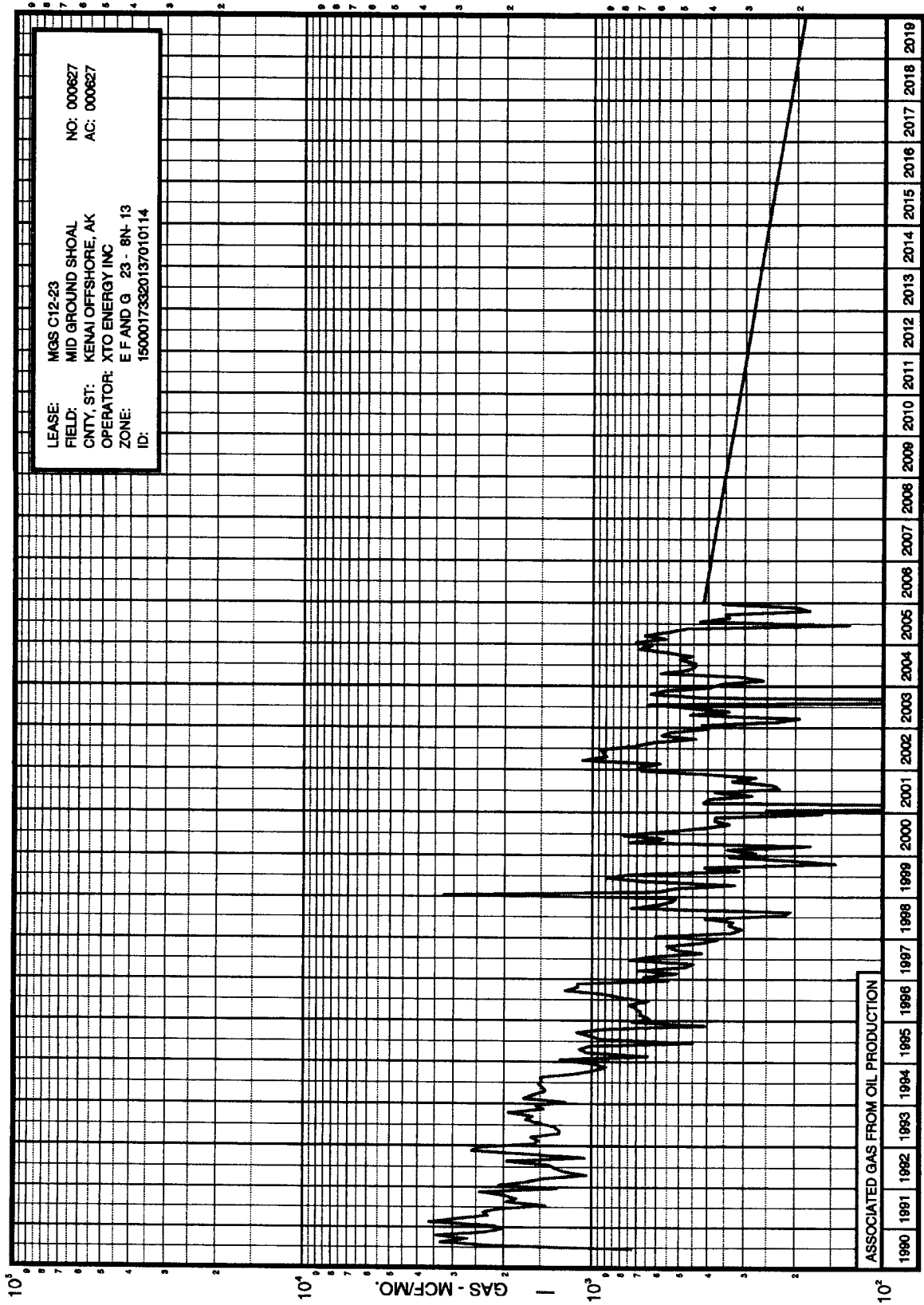
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.54



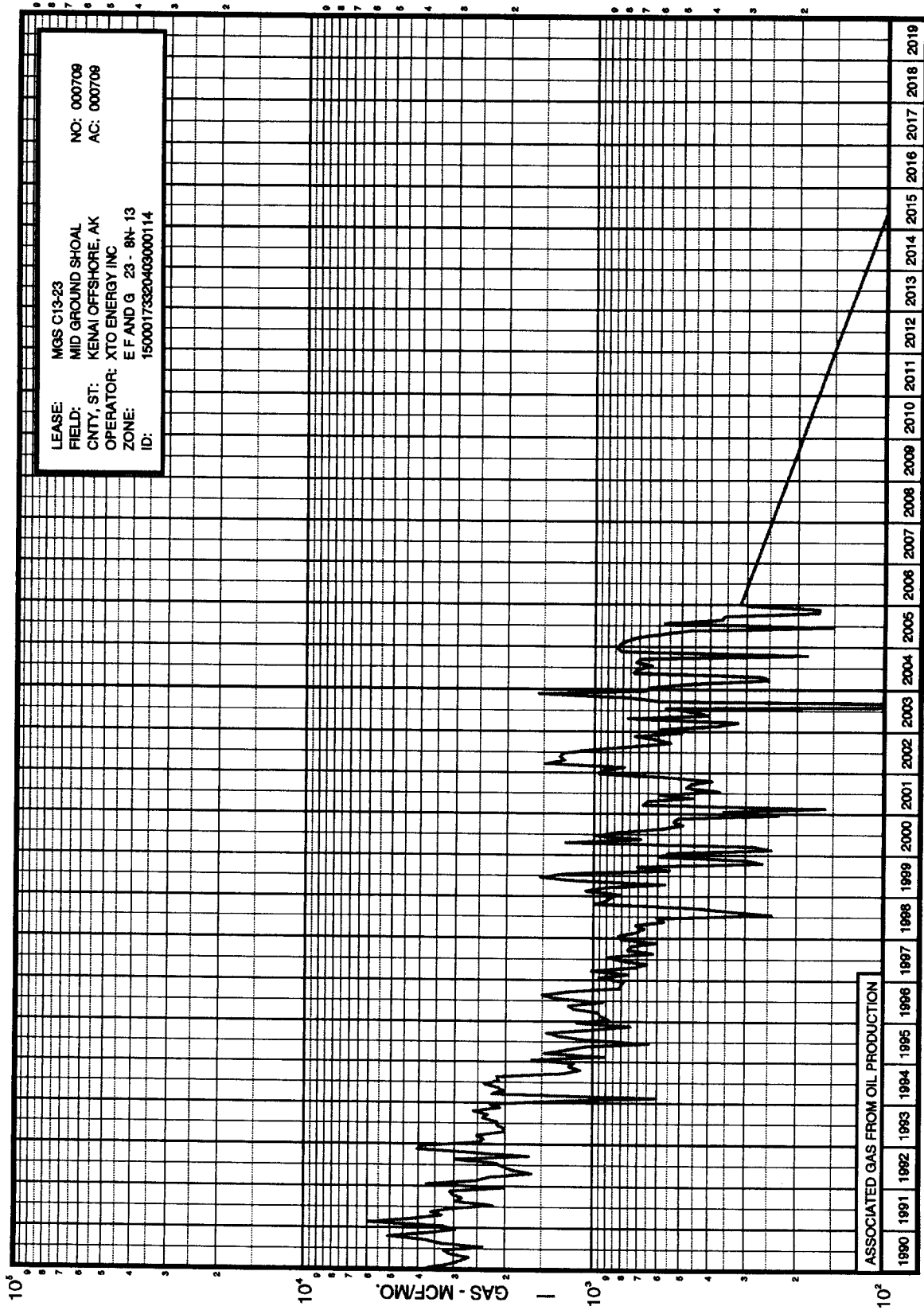
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.55



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

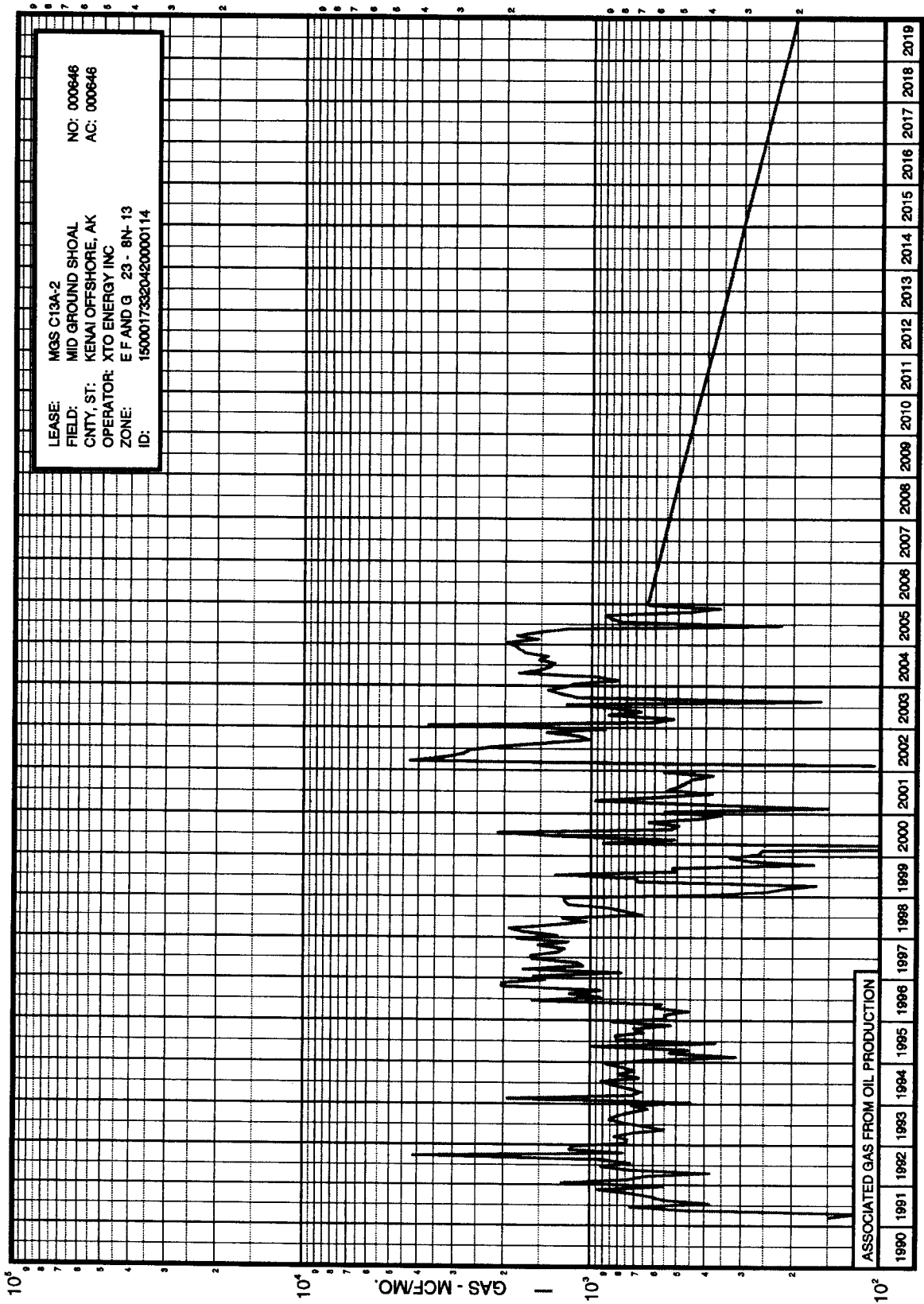
Figure 10.4.1.56



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

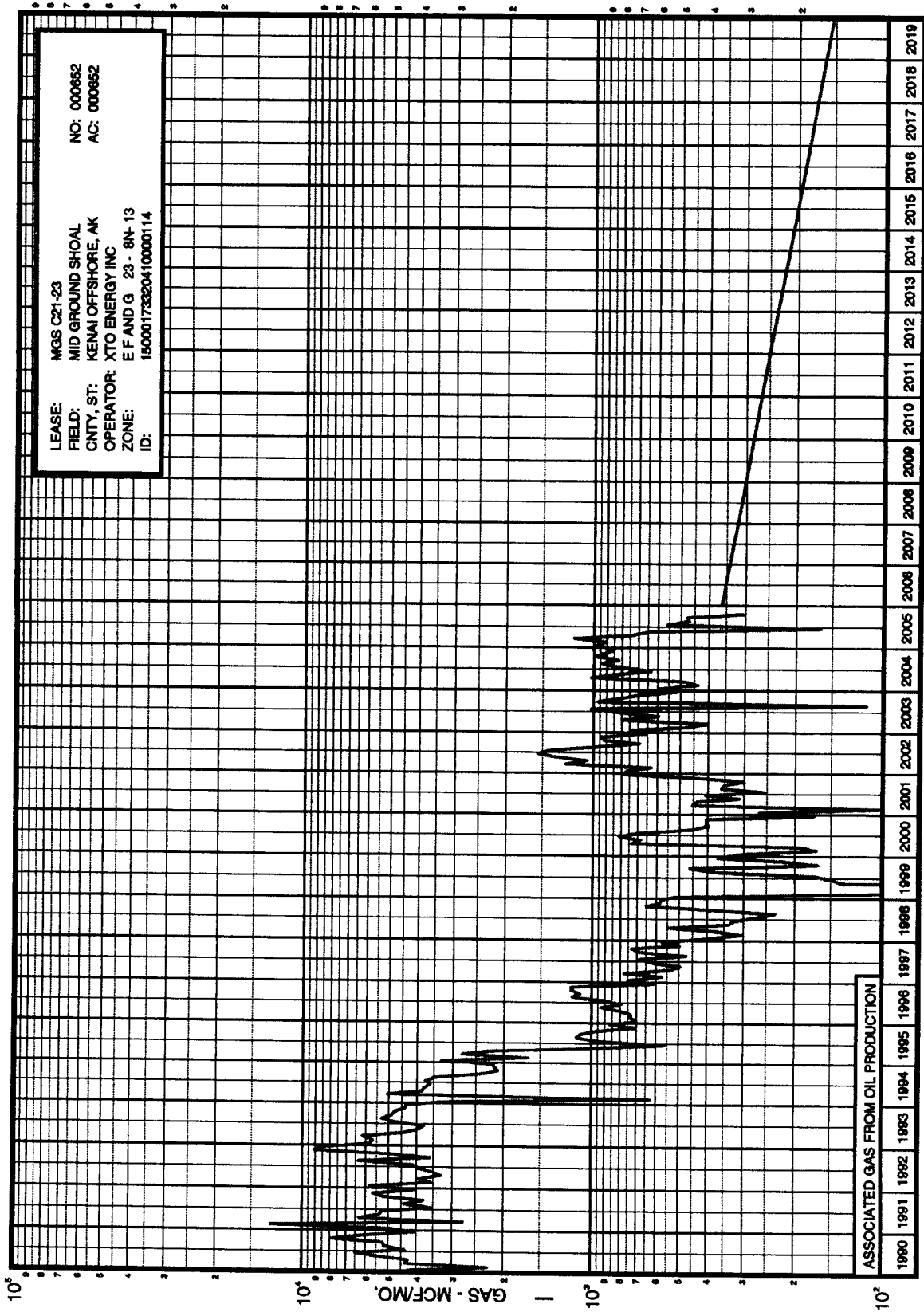
Figure 10.4.1.57





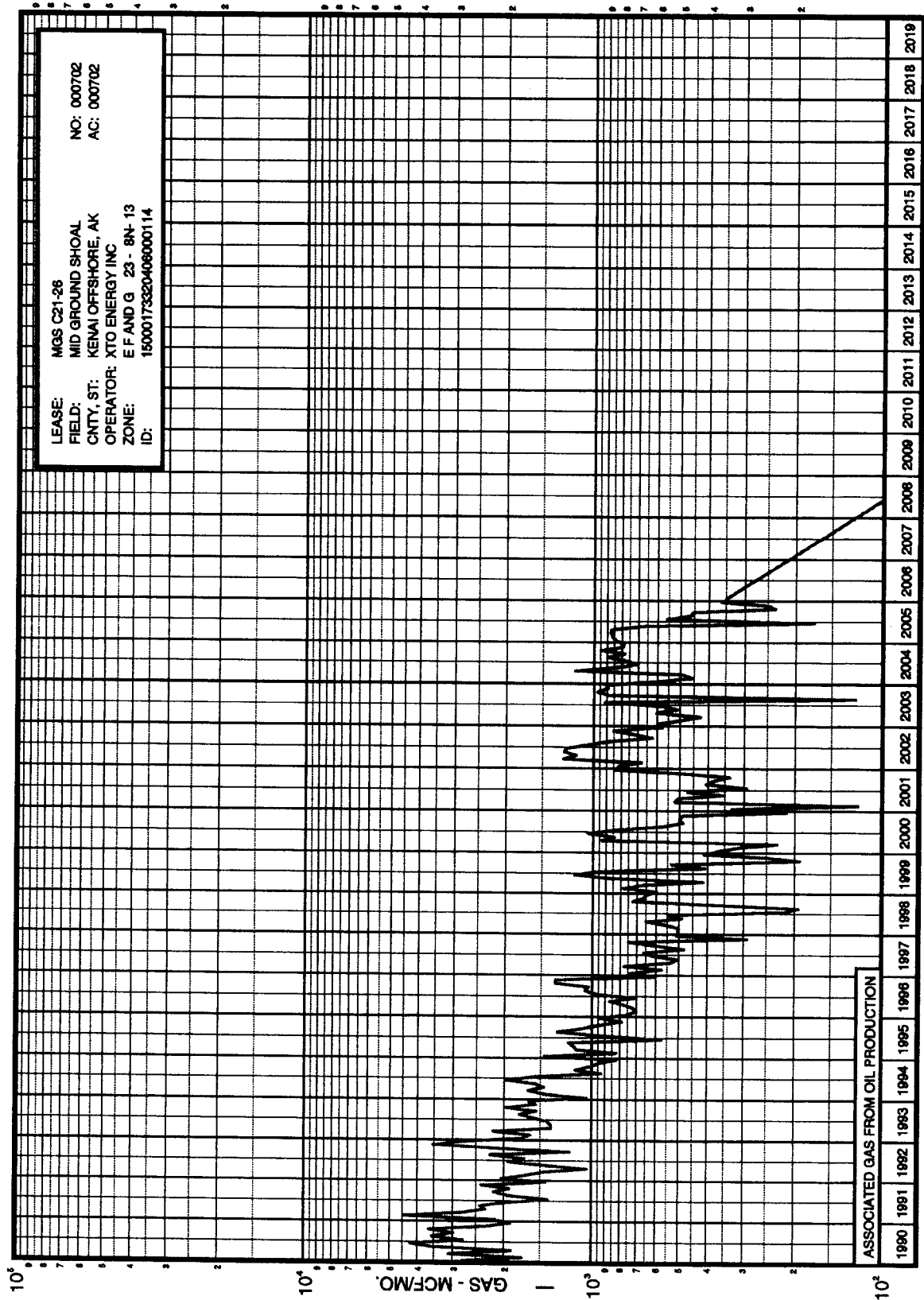
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.58



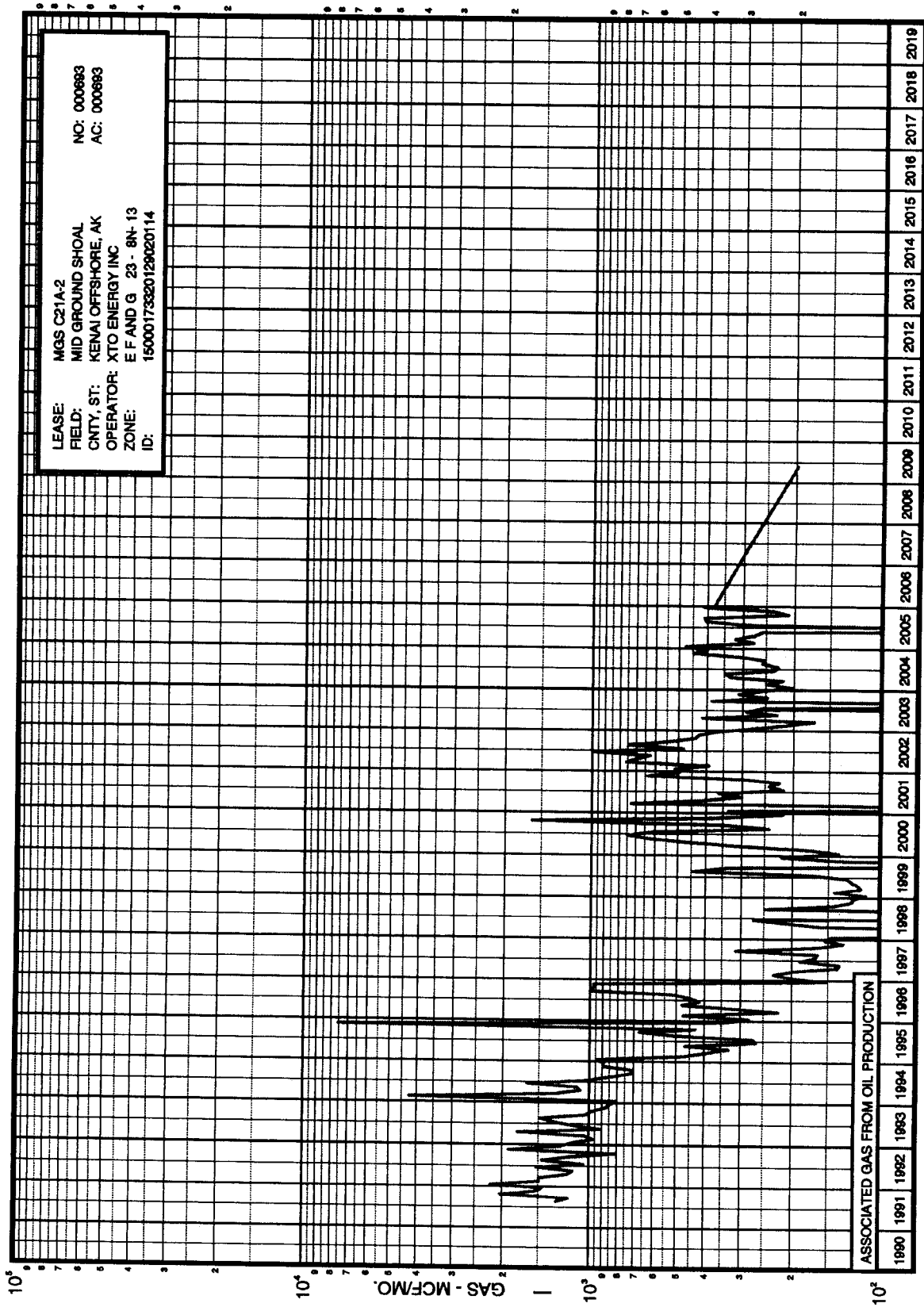
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.59



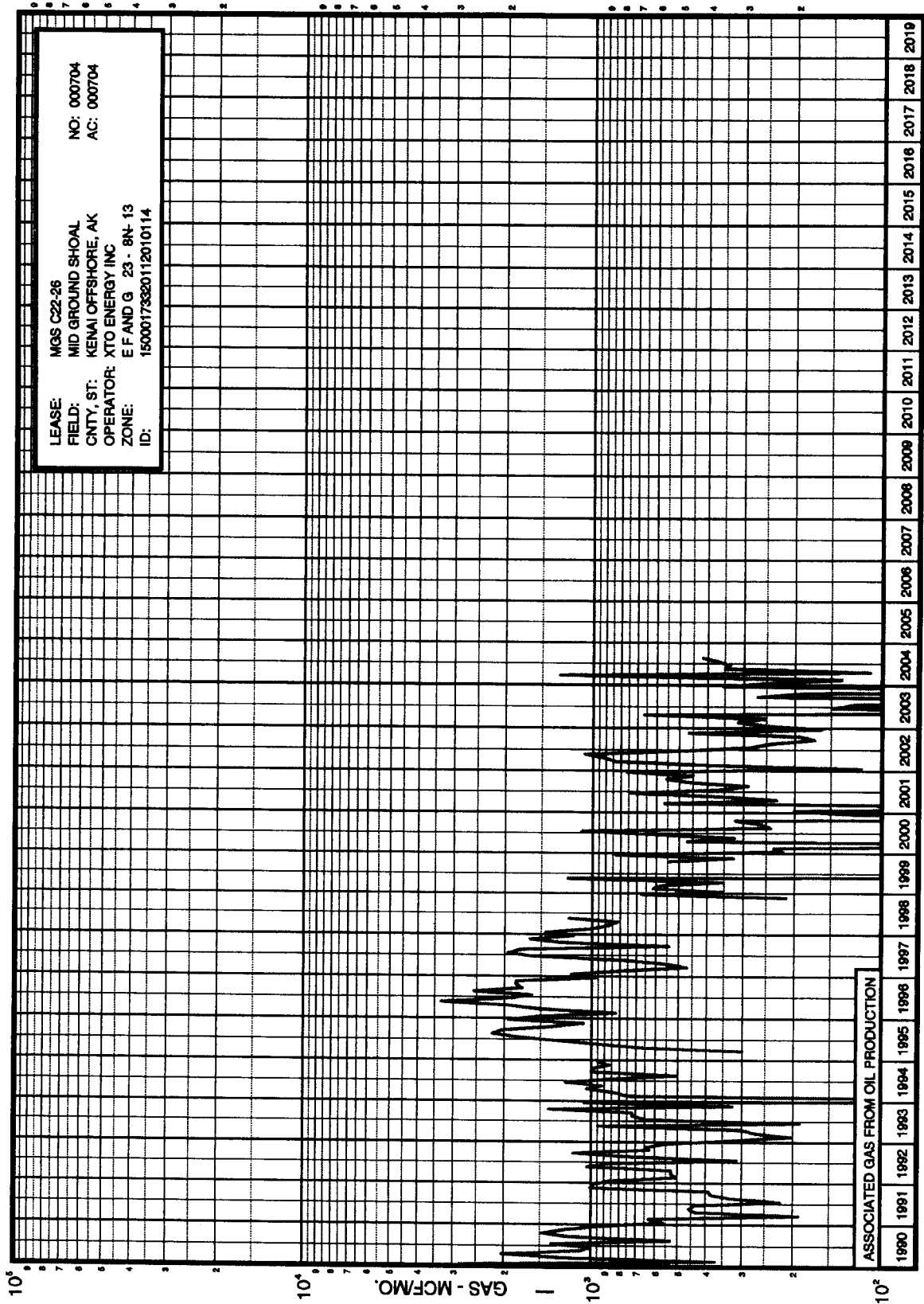
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.60



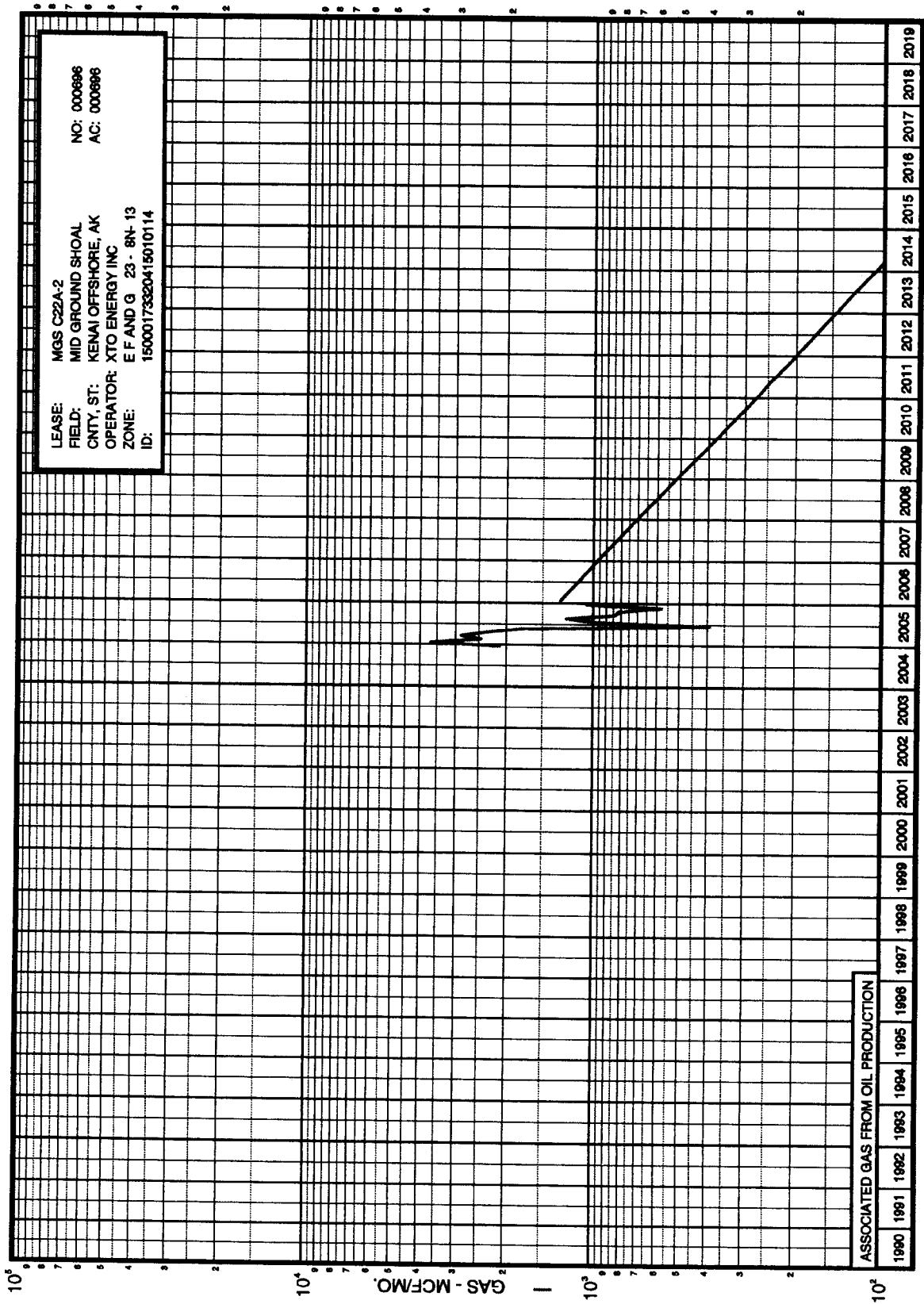
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.61



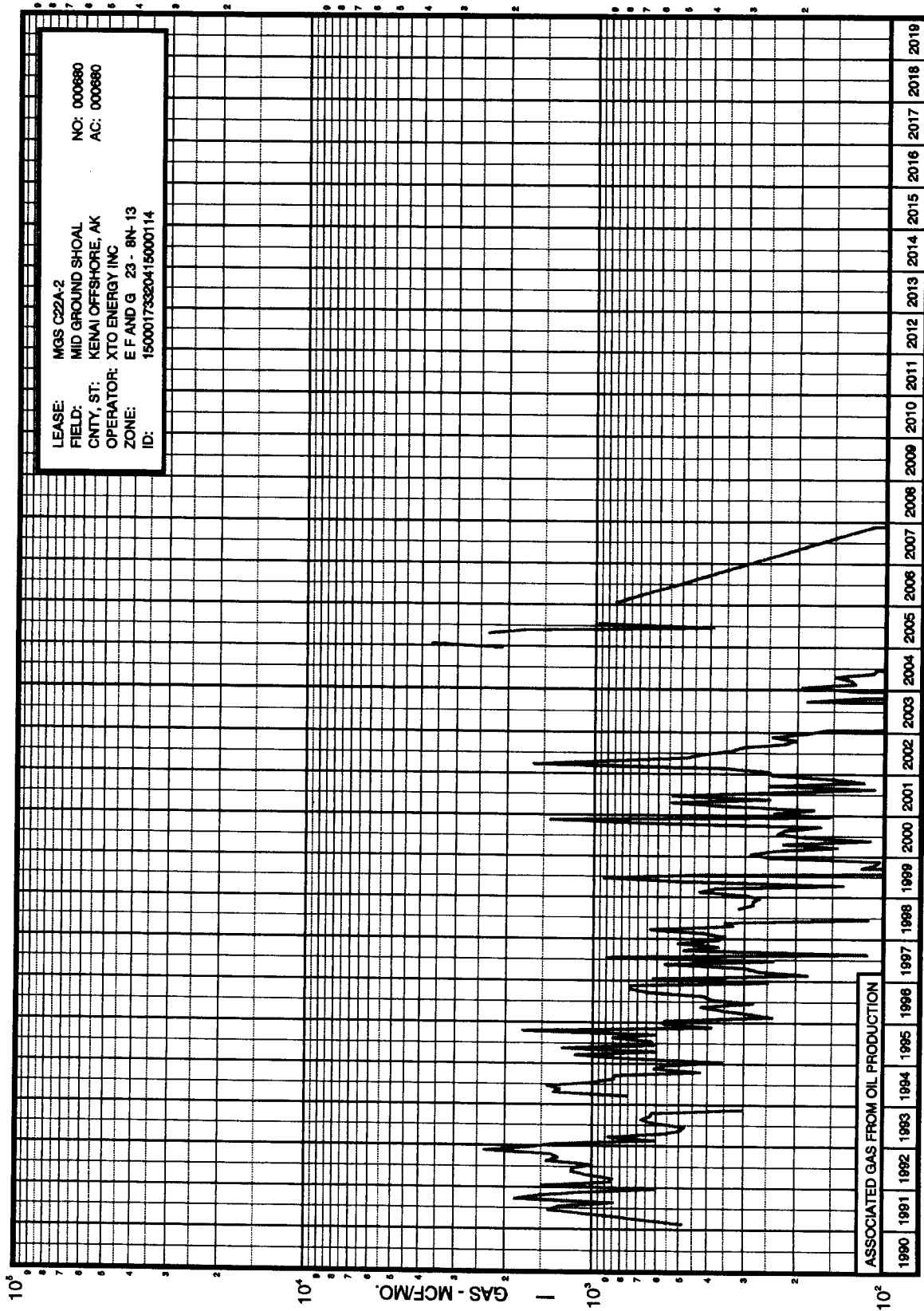
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.62



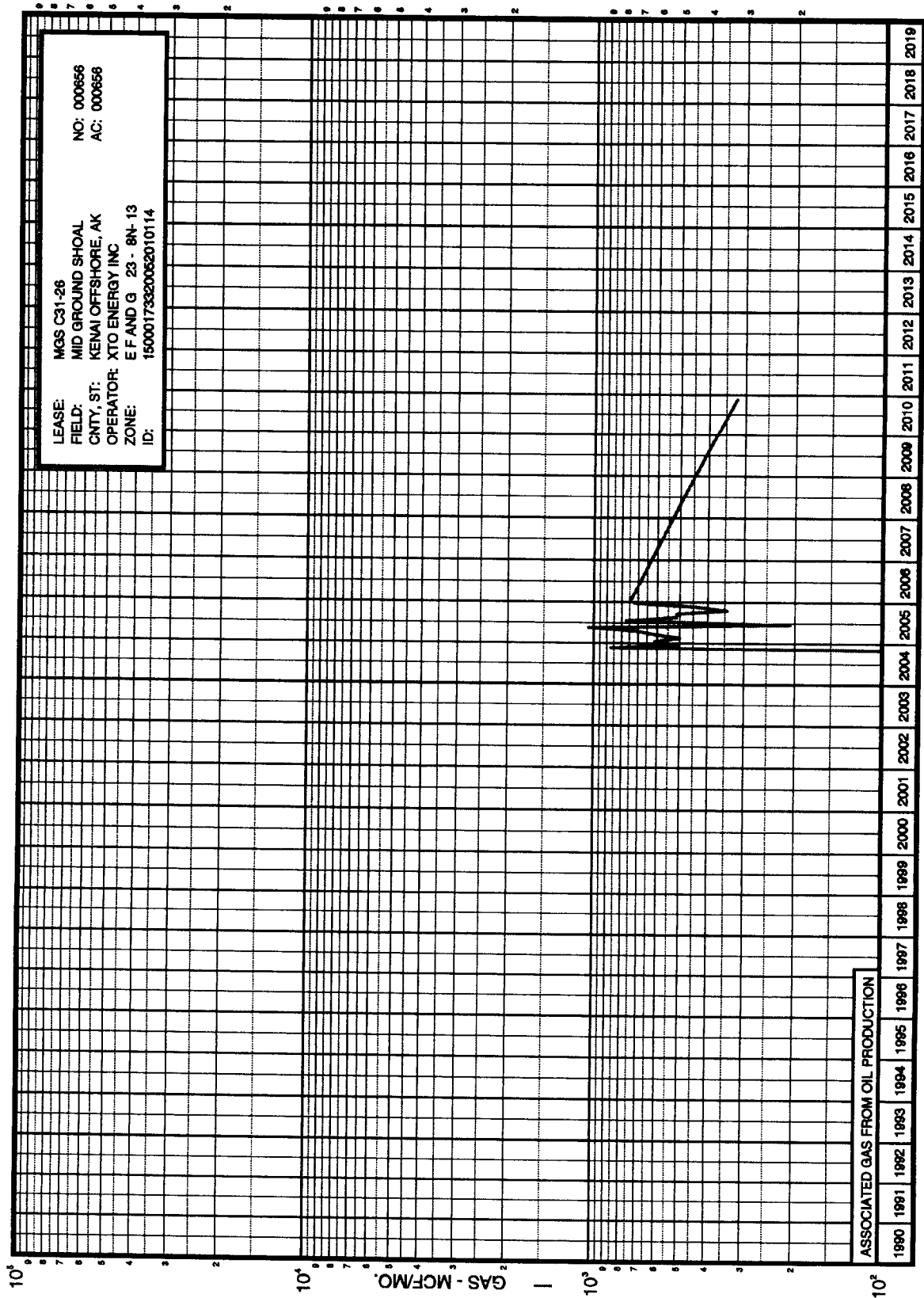
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.63



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.64



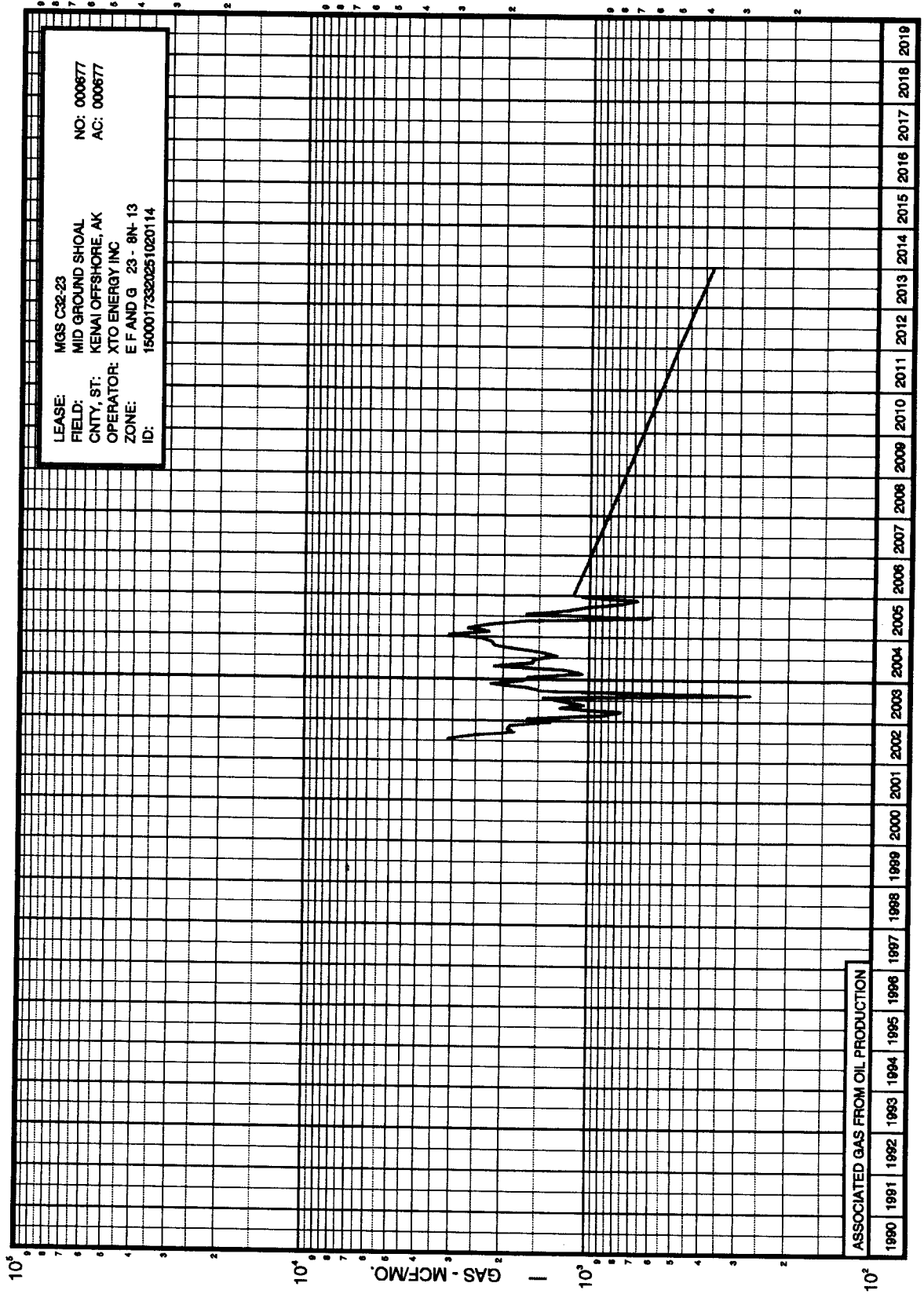
LEASE: MGS C31-26  
 FIELD: MID GROUND SHOAL  
 CNTY, ST: KENAI OFFSHORE, AK  
 OPERATOR: XTO ENERGY INC  
 ZONE: E F AND G 23 - 8N-13  
 ID: 15000173320062010114  
 NO: 000656  
 AC: 000656

ASSOCIATED GAS FROM OIL PRODUCTION

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

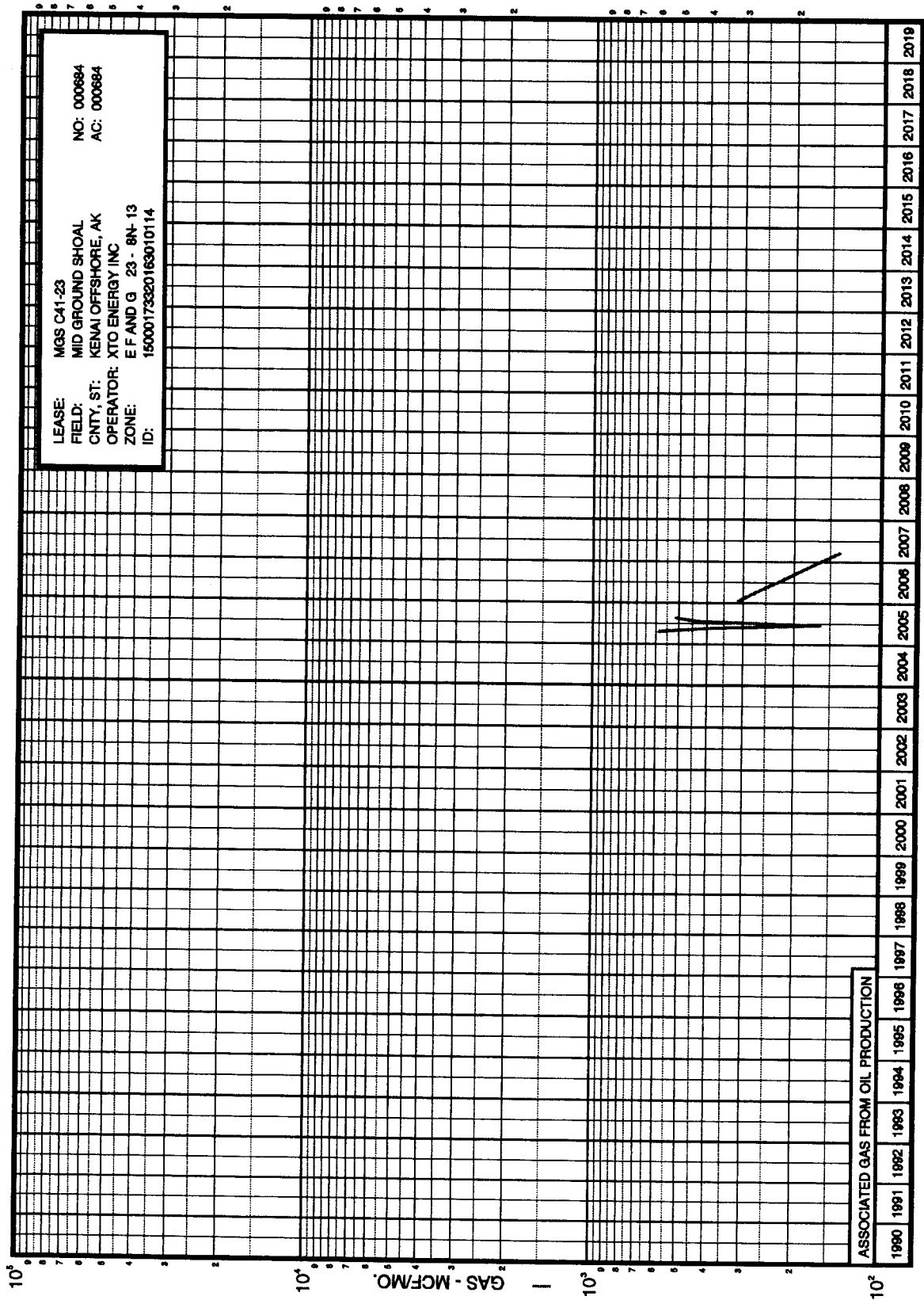
Figure 10.4.1.65





All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.66



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.67

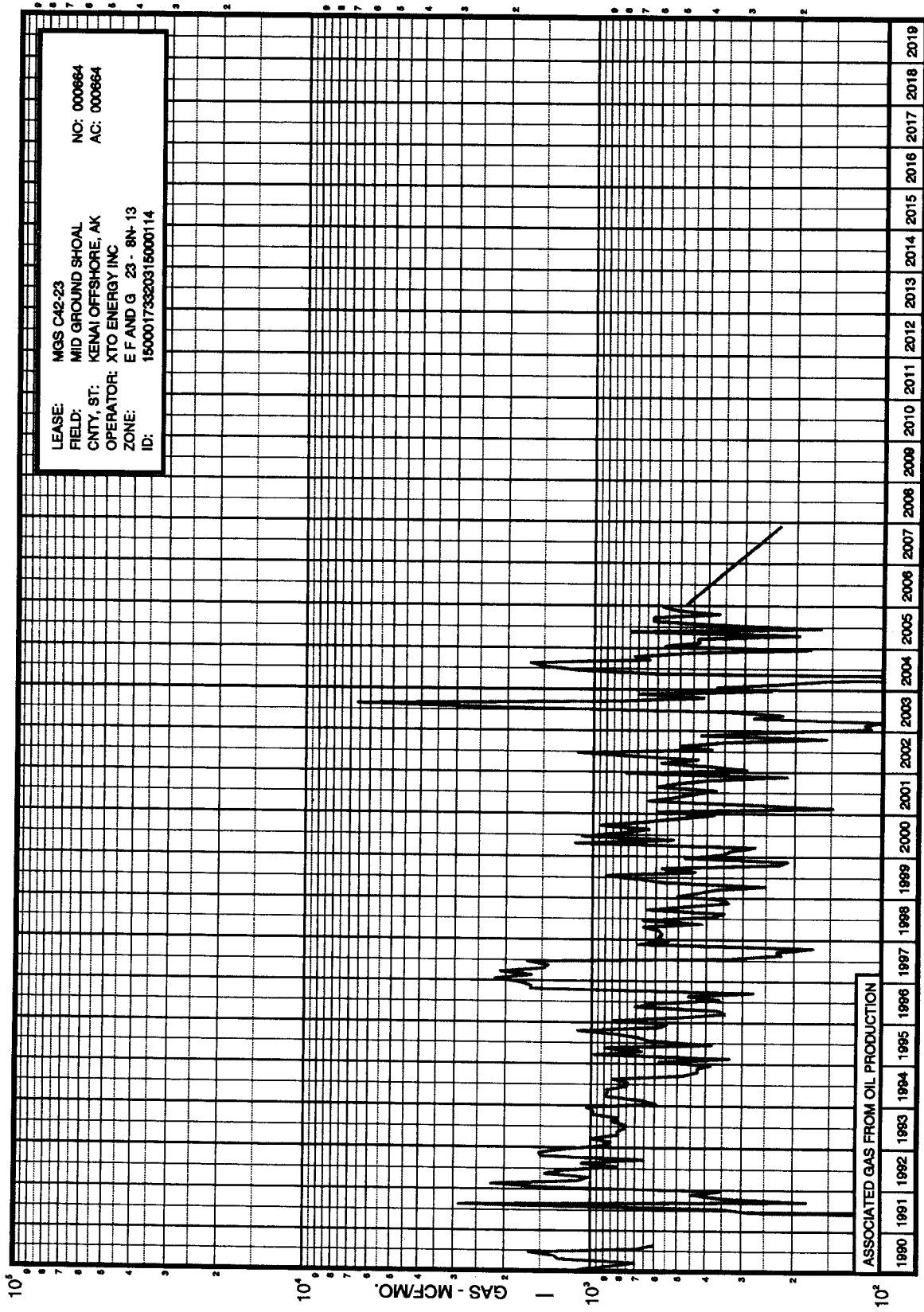


Figure 10.4.1.68

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

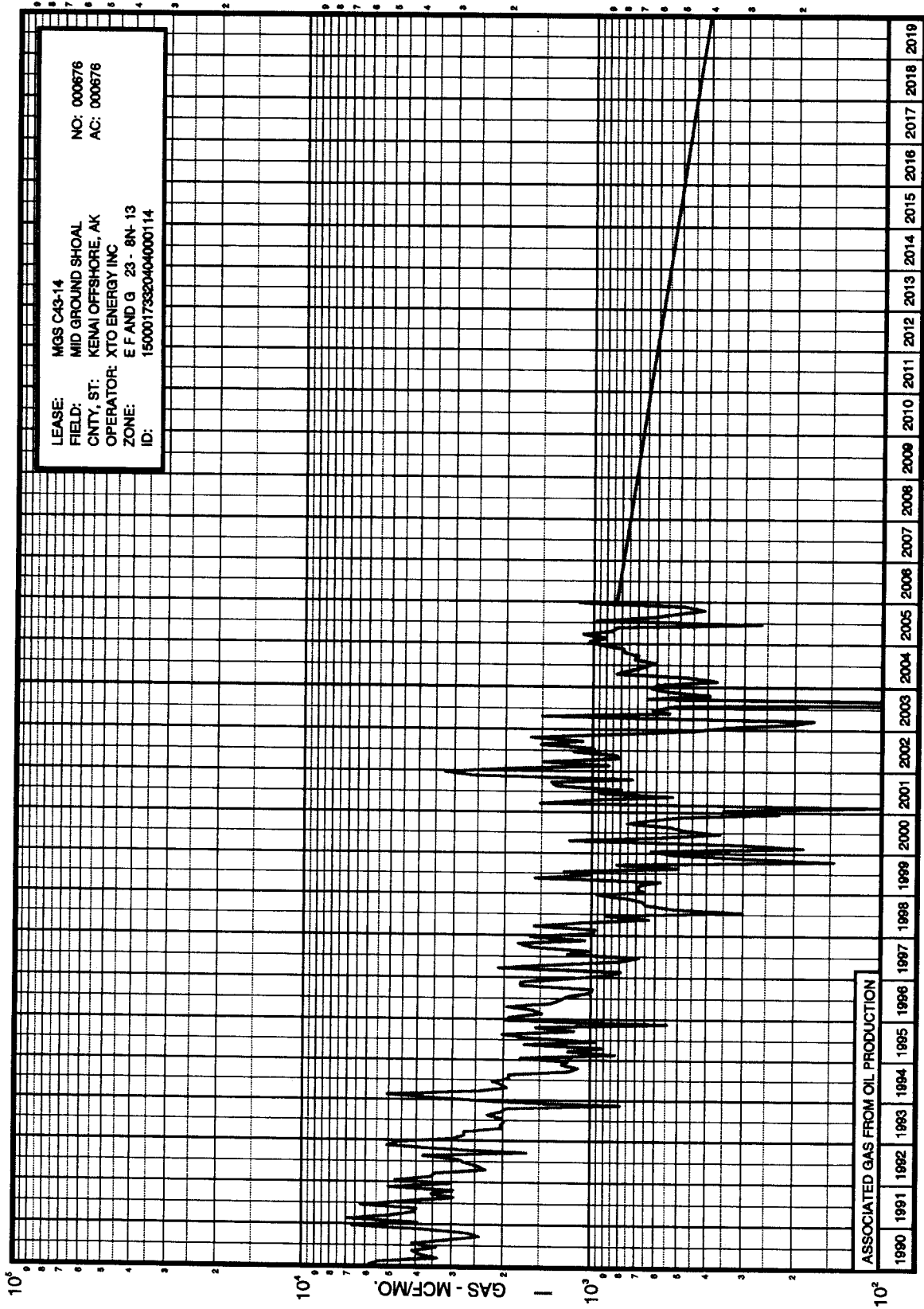
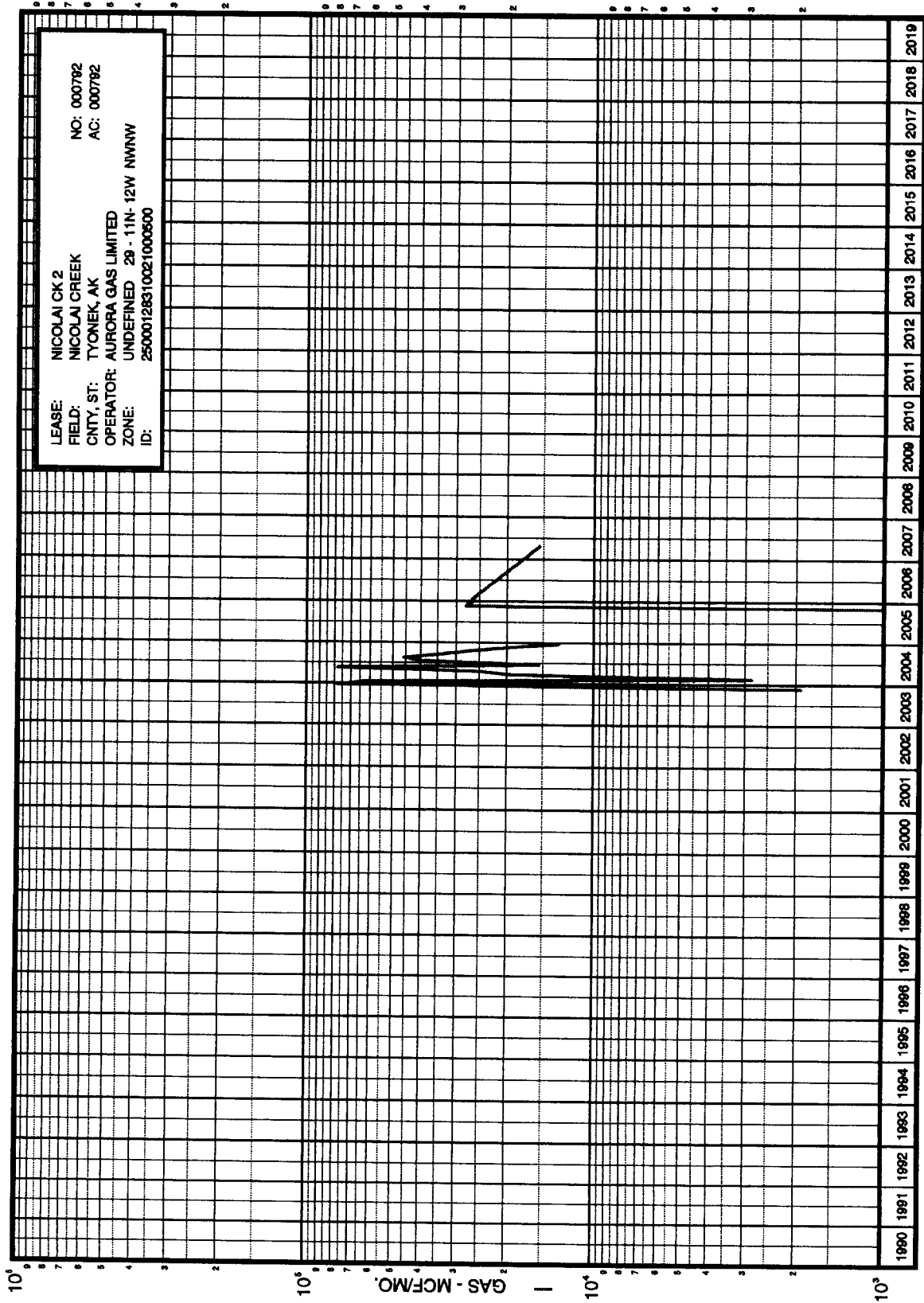


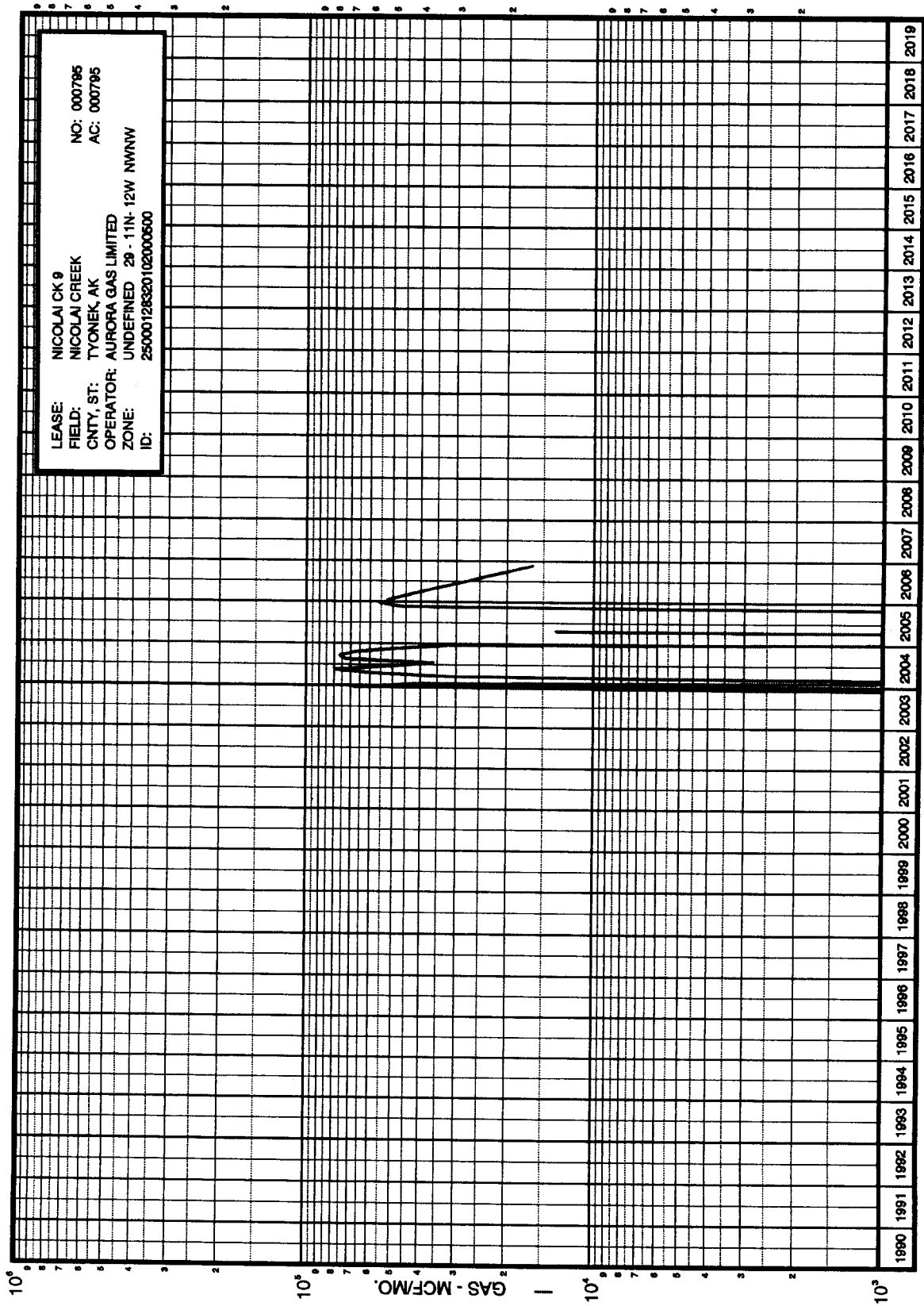
Figure 10.4.1.69

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

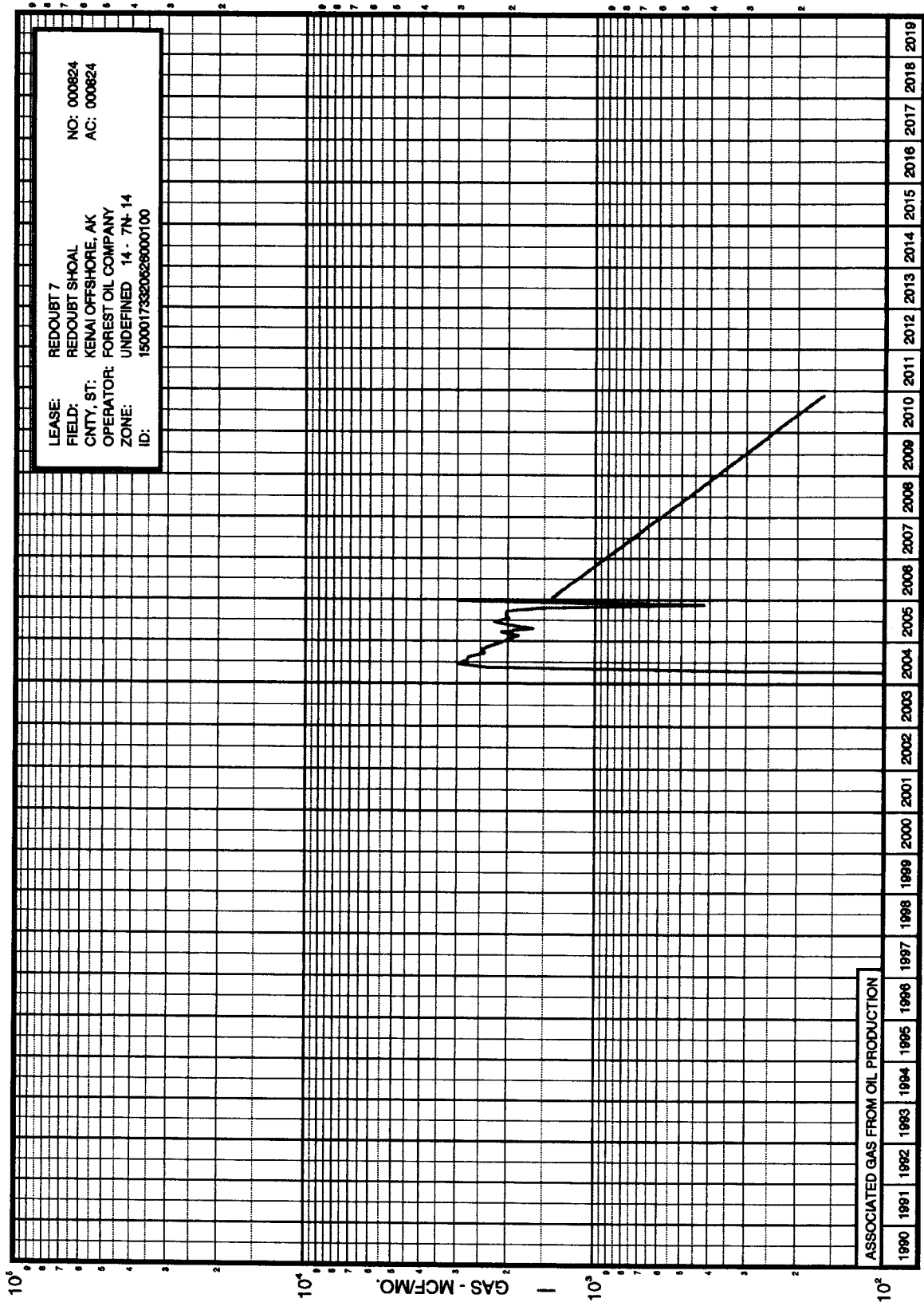
Figure 10.4.1.70



LEASE: NICOLAI CK 9 NO: 000795  
 FIELD: NICOLAI CREEK AC: 000795  
 CNTY, ST: TYONEK, AK  
 OPERATOR: AURORA GAS LIMITED  
 ZONE: UNDEFINED 29 - 11N- 12W NWNW  
 ID: 25000128320102000500

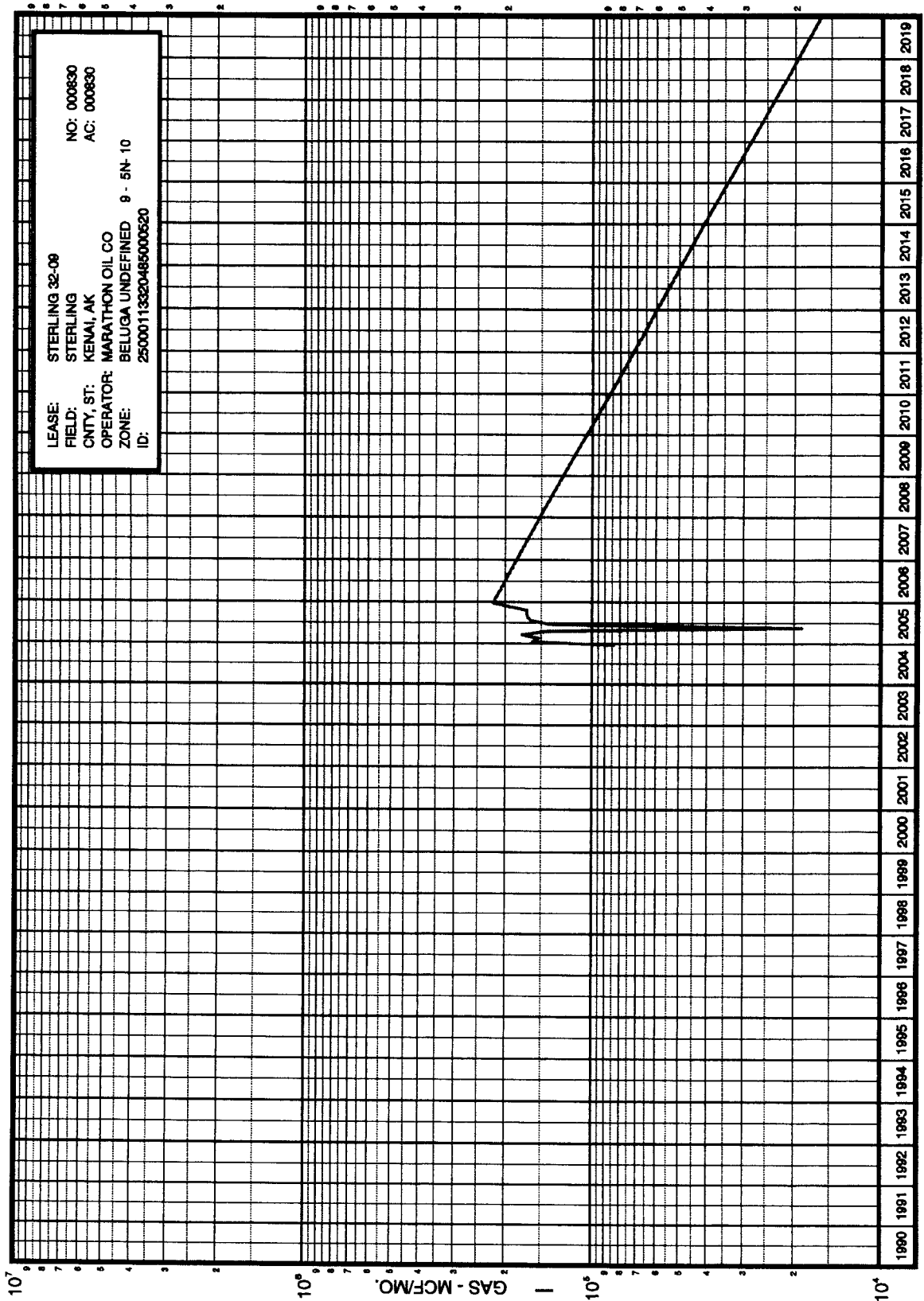
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.71



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

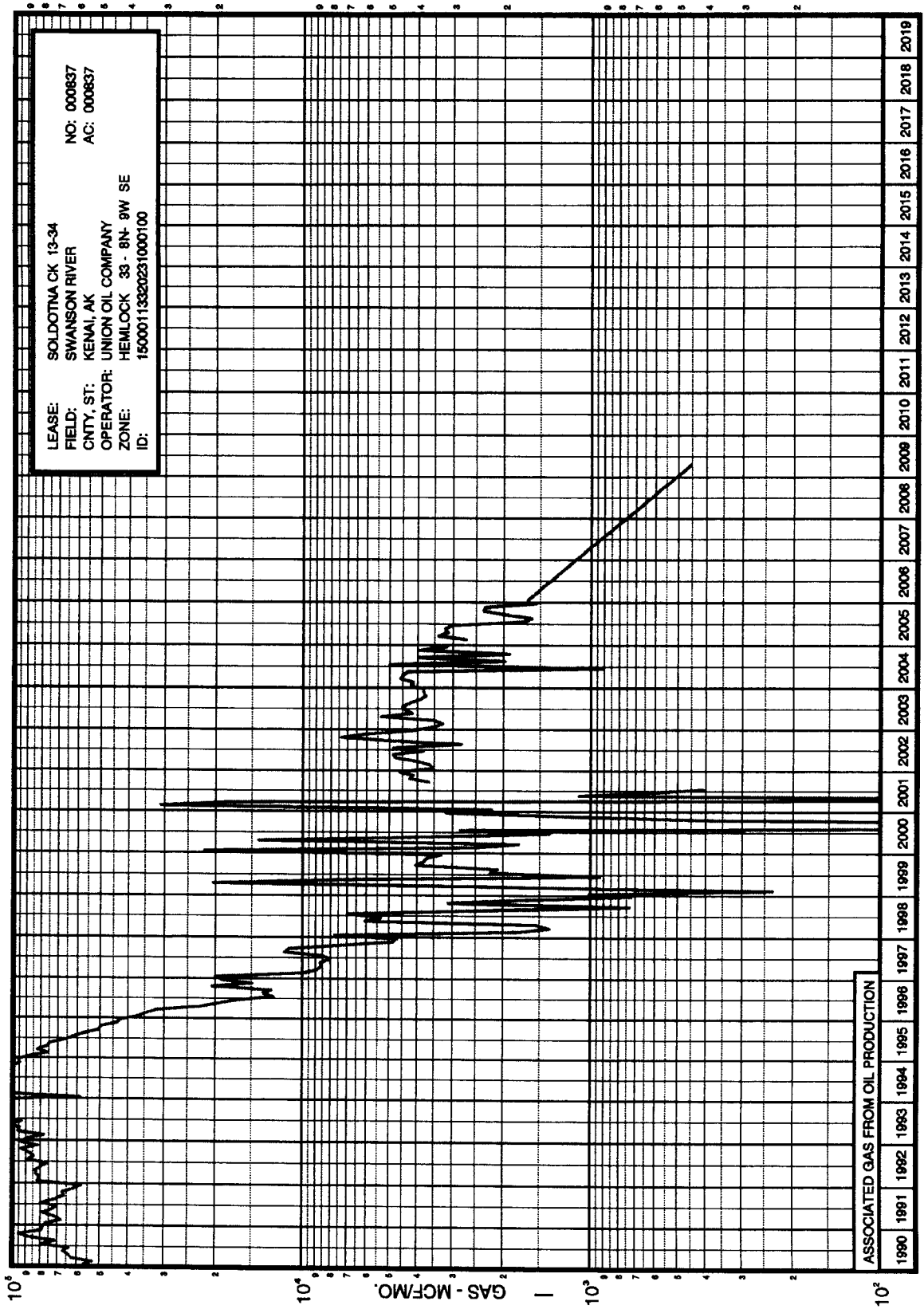
Figure 10.4.1.72



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

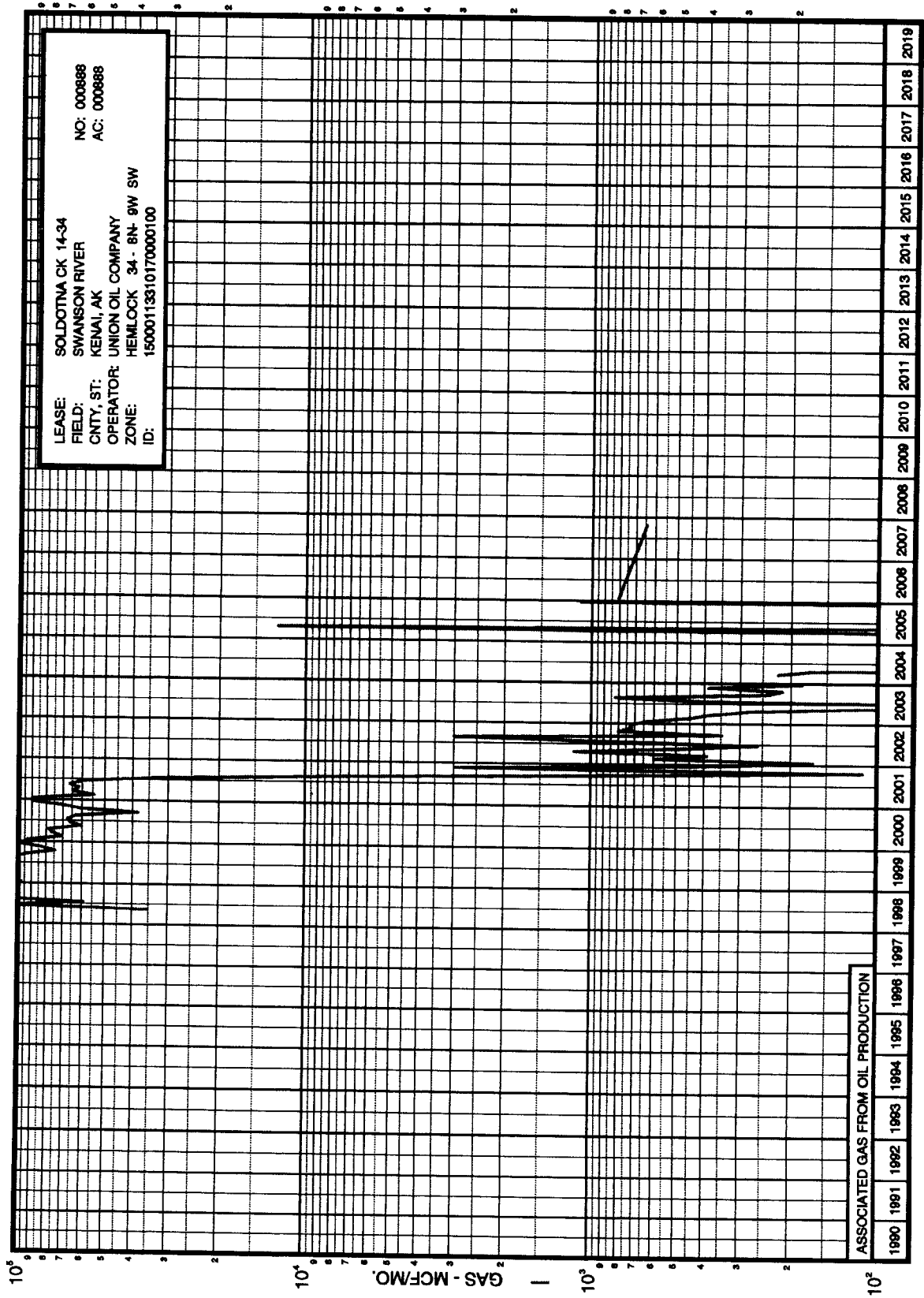
Figure 10.4.1.73





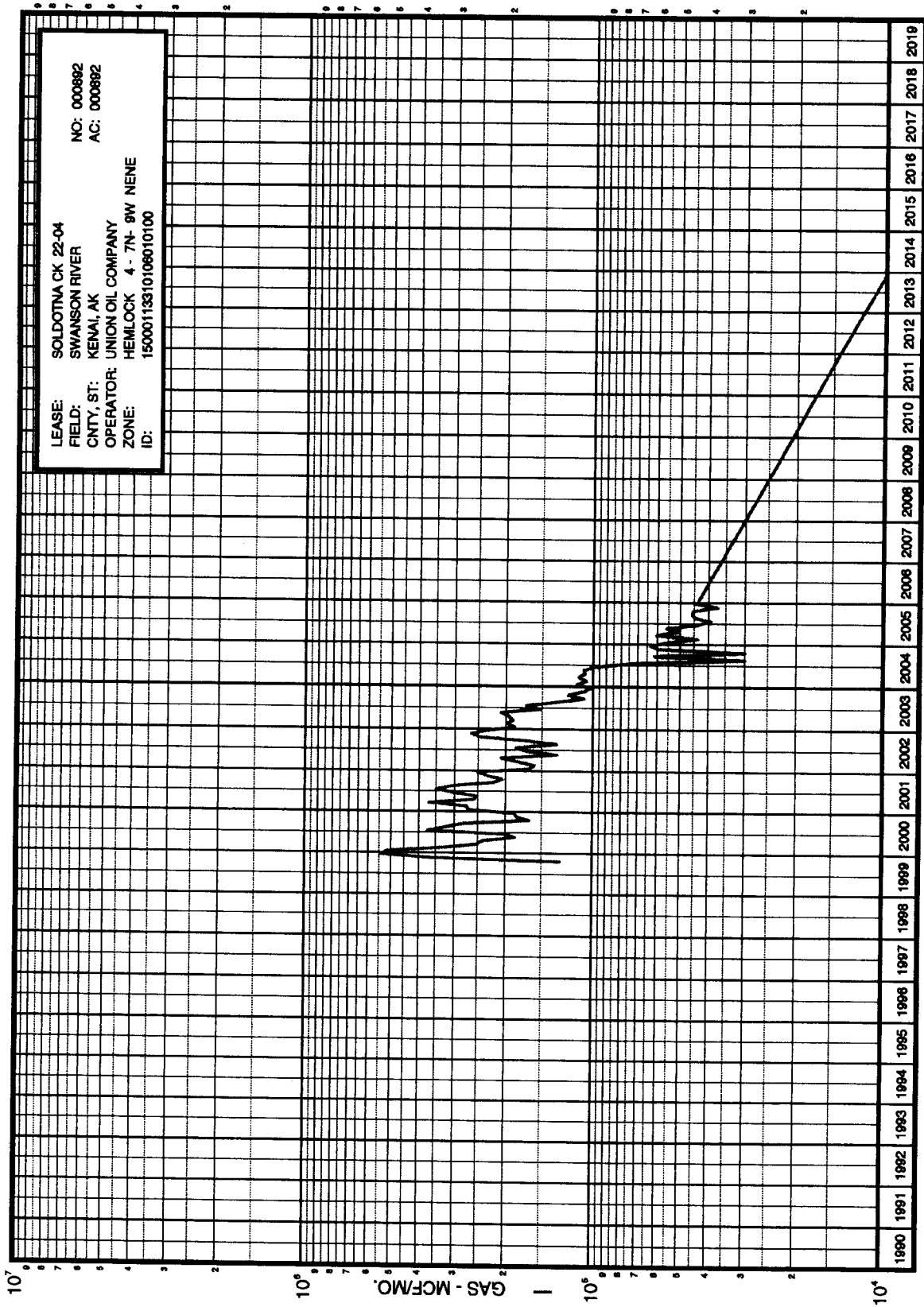
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.74



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

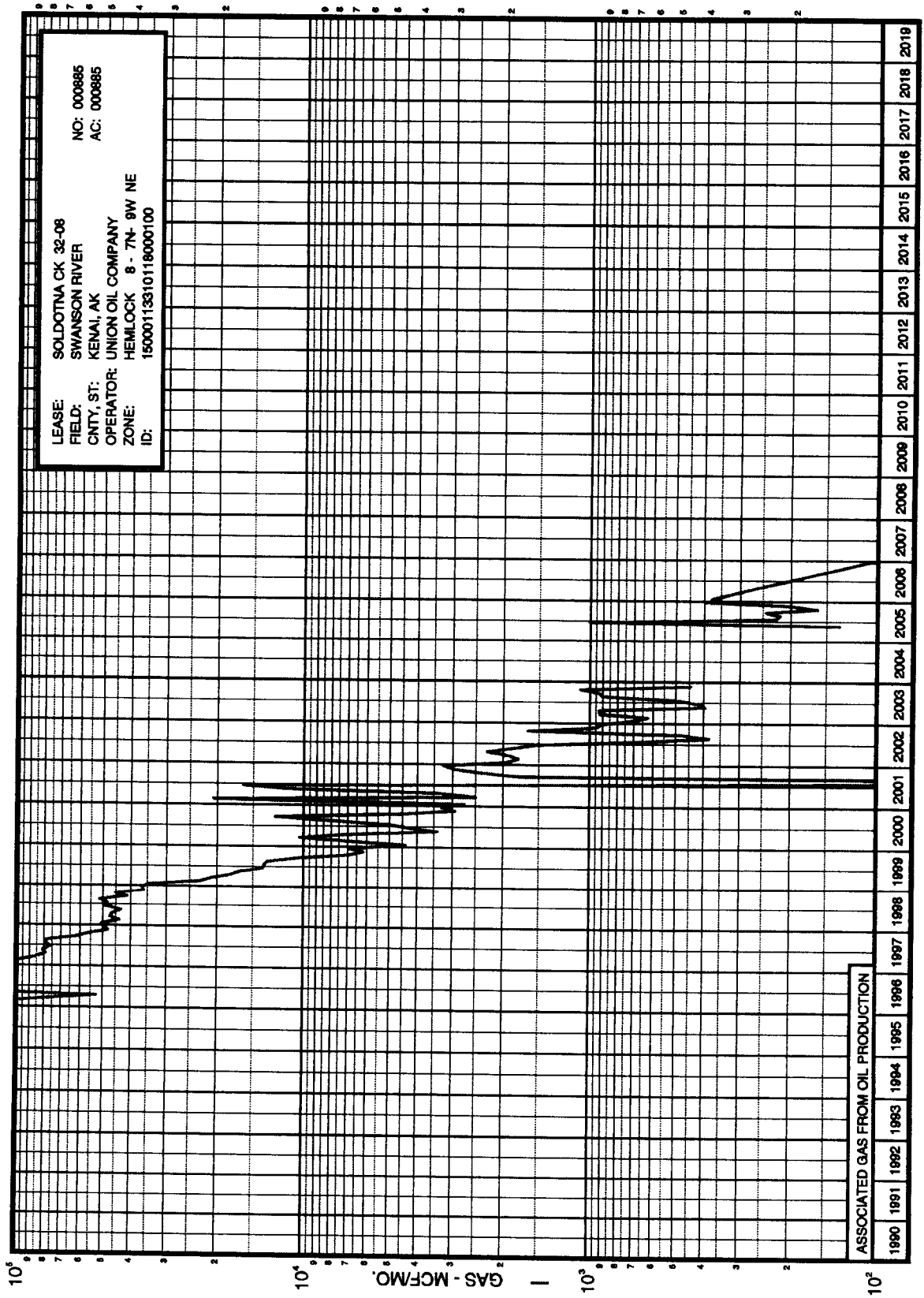
Figure 10.4.1.75



LEASE: SOLDOTNA CK 22-04  
 FIELD: SWANSON RIVER  
 CNTY, ST: KENAI, AK  
 OPERATOR: UNION OIL COMPANY  
 ZONE: HEMLOCK 4 - 7N- 8W NENE  
 ID: 15000113310106010100  
 NO: 000892  
 AC: 000892

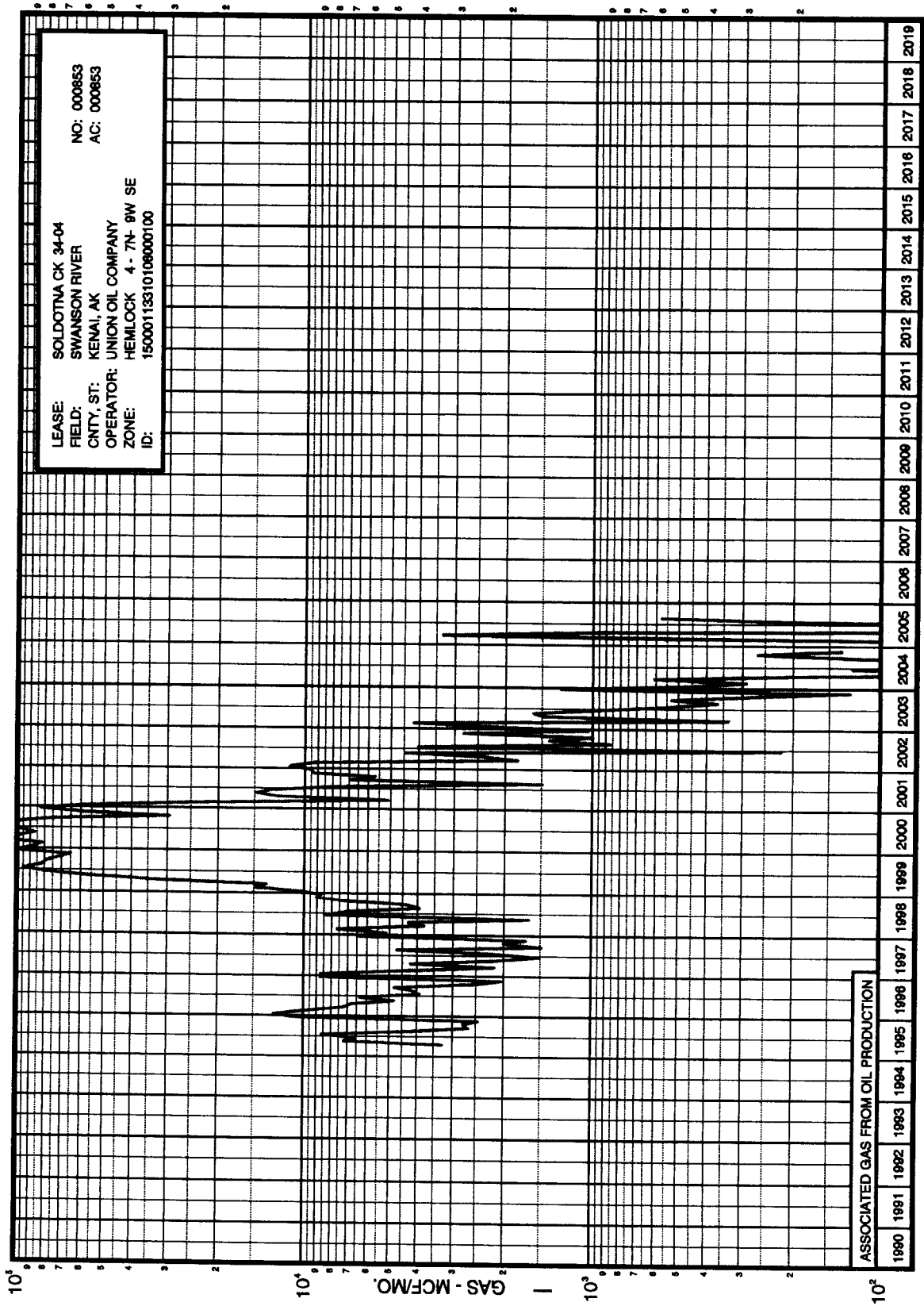
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.76



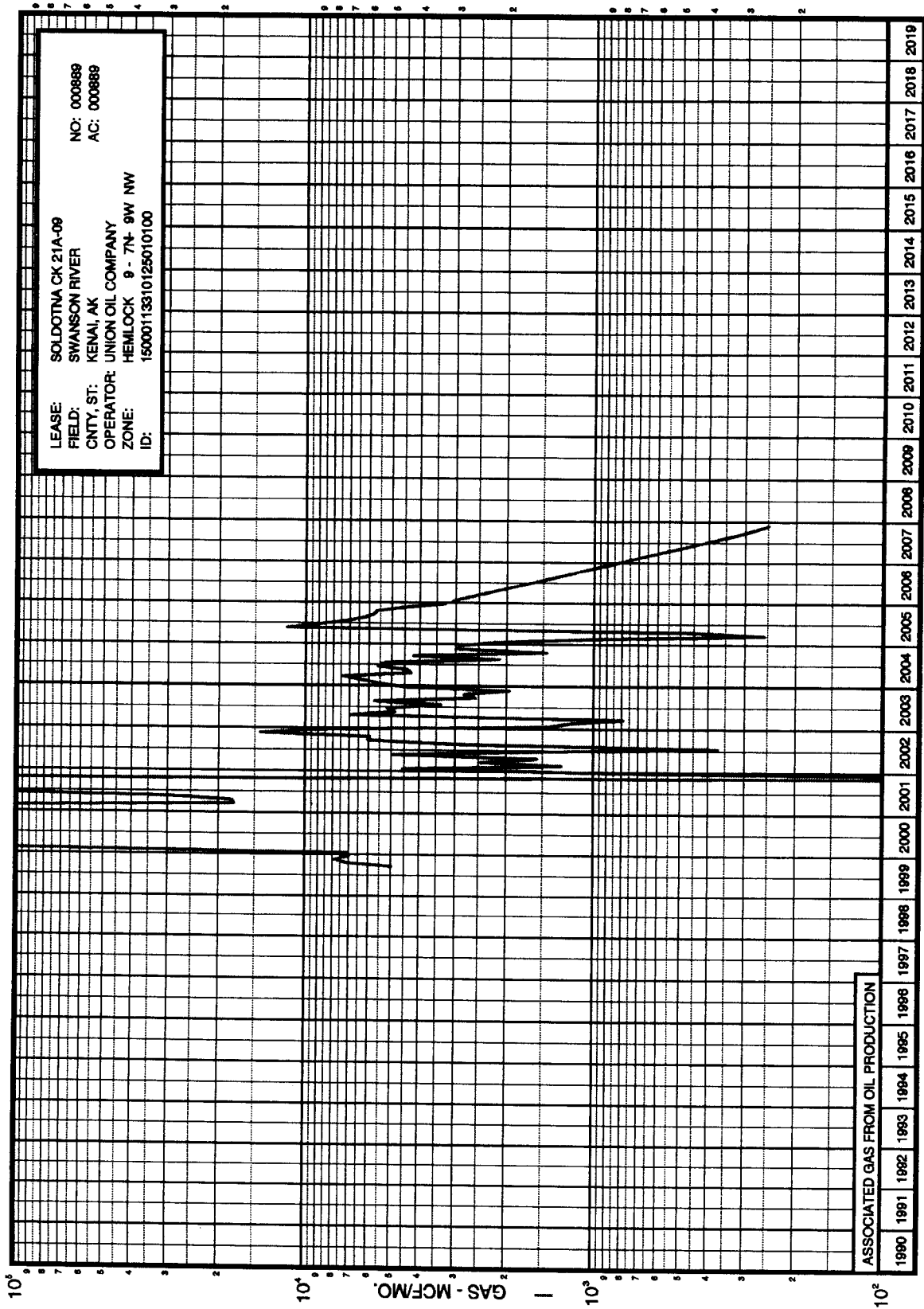
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.77



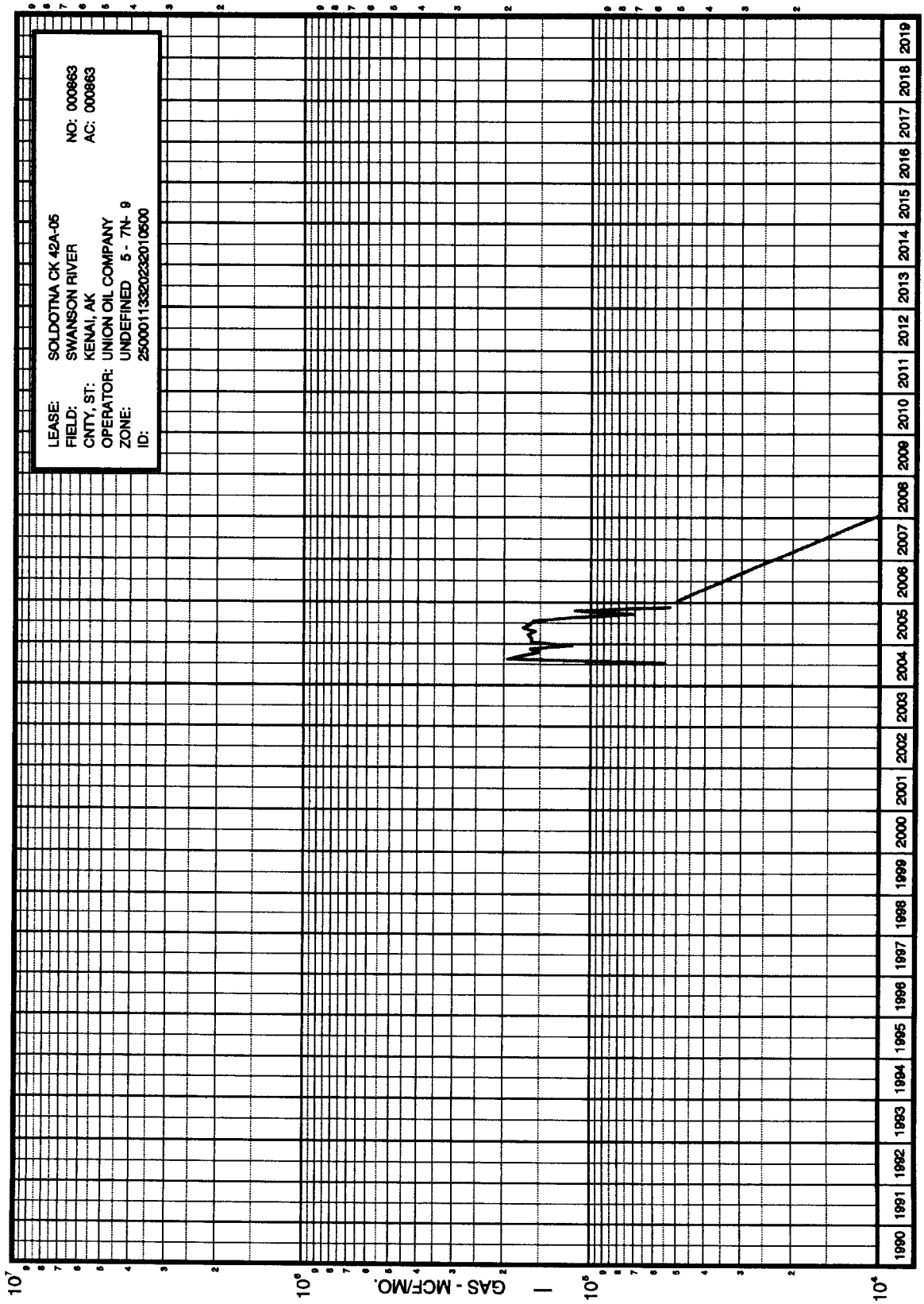
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.78



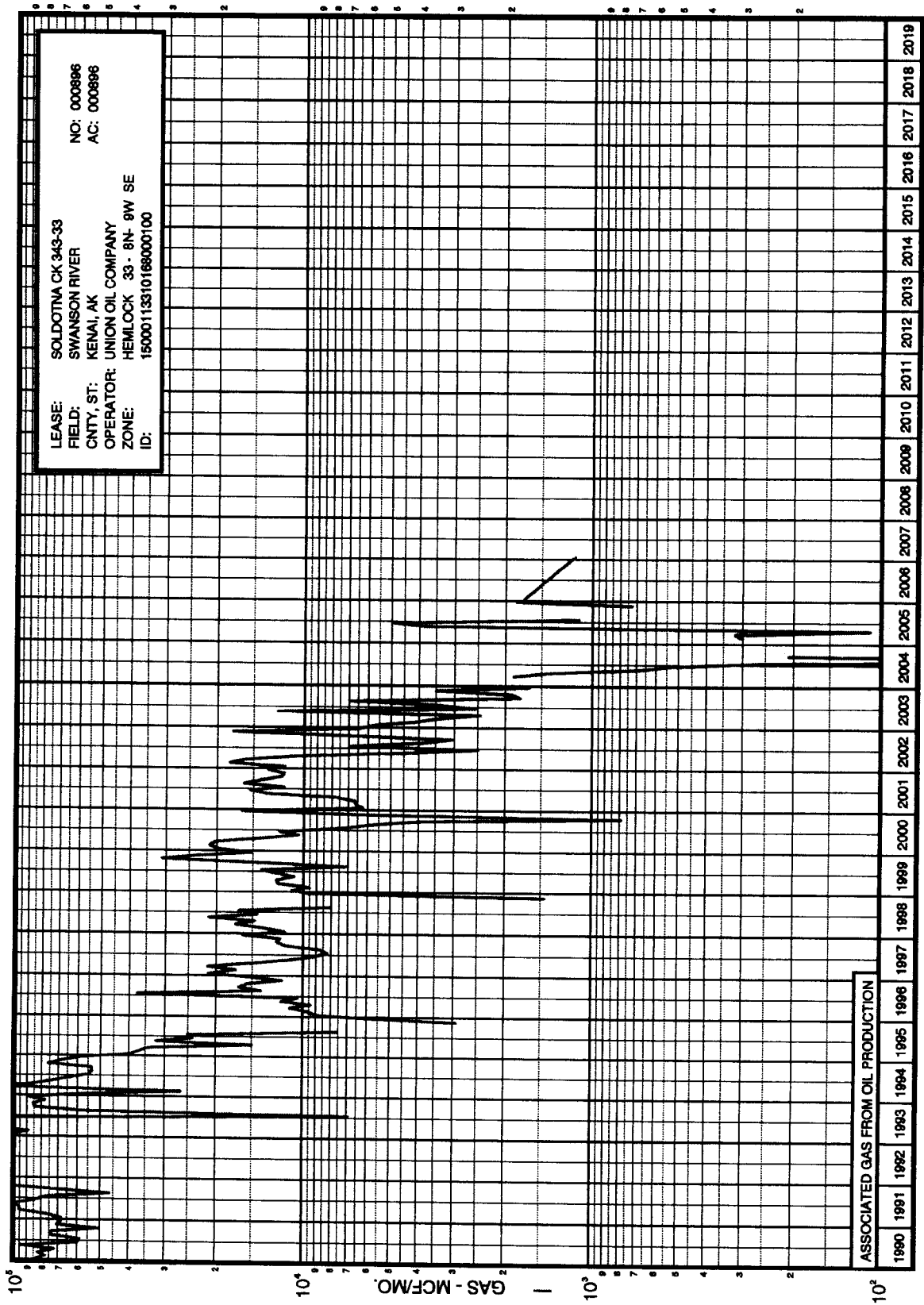
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.79



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

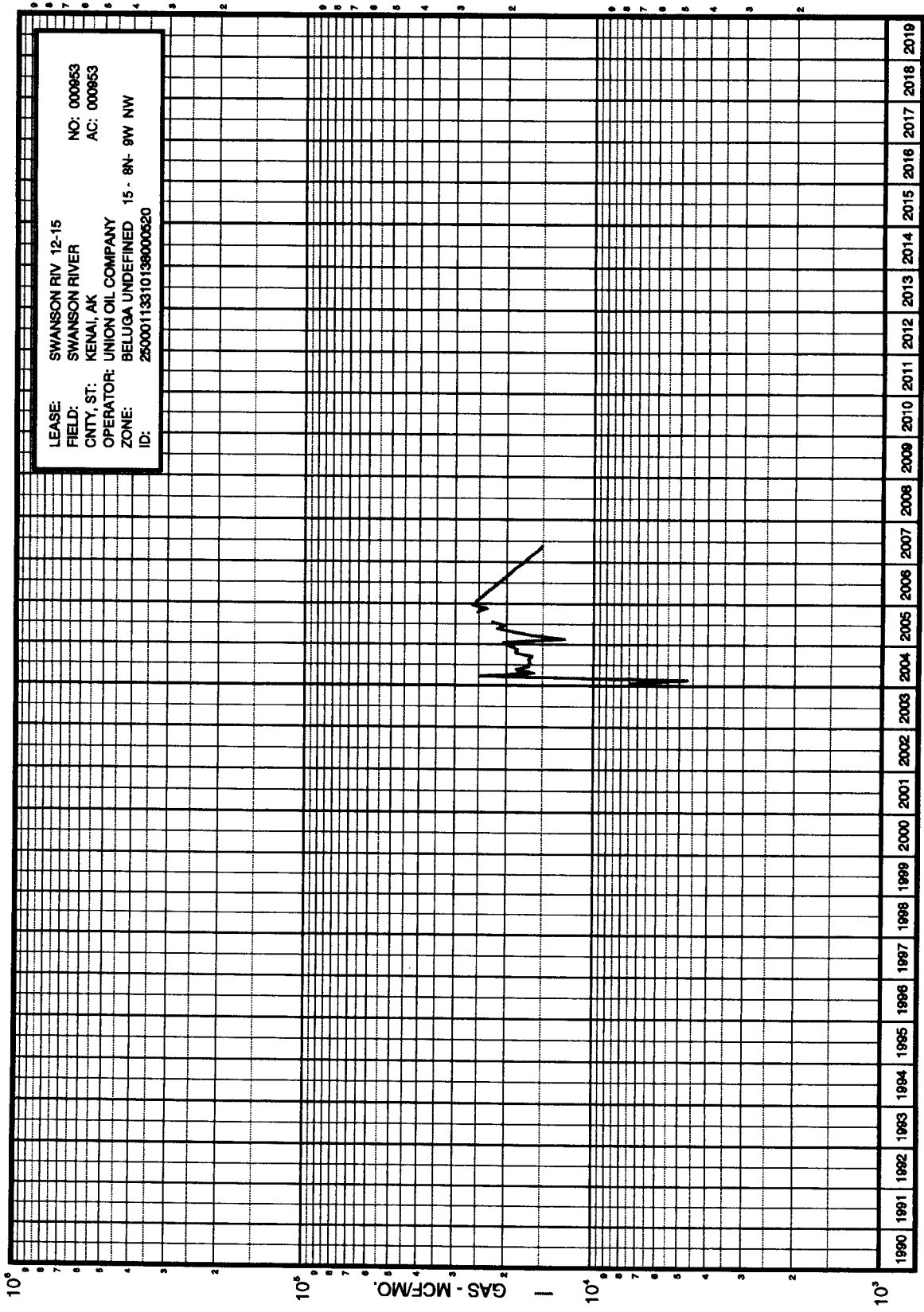
Figure 10.4.1.80



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

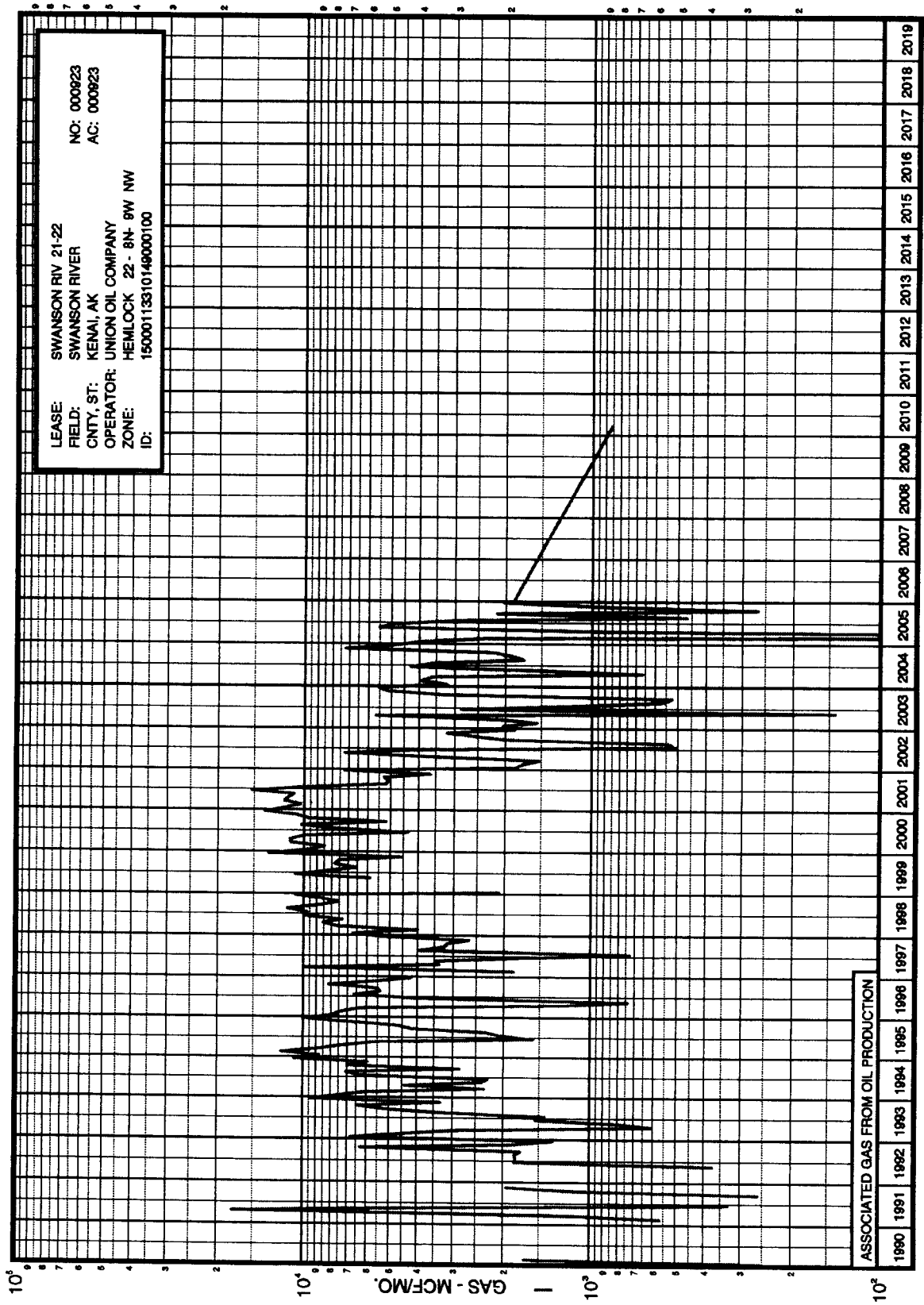
Figure 10.4.1.81





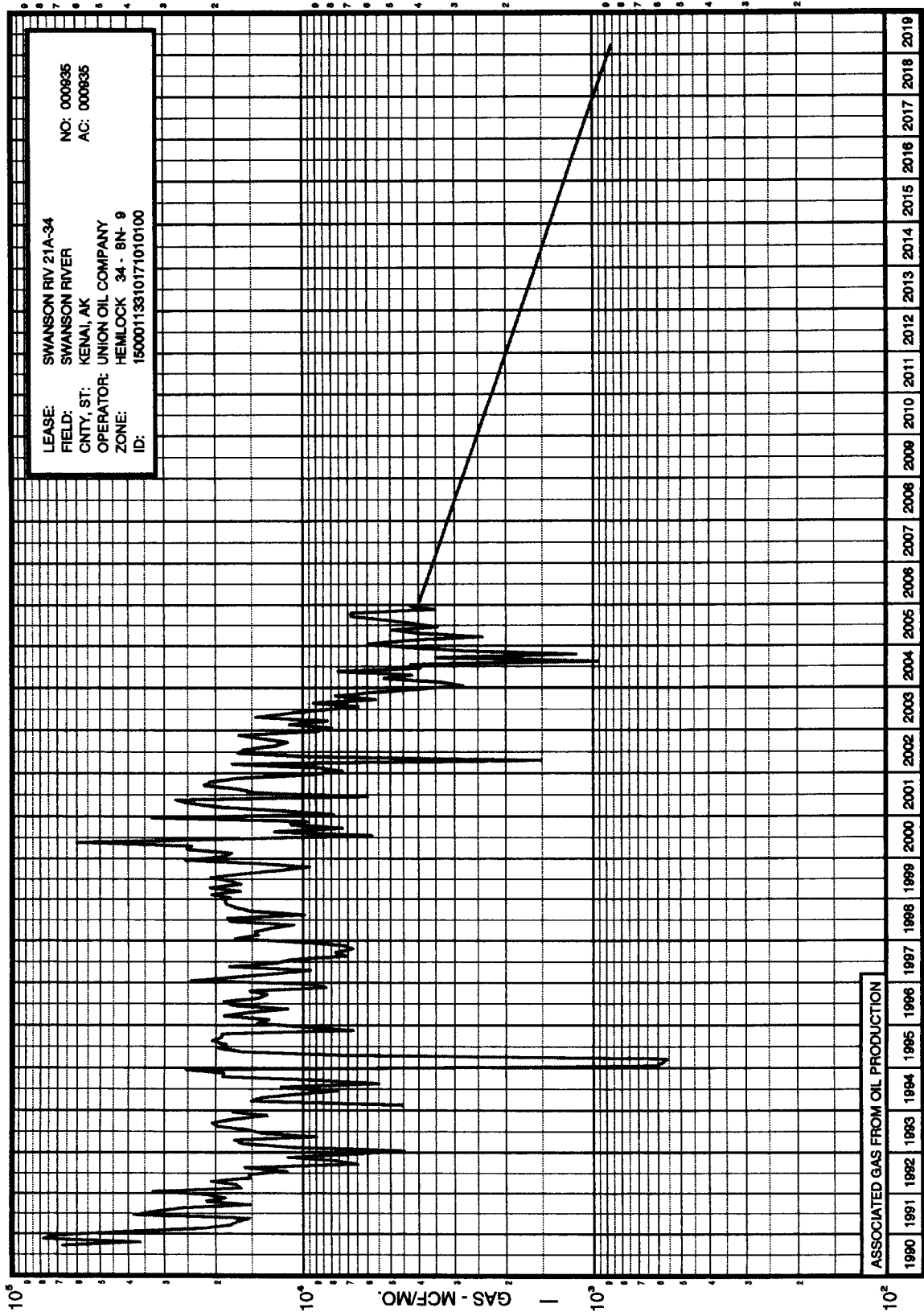
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.82



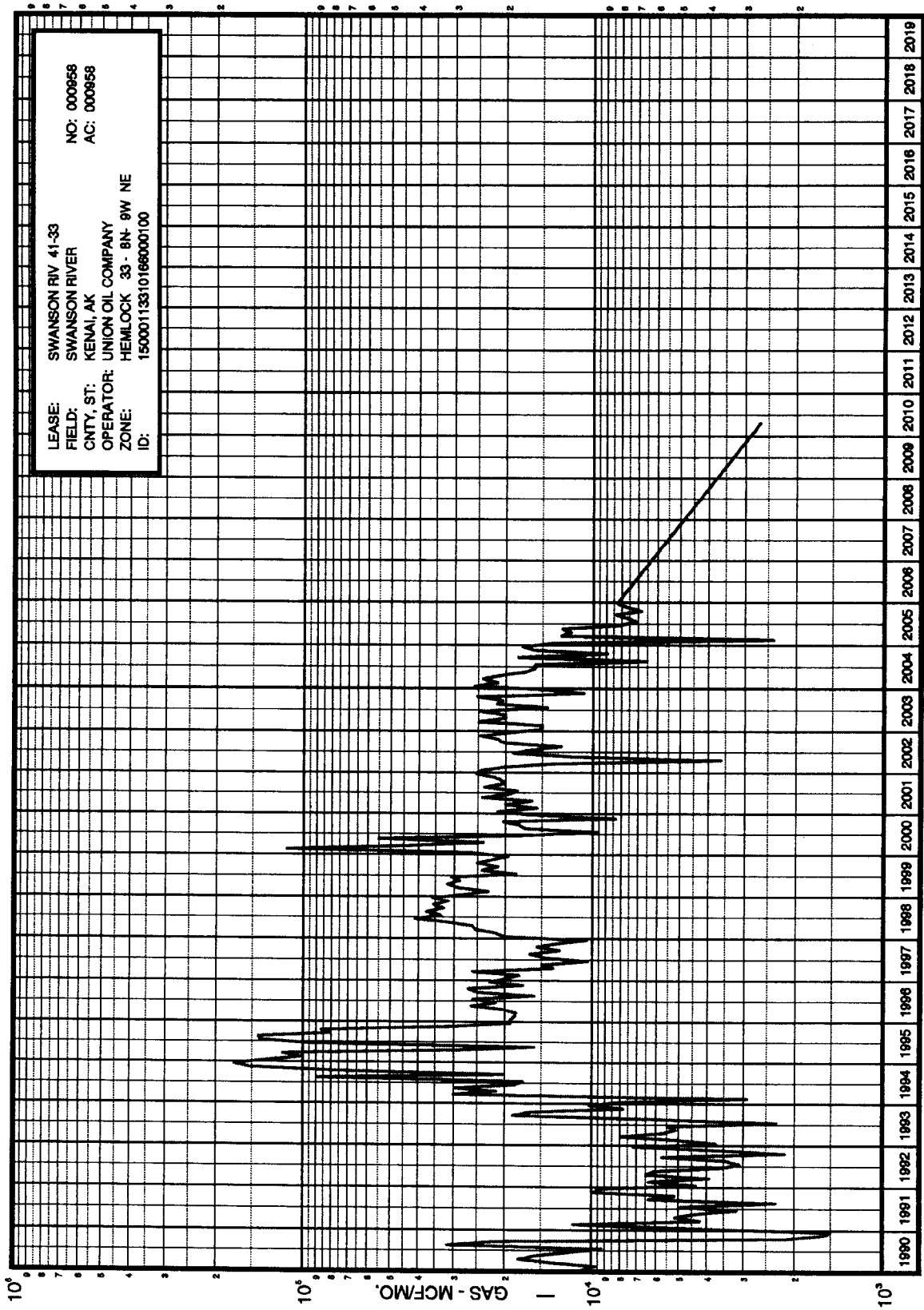
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.83



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.84



LEASE: SWANSON RIV 41-33  
 FIELD: SWANSON RIVER  
 CNTY, ST: KENAI, AK  
 OPERATOR: UNION OIL COMPANY  
 ZONE: HEMLOCK 33-8N-9W NE  
 ID: 15000113310169000100  
 NO: 000958  
 AC: 000958

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.85

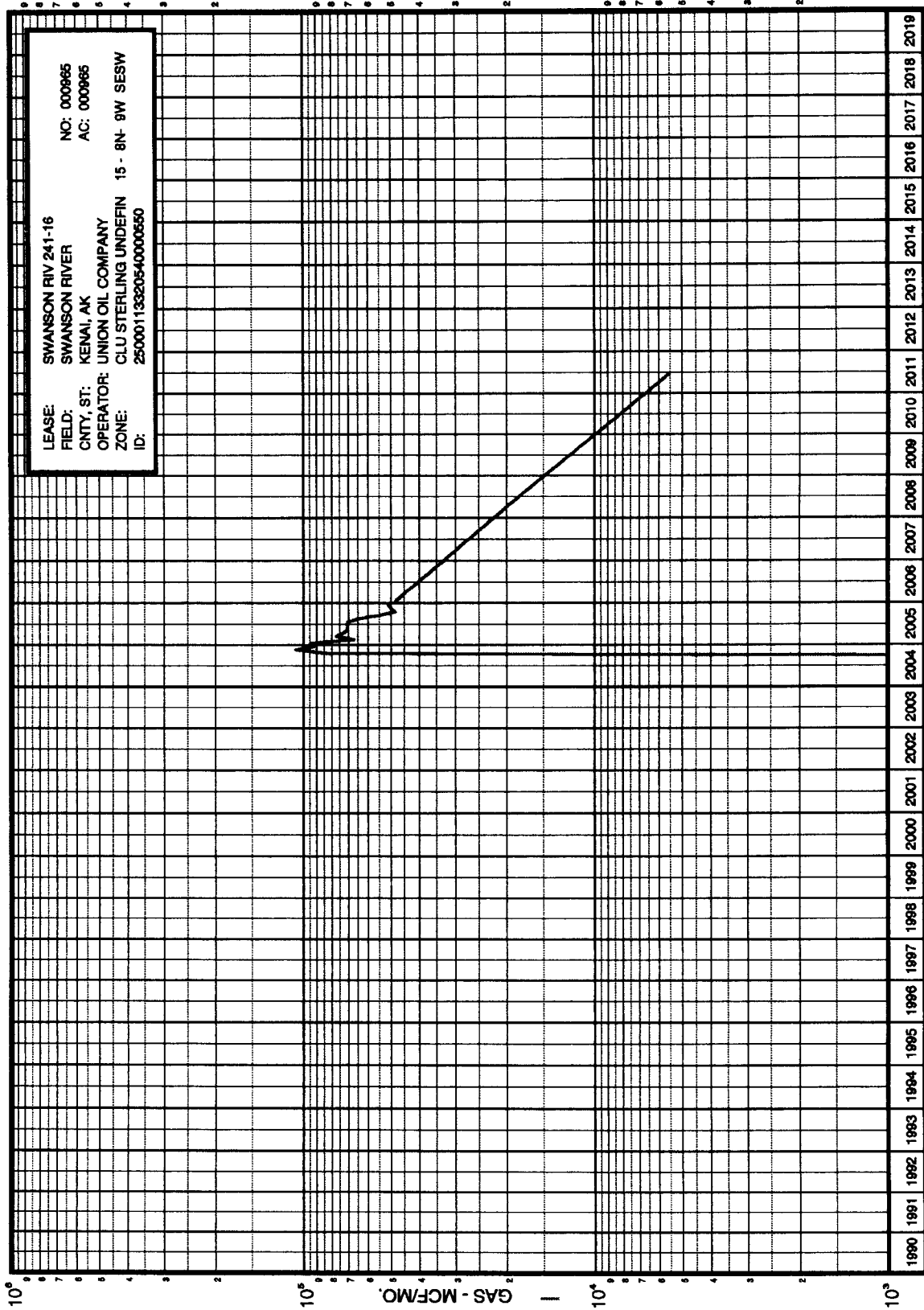
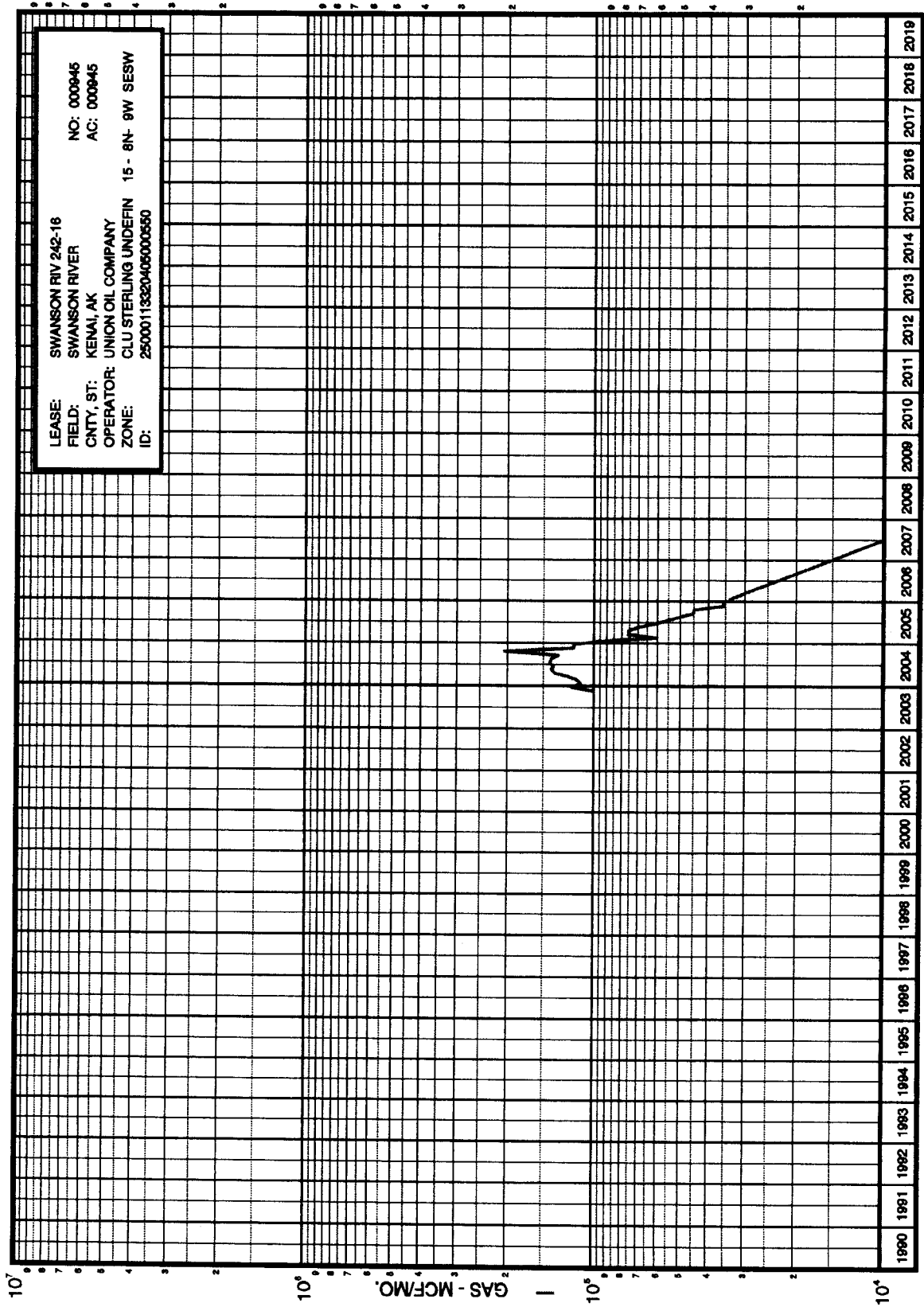


Figure 10.4.1.86

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

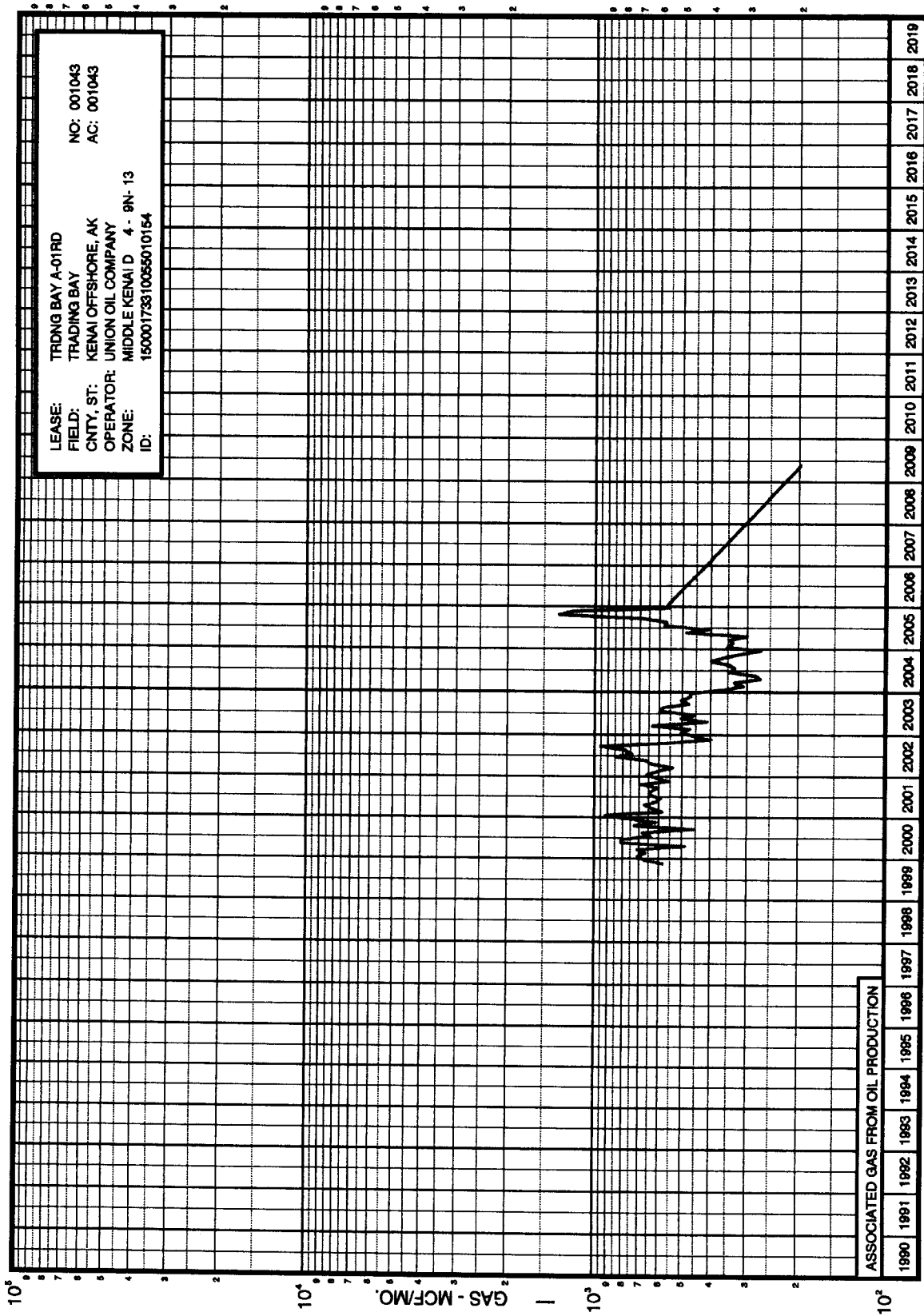


LEASE: SWANSON RIV 242-16  
 FIELD: SWANSON RIVER  
 CNTY, ST: KENAI, AK  
 OPERATOR: UNION OIL COMPANY  
 ZONE: CLU STERLING UNDEFIN 15 - 8N- 9W SESW  
 ID: 25000113320406000550  
 NO: 000945  
 AC: 000945

All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.87

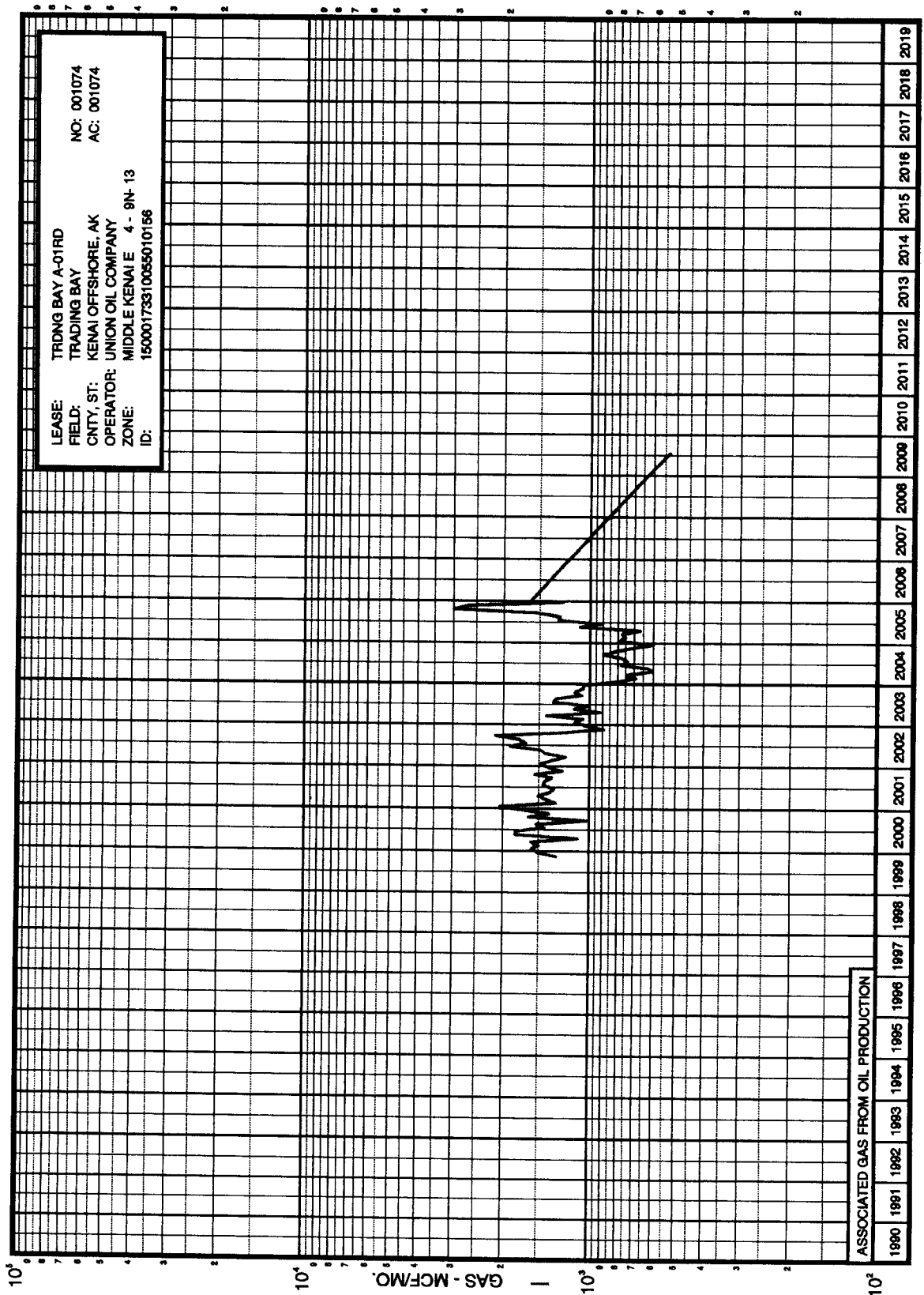




All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

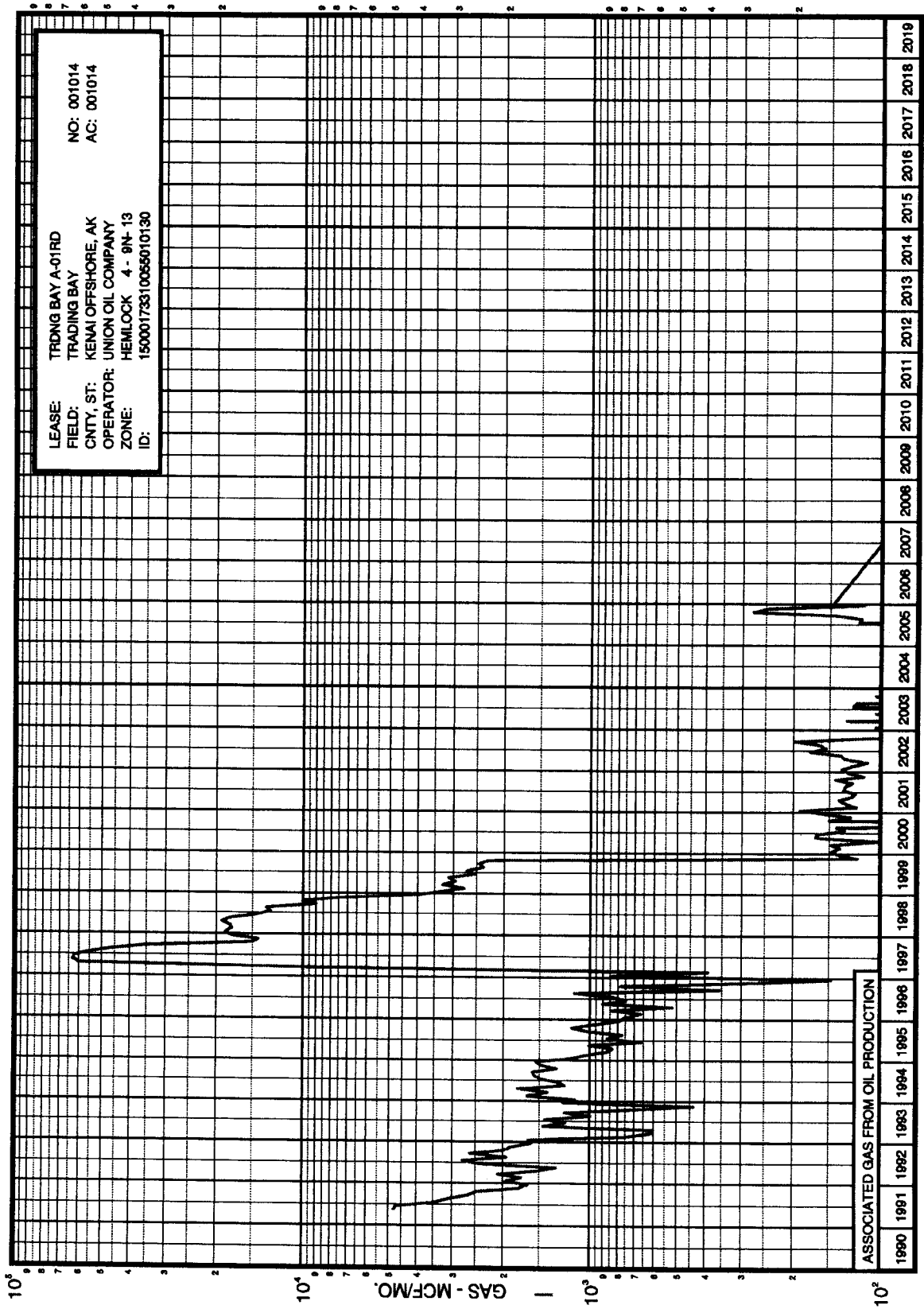
Figure 10.4.1.89





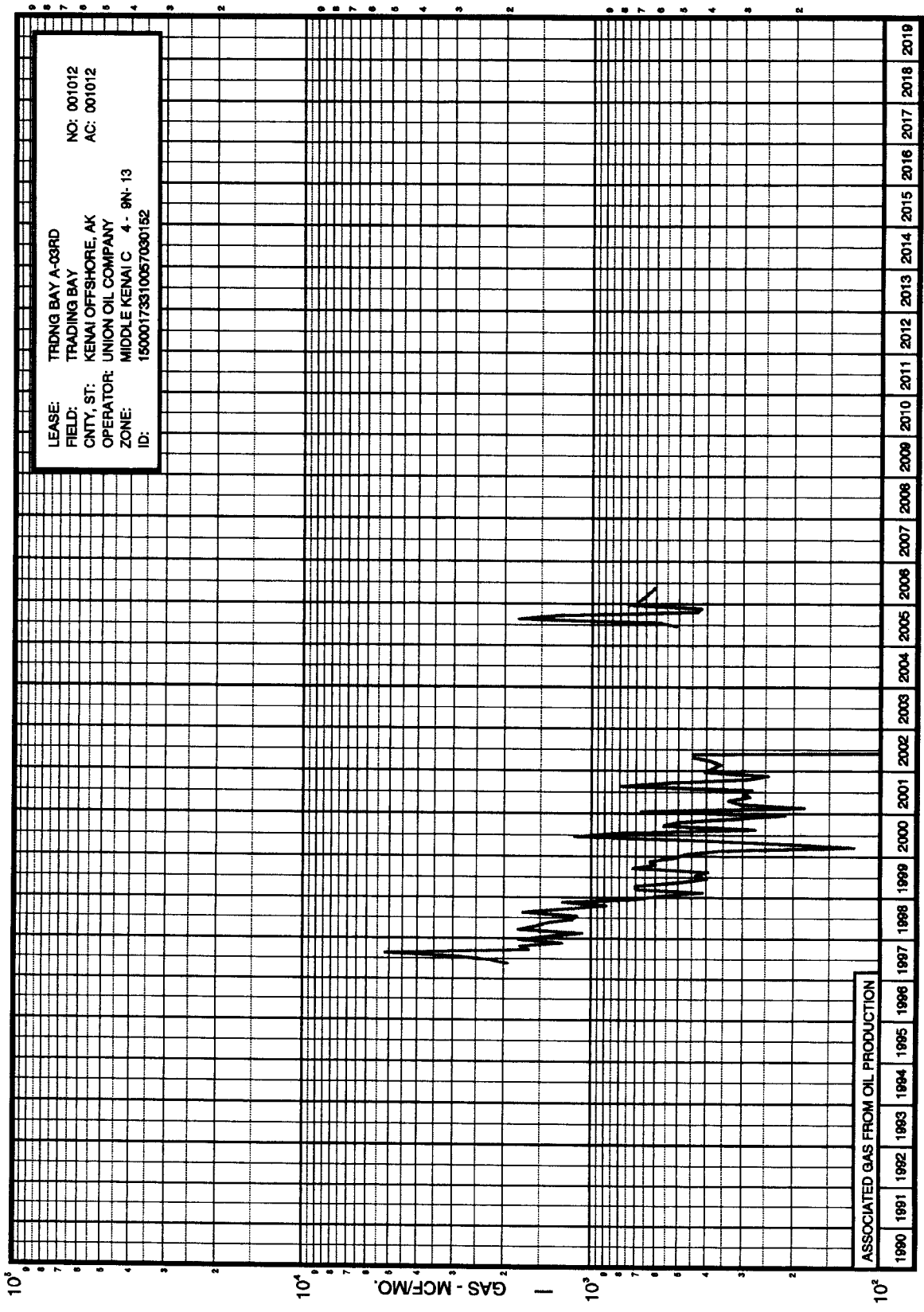
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.90



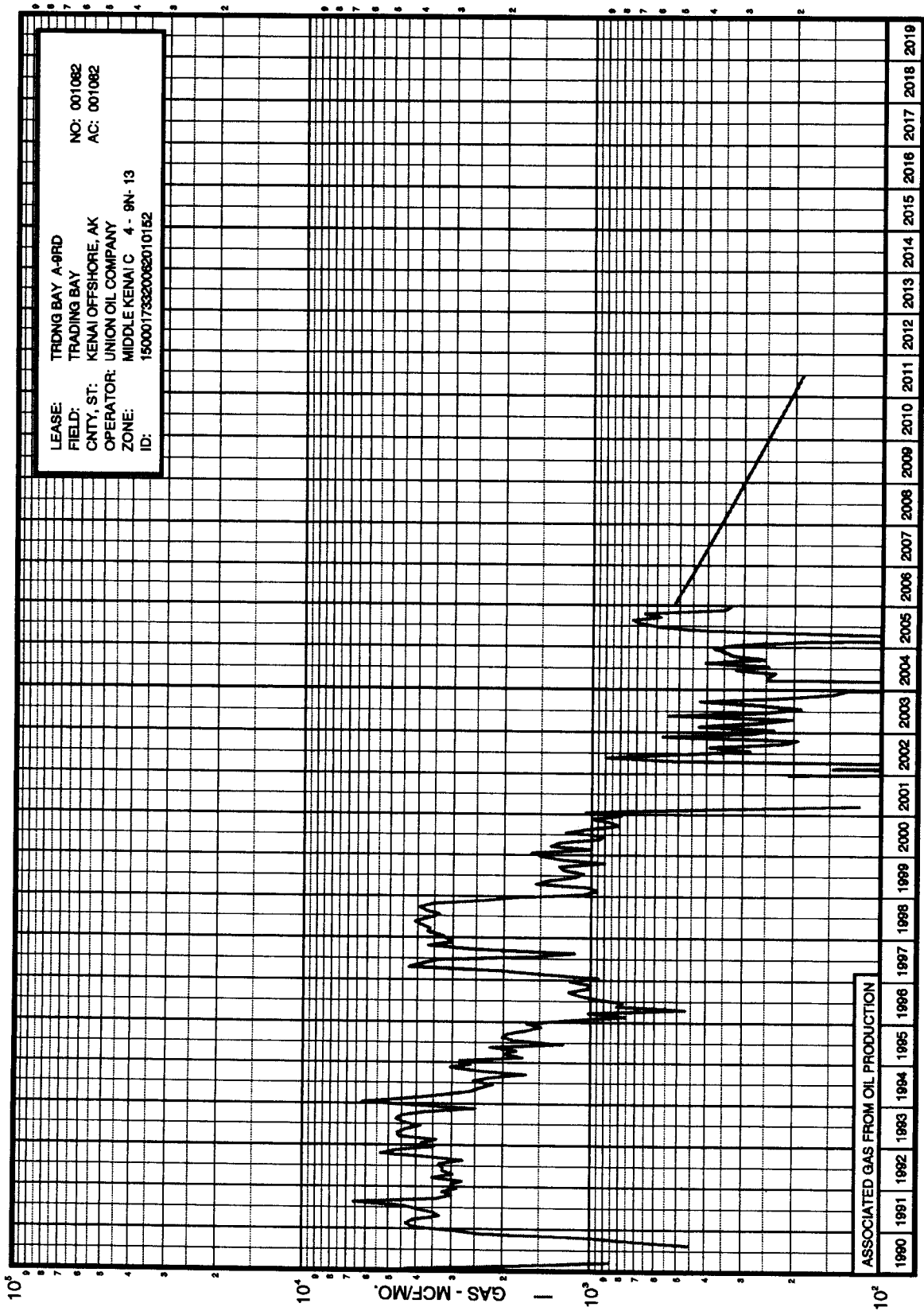
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.91



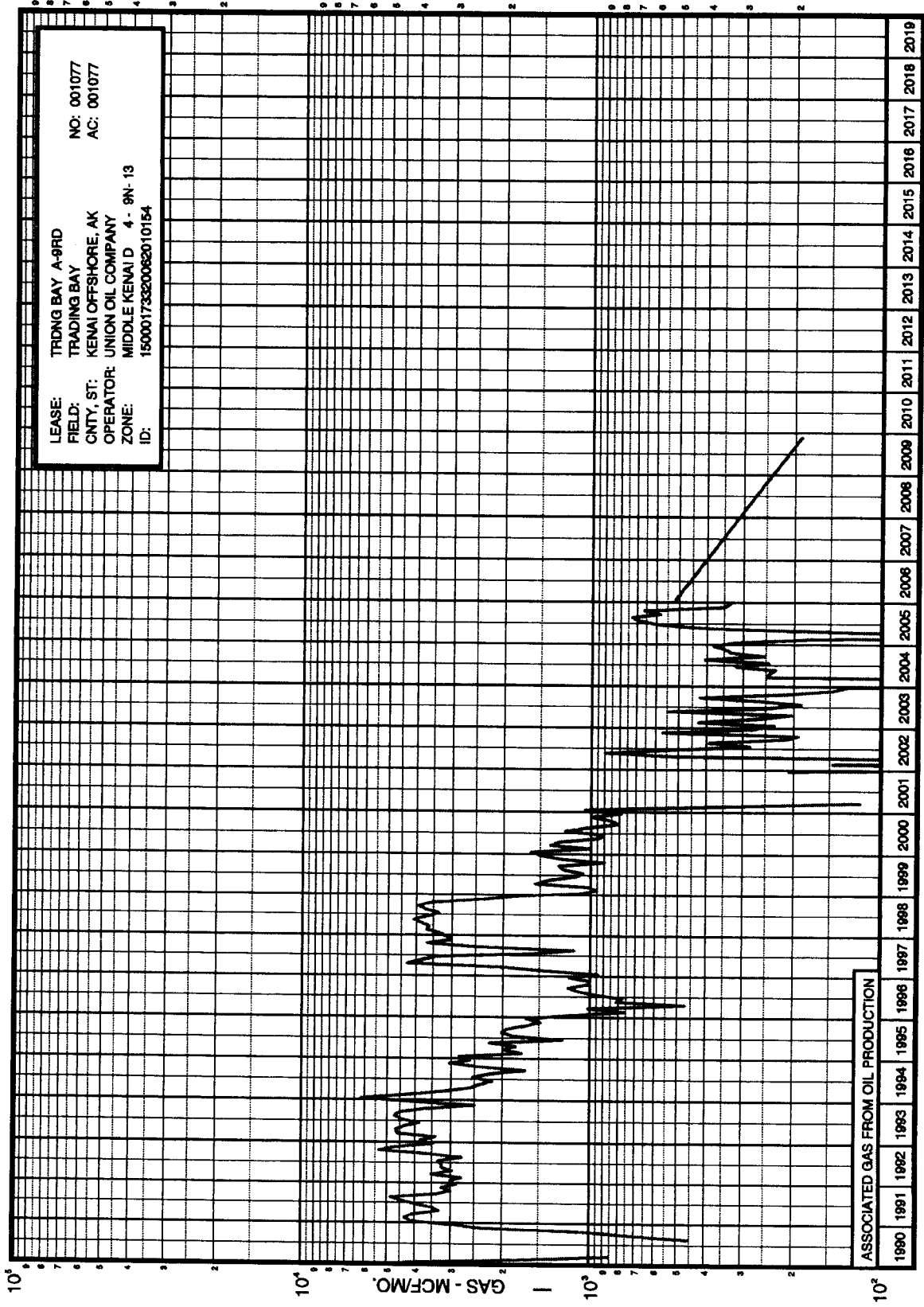
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.92



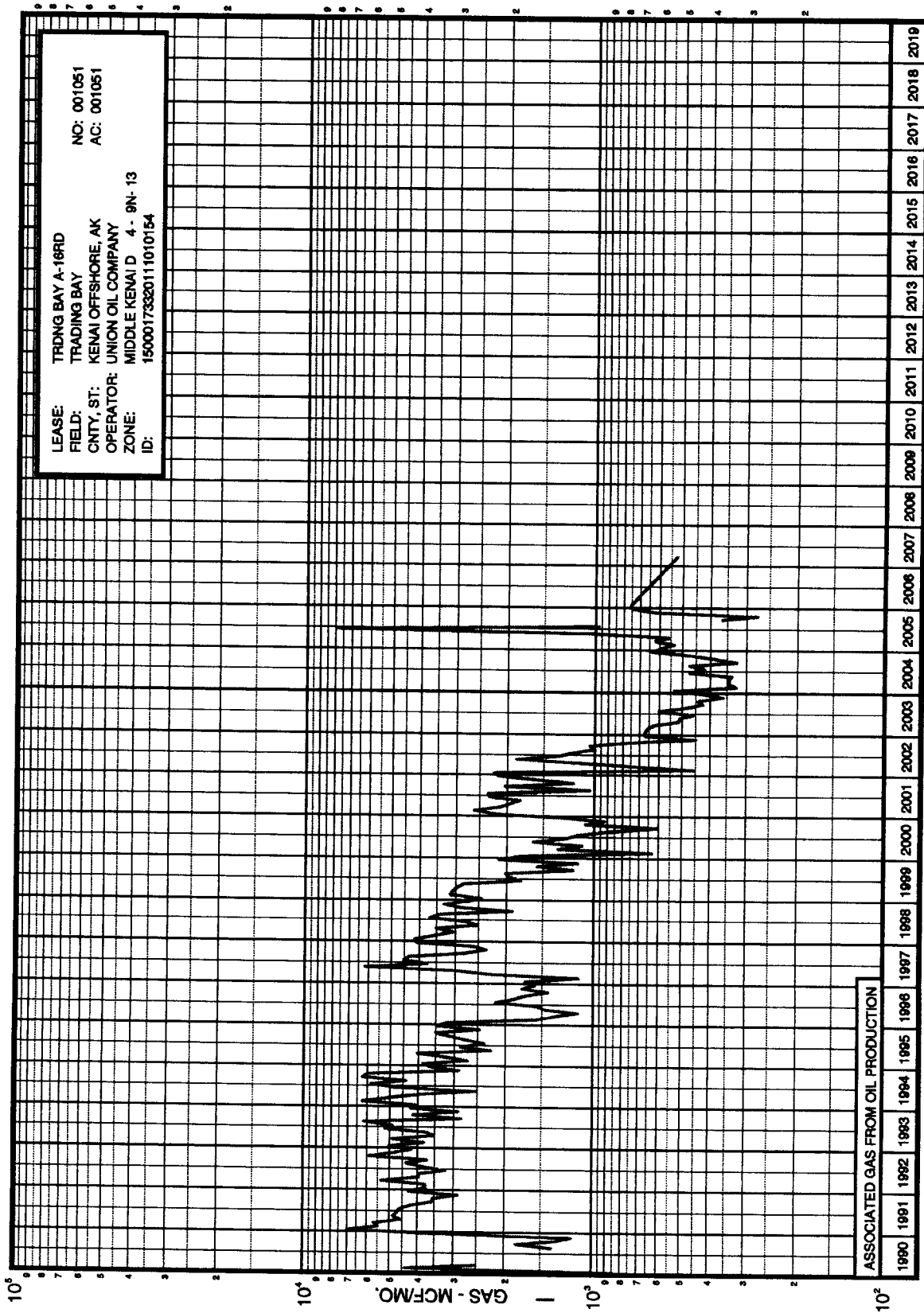
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.93



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.94

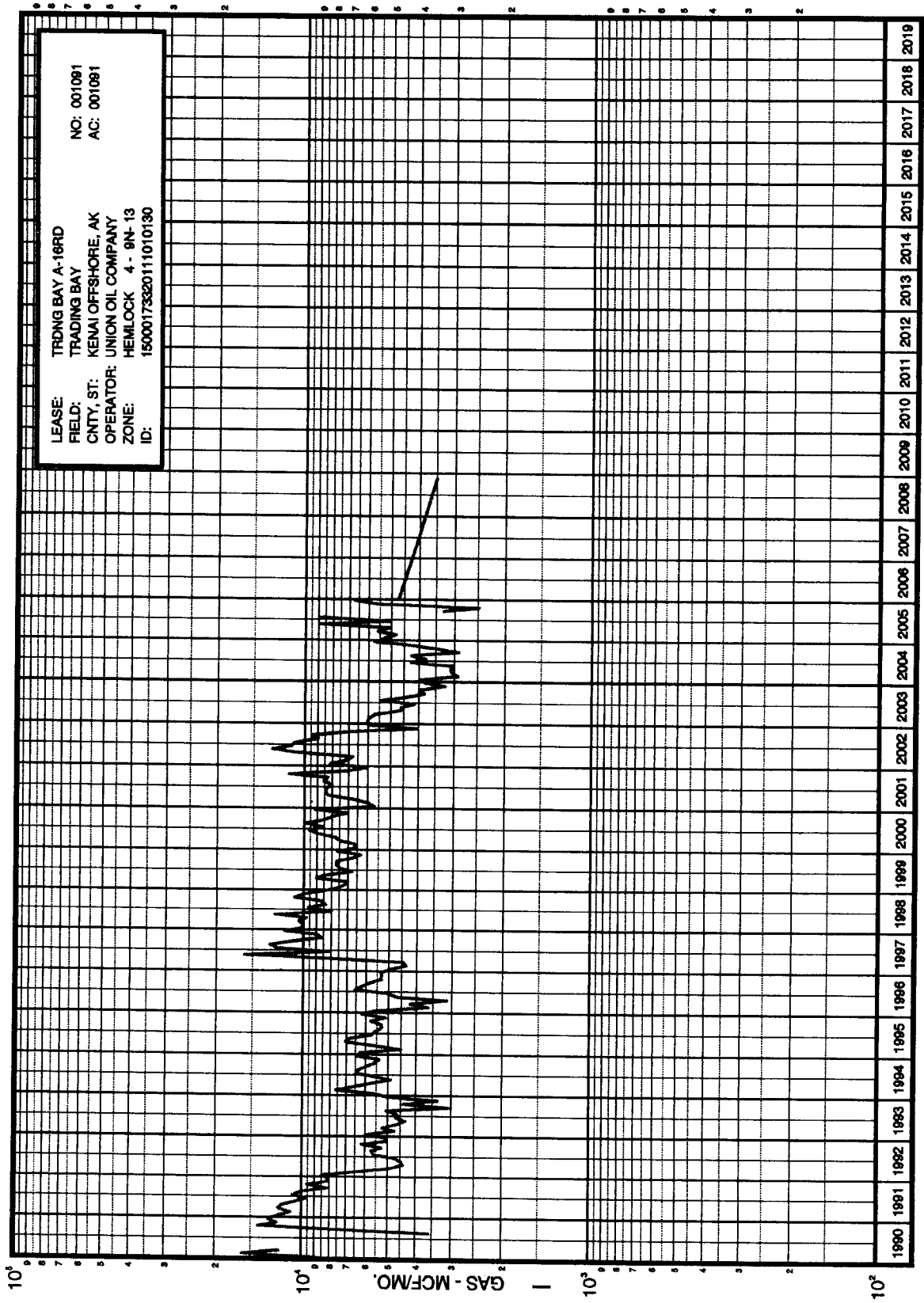


LEASE: TRDNG BAY A-16RD  
 FIELD: TRADING BAY  
 NC: 001051  
 AC: 001051  
 CNTY, ST: KENAI OFFSHORE, AK  
 OPERATOR: UNION OIL COMPANY  
 ZONE: MIDDLE KENAI D 4 - 9N- 13  
 ID: 15000173320111010154

ASSOCIATED GAS FROM OIL PRODUCTION

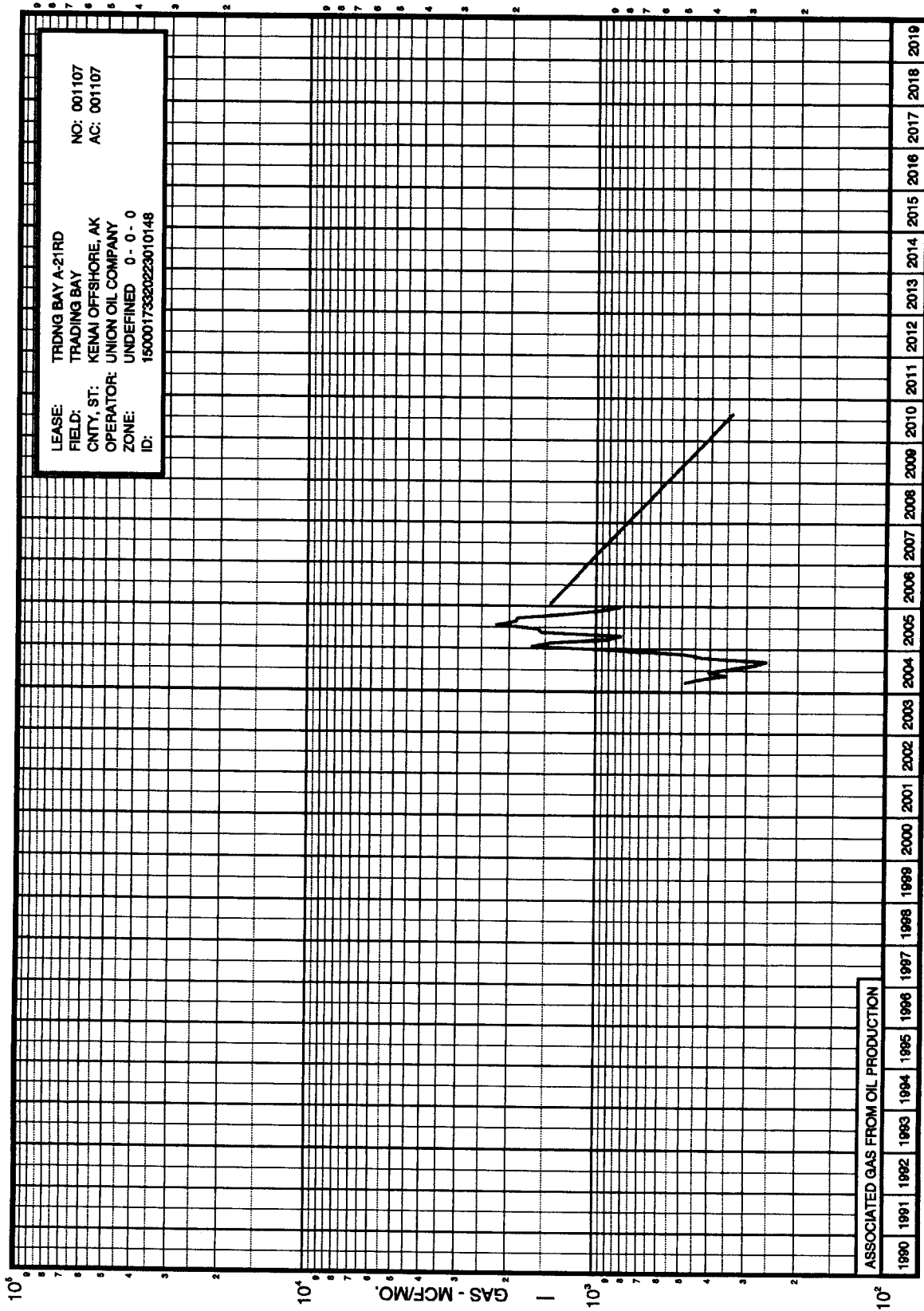
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.95



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.96

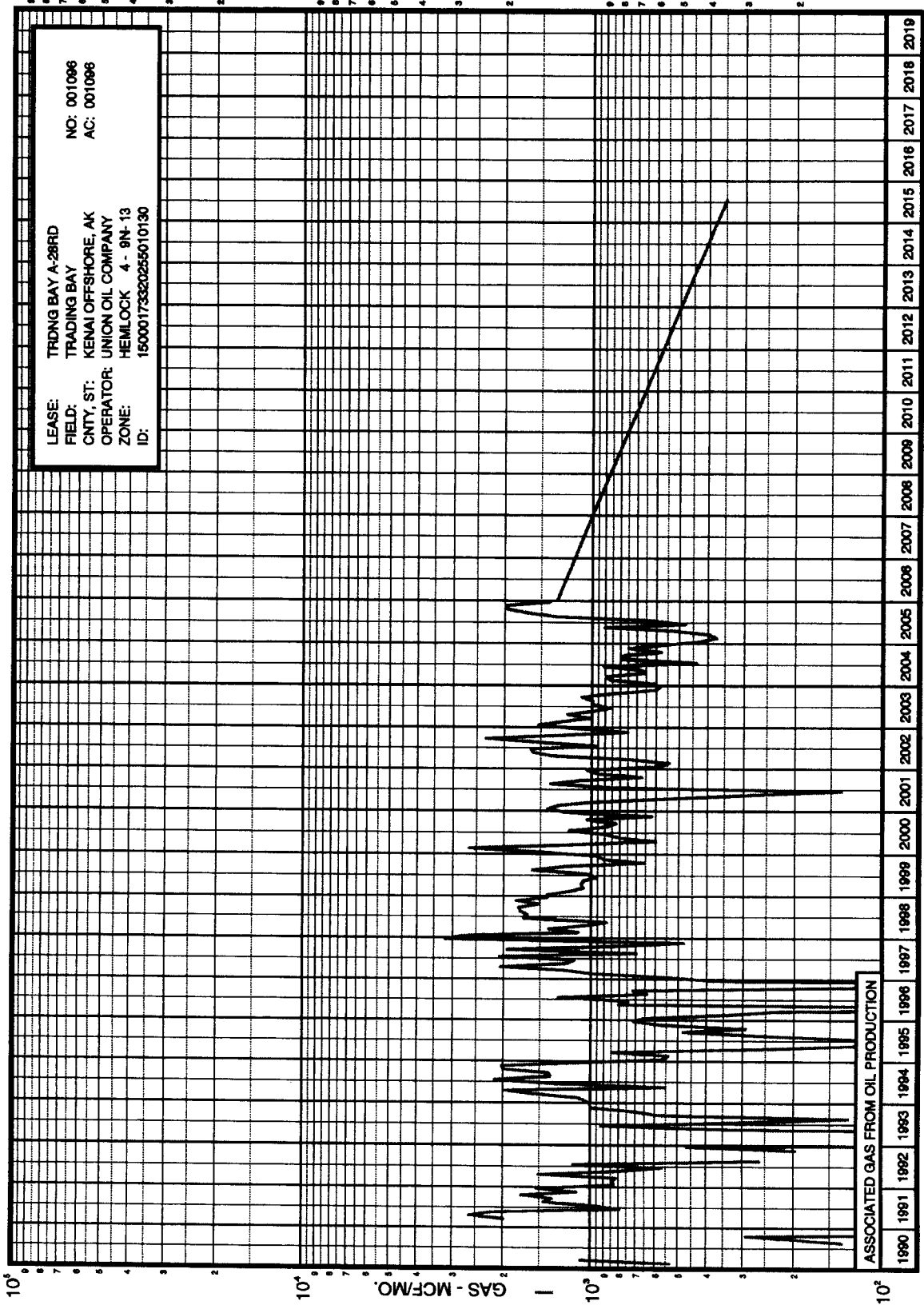


All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.97

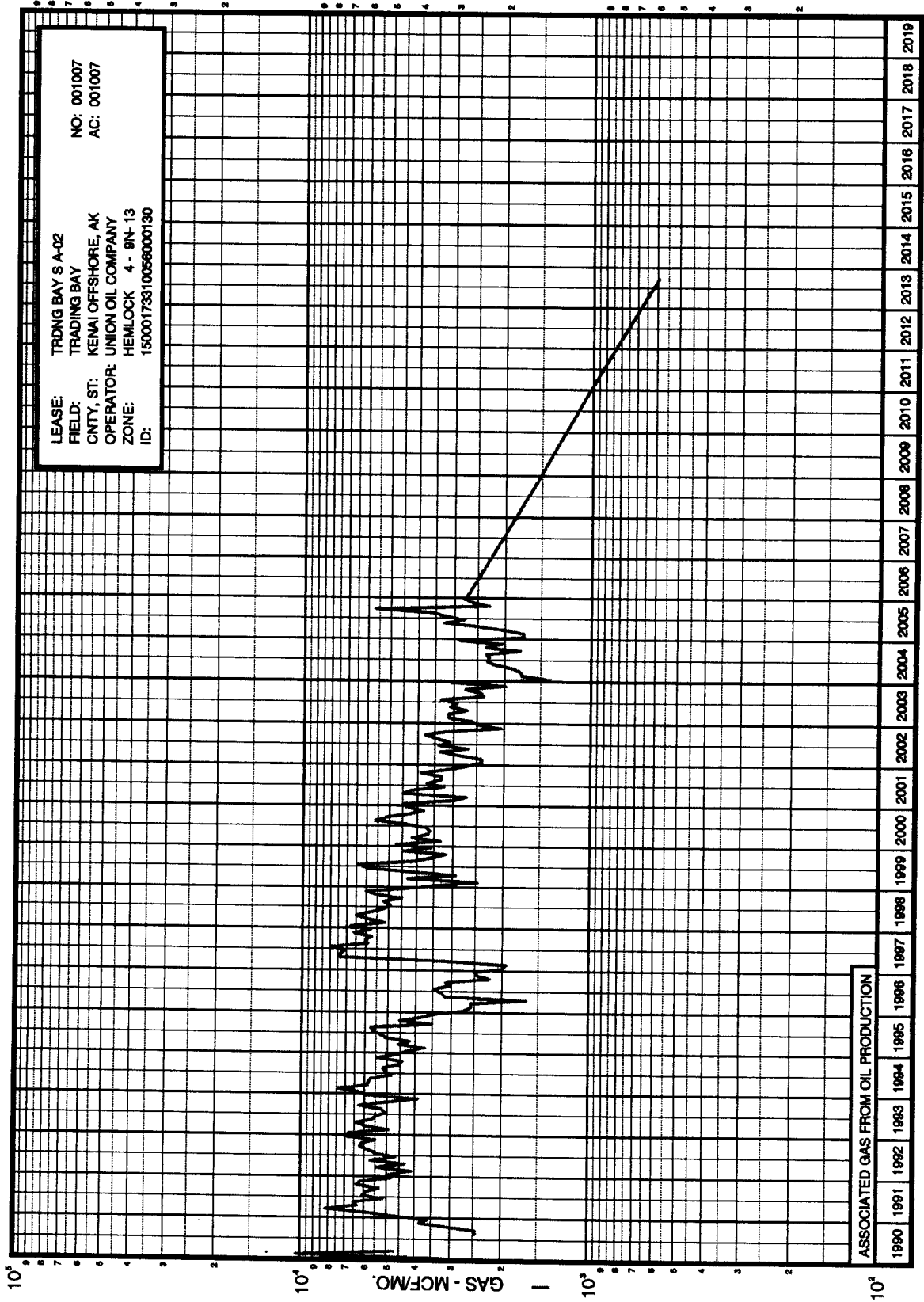






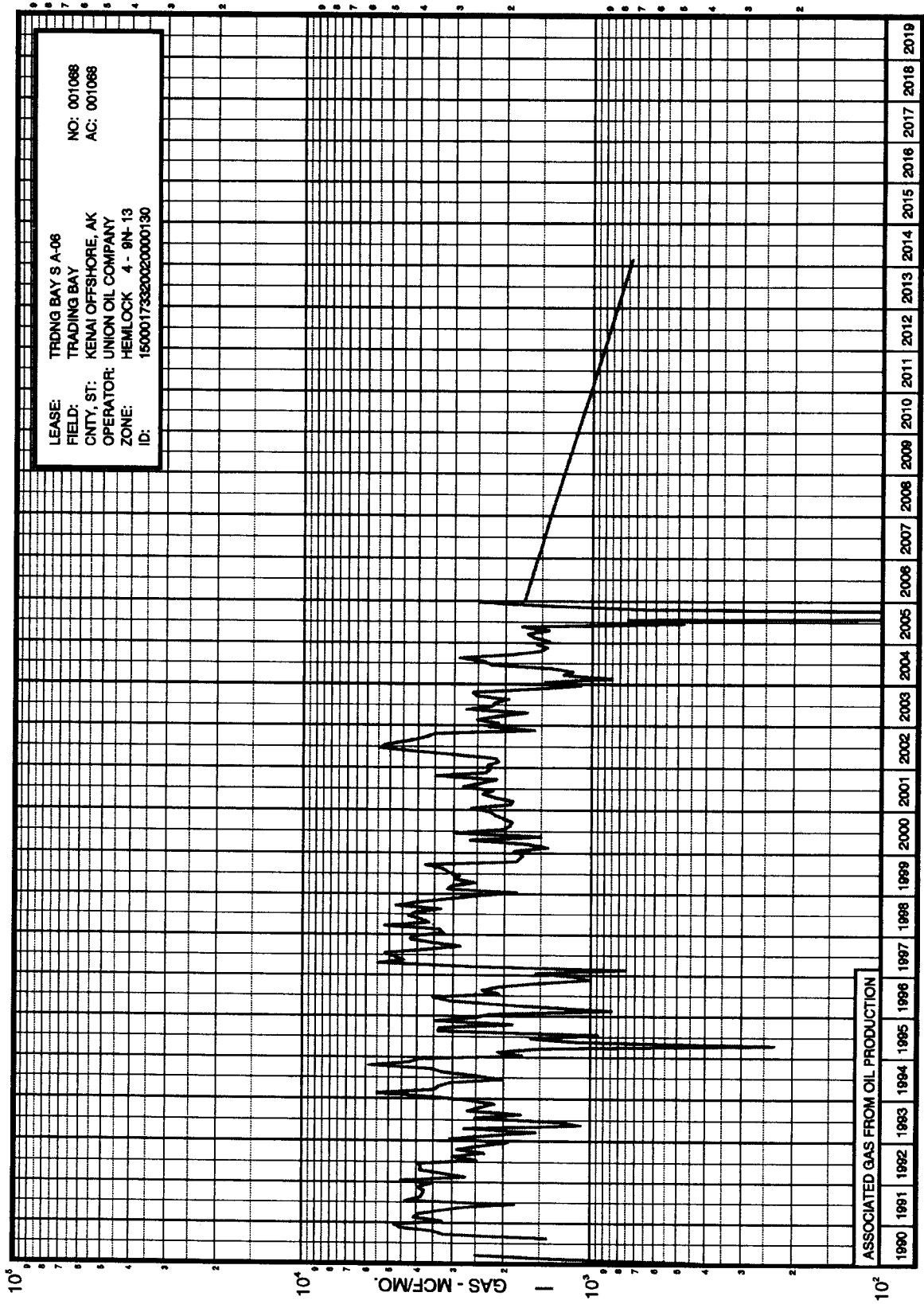
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.99



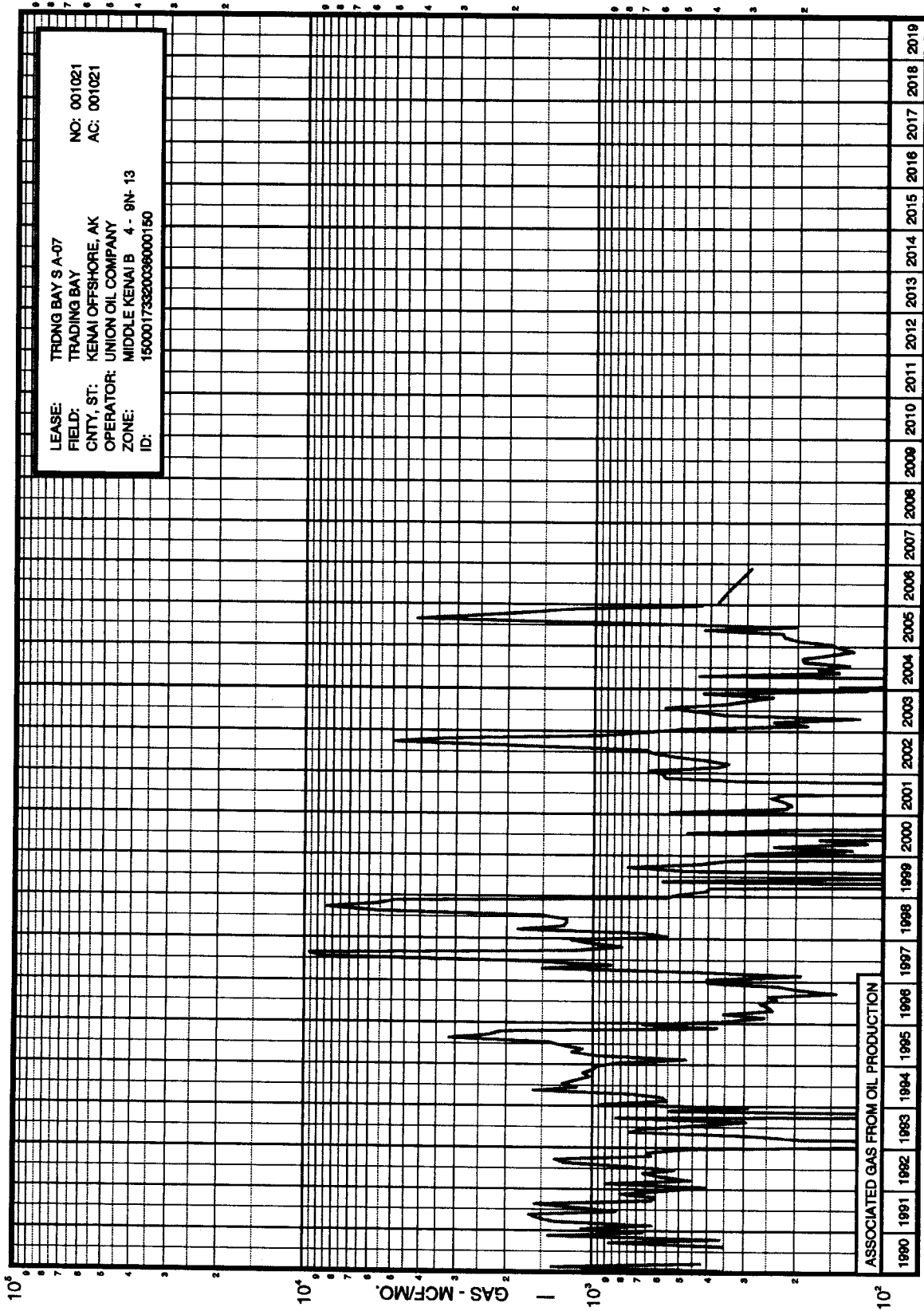
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.100



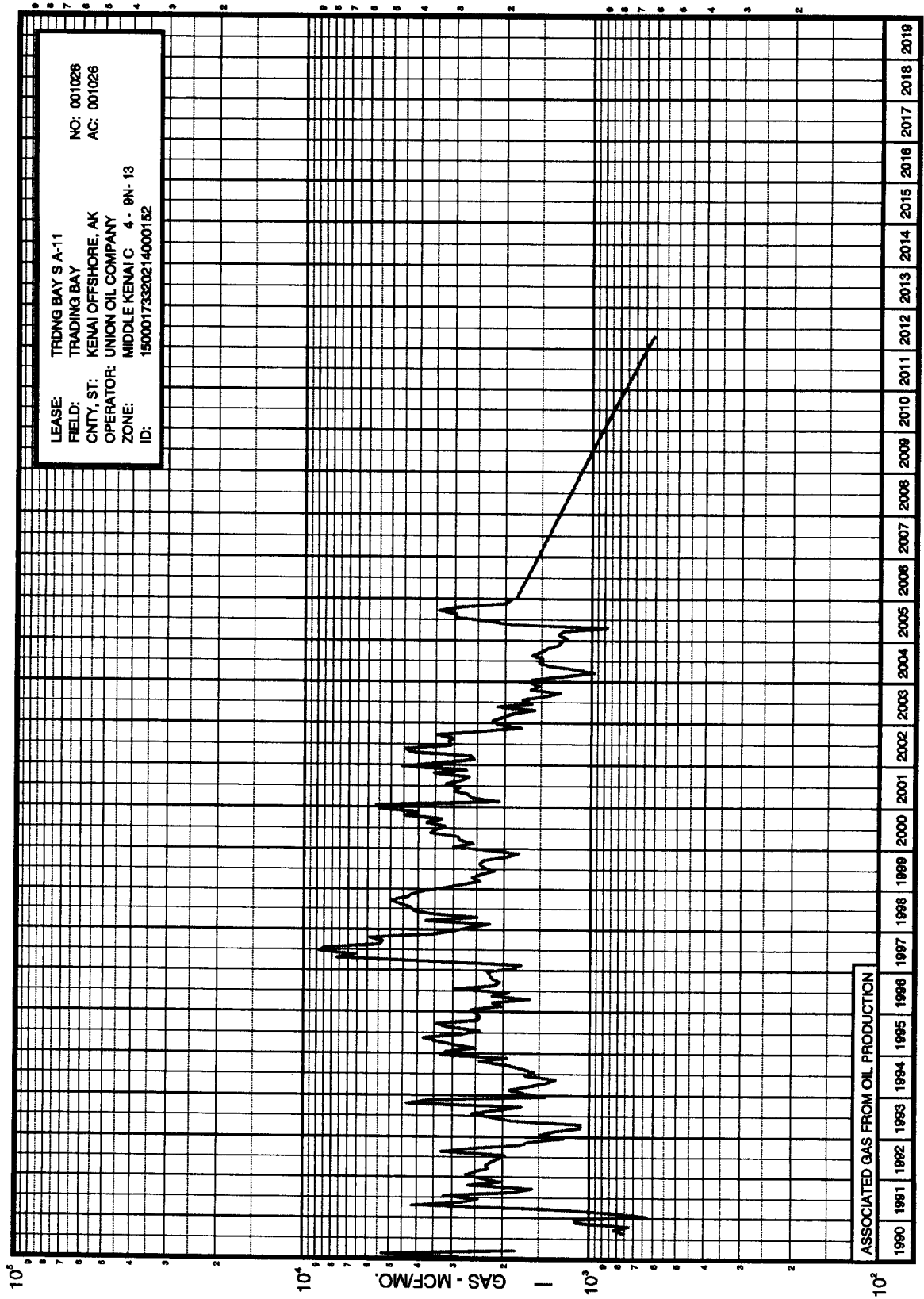
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.101



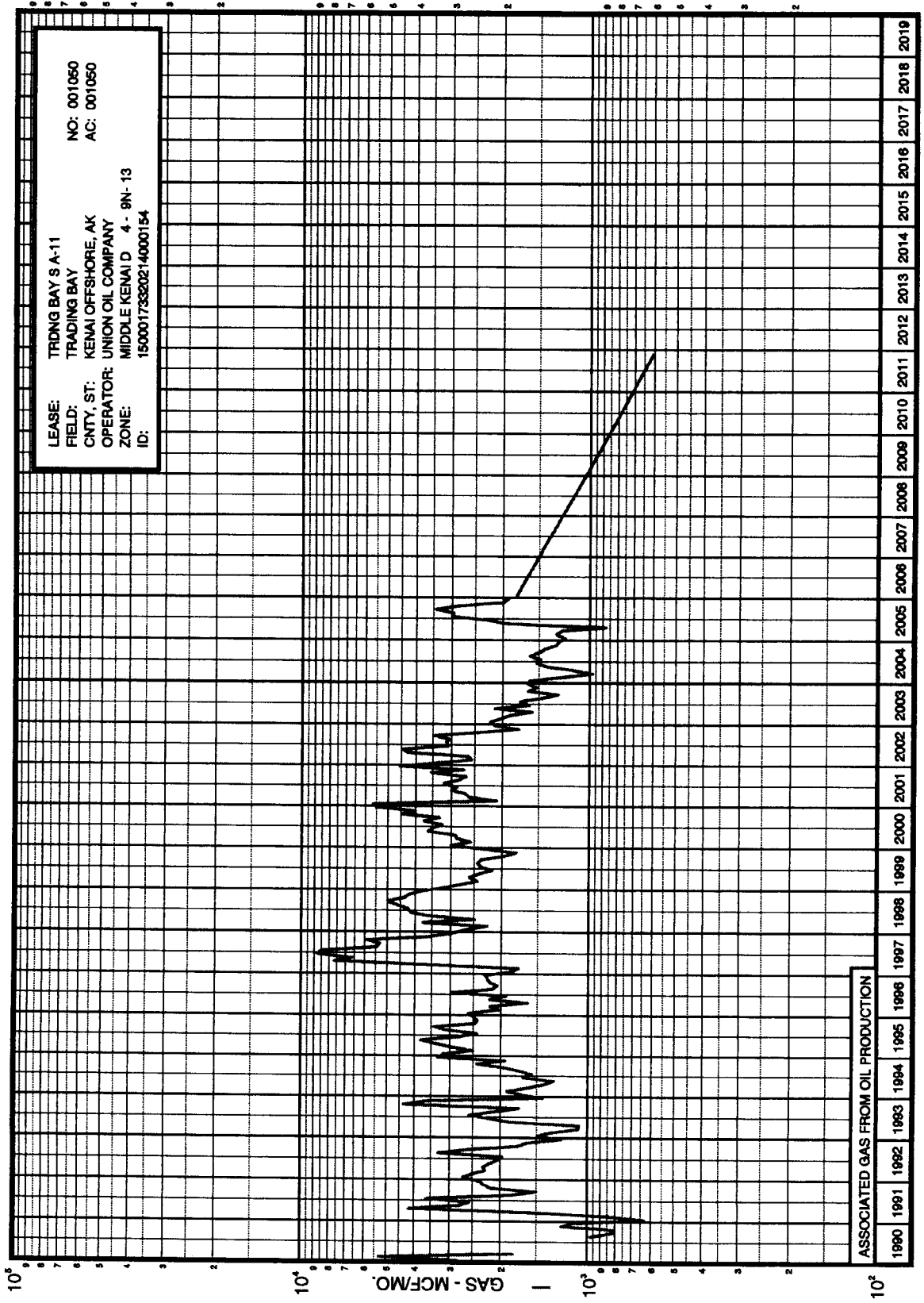
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.102



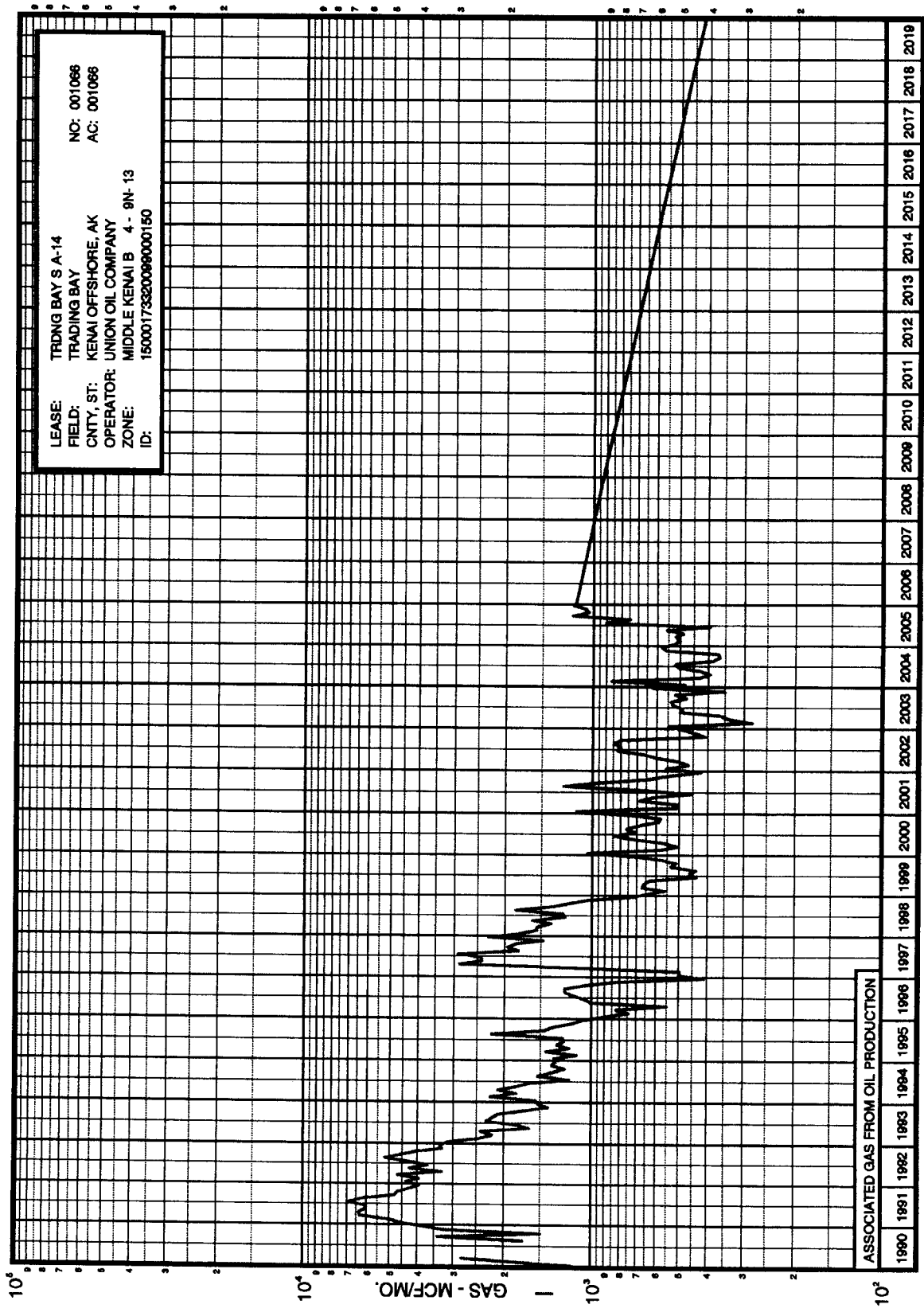
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.103



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

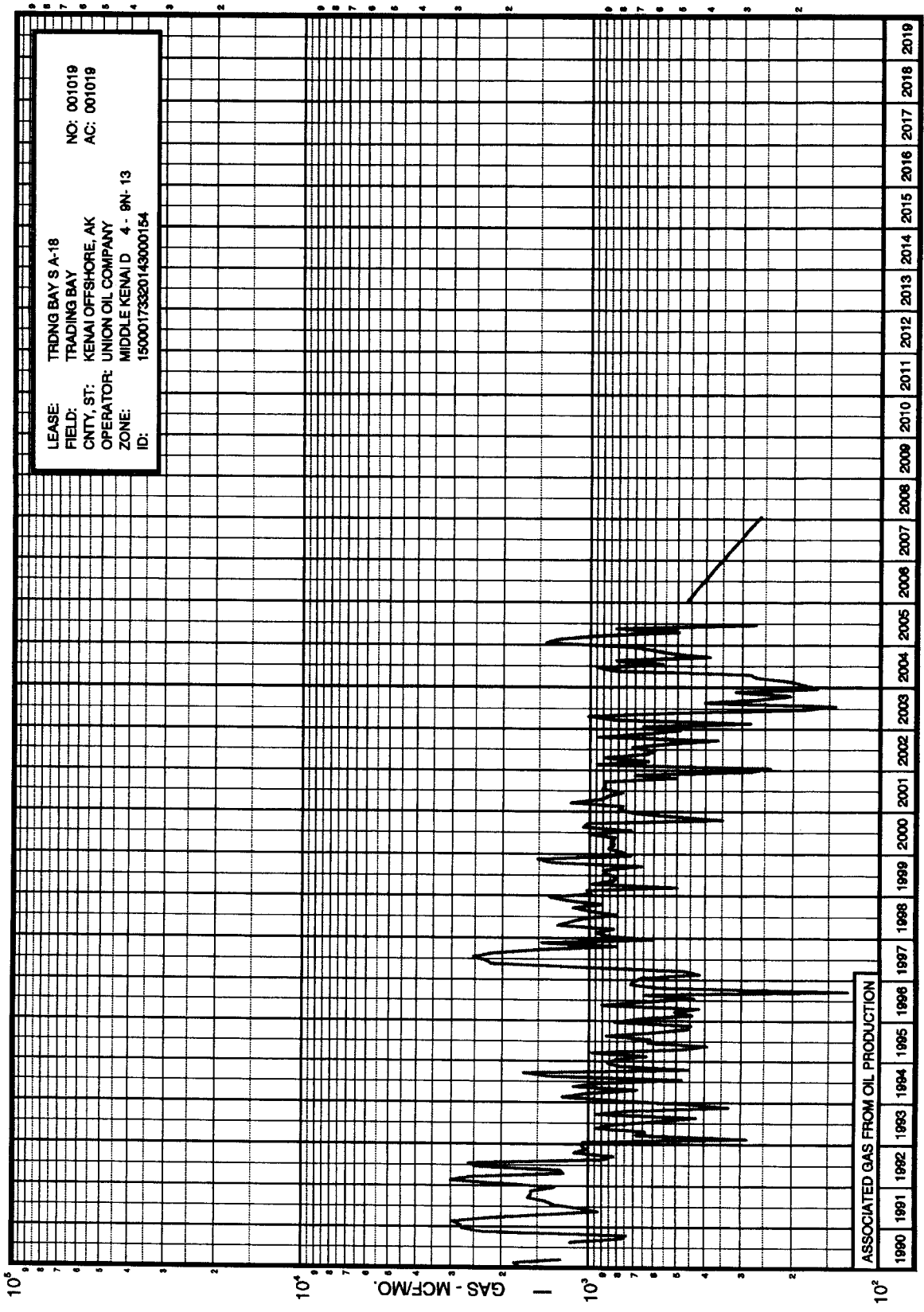
Figure 10.4.1.104



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

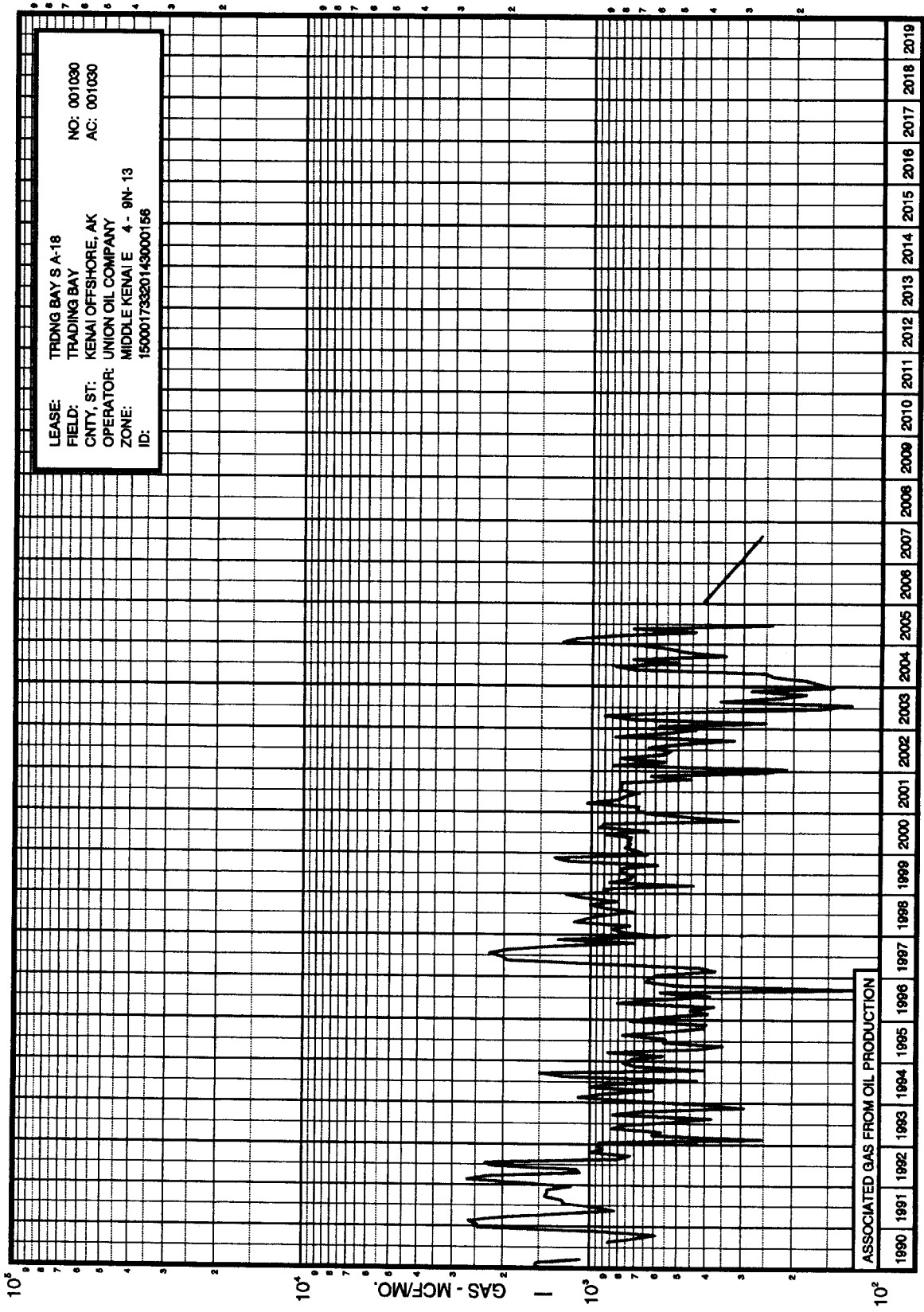
Figure 10.4.1.105





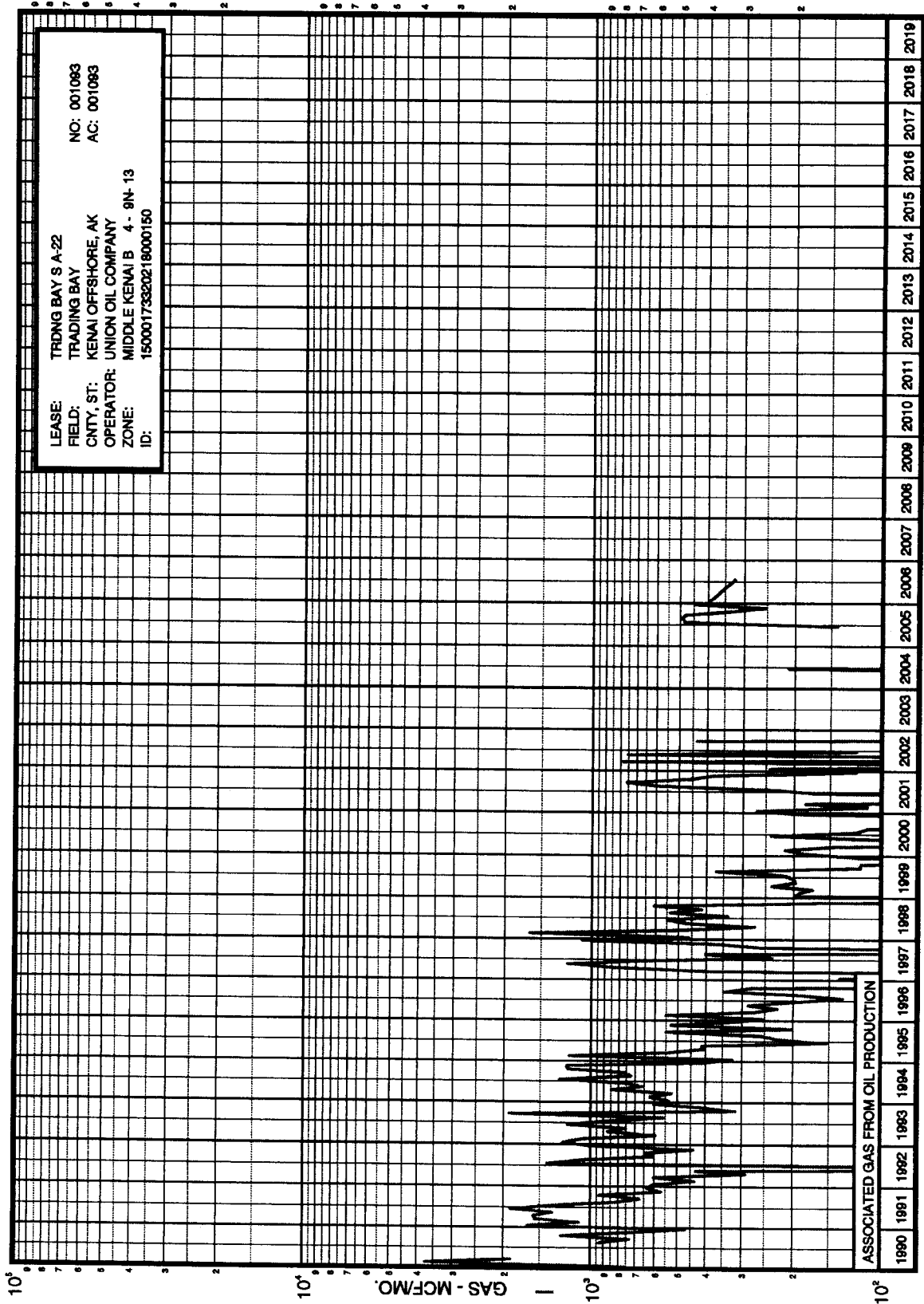
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.106



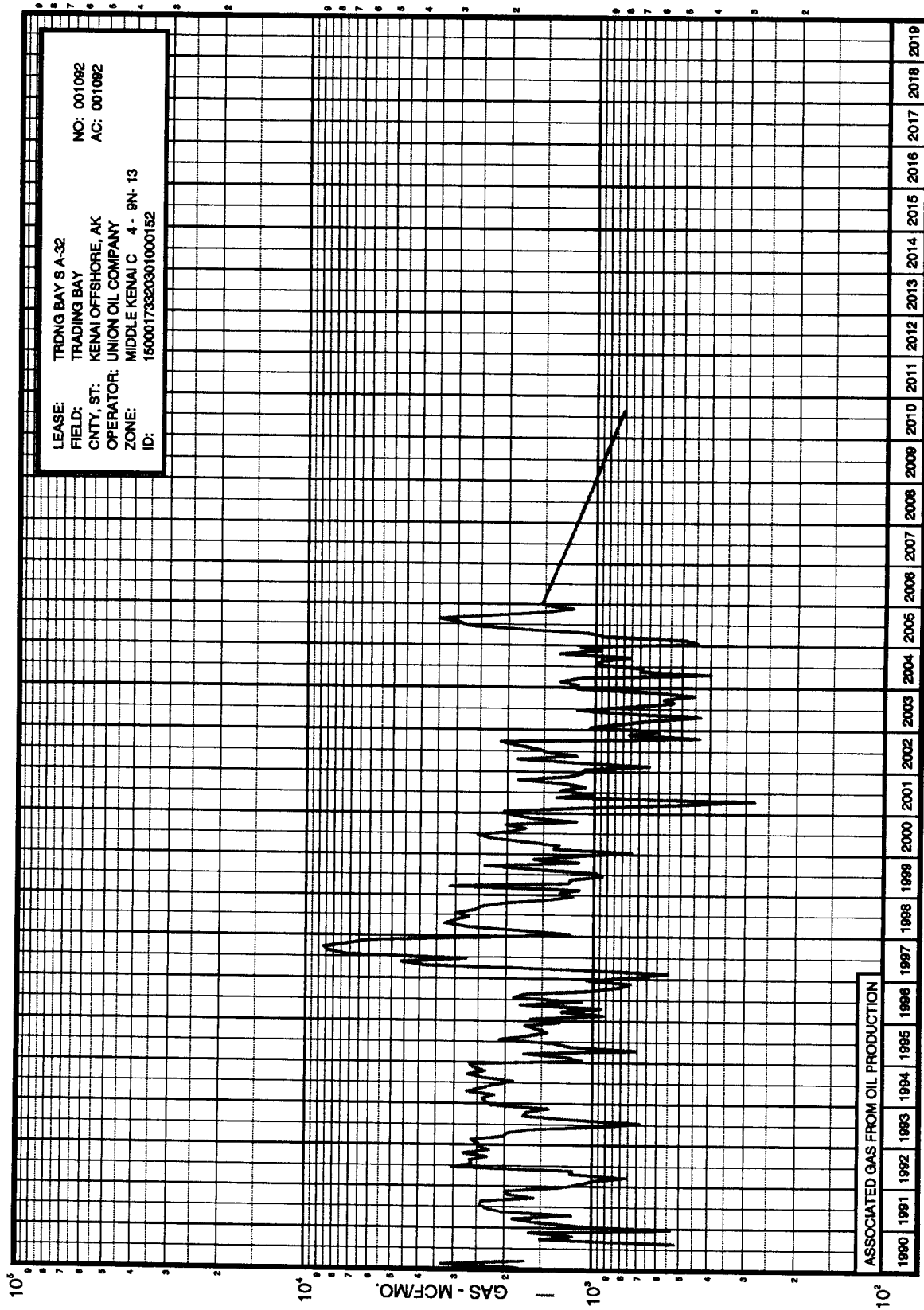
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.107



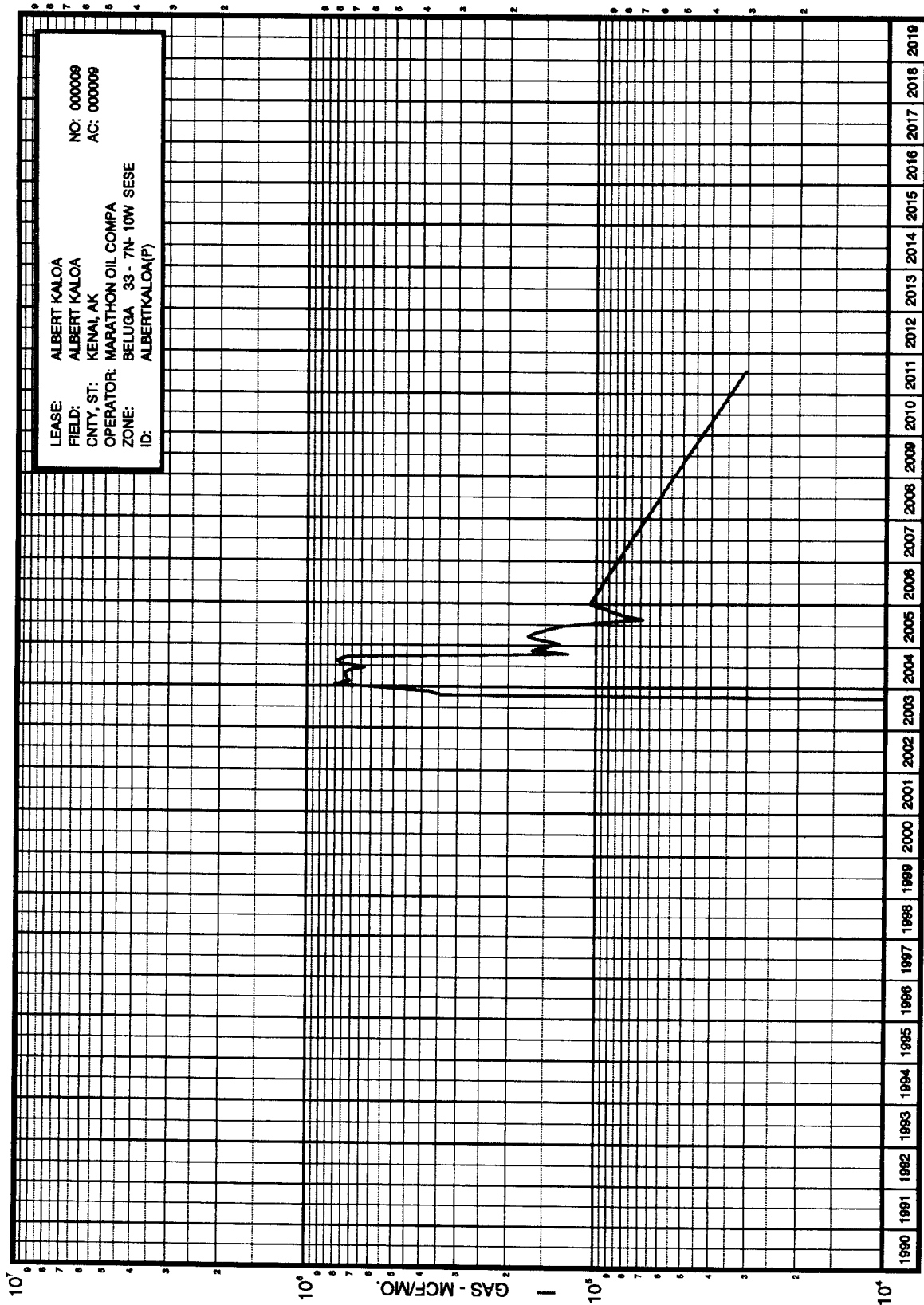
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.1.108



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

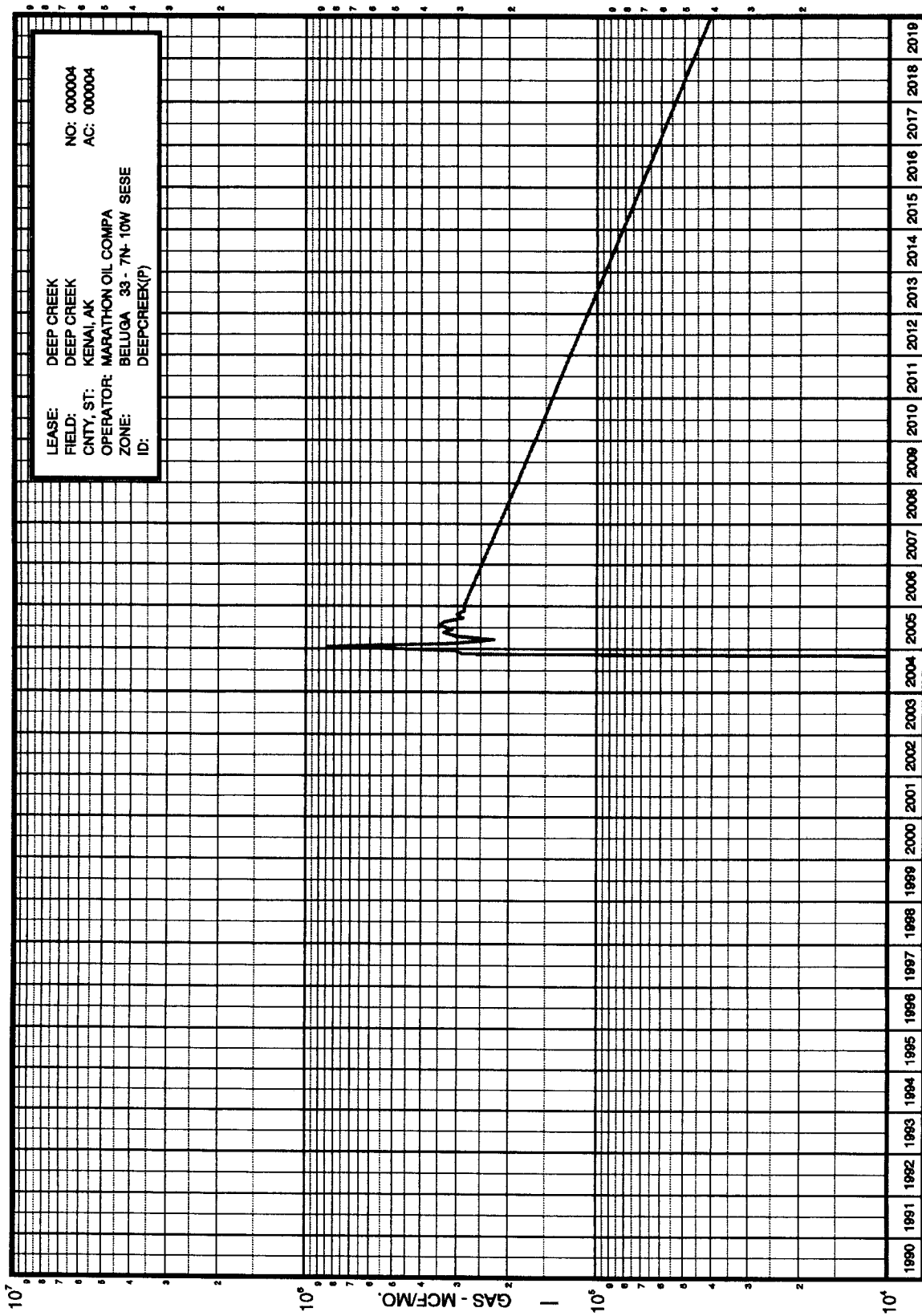
Figure 10.4.1.109



LEASE: ALBERT KALOA  
 FIELD: ALBERT KALOA  
 CNTY, ST: KENAI, AK  
 OPERATOR: MARATHON OIL COMPA  
 ZONE: BELUGA 33 - 7N-10W SESE  
 ID: ALBERTKALOA(P)  
 NO: 000009  
 AC: 000009

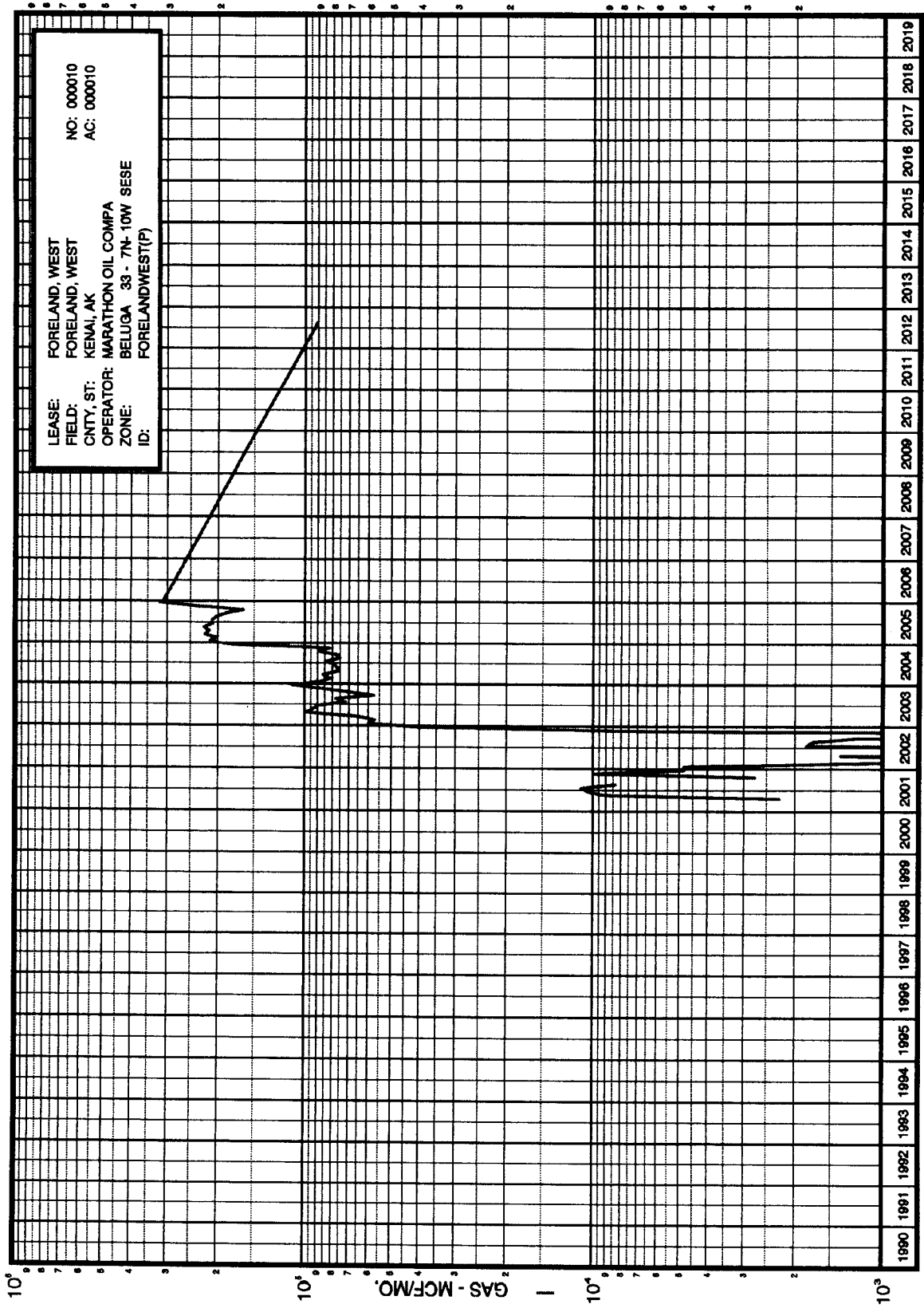
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.2.1



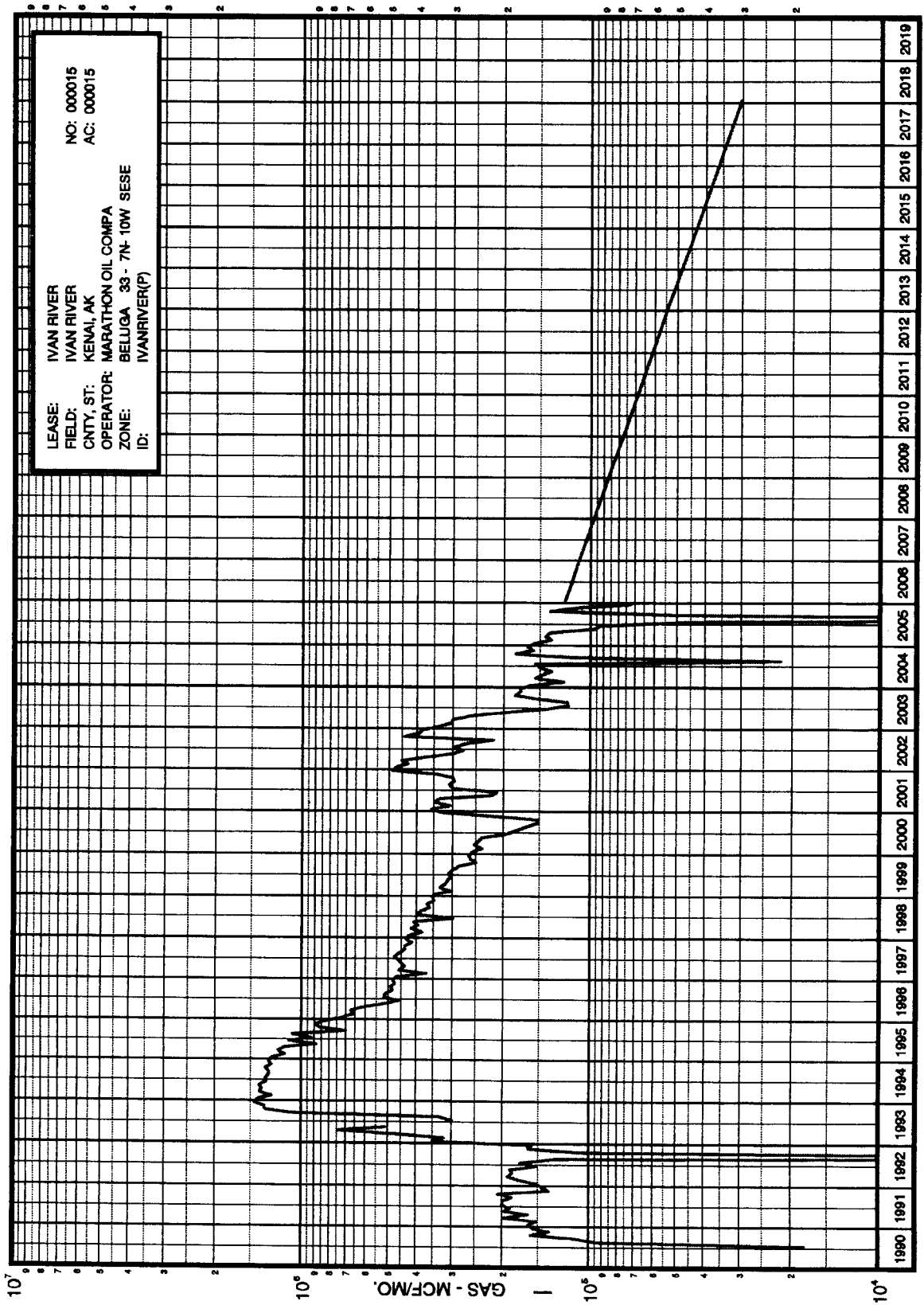
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.2.2



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

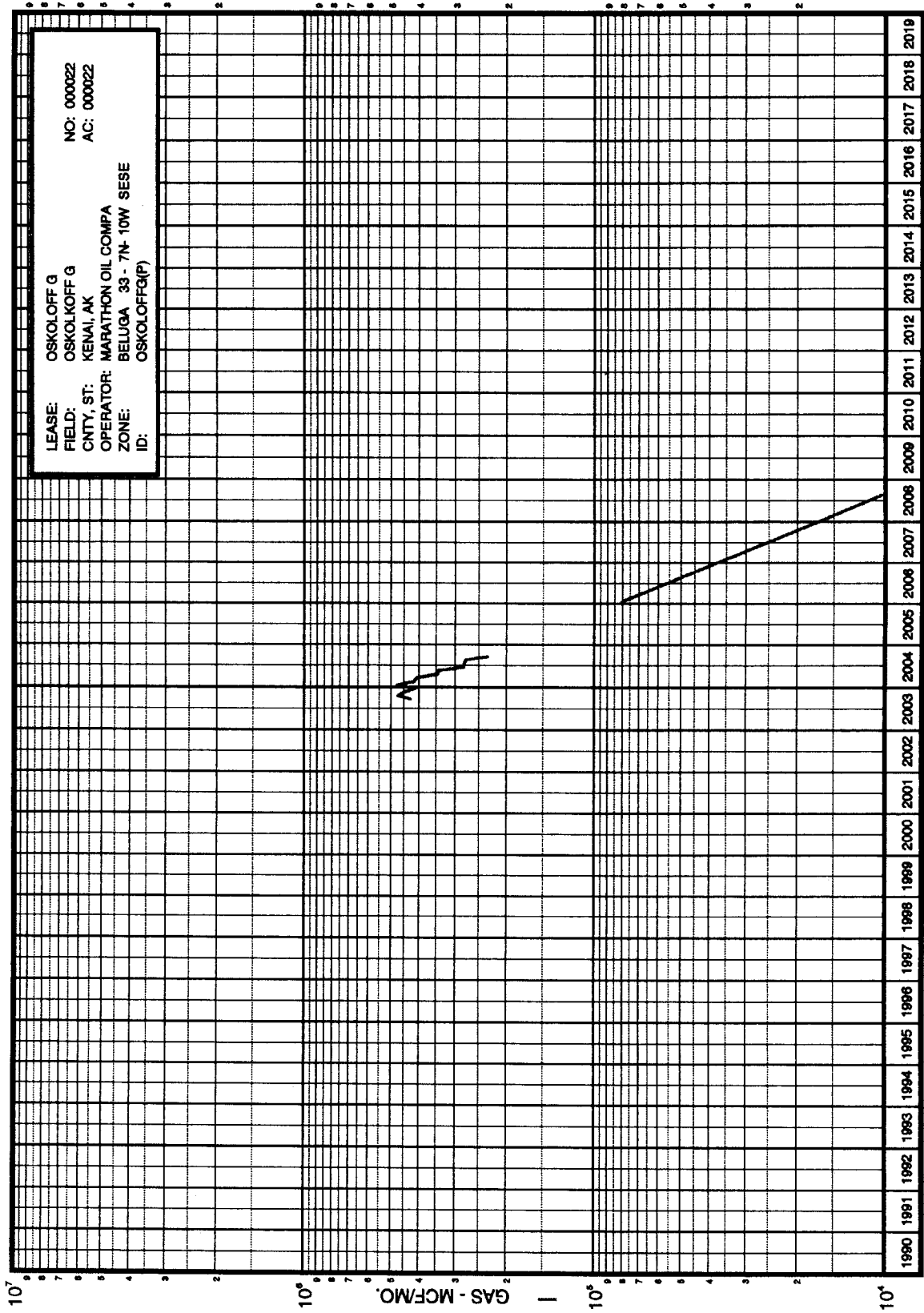
Figure 10.4.2.3



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

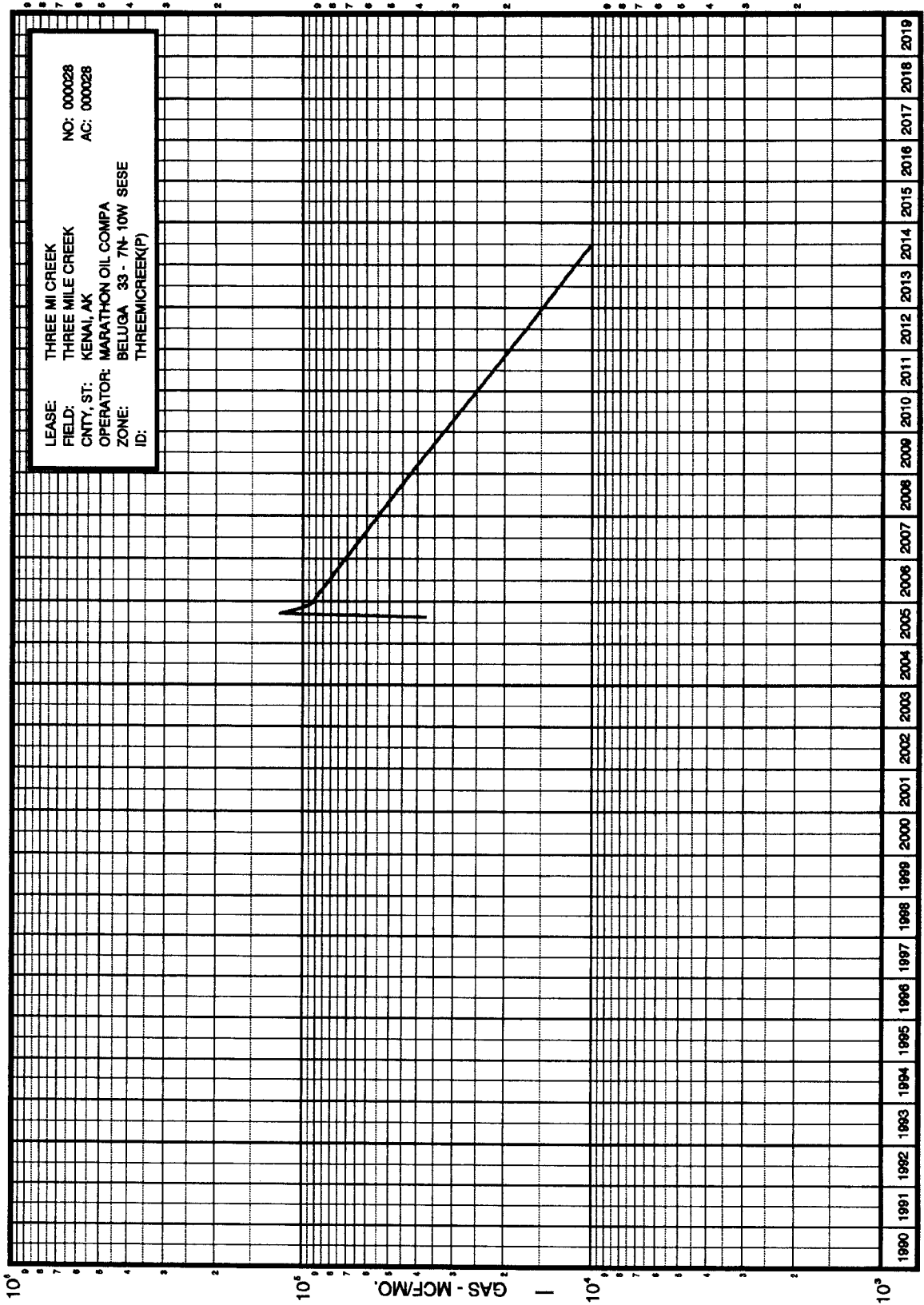
Figure 10.4.2.4





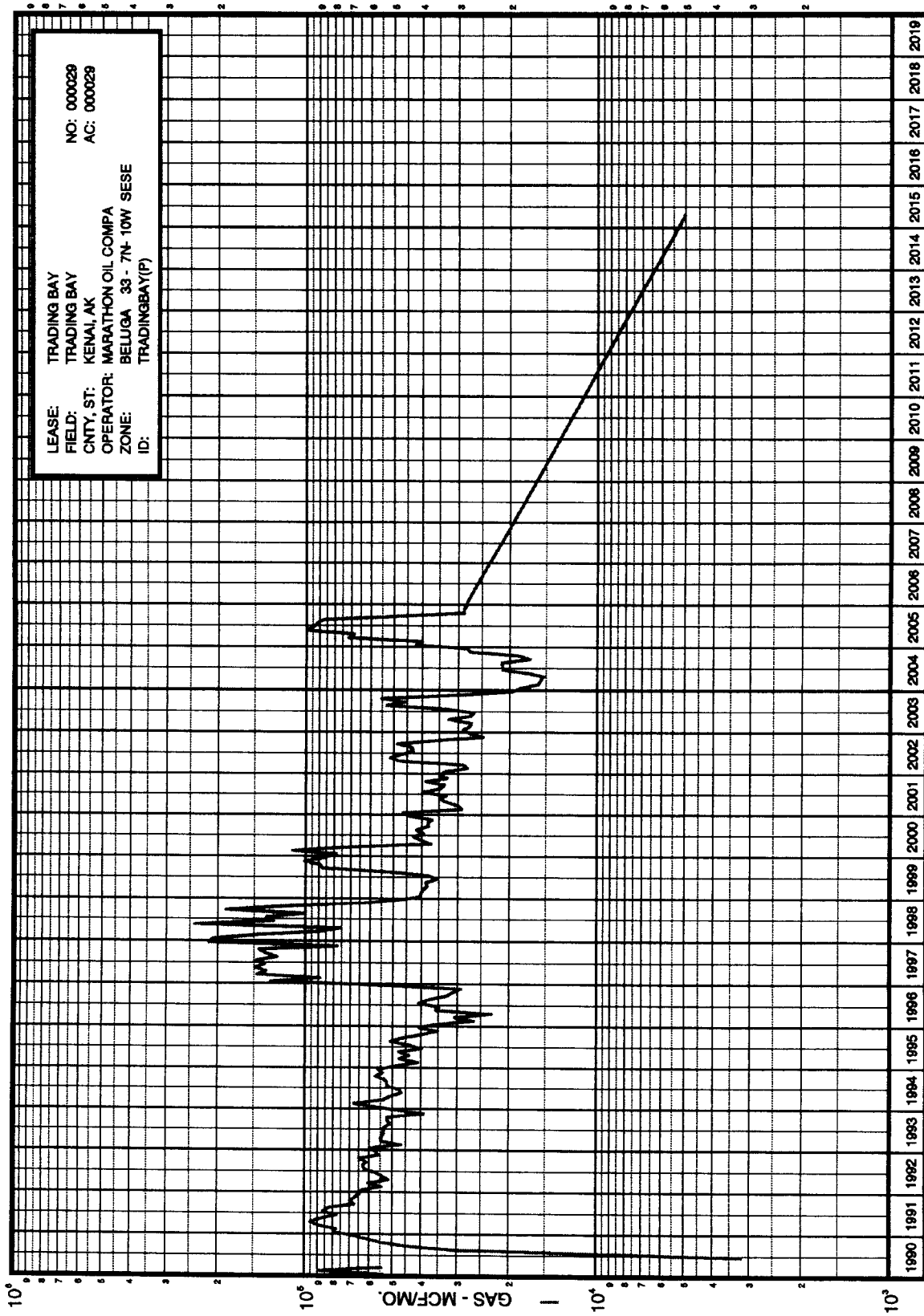
All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.2.5



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.2.6



All estimates and exhibits herein are part of this NSAI report and are subject to its parameters and conditions.

Figure 10.4.2.7

## REFERENCES

## REFERENCES

Charles P. Thomas et al, "South-Central Alaska Natural Gas Study," U.S. Department of Energy, Alaska, June 2004.

Craft, B.C. & Hawkins, M., *Applied Petroleum Reservoir Engineering*, 2d ed., Prentice-Hall, Englewood Cliffs, 1991, pp. 83-90.

Dake, L.P., *Fundamentals of Reservoir Engineering*, Elsevier, New York, 1978, pp. 29-33.

Gas Research Institute, *Managing Water-Drive Gas Reservoirs*, Gas Research Institute, Chicago, 1993, pp. 35-38.

Slider, H.C., *Worldwide Practical Petroleum Reservoir Engineering Methods*, Pennwell, Tulsa, 1983, pp. 513-523.