



Amoco Production Company Seismic Observers Form

Party 045 Date 7/27/90 ND 1
 County WILLIAMS State N. DAK. Line 400 No. 1

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources 8 Spacing Bumper-To-Bumper
 Inline Xline Inline Xline
 No. Moves Per Source _____ Dist. Each Move _____
 Inline Xline Inline Xline

Seis's SM-7 V
 Type Comp. Direction
 Seis's _____ Type Comp. Direction
 Ref. Amoco NB# 1461 pg. 56

Distance _____ SeisGrp. Int. SUM
 Tr. No.

Vibrator #18 P.W. 6124620
 Model

Amplifiers GUST GERANE, SGR III & IV 81400 Samp. Int. 2/4 Ms/Rec. Lth. 32/50 Sec.
 Manuf. Model No. Channels
 Filter _____ / _____ Hz. EPW / 2 Db/Oct; 60 Hz. Rej. IN
 low high low high In or Out

No. Seis. Per Grp. 12 = 12 Spacing 4.2M
 Total No. No. Inline No. Xline Inline Xline

Sweep 10 To 56 Hz. 30 Drive 80% SGR'S 80-IV's 204-IV's SGR Trucks 2-IV's 5-IV's
 Frequency Length No. In Field No. In Field

Vibrator Electronic REKTON ADVANCED II
 Reference Taper 500MS Mode LINEAR % 100
 Reference Phase 00
 Manuf. Model

| General | | | Spread | | | | Vibrating | | | | | Instruments | | | |
|---------------------|---------------|------|---------------------|---|-----|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE |
| | | 8:30 | | | | | | | | | | | | | |
| 5201 | Noise File 69 | 4:10 | | 101 | 524 | 4001 | 4050 | | | 6 | 1 | E | 45 | V | |
| 201 | 70 | 4:22 | | | | | | | | 6 | 8 | E | 45 | V | |
| 205 | 71 | 4:51 | | | | | | | | | | | | | |
| 209 | 72 | 5:00 | | | | | | | | | | | | | |
| 213 | 73 | 5:10 | | | | | | | | | | | | T | |
| 217 | 74 | 5:20 | | | | | | | | | | | | | |
| 221 | 75 | 5:31 | | | | | | | | | | | | | |
| 225 | SKIP | | | | | | | | | | | | | | |
| 229 | | | | | | | | | | | | | | | |
| 233 | SKIP | | | | | | | | | | | | | | |
| 237 | 76 | 5:44 | | | | | | | | | | | | T | |
| 5237 | Noise File 77 | 5:47 | | | | | | | | | | | | | |
| | E.O.R. 9999 | 5:48 | | 101 | 524 | 4001 | 4050 | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)

CREW LAYING OUT SPREAD, MOVING VIAS FROM OTHER LINE, BRANNING OUT BIA VIAS FROM TOWN + Q.C. LINE VIAS, STARTED CALLING BUBBS @ 11:01
 PAUSE TO CHECK AIRBAGS - REPLACING AIRBAG

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: DAMP
 Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 60-85 °F;
 Trail Conditions COUNTY ROAD

Leave Town 7:30 Leave Field 6:26 Expm Time _____
 Arrive Field 8:23 Arrive Town 7:13 Down Time _____
 Total Travel Time 1hr Number Men Rec. 20

Daily Summary
 No Profiles 10UBS 7
 Miles Traversed _____
 Observer McEwan Zebrowski Page 1 of _____
 Total To Date For Month
 No Profiles 214UBS 206
 Miles Traversed _____



Amoco Production Company Seismic Observers Form

Party 045 Date 7/28/90
 County Williams State N.D. Line NP No. 1

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources 4
 Inline Xline Spacing Bumper-To-Bumper
 No. Moves Per Source _____
 Inline Xline Dist. Each Move _____
 Inline Xline

Seis's SM-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers Geospace SGR III & IV 50/400 Samp. Int. 2/4 Ms; Rec. Lth 30/50 Sec.
 Filter _____ Hz. IPW 2 Db/Oct; 60 Hz. Rej. Out
 low high low high In or Out
 Sweep 10 To 56 Hz. 30 Drive 80% SGR'S 80-TU's 206-III's SGR Trucks 2-TU's 5-IV's
 No. In Field No. In Field

No. Seis. Per Grp. 12 = 12 Spacing 4.2m
 Total No. No. Inline No. Xline Inline Xline

Vibrator #18 P.W.
 Model
 Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

Vibrator Electronic PELTON ADVANCED II
 Reference Taper 500ms Mode LINEAR % 100
 Reference Phase 0°

| Source Point Number | General | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|------|---------------------|---|-----|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|-------|
| | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | Gains |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | |
| | | 8:00 | | | | | | | | | | | | | |
| 5241 | Noise Free | 78 | 10:05 | 137 | 564 | 4001 | 4050 | | | | 7 | 1 | E | 45 | V |
| 241 | | 79 | 10:19 | | | | | | | | 7 | 8 | E | 45 | V |
| 245 | | 80 | 10:27 | | | | | | | | 7 | | | | T |
| 249 | | 81 | 10:41 | | | | | | | | 8 | | | | |
| 253 | | 82 | 10:51 | | | | | | | | | | | | |
| 257 | | 83 | 11:01 | | | | | | | | | | | | |
| 261 | | 84 | 11:11 | | | | | | | | | | | | |
| 265 | | 85 | 11:21 | | | | | | | | | | | | |
| 269 | | 86 | 11:31 | | | | | | | | | | | | |
| 273 | | 87 | 11:41 | | | | | | | | | | | | |
| 277 | | 88 | 11:50 | | | | | | | | | | | | |
| 281 | | 89 | 12:00 | | | | | | | | | | | | |
| 285 | | 90 | 12:10 | | | | | | | | | | | | T |
| 289 | | 91 | 12:19 | | | | | | | | | | | | T |
| 293 | | 92 | 12:29 | | | | | | | | | | | | |
| 297 | | 93 | 12:40 | | | | | | | | | | | | |
| 301 | | 94 | 12:53 | 137 | 564 | 4001 | 4050 | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)

CALCING IN BOXES

PAUSE TO CHECK AIRBAGS

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 62-85 °F
 Trail Conditions COUNTRY ROAD

Leave Town 6:52 Leave Field 6:36 Expm Time _____
 Arrive Field 7:47 Arrive Town 7:28 Down Time _____
 Total Travel Time _____ Number Men Rec. 20

Daily Summary
 No Profiles 53 up/44
 Miles Traversed _____

Total To Date For Month
 No Profiles 267 up/250
 Miles Traversed _____

Observer M & E. Z. Z. Z. Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 7 / 28 / 90
 County Williams State N. DAK. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator Electronic _____
Manuf. Model
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

| General | | | Spread | | | | Vibrating | | | | Instruments | | Remarks: (Additional remarks on back of sheet.) | | | | | |
|---------------------|-------------|------|---------------------|---|-----|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|---|------------------|---------|------|------|----------------|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | | Vibrator Heading | Preamp. | Gain | Mode | Trucks on Line |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | | | | |
| 377 | SKIP | | | 137 | 564 | 4001 | 4050 | | | | | | | | | | | |
| 381 | 11 | | | | | | | | | | | | | | | | | |
| 385 | SKIP | | | | | | | | | | | | | | | | | |
| 389 | 107 | 3:30 | | | | | | | | | 8 | 8 | E | 45 | V | | | |
| 393 | 108 | 3:39 | | | | | | | | | | | | | | | | |
| 397 | 109 | 3:49 | | | | | | | | | | | | | | | | |
| 401 | 110 | 3:59 | | | | | | | | | | | | | | | | |
| 405 | 111 | 4:08 | | | | | | | | | | | | | | | | |
| 409 | 112 | 4:17 | | | | | | | | | | | | | | | | |
| 413 | 113 | 4:27 | | | | | | | | | | | | | | | | |
| 417 | 114 | 4:36 | | | | | | | | | | | | | | | | |
| 421 | 115 | 4:46 | | | | | | | | | | | | | | | | |
| 425 | 116 | 4:55 | | | | | | | | | | | | | | | | |
| 429 | 117 | 5:04 | | | | | | | | | | | | | | | | |
| 433 | 118 | 5:14 | | | | | | | | | | | | | | | | |
| 437 | 119 | 5:24 | | | | | | | | | | | | | | | | |
| 441 | 120 | 5:33 | | | | | | | | | | | | | | | | |
| 445 | 121 | 5:43 | | 137 | 564 | 4001 | 4050 | | | | | | | | | | | |

SKIP ups on N-S PART of line

Vib # 89 killed sweep 8

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 7/29/90
 County Williams State N-D. Line ND OAC 1 No. 1

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources 8 Spacing Bumper to Bumper
 Inline Xline Inline Xline
 No. Moves Per Source _____ Dist. Each Move _____
 Inline Xline Inline Xline

Seis's SM-7 V Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers Gust + Geospace SGR III + IV 50/390 2/4 Ms:Rec.Lth 32/50 Sec.
 Manuf. Model No. Channels Samp. Int. Ms:Rec.Lth
 Filter - - Hz. IPW 2 Db/Oct: 60 Hz. Rej. out
 low high low high In or Out
 SGR'S 80 III, 205 IVs SGR Trucks 2 IIIs, 5 IVs
 No. In Field No. In Field

Distance _____ SeisGrp. 50m
 Tr. No. Int.

Vibrator #18 P.W.
 Model

No. Seis. Per Grp. 12 = 12 Spacing 4.2m
 Total No. No. Inline No. Xline Inline Xline

Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

Vibrator Electronic Pelton ADVANCE II
 Reference Taper 500 ms Mode LINEAR % 100%
 Reference Phase 0°
 Manuf. Model

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|------|---------------------|---|-----|------|-----------|-------------------|-------|---------------------|------------------|------------------|---------|------|-------------------|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MODE | T = Truck on Line |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | | | |
| | | 8:12 | | | | | | | | | | | | | |
| 9453 | Noise File | 125 | 10:21 | 353 | 774 | 4051 | 4100 | | | 8 | 1 | E | 45 | V | |
| 453 | | 126 | 10:29 | | | | | | | 8 | 8 | E | 45 | V T | |
| 457 | | 127 | 10:40 | | | | | | | | | | | | |
| 461 | | 128 | 10:50 | | | | | | | | | | | | |
| 465 | | 129 | 10:59 | | | | | | | | | | | | |
| 469 | SKIP | | | | | | | | | | | | | | |
| 473 | | 130 | 11:11 | | | | | | | | | | | | |
| 477 | | 131 | 11:20 | | | | | | | | | | | | |
| 481 | | 132 | 11:29 | | | | | | | | | | | | |
| 485 | SKIP | | | | | | | | | | | | | | |
| 489 | | 133 | 11:46 | | | | | | | | | | | | |
| 493 | | 134 | 11:55 | | | | | | | | | | | | |
| 497 | | 135 | 12:05 | | | | | | | | | | | | |
| 501 | | 136 | 12:14 | | | | | | | | | | | | |
| 505 | | 137 | 12:23 | | | | | | | | | | | | |
| 509 | | 138 | 12:32 | | | | | | | | | | | | |
| 513 | | 139 | 12:43 | 353 | 774 | 4051 | 4100 | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
 Calling in Boxes
 Pads up on vibs
 COMBINE WORKING 678 → 660
 SKIP FOR HOUSE
 SKIP FOR ROAD CORNER

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 55-85 °F
 Trail Conditions county roads

Leave Town 7:02 Leave Field 6:52 Exprm Time _____
 Arrive Field 8:03 Arrive Town 7:49 Down Time _____
 Total Travel Time 2hr Number Men Rec. 20

Daily Summary
 No Profiles 49 UPS 41 Miles Traversed _____
 Total To Date For Month
 No Profiles 316 UPS 291 Miles Traversed _____
 Observer McEvoy - Zebroski Page 1 of 1



Amoco Production Company Seismic Observers Form

Party 045 Date 7/28/90
 County Williams State N.D. Line OAC No. 0012

Spread Layout
 Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern
 No. Individ. Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves Per Source _____ Dist. Each Move _____
 Inline Xline Inline Xline

Seis's _____ Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers _____ Smp. Int. _____ Ms/Rec.Lth. _____ Sec. _____
 Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
 low high low high In or Out

No. Seis. Per Grp. _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

Vibrator
 Model _____
 Sweep _____ To _____ Hz. Drive _____
 Frequency Length

SGR'S _____ SGR Trucks _____
 No. In Field No. In Field

| Source Point Number | General | | | Spread | | | | Vibrating | | | | | Instruments | | | | |
|---------------------|-------------|-------|---------------------|---|-----|------|------|------------------------------|-------------------|-------|---------------------|------------------|------------------|----------|------|-------------------|---|
| | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | T = Track on Line | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preampl. | MODE | | |
| 517 | 140 | 12:52 | | 353 | 774 | 4051 | 4100 | | | | 8 | 8 | E | 45 | V | | |
| 521 | 141 | 1:07 | | | | | | | | | | | | | | | T |
| 525 | 142 | 1:18 | | | | | | | | | | | | | | | T |
| 529 | 143 | 1:33 | | | | | | | | | | | | | | | T |
| 533 | 144 | 1:42 | | | | | | | | | | | | | | | |
| 537 | 145 | 1:52 | | | | | | | | | | | | | | | |
| 541 | 146 | 2:01 | | | | | | | | | 8 | 8 | | | | | |
| 545 | 147 | 2:20 | | | | | | | | | 4 | 16 | | | | | |
| 549 | 148 | 2:58 | | | | | | | | | 4 | 16 | | | | | |
| 553 | 149 | 3:12 | | | | | | | | | 7 | 8 | | | | | |
| 557 | 150 | 3:22 | | | | | | | | | | | | | | | T |
| 561 | 151 | 3:32 | | | | | | | | | | | | | | | |
| 565 | 152 | 3:42 | | | | | | | | | | | | | | | |
| 569 | 153 | 3:53 | | | | | | | | | | | | | | | |
| 573 | 154 | 4:06 | | | | | | | | | 7 | | | | | | |
| 577 | 155 | 4:19 | | | | | | | | | 6 | | | | | | |
| 581 | 156 | 4:31 | | | | | | | | | | | | | | | T |
| 585 | 157 | 4:42 | | 353 | 774 | 4051 | 4100 | | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary
 No Profiles _____ Miles Traversed _____
 Total To Date For Month
 No Profiles _____ Miles Traversed _____
 Observer _____ Page 2 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 7 / 28 / 90
 County Williams State N.D. Line 0012
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

Seis's _____ Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth _____ Sec. _____
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
 low high low high In or Out
 SGR'S _____ SGR Trucks _____
 No. In Field No. In Field

No. Seis. _____
 Per Grp. _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

| General | | | Spread | | | | Vibrating | | | | Instruments | | | Vibrator Electronic | | | | | |
|---------------------|-------------|------|---------------------|---|-----|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------------------|------|-------------------|-----------------|-----------------------------|--|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | Reference Taper | Reference Phase | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | T = Truck on LINE | | | |
| 589 | SKIP | | | 353 | 774 | 4051 | 4100 | | | | | 6 | 8 | E | 45V | | | } SKIP FOR HURVEST WINDMILL | |
| 593 | | | | | | | | | | | | | | | | | | | |
| 597 | | | | | | | | | | | | | | | | | | | |
| 601 | SKIP | | | | | | | | | | | | | | | | | | |
| 605 | 158 | 4:58 | | | | | | | | | | | | | | | | | |
| 609 | 159 | 5:07 | | | | | | | | | | | | | | | | | |
| 613 | 160 | 5:16 | | | | | | | | | | | | | | | | | |
| 617 | 161 | 5:25 | | | | | | | | | | | | | | | | | |
| 621 | 162 | 5:34 | | | | | | | | | | | | | | | | | |
| 625 | 163 | 5:44 | | | | | | | | | | | | | | | | | |
| 629 | 164 | 5:53 | | | | | | | | | | | | | | | | | |
| 633 | 165 | 6:02 | | | | | | | | | | | | | | | | | |
| 637 | 166 | 6:11 | | | | | | | | | | | | | | | | | |
| 641 | SKIP | | | | | | | | | | | | | | | | | | |
| 645 | SKIP | | | | | | | | | | | | | | | | | | |
| 5637 | Noise File | 167 | 6:16 | | | | | | | | | | | | | | | | |
| | E.O.R. | 9999 | 6:18 | | | | | 353 | 774 | 4051 | 4100 | | | | | | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 3



Amoco Production Company Seismic Observers Form

Party 095 Date 8/22/90
 County WILLIAMS State N. DAK. Line ND OAC 1 No. 1

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. SOM
 Tr. No. Int.

Each Source Pattern
 No. Indiv. Sources 8 Spacing Bumper To Bumper
 Inline Xline Inline Xline
 No. Moves Per Source _____ Dist. Each Move _____
 Inline Xline Inline Xline

Seis's SM-7 Type Comp. Direction
 Seis's _____ Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers GEUSAR SORTU FIV 50/400 Samp. Int. 2/4 Ms; Rec. Lth 34/50 Sec.
 Filter _____ Hz. IPW 2 Db/Oct; 60 Hz. Rej. OUT
 low high low high In or Out
 SGR'S 80-III's 211-IV's SGR Trucks 2-III's 3-IV's
 No. In Field No. In Field

No. Seis. Per Grp. 12 = 12 Spacing 42m
 Total No. No. Inline No. Xline Inline Xline

Vibrator #18 P.W. Model
 Sweep 10 To 96 Hz. 30 Drive 80%
 Frequency Length

Vibrator Electronic PELTON ADVANCED II
 Reference Taper 500ms Mode LINEAR % 100
 Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | | Instruments | | | | |
|---------------------|-------------------|-------------|---|-------------------|------------|------------|------------------------------|-------------------|----------|---------------------|------------------|------------------|----------|----------|----------|-------------------|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | Preamp. | MADE | TE-TRUCKS ON LINE |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | | | |
| | | <u>8:55</u> | | | | | | | | | | | | | | |
| <u>5649</u> | <u>Noise File</u> | <u>517</u> | <u>11:16</u> | <u>> 5 MPH</u> | <u>549</u> | <u>948</u> | <u>4101</u> | <u>4650</u> | | | | | | | | |
| <u>649</u> | | <u>518</u> | <u>11:26</u> | | | | | | <u>8</u> | <u>1</u> | <u>E</u> | <u>45V</u> | | | | |
| <u>653</u> | | <u>519</u> | <u>11:39</u> | | | | | | <u>8</u> | <u>8</u> | <u>E</u> | <u>45V</u> | <u>T</u> | | | |
| <u>657</u> | | <u>520</u> | <u>11:49</u> | | | | | | | | | | | | | |
| <u>661</u> | | <u>521</u> | <u>11:58</u> | | | | | | | | | | | | | |
| <u>665</u> | | <u>522</u> | <u>12:08</u> | | | | | | | | | | | | | |
| <u>669</u> | | <u>523</u> | <u>12:23</u> | | | | | | | | | | | | | |
| <u>673</u> | | <u>524</u> | <u>12:32</u> | | | | | | | | | | | <u>T</u> | | |
| <u>677</u> | | <u>525</u> | <u>12:41</u> | | | | | | | | | | | | | |
| <u>681</u> | | <u>526</u> | <u>12:50</u> | | | | | | | | | | | <u>T</u> | | |
| <u>685</u> | | <u>527</u> | <u>12:59</u> | | | | | | | | | | | | | |
| <u>689</u> | | <u>528</u> | <u>1:09</u> | | | | | | | | | | | | | |
| <u>693</u> | | <u>529</u> | <u>1:18</u> | | | | | | | | | | | | | |
| <u>697</u> | | <u>530</u> | <u>1:27</u> | | | | | | | | | | | | | |
| <u>701</u> | | <u>531</u> | <u>1:36</u> | | | | | | | | | | | | | |
| <u>705</u> | | <u>532</u> | <u>1:49</u> | | | | | | | | | | | | | |
| <u>709</u> | | <u>533</u> | <u>1:59</u> | <u>5 MPH</u> | <u>549</u> | <u>948</u> | <u>4101</u> | <u>4650</u> | | | | | | | <u>T</u> | |

Remarks: (Additional remarks on back of sheet.)

Calculating In Boxes

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 65-85 °F
 Trail Conditions COUNTRY ROAD

Leave Town 7:14 Leave Field 6:18 Expm Time _____
 Arrive Field 8:27 Arrive Town 7:41 Down Time _____
 Total Travel Time _____ Number Men Rec. 18

Daily Summary
 No Profiles 48 up / 38
 Miles Traversed _____

Total To Date For Month
 No Profiles 364 up / 329
 Miles Traversed _____

Observer M. E. Voy Page 1 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 8/22/90
 County WILLIAMS State AL. DAK. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms/Rec. Lth. _____ Sec. _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

No. Seis. Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

| Source Point Number | General | | | WIND VELOCITY | Spread | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Vibrating | | | Instruments | |
|---------------------|-------------|------|---|---------------|--------|------|------|-------|------------------------------|---------------------|------------------|------------------|---------|------|------------------|-----|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Back | Front | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MODE | TETRUCKS ON LINE | |
| | | | Tr. | | Tr. | Tr. | | | | | | | | | | Tr. |
| 713 | 534 | 2:08 | 549 | 948 | 4101 | 4152 | | | | 8 | 8 | E | 45 | V | | |
| 717 | 535 | 2:17 | | | | | | | | | | | | | | |
| 721 | 536 | 2:29 | | | | | | | | | | | | | | |
| 725 | 537 | 2:38 | | | | | | | | | | | | | | |
| 729 | 538 | 2:48 | | | | | | | | | | | | | | |
| 733 | Skip | | | | | | | | | | | | | | | |
| 737 | 539 | 2:59 | | | | | | | | | | | | | | |
| 741 | Skip | | | | | | | | | | | | | | | |
| 745 | 540 | 3:10 | | | | | | | | | | | | | | |
| 749 | 541 | 3:20 | | | | | | | | | | | | | | |
| 753 | 542 | 3:29 | | | | | | | | | | | | | | |
| 757 | 543 | 3:39 | | | | | | | | | | | | | | |
| 761 | 544 | 3:48 | | | | | | | | | | | | | | |
| 765 | Skip | | | | | | | | | | | | | | | |
| 769 | Skip | | | | | | | | | | | | | | | |
| 773 | Skip | | | | | | | | | | | | | | | |
| 777 | 545 | 4:19 | | | | | | | | | | | | | | |
| 781 | 546 | 4:29 | 5 mph | 549 | 948 | 4101 | 4152 | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Skip for House
 Skip for Highway
 Vib. driving around
 Skip for House

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ; Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ; Temperature: _____ °F; Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Expm Time _____ Down Time _____

Daily Summary: No Profiles _____ Miles Traversed _____
 Total To Date For Month: No Profiles _____ Miles Traversed _____

Observer _____ Page 2 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 8/22/90
 County Williams State N. DAK. Line 0012
 Month Day Year
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Ref. Amoco NB#

pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____

Samp. Int. _____ Ms; Rec. Lth _____ Sec.

Filter

low / high Hz. low / high Db/Oct; 60 Hz. Rej. _____
 In or Out

No. Seis. Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

SGR'S

No. In Field _____

SGR Trucks

No. In Field _____

| General | | | Spread | | | | Vibrating | | | | Instruments | | | |
|---------------------|-------------|------|---|-----|------|------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|-------|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | Gains |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | |
| 785 | 547 | 4:38 | 547 | 948 | 4101 | 7150 | | | 8 | 8 | E | 45 | V | |
| 789 | Skip | | | | | | | | | | | | | |
| 793 | Skip | | | | | | | | | | | | | |
| 797 | 548 | 4:49 | | | | | | | | | | | | |
| 801 | 549 | 4:58 | | | | | | | | | | | | |
| 805 | 550 | 5:08 | | | | | | | | | | | | T |
| 809 | 551 | 5:17 | | | | | | | | | | | | T |
| 813 | Skip | | | | | | | | | | | | | |
| 817 | Skip | | | | | | | | | | | | | |
| 821 | 552 | 5:29 | | | | | | | | | | | | |
| 825 | 553 | 5:38 | | | | | | | | | | | | |
| 829 | Skip | | | | | | | | | | | | | |
| 833 | 554 | 5:49 | | | | | | | | | | | | |
| 837 | 555 | 5:59 | | | | | | | | | | | | |
| 5837 | Noise File | 556 | 6:01 | | | | | | | | | | | |
| | EDR | 9999 | | | | | | | | | | | | |

Vibrator Electronic

Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

} Skip for House

} Skip for House

Skip for pipeline

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____

Observer _____ Page 3 of 3



Amoco Production Company Seismic Observers Form

Party OUS Date 8/23/90
 County WILLIAMS State N. DAK. Line ND 1
 OAC No.

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources 8
 Inline Xline Spacing Bumper to Bumper

Seis's Sm-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____

Distance _____ SeisGrp. 50m
 Tr. No. Int.

No. Moves Per Source 8
 Inline Xline Dist. Each Move 4'
 Inline Xline

Amplifiers Gust + Geospace SGR III & IV 50/400
 Manuf. Model No. Channels
 Filter - - Hz. IPW 1 2 Db/Oct: 60 Hz. Rej. out
 low high low high In or Out

Vibrator #18 P.W.
 Model

Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

SGR'S 208 IV, 80 III SGR Trucks 5 IV, 2 III
 No. In Field No. In Field

No. Seis. Per Grp. 12 = 12 Spacing 4.2m
 Total No. No. Inline No. Xline Inline Xline

Vibrator Electronic Pelton ADVANCE II
 Reference Taper 500 ms Mode LINEAR % 100%
 Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) | | | | |
|---------------------|-------------|-------|---------------|---|-----|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---|--------------|------|--------|-----------------------------------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | Preamplifier | Mode | Tracks | Line |
| | | 8:16 | | | | | | | | | | | | | | | | |
| 5841 | NOISE FILE | 557 | 10:48 | NO wind | 741 | 1140 | 1151 | 1200 | | | | | | | | | | Calling in Boxes |
| 841 | | 558 | 10:56 | | | | | | | | | | | | | | | |
| 845 | Skip | | | | | | | | | | | | | | | | | } Skip for House |
| 849 | | | | | | | | | | | | | | | | | | |
| 853 | | | | | | | | | | | | | | | | | | |
| 857 | Skip | | | | | | | | | | | | | | | | | |
| 861 | 559 | 11:09 | | | | | | | | | | | | | | | | |
| 865 | 560 | 11:19 | | | | | | | | | | | | | | | | |
| 869 | 561 | 11:29 | | | | | | | | | | | | | | | | |
| 873 | Skip | | | | | | | | | | | | | | | | | Skip for House |
| 877 | 562 | 11:41 | | | | | | | | | | | | | | | | T |
| 881 | 563 | 11:52 | | | | | | | | | | | | | | | | |
| 885 | 564 | 12:01 | | | | | | | | | | | | | | | | All vibs stacking in 3rd position |
| 889 | 565 | 12:14 | | | | | | | | | | | | | | | | |
| 893 | 566 | 12:24 | | | | | | | | | | | | | | | | |
| 897 | 567 | 12:33 | | | | | | | | | | | | | | | | T |
| 901 | Skip | | NO wind | | 741 | 1140 | 1151 | 1200 | | | | | | | | | | Skip for Church |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground; Wet; Rain; Snow; Lightning
 Wind: (0-12 MPH) (13-24 MPH) (25-40 MPH)
 Temperature: 57° - 70° F
 Trail Conditions County Roads

Leave Town 6:48 Leave Field 8:45 Expm Time _____
 Arrive Field 7:54 Arrive Town 6:56 Down Time _____
 Total Travel Time 2 1/2 hrs Number Men Rec. 19

Daily Summary
 No Profiles 51 UPS 39
 Miles Traversed _____
 Observer McEvoy - Zebrowski Page 1 of 3
 Total To Date For Month
 No Profiles 415 UPS 368
 Miles Traversed _____



Amoco Production Company Seismic Observers Form

Party 045 Date 8/23/90
 County Williams State ND. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____, _____, _____, _____, _____, _____
Manuf. Model No Channels Samp. Int. Ms; Rec. Lth. Sec.
 Filter _____ / _____ Hz. _____ / _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

No. Seis. Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

| General | | | Spread | | | | Vibrating | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) | |
|---------------------|-------------|-------|---|------|------|------|------------------------------|------|-----------|-----------|-------------|------------------|------|---|----------------------------------|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of | | Gains | | MODE | | T=Track on Line |
| | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | Front | Vibrators | Sweeps | Vibrator Heading | | Preamp. | |
| 905 | Skip | | 741 | 1140 | 4151 | 4200 | | | | | | | | | Skip for Church |
| 909 | 568 | 12:46 | | | | | | | | 8 | 8 | E | 45 | ✓ | |
| 913 | 569 | 12:55 | | | | | | | | | | | | | |
| 917 | 570 | 1:04 | | | | | | | | | | | | | |
| 921 | 571 | 1:13 | | | | | | | | | | | | | |
| 925 | 572 | 1:23 | | | | | | | | | | | | | |
| 929 | Skip | | | | | | | | | | | | | | SKIP FOR HOUSE |
| 933 | Skip | | | | | | | | | | | | | | |
| 937 | 573 | 1:35 | | | | | | | | | | | | T | |
| 941 | 574 | 1:44 | | | | | | | | | | | | T | |
| 945 | 575 | 1:54 | | | | | | | | | | | | | |
| 949 | 576 | 2:03 | | | | | | | | | | | | T | SEMI DRIVING ON LINE 1024 → HIGH |
| 953 | 577 | 2:15 | | | | | | | | | | | | | UIBS STACKING FOR CULVERT |
| 957 | 578 | 2:24 | | | | | | | | | | | | | |
| 961 | 579 | 2:33 | | | | | | | | | | | | | |
| 965 | Skip | | | | | | | | | | | | | | SKIP FOR SCHOOL HOUSE |
| 969 | 580 | 2:43 | | | | | | | | | | | | | |
| 973 | 581 | 2:53 | 741 | 1140 | 4151 | 4200 | | | | | | | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 2 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 8/23/90
 County Williams State N.D. Line 6012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
Frequency Length

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Ref. Amoco NB#

pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec.

Filter

low / high Hz. low / high Db/Oct; 60 Hz. Rej. _____
In or Out

No. Seis. Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

SGR'S

No. In Field _____

SGR Trucks

No. In Field _____

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | | |
|---------------------|-------------|------|---------------|---|------|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|-----------------|--|---|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | T=Track on Line | | |
| 977 | 582 | 3:03 | 75 MPH | 741 | 1140 | 4151 | 4200 | | | | | | | | | | | |
| 981 | 583 | 3:14 | | | | | | | | | | | | | | | | T |
| 985 | 584 | 3:28 | | | | | | | | | | | | | | | | |
| 989 | 585 | 3:38 | | | | | | | | | | | | | | | | |
| 993 | 586 | 3:48 | | | | | | | | | | | | | | | | |
| 997 | 587 | 4:00 | | | | | | | | | | | | | | | | |
| 1001 | SKIP | | | | | | | | | | | | | | | | | |
| 1005 | 588 | 4:10 | | | | | | | | | | | | | | | | |
| 1009 | 589 | 4:20 | | | | | | | | | | | | | | | | |
| 1013 | 590 | 4:30 | | | | | | | | | | | | | | | | T |
| 1017 | 591 | 4:45 | | | | | | | | | | | | | | | | T |
| 1021 | 592 | 4:55 | | | | | | | | | | | | | | | | |
| 1025 | SKIP | | | | | | | | | | | | | | | | | |
| 1029 | SKIP | | | | | | | | | | | | | | | | | |
| 1033 | 593 | 5:06 | | | | | | | | | | | | | | | | |
| 1037 | 594 | 5:15 | | | | | | | | | | | | | | | | |
| 1041 | 595 | 5:24 | | | | | | | | | | | | | | | | |
| 5041 | Noise File | 596 | 5:26 | | | | | | | | | | | | | | | |

Vibrator Electronic

Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

T Semi-Track on Line - #84 - REPEATING CARDS

} SKIP FOR HOUSE

* 7 VIBS LAST 4 SWEEPS - VIB# 83 LEAKING HOSE *

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____

Observer _____



Amoco Production Company Seismic Observers Form

Party 045 Date 8/28/90 County Williams State N-Dak. Line ND OAC 1 No. 1

Spread Layout
Directions EAST EAST No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
Distance _____ SeisGrp 50m
Tr. No. Int. _____

Each Source Pattern
No. Indiv. Sources 8 Spacing Bumper to Bumper
Inline Xline Inline Xline
No. Moves Per Source 8 Dist. Each Move 4'
Inline Xline Inline Xline

Seis's SM-7 ✓ Type Comp. Direction Seis's _____ Type Comp. Direction
Seis's _____ Type Comp. Direction Ref. Amoco NB# _____ pg. _____
Amplifiers CUSCOUSMIC SCOTT & TV 80/400 Samp. Int. 2/4 Ms. Rec. Lth. 30/30 Sec.
Filter _____ low high Hz. IPW 2 Db/Oct; 60 Hz. Rej. OUT In or Out

No. Seis. Per Grp. 12 = 12 Spacing 4.2m
Total No. No. Inline No. Xline Inline Xline

Vibrator #18 P.W. Model
Sweep 10 To 50 Hz. 30 Drive 80% Length
Frequency Length

SGR'S 80 TV'S 213-TV'S SGR Trucks 2-TV'S + 5-TV'S
No. In Field No. In Field

| Source Point Number | General | | | Wind Velocity | Spread | | | | Vibrating | | | | | Instruments | | | |
|---------------------|-------------|------|---|---------------|--------|-----|------------------------------|-------------------|-----------|---------------------|------------------|------------------|---------|-------------|----------------------|-------|---|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MODE | T-TRACKS ON AND LINE | | |
| | | | Tr. | | Tr. | Tr. | | Tr. | Back | | | | | | | Front | |
| | | 8:02 | | | | | | | | | | | | | | | |
| 6045 | NoneFlus | 598 | 10:06 | 2-3 mph | 945 | 137 | 420 | 4250 | | | | | | | | | |
| 1045 | | 599 | 10:14 | | | | | | | | | | | | | | |
| 1049 | | 600 | 10:23 | | | | | | | | | | | | | | T |
| 1053 | | 601 | 10:32 | | | | | | | | | | | | | | T |
| 1057 | | 602 | 10:41 | | | | | | | | | | | | | | T |
| 1061 | | 603 | 10:51 | | | | | | | | | | | | | | |
| 1065 | | 604 | 11:00 | | | | | | | | | | | | | | |
| 1069 | | 605 | 11:09 | | | | | | | | | | | | | | |
| 1073 | | 606 | 11:18 | | | | | | | | | | | | | | |
| 1077 | | 607 | 11:36 | | | | | | | | | | | | | | |
| 1081 | | 608 | 11:45 | 2-3 mph | | | | | | | | | | | | | T |
| 1085 | | 609 | 11:54 | 5 mph | | | | | | | | | | | | | |
| 1089 | | 610 | 12:03 | | | | | | | | | | | | | | |
| 1093 | | 611 | 12:12 | | | | | | | | | | | | | | T |
| 1097 | | 612 | 12:22 | | | | | | | | | | | | | | T |
| 1101 | | 613 | 12:32 | | | | | | | | | | | | | | |
| 1105 | | 614 | 12:43 | 5 mph | 945 | 137 | 420 | 4250 | | | | | | | | | T |

Vibrator Electronic PELTON ADVANCED II
Reference Taper 50ums Mode LINEAR % 100
Reference Phase 0°

Remarks: (Additional remarks on back of sheet.)

CALLING IN BORES

Pause to fix airbag

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
Temperature: 55-80 °F;
Trail Conditions COUNTY ROAD

Leave Town 6:55 Leave Field 6:54 Expm Time _____
Arrive Field 7:50 Arrive Town 7:10 Down Time _____
Total Travel Time _____ Number Men Rec. 18

Daily Summary No Profiles 53 vp / 45 Miles Traversed _____
Total To Date For Month No Profiles 468 vp / 412 Miles Traversed _____
Observer McEvoy Zebrowski Page 1 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 8/28/90
Month Day Year
 County Williams State N. Dak. Line OAC No. 0012

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Smp. Int. _____ Ms/Rec. Lth. _____ Sec. _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct. 60 Hz. Rej. _____
low high low high In or Out

No. Seis. _____
 Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator

Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

SGR'S _____ SGR Trucks _____
No. In Field No. In Field

| Source Point Number | General | | | Wind Velocity | Spread | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Vibrating | | | Instruments | |
|---------------------|-------------|-------|---|---------------|--------|------|------|-------|------------------------------|---------------------|------------------|------------------|---------|------|------------------|-----|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Back | Front | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MONE | T-TRACKS ON LINE | |
| | | | Tr. | | Tr. | Tr. | | | | | | | | | | Tr. |
| 1109 | 615 | 12:53 | 5 mph | 945 | 1377 | 4201 | 4250 | | | | 8 | 8 | E | 45 | V | |
| 1113 | 616 | 1:02 | 5-7 mph | | | | | | | | | | | | | |
| 1117 | 617 | 1:11 | | | | | | | | | | | | | T | |
| 1121 | 618 | 1:21 | | | | | | | | | | | | | T | |
| 1125 | 619 | 1:45 | 7-10 mph | | | | | | | | | | | | T | |
| 1129 | 620 | 1:54 | | | | | | | | | | | | | | |
| 1133 | 621 | 2:03 | | | | | | | | | | | | | | |
| 1137 | 622 | 2:12 | | | | | | | | | | | | | | |
| 1141 | 623 | 2:21 | | | | | | | | | | | | | | |
| 1145 | 624 | 2:30 | | | | | | | | | | | | | | |
| 1149 | 625 | 2:39 | | | | | | | | | | | | | | |
| 1153 | 626 | 2:49 | | | | | | | | | | | | | | |
| 1157 | 627 | 2:58 | 7-10 mph | | | | | | | | | | | | | |
| 1161 | Skip | | | | | | | | | | | | | | | |
| 1165 | 628 | 3:11 | 15-20 mph | | | | | | | | | | | | | |
| 1169 | 629 | 3:20 | | | | | | | | | | | | | | |
| 1173 | 630 | 3:31 | | | | | | | | | | | | | | |
| 1177 | 631 | 3:37 | 15-20 mph | 945 | 1377 | 4201 | 4250 | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Pause to let Combines pass
 Walk Away stations will be live from now on

Skip for house
 Wind gusting to 25 mph

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 2 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 8/28/90
 County Williams State N. Dak. Line 0012
 OAC No.

Spread Layout
 Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int. _____

Each Source Pattern
 No. Indiv. _____
 Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Seis's _____ Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Filter _____ Hz. _____ Db/Oct: 60 Hz. Rej. _____
 low high low high In or Out

No. Seis. _____
 Per Grp. _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

SGR'S _____ SGR Trucks _____
 No. In Field No. In Field

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | |
|---------------------|----------------|------|---------------|---|------|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|-------------------|--|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | TE-TRUCKS ON LINE | |
| 1181 | 632 | 3:47 | 15-20 mph | 945 | 1377 | 4201 | 4250 | | | | 8 | 8 | E | 45 | V | | |
| 1185 | Skip | | | | | | | | | | | | | | | | |
| 1189 | Skip | | | | | | | | | | | | | | | | |
| 1193 | 633 | 3:58 | | | | | | | | | | | | | | | |
| 1197 | 634 | 4:07 | | | | | | | | | | | | | | | |
| 1201 | 635 | 4:16 | | | | | | | | | | | | | | | |
| 1205 | 636 | 4:25 | | | | | | | | | | | | | | | |
| 1209 | Skip | | | | | | | | | | | | | | | | |
| 1213 | | | | | | | | | | | | | | | | | |
| 1217 | | | | | | | | | | | | | | | | | |
| 1221 | Skip | | | | | | | | | | | | | | | | |
| 1225 | 637 | 4:38 | | | | | | | | | | | | | | | |
| 1229 | 638 | 4:47 | | | | | | | | | | | | | | | |
| 1233 | 639 | 4:57 | | | | | | | | | | | | | | | |
| 1237 | 640 | 5:06 | | | | | | | | | | | | | | | |
| 1241 | 641 | 5:15 | | | | | | | | | | | | | | | |
| 1245 | 642 | 5:24 | | | | | | | | | | | | | | | |
| 1249 | 643 | 5:34 | | | | | | | | | | | | | | | |
| 1253 | Skip | | 15-20 mph | | | | | | | | 8 | 8 | E | 45 | V | | |
| 6249 | Noise File 644 | 5:37 | | 945 | 1377 | 4201 | 4250 | | | | 8 | 1 | E | 45 | V | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Gusting to 25 mph
 Skip for culverts

Skip for No Permit

Skip for well

Daily Summary _____ Total To Date For Month _____
 No Profiles _____ No Profiles _____
 Miles Traversed _____ Miles Traversed _____



Amoco Production Company Seismic Observers Form

Party 045 Date 8/29/90
 County Williams State N.D. Line ND ~~045~~
 OAC No.

Spread Layout EAST EAST
 Directions Increasing SP. No. Tr. 1 to Tr. 2
 Distance 50 m
 Tr. No. 50 m

Each Source Pattern
 No. Indiv. Sources 8
 Spacing Bumper to Bumper
 No. Moves Per Source 8
 Dist. Each Move 4'

Seis's SM-7 V
 Type Comp. Direction
 Seis's SGR IV
 Type Comp. Direction
 Ref. Amoco NB# 370 pg. 4
 Amplifiers Geospace SGR IV
 Manuf. Model No. Channels 370 Samp. Int. 4 Ms. Rec. Lth. 50 Sec.
 Filter IPW 2 Db/Oct: 60 Hz. Rej. out
 low high low high In or Out

No. Seis. Per Grp. 12 = 12
 Total No. No. Inline No. Xline Spacing 4.2 m
 Inline Xline

Vibrator #18 P.W.
 Model
 Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

SGR'S 216 IV's SGR Trucks 5 IV's
 No. In Field No. In Field
 Vibrator Electronic Pelton Advance II
 Manuf. Model
 Reference Taper 500 ms Mode Linear % 100%
 Reference Phase 0°

| Source Point Number | General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|-------|---------------|---|------|-----|------|------------------------------|------------------|-------|---------------------|------------------|------------------|---------|------|------------------|
| | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | T = Tank on Line |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | |
| | | 8:02 | | | | | | | | | | | | | | |
| 6261 | House Face | 645 | 9:55 | > 5 MPH | 1157 | | 1558 | | | 8 | 1 | E | 45 | V | | |
| 1257 | SKIP | | | | | | | | | 8 | 8 | E | 45 | V | | |
| 1261 | 647 | 10:04 | | | | | | | | | | | | | | |
| 1265 | 648 | 10:13 | | | | | | | | | | | | | | |
| 1269 | 649 | 10:23 | | | | | | | | | | | | | | |
| 1273 | SKIP | | | | | | | | | | | | | | | |
| 1277 | | | | | | | | | | | | | | | | |
| 1281 | | | | | | | | | | | | | | | | |
| 1285 | SKIP | | | | | | | | | | | | | | | |
| 1289 | 650 | 10:36 | | | | | | | | | | | | | | |
| 1293 | 651 | 10:45 | | | | | | | | | | | | | | |
| 1297 | 652 | 10:55 | | | | | | | | | | | | | | |
| 1301 | 653 | 11:04 | | | | | | | | | | | | | | |
| 1305 | 654 | 11:13 | | | | | | | | | | | | | | |
| 1309 | 655 | 11:22 | | | | | | | | | | | | | | |
| 1313 | 656 | 11:31 | | | | | | | | | | | | | | |
| 1317 | 657 | 11:44 | > 5 MPH | | 1157 | | 1558 | | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
 Calling in Boxes - Done w/boxes @ 9:36 - waiting on Vibs
 No crossline today
 1st Face is 517 Face Done
 Void Face # 646
 SKIP FOR NO PERMIT
 T Combine on Road from 1368 -> Low

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet Rain Snow Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 60-95 °F
 Trail Conditions County Road

Leave Town 6:49 Leave Field 5:42 Expm Time
 Arrive Field 7:53 Arrive Town 6:49 Down Time
 Total Travel Time 2hr Number Men Rec. 18

Daily Summary
 No Profiles 59 VPS 43
 Miles Traversed
 Observer McEvoy - Zebrowski
 Total To Date For Month
 No Profiles 527 VPS 455
 Miles Traversed
 Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 8/29/90
 County Williams State N.D. Line 0012
 OAC No.

Spread Layout
 Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves Per Source _____ Dist. Each Move _____
 Inline Xline Inline Xline

Seis's _____ Seis's _____
 Type Comp. Direction Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
 low high low high In or Out

No. Seis. Per Grp. _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

Vibrator _____ Model _____
 Sweep _____ To _____ Hz. Drive _____
 Frequency Length

SGR'S _____ SGR Trucks _____
 No. In Field No. In Field

| General | | | Spread | | | | Vibrating | | | | | Instruments | | | |
|---------------------|-------------|-------|---|-----|-----|------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|------------------|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | T = Tank on Line |
| 1321 | 658 | 11:53 | | | | 1568 | | | 8 | 8 | E | 45 | V | | |
| 1325 | 659 | 12:02 | | | | | | | | | | | | | |
| 1329 | 660 | 12:11 | | | | | | | | | | | T | | |
| 1333 | 661 | 12:22 | | | | | | | | | | | T | | |
| 1337 | 662 | 12:31 | | | | | | | | | | | T | | |
| 1341 | 663 | 12:46 | | | | | | | 8 | | | | | | |
| 1345 | SKIP | | | | | | | | | | | | | | |
| 1349 | SKIP | | | | | | | | | | | | | | |
| 1353 | SKIP | | | | | | | | | | | | | | |
| 1357 | 664 | 12:58 | | | | | | | 7 | | | | | | |
| 1361 | 665 | 1:07 | | | | | | | | | | | | | |
| 1365 | SKIP | | | | | | | | | | | | | | |
| 1369 | 666 | 1:17 | | | | | | | | | | | | | |
| 1373 | 667 | 1:27 | | | | | | | | | | | T | | |
| 1377 | 668 | 1:38 | | | | | | | | | | | | | |
| 1381 | SKIP | | | | | | | | | | | | | | |
| 1385 | SKIP | | | | | | | | | | | | | | |
| 1389 | 669 | 1:51 | | | | 1568 | | | 7 | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

ROAD GRADER WORKING FROM ~1530-1538
 VIB # 31 - MISSED SWEEP # 1
 } SKIP FOR HOUSE + BRAW
 #21 - ON LEAK + ACCUMULATION LEAK
 SKIP FOR STORAGE BINS
 SKIP FOR HOUSE
 SKIP FOR HWY

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Exprn Time _____ Down Time _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 2 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 8/29/96
 County Williams State N.D. Line 0012
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int. _____

Each Source Pattern

No. Indiv. _____
 Sources _____ Inline _____ Xline _____
 Spacing _____ Inline _____ Xline _____
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____ Inline _____ Xline _____

Vibrator

Model _____

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

Seis's

Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out _____

SGR'S

No. In Field _____ SGR Trucks _____ No. In Field _____

| Source Point Number | General | | | Spread | | | | Vibrating | | | | Instruments | | Remarks: (Additional remarks on back of sheet.) | |
|---------------------|-------------|------|---------------|---|-----|-----|------|-------------------|-------|---------------------|------------------|------------------|---------|---|---------------------------------------|
| | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | | Gains |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | | | |
| 1393 | 670 | 2:00 | > 5 MPH | 1157 | | | 1558 | | | 7 | 8 | E 45 | V | T | VIB # 21, DRIVING UP LINE 1357 → HIGH |
| 1397 | 671 | 2:13 | | | | | | | | 8 | | | | | |
| 1401 | 672 | 2:22 | | | | | | | | | | | | | |
| 1405 | SKIP | | | | | | | | | | | | | | SKIP FOR CULVERT |
| 1409 | 673 | 2:32 | | | | | | | | | | | | | |
| 1413 | 674 | 2:41 | | | | | | | | | | | | | |
| 1417 | 675 | 2:51 | | | | | | | | | | | | | |
| 1421 | SKIP | | | | | | | | | | | | | | } SKIP FOR HOUSE |
| 1425 | SKIP | | | | | | | | | | | | | | |
| 1429 | 676 | 3:04 | > 5 MPH | | | | | | | | | | | | |
| 1433 | 677 | 3:20 | ≈ 11 MPH | | | | | | | | | | | | |
| 1437 | 678 | 3:29 | > 5 MPH | | | | | | | | | | | T | |
| 1441 | 679 | 3:39 | | | | | | | | | | | | | |
| 1446 | 680 | 3:50 | | | | | | | | | | | | T | REPAIRING PAD CORNERS ON #21 |
| 1449 | 681 | 4:06 | | | | | | | | | | | | | |
| 1453 | 682 | 4:16 | | | | | | | | | | | | | |
| 1457 | 683 | 4:26 | | | | | | | | | | | | | |
| 1461 | 684 | 4:35 | > 5 MPH | 1157 | | | 1558 | | | | | | | | |

Vibrator Electronic

Manuf. _____ Mode _____ Model _____ % _____
 Reference Taper _____
 Reference Phase _____

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 8 / 29 / 90
 County Williams State N. Dak. Line 0012
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int. _____

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms; Rec. Lth _____ Sec. _____

Filter low / high Hz. low / high Db/Oct; 60 Hz. Rej. In or Out

No. Seis. _____
 Per Grp. _____
 Total No. No. Inline No. Xline Spacing _____
 Inline Xline

SGR'S

No. In Field _____

SGR Trucks

No. In Field _____

| Source Point Number | General | | | Spread | | | | Vibrating | | | | | Instruments | | | | | |
|---------------------|-------------|------|---------------|---|------|-----|------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|-------------------|--|--|
| | File Number | Time | WIND VELOCITY | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | FE-TRUCKS ON LINE | | |
| 1465 | 685 | 4:45 | > 5 mph | 1157 | | | 1558 | | | | 8 | 8 | E | 45 | V | | | |
| 1469 | SKIP | | | | | | | | | | | | | | | | | |
| 1473 | SKIP | | | | | | | | | | | | | | | | | |
| 1477 | 686 | 4:56 | | | | | | | | | | | | | | | | |
| 1481 | 687 | 5:05 | | | | | | | | | | | | | | | | |
| 1485 | 688 | 5:14 | | | | | | | | | | | | | | | | |
| 1489 | 689 | 5:24 | | | | | | | | | | | | | | | | |
| 6489 | Noise FIVE | 690 | 5:26 | > 5 MPH | 1157 | | 1558 | | | | | | | | | | | |

Vibrator Electronic

Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

WALKAWAY PICKED UP AFTER FIVE # 685

SKIP FOR HOUSE

T

COMBINE WORKING NORTH SIDE OF ROAD 1350-1365

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Expm Time _____ Down Time _____

Daily Summary

No Profiles _____
 Miles Traversed _____

Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____



Amoco Production Company Seismic Observers Form

Party 045 Date 8/13/90 County WILLIAMS State N. DAK. Line NO OAC No. 1

Spread Layout
Directions EAST EAST No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
No. Indiv. Sources 8 Spacing Bumper-to-Bumper
No. Moves Per Source 8 Dist. Each Move 4'

Seis's SM-7 V Seis's _____
Type Comp. Direction Type Comp. Direction
Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
Amplifiers Gasparian SGR III & IV 80/400 Samp. Int. 2/4 Ms/Rec. Lth 22/50 Sec.
Manuf. Model No. Channels
Filter _____ Hz. IPW 2 Db/Oct: 60 Hz. Rej. Out
low high low high In or Out

Distance _____ SeisGrp. Int. 50m
Tr. No. _____

Vibrator #18 P.W.
Model

No. Seis. Per Grp. 12 = 12 Spacing 4.2m.
Total No. No. Inline No. Xline Inline Xline

Sweep 10 To 50 Hz. 30 Drive 80% SGR'S 80-III's 211-IV's SGR Trucks 2-III 5-IV's
Frequency Length No. In Field No. In Field

Vibrator Electronic DELTON ADVANCED II
Manuf. Model
Reference Taper 500ms Mode LINEAR % 100
Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) | |
|---------------------|----------------|-------|---------------|---|------|------|-----------|-------------------|-------|---------------------|------------------|------------------|----------|------|---|------------------------|
| Source Point Number | File Number | Time | WIND VELOCITY | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | Preampl. | MODE | | TRUCKS |
| | | 7:59 | | | | | | | | | | | | | | |
| 1493 | Noise File 691 | 9:54 | 7 mph | 1393 | 1817 | 4301 | 4350 | | | 8 | 1 | E | 45 | V | | |
| 1493 | 692 | 10:02 | | | | | | | | 8 | 8 | E | 45 | V | | |
| 1497 | 693 | 10:11 | | | | | | | | | | | | | | |
| 1501 | 694 | 10:20 | | | | | | | | | | | | | | |
| 1505 | 695 | 10:30 | | | | | | | | | | | | | T | |
| 1509 | 696 | 10:39 | | | | | | | | | | | | | T | |
| 1513 | 697 | 10:48 | | | | | | | | | | | | | T | |
| 1517 | 698 | 10:56 | 7 mph | | | | | | | | | | | | | |
| 1521 | 699 | 11:06 | 10-12 mph | | | | | | | | | | | | | Wind gusting to 20 mph |
| 1525 | 700 | 11:15 | 15-17 mph | | | | | | | | | | | | T | " " " " " |
| 1529 | 701 | 11:25 | 17-20 mph | | | | | | | 8 | 8 | E | 45 | V | T | wind " " 22 mph |
| 6529 | Noise File 702 | 11:29 | | 1393 | 1817 | 4301 | 4350 | | | 8 | 1 | E | 45 | V | | |
| | EOR 9999 | | | | | | | | | | | | | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
Temperature: 55-95 °F;
Trail Conditions Courtesy Road

Leave Town 6:45 Leave Field 12:45 Expm Time _____
Arrive Field 7:49 Arrive Town 1:50 Down Time _____
Total Travel Time _____ Number Men Rec. 18

Daily Summary
No Profiles 10 vp / 10 Miles Traversed _____
Total To Date For Month
No Profiles 537 vp / 465 Miles Traversed _____
Observer MS Frye-Jegorok Page 1 of 1



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 1 / 90
 County Williams / MountLair State N. D. Line NO No. 1

Spread Layout
 Directions East East No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. 50 m
 Tr. No. Int. _____

Each Source Pattern
 No. Indiv. Sources 8 Spacing Bumper to Bumper
 Inline Xline Inline Xline
 No. Moves Per Source 8 Dist. Each Move 4'
 Inline Xline Inline Xline

Seis's 5m-7 V Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers Gust & Geospace SGR III & IV 50/400 Samp. Int. 2/4 Ms; Rec. Lth. 32/50 Sec.
 Manuf. Model No. Channels
 Filter - / - Hz. IPW / 2 Db/Oct. 60 Hz. Rej. out
 low high low high In or Out

No. Seis. Per Grp. 12 = 12 Spacing 4.2 m
 Total No. No. Inline No. Xline Inline Xline

Vibrator #18 P.W.
 Model
 Sweep 10 To 56 Hz. 30 Drive 8090
 Frequency Length

SGR'S 80 III 213 IV SGR Trucks 2 III 5 IV
 No. In Field No. In Field

Vibrator Electronic Pelton Advance II
 Reference Taper 500 ms Mode Linear % 100%
 Manuf. Model
 Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | |
|---------------------|-------------|-------|---------------|---|------|------|-----------|------------------------------|------|---------------------|------------------|------------------|-------|---------|------|----------------|---|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | MODE | T-tack on line | |
| | | 7:44 | | | | | | | | | | | | | | | |
| 6533 | NOISE FILE | 703 | 10:02 | Breeze | 1433 | 1856 | 4301 | 4350 | | | | 8 | 1 | E | 45 | V | |
| 1533 | | 705 | 10:12 | | | | | | | | | 8 | 8 | E | 45 | V | T |
| 1537 | | 706 | 10:21 | | | | | | | | | | | | | | T |
| 1541 | | 707 | 10:30 | | | | | | | | | | | | | | T |
| 1545 | | 708 | 10:39 | | | | | | | | | | | | | | |
| 1549 | | 709 | 10:48 | | | | | | | | | | | | | | |
| 1553 | | 710 | 10:58 | Breeze | | | | | | | | | | | | | |
| 1557 | | 711 | 11:06 | 3 mph | | | | | | | | | | | | | |
| 1561 | | 712 | 11:15 | | | | | | | | | | | | | | |
| 1565 | | 713 | 11:24 | | | | | | | | | | | | | | |
| 1569 | | 714 | 11:33 | 3 MPH | | | | | | | | | | | | | |
| 1573 | | Skip | | | | | | | | | | | | | | | |
| 1577 | | | | | | | | | | | | | | | | | |
| 1581 | | | | | | | | | | | | | | | | | |
| 1585 | | | | | | | | | | | | | | | | | |
| 1589 | | | | | | | | | | | | | | | | | |
| 1593 | | Skip. | | | 1433 | 1856 | 4301 | 4350 | | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
 Calling in Boxes
 Void File # 704 on IVs, No File # 704 on III
 SKIP FOR HOUSE + BRANS + CULVERTS

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 48-85 °F
 Trail Conditions: County Road

Leave Town 6:50 Leave Field 6:55 Expm Time _____
 Arrive Field 7:36 Arrive Town 9:24 Down Time _____
 Total Travel Time 1 1/2 hrs Number Men Rec. 18

Daily Summary
 No Profiles 62 UPS 30
 Miles Traversed _____
 Observer McEvoy - Zebrowski
 Total To Date For Month
 No Profiles 599 UPS 495
 Miles Traversed _____
 Page 1 of 1



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 1 / 90
 County Williams / Mountain State N-D Line 0017
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int. _____

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
 Frequency Length

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Ref. Amoco NB#

pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____

Samp. Int. _____ Ms. Rec. Lth. _____ Sec.

Filter

low / high Hz. low / high

Db/Oct: 60 Hz. Rej. _____ In or Out

No. Seis. Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

SGR'S

No. In Field _____

SGR Trucks

No. In Field _____

| Source Point Number | General | | Spread | | | | Vibrating | | | | | Instruments | | Remarks: (Additional remarks on back of sheet.) | |
|---------------------|-------------|-------|---------------|---|------|------|-----------|------------------------------|------|---------------------|------------------|------------------|-------|---|----------------------|
| | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | | Preamp. |
| 1597 | SKIP | | | 1433 | 1856 | 4301 | 4350 | | | 8 | 8 | E | 45 | V | } SKIP FOR WATERWELL |
| 1601 | SKIP | | | | | | | | | | | | | | |
| 1605 | 715 | 11:52 | | | | | | | | | | | | | } SKIP FOR NO PERMIT |
| 1609 | SKIP | | | | | | | | | | | | | | |
| 1613 | | | | | | | | | | | | | | | |
| 1617 | | | | | | | | | | | | | | | |
| 1621 | | | | | | | | | | | | | | | |
| 1625 | SKIP | | | | | | | | | | | | | | |
| 1629 | 716 | 12:09 | | | | | | | | | | | | | |
| 1633 | 717 | 12:18 | | | | | | | | | | | | | |
| 1637 | 718 | 12:28 | | | | | | | | | | | | | |
| 1641 | 719 | 12:37 | | | | | | | | | | | | | |
| 1645 | 720 | 12:45 | | | | | | | | | | | | | |
| 1649 | 721 | 12:54 | | | | | | | | | | | | | |
| 1653 | SKIP | | | | | | | | | | | | | | } SKIP FOR HOUSE |
| 1657 | 722 | 1:07 | | | | | | | | | | | | | |
| 1661 | SKIP | | | | | | | | | | | | | | } SKIP FOR PIPELINE |
| 1665 | SKIP | | | 1433 | 1856 | 4301 | 4350 | | | | | | | | |

Vibrator Electronic

Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____

Observer _____

Page 2 of 8



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 1 / 90
 County Williams / Mountrail State N.D. Line 0612
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern

No. Indiv. _____
 Sources _____ Inline _____ Xline _____
 Spacing _____ Inline _____ Xline _____
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____ Inline _____ Xline _____

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency _____ Length _____

Seis's _____ Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____
 Amplifiers _____ Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms/Rec.Lth. _____ Sec. _____
 Filter _____ low / high _____ Hz. _____ low / high _____ Db/Oct; 60 Hz. Rej. _____ In or Out _____
 SGR'S _____ No. In Field _____ SGR Trucks _____ No. In Field _____

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
 Total No. _____ No. Inline _____ No. Xline _____ Inline _____ Xline _____

| Source Point Number | General | | | Wind Velocity | Spread | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Vibrating | | | Instruments | | | |
|---------------------|-------------|------|---|---------------|--------|------|------|-------|------------------------------|---------------------|------------------|------------------|-------|---------|-------------|---------|---------|--|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Back | Front | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | | |
| | | | Tr. | | Tr. | Tr. | | | | | | | Tr. | Preamp. | MODE | T-TRUCK | IN LINE | |
| 1669 | 723 | 1:20 | >5 mph | 1433 | 1850 | 4301 | 4350 | | | | 8 | 8 | E | 45 | V | | | |
| 1673 | SKIP | | | | | | | | | | | | | | | | | |
| 1677 | SKIP | | | | | | | | | | | | | | | | | |
| 1681 | SKIP | | | | | | | | | | | | | | | | | |
| 1685 | 724 | 1:32 | | | | | | | | | | | | | | | | |
| 1689 | 725 | 1:43 | | | | | | | | | | | | | | | | |
| 1693 | 726 | 1:52 | | | | | | | | | | | | | | | | |
| 1697 | SKIP | | | | | | | | | | | | | | | | | |
| 1701 | 1 | | | | | | | | | | | | | | | | | |
| 1705 | SKIP | | | | | | | | | | | | | | | | | |
| 1709 | 727 | 2:06 | | | | | | | | | | | | | | | | |
| 1713 | 728 | 2:15 | >5 mph | | | | | | | | | | | | | | | |
| 1717 | 729 | 2:26 | 6 mph | | | | | | | | | | | | | | | |
| 1721 | 730 | 2:35 | >5 MPH | | | | | | | | | | | | | | | |
| 1725 | 731 | 2:44 | | | | | | | | | | | | | | | | |
| 1729 | 732 | 2:53 | | | | | | | | | | | | | | | | |
| 1733 | 733 | 3:03 | | | | | | | | | | | | | | | | |
| 1737 | SKIP | | >5 mph | 1433 | 1850 | 4301 | 4350 | | | | | | | | | | | |

Vibrator Electronic _____ Manuf. _____ Model _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

SKIP FOR HOUSE & PIPELINE

SKIP FOR NO PERMIT

SKIP FOR HOUSE

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: _____
 Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: _____
 (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 1 / 90
 County Williams / Monteval State N.D. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth _____ Sec. _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

Vibrator Electronic _____
Manuf. Model
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

| General | | | Spread | | | | Vibrating | | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) | |
|---------------------|----------------|------|---------------|---|------|------|-----------|------------------------------|------|---------------------|------------------|------------------|-------|----------|---|-------------------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | T = Touch on Line |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preampl. | | |
| 1741 | SKIP | | | 1433 | 1896 | 4201 | 4350 | | | | | | | | SKIP For House No PERMIT | |
| 1745 | SKIP | | | | | | | | | | | | | | | |
| 1749 | | | | | | | | | | | | | | | | |
| 1753 | | | | | | | | | | | | | | | | |
| 1757 | | | | | | | | | | | | | | | | |
| 1761 | | | | | | | | | | | | | | | | |
| 1765 | | | | | | | | | | | | | | | | |
| 1769 | | | | | | | | | | | | | | | | |
| 1773 | | | | | | | | | | | | | | | | |
| 1777 | SKIP | | | | | | | | | | | | | | | |
| 6737 | Not a File 734 | 3:06 | | 1433 | 1896 | 4201 | 4350 | | | | | | | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 4 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 5 / 90
 County Mountain State N.D. Line OAC No. 0012

Spread Layout
 Directions East East No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. SDM
 Tr. No. Int. _____

Each Source Pattern
 No. Indiv. Sources 8
 Spacing Bumper to Bumper
 No. Moves Per Source 8 Dist. Each Move 4'

Vibrator
 Model #18 P.W.
 Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

Seis's SM-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers Gus + Geospace SGR III & IV 50/400 Samp. Int. 2/4 Ms; Rec. Lth. 32/50 Sec.
 Filter _____ Hz. IPW 2 Db/Oct. 60 Hz. Rej. out
 low high low high In or Out

No. Seis. Per Grp. 12 = 12
 Total No. No. Inline No. Xline Spacing 4.2 meter
 Inline Xline

SGR'S 80 III IV SGR Trucks 2 III 5 IVs
 No. In Field No. In Field

Vibrator Electronic Pelton Advance II
 Reference Taper 500 ms Mode Linear % 100%
 Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | Instruments | | | |
|---------------------|----------------|-------|---------------|---|------|------|-----------|------------------------------|------|---------------------|------------------|------------------|-------|---------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. |
| | | 8:05 | | | | | | | | | | | | |
| 7097 | Noise File 784 | 10:21 | 5 mph | 1935 | 2364 | 4401 | 4450 | | | 8 | 1 | E | 45 | V |
| 2097 | 785 | 10:30 | 5 mph | | | | | | | 8 | 8 | E | 45 | V T |
| 2101 | Skip | | | | | | | | | | | | | |
| 2105 | | | | | | | | | | | | | | |
| 2109 | | | | | | | | | | | | | | |
| 2113 | | | | | | | | | | | | | | |
| 2117 | Skip | | | | | | | | | | | | | |
| 2121 | 786 | 10:46 | 8 mph | | | | | | | | | | | T |
| 2125 | 787 | 10:55 | 8 mph | | | | | | | | | | | T |
| 2129 | Skip | | | | 2364 | | | | | | | | | |
| 2133 | Skip | | | | 2378 | | | | | | | | | |
| 2137 | 788 | 11:14 | | | | | | | | | | | | T |
| 2141 | 789 | 11:23 | | | | | | | | | | | | T |
| 2145 | 790 | 11:33 | | | 2378 | | | | | | | | | T |
| 2149 | 791 | 11:46 | | | 2390 | | | | | | | | | T |
| 2153 | 792 | 11:55 | | | 2390 | | | | | | | | | T |
| 2157 | 793 | 12:04 | 8 mph | 1935 | 2390 | 4401 | 4450 | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
 Calling in Boxes, Grain Trucks driving on Line all Day
 * Full in line spread isn't live yet still burying phones *
 * Walk away spread is not live today *
 } Skip for water well
 } Skip for water well Pause to call in Boxes
 * Full spread live now *

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground; Wet; Rain; Snow; Lightning
 Wind: (0-12 MPH) (13-24 MPH) (25-40 MPH)
 Temperature: 60-70 °F
 Trail Conditions county Road

Leave Town 6:57 Leave Field 7:00 Expm Time _____
 Arrive Field 7:45 Arrive Town 7:39 Down Time _____
 Total Travel Time _____ Number Men Rec. 19

Daily Summary 58 vp/49 Total To Date For Month _____
 No Profiles _____ No Profiles 137 vp/96
 Miles Traversed _____ Miles Traversed _____
 Observer McEvoy - Zebrowski Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 5 / 90
 County Mountrail State N.D. Line 0015
Month Day Year
OAC No.

Spread Layout
 Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern
 No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ **Seis's** _____
Type Comp. Direction Type Comp. Direction
Seis's _____ **Ref. Amoco NB#** _____
Type Comp. Direction pg.
Amplifiers _____ **Samp. Int.** _____ **Ms; Rec. Lth.** _____ **Sec.** _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ **Db/Oct; 60 Hz. Rej.** _____
low high low high In or Out

No. Seis. Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator _____
Model
 Sweep _____ To _____ Hz. Drive _____
Frequency Length

SGR'S _____ **SGR Trucks** _____
No. In Field No. In Field

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|-------|---|------|------|------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|-------------------|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MODE | T = Truck on Line |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | | |
| 2161 | 794 | 12:13 | 1935 | 2390 | 4401 | 4450 | | | | | | | | T | |
| 2165 | 795 | 12:22 | | | | | | | | | | | | T | |
| 2169 | 796 | 12:31 | | | | | | | | | | | | | |
| 2173 | 797 | 12:40 | | | | | | | | | | | | | |
| 2177 | 798 | 12:51 | | | | | | | | | | | | T | |
| 2181 | 799 | 1:00 | | | | | | | | | | | | T | |
| 2185 | 800 | 1:08 | | | | | | | | | | | | | |
| 2189 | 801 | 1:17 | | | | | | | | | | | | T | |
| 2193 | 802 | 1:26 | | | | | | | | | | | | T | |
| 2197 | 803 | 1:36 | | | | | | | | | | | | | |
| 2201 | 804 | 1:46 | | | | | | | | | | | | | |
| 2205 | 805 | 1:57 | | | | | | | | | | | | | |
| 2209 | 806 | 2:06 | | | | | | | | | | | | | |
| 2213 | 807 | 2:15 | | | | | | | | | | | | | |
| 2217 | 808 | 2:24 | | | | | | | | | | | | | |
| 2221 | 809 | 2:33 | | | | | | | | | | | | T | |
| 2225 | 810 | 2:42 | | | | | | | | | | | | T | |
| 2229 | 811 | 2:51 | 1935 | 2390 | 4401 | 4450 | | | | | | | | | |

Vibrator Electronic _____
Manuf. Model
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Stacking up for Culvert

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 2 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 5 / 90
 County Montrail State N.D. Line 0012
 OAC No.

Spread Layout

Directions Increasing SP. No. Tr. 1 to Tr. 2 No. Fold _____
 Distance Tr. No. SeisGrp. Int.

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each Move _____
 Per Source Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
 Frequency Length

Seis's _____
 Type Comp. Direction Type Comp. Direction

Seis's _____
 Type Comp. Direction Ref. Amoco NB# _____ pg. _____

Amplifiers _____
 Manuf. Model No. Channels Samp. Int. _____ Ms; Rec. Lth. _____ Sec.

Filter low / high Hz. low / high Db/Oct; 60 Hz. Rej. In or Out

No. Seis. Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

SGR'S _____ No. In Field _____
 SGR Trucks _____ No. In Field _____

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|------|---------------|---|------|------|-----------|------------------------------|------|---------------------|------------------|------------------|-------|---------|-----------------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | T=Track on Line |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | |
| 2233 | 812 | 3:00 | 5 mph | 1935 | 2390 | 4401 | 4450 | | | 8 | 8 | E | 45 | V | T |
| 2237 | 813 | 3:09 | | | | | | | | | | | | | |
| 2241 | 814 | 3:18 | | | | | | | | | | | | | |
| 2245 | 815 | 3:27 | | | | | | | | | | | | | |
| 2249 | Skip | | | | | | | | | | | | | | |
| 2253 | Skip | | | | | | | | | | | | | | |
| 2257 | 816 | 3:38 | 5 mph | | | | | | | | | | | | |
| 2261 | 817 | 3:47 | 8 mph | | | | | | | | | | | | T |
| 2265 | 818 | 3:56 | | | | | | | | | | | | | T |
| 2269 | 819 | 4:05 | | | | | | | | | | | | | |
| 2273 | 820 | 4:14 | | | | | | | | | | | | | |
| 2277 | 821 | 4:25 | | | | | | | | | | | | | T |
| 2281 | 822 | 4:38 | 8 mph | | | | | | | | | | | | |
| 2285 | 823 | 4:50 | 5 mph | | | | | | | | | | | | T |
| 2289 | 824 | 5:04 | | | | | | | | | | | | | T |
| 2293 | 825 | 5:17 | | | | | | | | | | | | | |
| 2297 | 826 | 5:26 | | | | | | | | | | | | | |
| 2301 | 827 | 5:35 | 5 mph | 1935 | 2390 | 4401 | 4450 | | | | | | | | |

Vibrator Electronic _____
 Manuf. _____ Model _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

GRADERS working on low end of the line heading High-1935 to 2015

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____
 Arrive Field _____
 Total Travel Time _____
 Leave Field _____
 Arrive Town _____
 Number Men Rec. _____
 Experm Time _____
 Down Time _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 5 / 90
 County Mountain State N.D. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____
Type Comp. Direction pg.
 Amplifiers _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

No. Seis. _____
 Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator _____
Model
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|----------------|------|---------------|---|------|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE |
| 2305 | 828 | 5:46 | 5 mph | 1935 | 2390 | 4401 | 4450 | | | | 8 | 8 | E | 45 | V |
| 2309 | 829 | 5:56 | 5 mph | | | | | | | | 8 | | | | |
| 2313 | 830 | 6:11 | 10 mph | | | | | | | | 7 | | | | T |
| 2317 | 831 | 6:24 | 8 mph | | | | | | | | | | | | |
| 2321 | 832 | 6:33 | 5 mph | | | | | | | | | | | | |
| 2325 | 833 | 6:42 | 5 mph | | | | | | | | 7 | 8 | E | 45 | V |
| 7325 | NOISE FILE 834 | 6:45 | 5 mph | 1935 | 2390 | 4401 | 4450 | | | | 7 | 1 | E | 45 | V |

Vibrator Electronic _____
Manuf. Model
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

GRADERS shut down AT STA. 2015.

Vib # 32 LEAKING Fitting
 Vibs stacking in 4th position for culvert

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 4 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 6 / 90
 County Mountain State N.D. Line OAC No. 0012

Spread Layout East East No. Fold _____
 Directions East East Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources 8
 No. Moves Per Source 8
 Spacing Bumper to Bumper
 Dist. Each Move 4'

Seis's SM-7 ✓
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers Geospace SGR IV 400 4 50
 No Channels Samp. Int. Ms/Rec. Lth. Sec.
 Filter - - Hz. IPW 2 Db/Oct; 60 Hz. Rej. out
 low high low high In or Out

Distance _____ SeisGrp. 50m
 Tr. No. Int. _____

Vibrator #18 P.W.
 Model
 Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

No. Seis. Per Grp. 12 = 12
 Total No. No. Inline No. Xline Spacing 4.2m
 Inline Xline

SGR'S 202 IVs SGR Trucks SIV
 No. In Field No. In Field

Vibrator Electronic Pelton Advance II
 Reference Taper 500ms Mode LINEAR % 100%
 Reference Phase 0°

| General | | | | Spread | | | | Vibrating | | | | Instruments | | | | | |
|---------------------|-------------|------|---------------|---|------|-----|------|------------------------------|------|---------------------|------------------|------------------|-------|---------|------|---------|---------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | MODE | T-Track | on Line |
| | | 7:26 | | | | | | | | | | | | | | | |
| 7329 | Noix File | 835 | 10:46 | 75 MPH | 2229 | | 2690 | | | 8 | 1 | E | 45 | V | | | |
| 7329 | | 836 | 10:55 | | | | | | | 8 | 8 | E | 45 | V | | | |
| 2333 | | 837 | 11:04 | | | | | | | 8 | | | | | | | |
| 2337 | | 838 | 11:15 | | | | | | | 8 | | | | | | | |
| 2341 | | 839 | 11:26 | | | | | | | 7 | | | | | | | |
| 2345 | | 840 | 11:38 | | | | | | | 8 | | | | | | | |
| 2349 | | 841 | 11:47 | | | | | | | 7 | | | | | | | |
| 2353 | | 842 | 12:05 | | | | | | | 7 | | | | | | | |
| 2357 | | 843 | 12:15 | | | | | | | 1 | | | | | | | |
| 2361 | | 844 | 12:24 | | | | | | | 1 | | | | | | | |
| 2365 | | 845 | 12:33 | | | | | | | 1 | | | | | | | |
| 2369 | | 846 | 12:42 | | | | | | | 1 | | | | | | | |
| 2373 | | 847 | 12:54 | | | | | | | 7 | | | | | | | |
| 2377 | SKIP | | | | | | | | | | | | | | | | |
| 2381 | | 848 | 1:07 | | | | | | | 8 | | | | | | | |
| 2385 | SKIP | | | | | | | | | | | | | | | | |
| 2389 | SKIP | | | | 2229 | | 2690 | | | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
 Calling in Boxes - Problems w/Boxes Calling Totals Morning
 No crossline today - UOOP FREE # 834
 * ~~Learn Trucks on Loop All Day~~ *
 #33 MISSED SWEEP #5
 #21 - MISSED SWEEP 6 & 8 - PHASE PROBLEM
 #31 - Working on PRO UP SPEED - MISS SWEEP
 #86 - MISSED SWEEP, 546
 #31 - DRIVING UP LINE
 SKIP FOR HOUSE
 } SKIP FOR HOUSE

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 55-90 °F;
 Trail Conditions County Road

Leave Town 6:50 Leave Field 6:41 Expm Time _____
 Arrive Field 7:05 Arrive Town 6:58 Down Time _____
 Total Travel Time 1/2 hr. Number Men Rec. 19

Daily Summary
 No Profiles 71 UPS 44
 Miles Traversed _____
 Observer McEvoy - Zebrowski
 Total To Date For Month
 No Profiles 208 UPS 140
 Miles Traversed _____
 Page 1 of 5



Amoco Production Company Seismic Observers Form

Party 045 Date 9/16/90
 County MOUNTAIN State N. DAK. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____ Spacing _____
 Sources _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
Frequency Length

Seis's

Type _____ Comp. _____ Direction _____
 Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms; Rec. Lth _____ Sec. _____
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out _____

No. Seis. _____ Spacing _____
 Per Grp. _____
Total No. No. Inline No. Xline Inline Xline

SGR'S

No. In Field _____ SGR Trucks _____
No. In Field

| Source Point Number | General | | | WIND VELOCITY | Spread | | | | Vibrating | | | | | Instruments | | | |
|---------------------|-------------|------|---|---------------|--------|-----|------------------------------|-------------------|-----------|---------------------|------------------|------------------|---------|-------------|------------------|-------|--|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MODE | T-TRUCKS ON LINE | | |
| | | | Tr. | | Tr. | Tr. | | Tr. | Back | | | | | | | Front | |
| 2393 | 849 | 1:19 | | | | | | | | 8 | 8 | E | 45 | V | | | |
| 2397 | 850 | 1:29 | | | | | | | | | | | | | | | |
| 2401 | 851 | 1:38 | | | | | | | | | | | | | | | |
| 2405 | 852 | 1:47 | | | | | | | | | | | | | | | |
| 2409 | 853 | 1:57 | | | | | | | | | | | | | | | |
| 2413 | 854 | 2:06 | | | | | | | | | | | | | | | |
| 2417 | 855 | 2:15 | | | | | | | | | | | | | | | |
| 2421 | 856 | 2:24 | | | | | | | | | | | | | | | |
| 2425 | 857 | 2:33 | >5 MPH | | | | | | | | | | | | | | |
| 2429 | 858 | 2:41 | 8 MPH | | | | | | | | | | | | | | |
| 2433 | 859 | 2:52 | | | | | | | | | | | | | | | |
| 2437 | 860 | 3:06 | | | | | | | | | | | | | | | |
| 2441 | 861 | 3:16 | 8 MPH | | | | | | | | | | | | | | |
| 2445 | SKIP | | | | | | | | | | | | | | | | |
| 2449 | | | | | | | | | | | | | | | | | |
| 2453 | | | | | | | | | | | | | | | | | |
| 2457 | | | | | | | | | | | | | | | | | |
| 2461 | SKIP | | | | | | | | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____
 Reference Phase _____
Manuf. Model %

Remarks: (Additional remarks on back of sheet.)

WIND GUSTS 8-10MPH (OCCASIONAL)
 VIOLATE #3 - Killed Sweeps 5 + 6
 VIBS STACKING FOR A CULVERT
 SKIP FOR NO PERMIT

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 2 of 5



Amoco Production Company Seismic Observers Form

Party 045 Date 9/6/90
 County MOUNTAIN State N. DAK. Line 0012
Month Day Year
OAC No.

Spread Layout
 Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern
 No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ **Seis's** _____
Type Comp. Direction Type Comp. Direction
Seis's _____ **Ref. Amoco NB#** _____
Type Comp. Direction pg.
Amplifiers _____ **Samp. Int.** _____ **Ms/Rec.Lth** _____ **Sec.** _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ **Db/Oct; 60 Hz. Rej.** _____
low high low high In or Out

No. Seis. Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator _____
 Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

SGR'S _____ **SGR Trucks** _____
No. In Field No. In Field

| Source Point Number | General | | Time | WIND VELOCITY | Spread | | | | Vibrating | | | | | Instruments | | |
|---------------------|-------------|------|-------|---------------|--------|-----|-----|-----|------------------------------|-------------------|------|-------|---------------------|------------------|------------------|------------------------|
| | File Number | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Near-Seis. Offset | Back | Front | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. |
| 2465 | SKIP | | | | | | | | | | | | | | | |
| 2469 | | | | | | | | | | | | | | | | |
| 2473 | | | | | | | | | | | | | | | | |
| 2477 | | | | | | | | | | | | | | | | |
| 2481 | | | | | | | | | | | | | | | | |
| 2485 | | | | | | | | | | | | | | | | |
| 2489 | | | | | | | | | | | | | | | | |
| 2493 | | | | | | | | | | | | | | | | |
| 2497 | | | | | | | | | | | | | | | | |
| 2501 | | | | | | | | | | | | | | | | |
| 2505 | | | | | | | | | | | | | | | | |
| 2509 | SKIP | | | | | | | | | | | | | | | |
| 2513 | 862 | 3:40 | >5MPH | | | | | | | 8 | 8 | E | 45 | V | | 932-Phase Sweep #1 & 2 |
| 2517 | 863 | 3:49 | | | | | | | | | | | | | | |
| 2521 | 864 | 3:59 | | | | | | | | | | | | | | |
| 2525 | 865 | 4:08 | | | | | | | | | | | | | | |
| 2529 | SKIP | | | | | | | | | | | | | | | |
| 2533 | 866 | 4:22 | >5MPH | | | | | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

SKIP FOR NO PERMIT

SKIP FOR RAILROAD TRACKS



Amoco Production Company Seismic Observers Form

Party OYS Date 9 / 6 / 90
 County MOUNTAIN State N. Dak. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Sweep _____ To _____ Hz. Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction

Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction

Amplifiers _____, Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
Manuf. Model No. Channels

Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out

No. Seis. _____ Spacing _____
 Per Grp. _____
Total No. No. Inline No. Xline Inline Xline

SGR'S _____ SGR Trucks _____
No. In Field No. In Field

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | |
|---------------------|-------------|------|---|-----|-----|------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|----------|---------|--|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MADE | T-TRUCKS | ON LINE | |
| 2537 | SKIP | | | | | 2229 | | | | | | | | | | | |
| 2541 | SKIP | | | | | | | | | | | | | | | | |
| 2545 | SKIP | | | | | | | | | | | | | | | | |
| 2549 | 867 | 4:34 | | | | | | | | | | | | | | | |
| 2553 | 868 | 4:43 | | | | | | | | | | | | | | | |
| 2557 | 869 | 4:55 | | | | | | | | | | | | | | | |
| 2561 | 870 | 5:04 | | | | | | | | | | | | | | | |
| 2565 | 871 | 5:12 | | | | | | | | | | | | | | | |
| 2569 | SKIP | | | | | | | | | | | | | | | | |
| 2573 | SKIP | | | | | | | | | | | | | | | | |
| 2577 | SKIP | | | | | | | | | | | | | | | | |
| 2581 | 872 | 5:25 | | | | | | | | | | | | | | | |
| 2585 | 873 | 5:33 | | | | | | | | | | | | | | | |
| 2589 | 874 | 5:43 | | | | | | | 8 | | | | | | | | |
| 2593 | 875 | 5:53 | | | | | | | 7 | | | | | | | | |
| 2597 | 876 | 6:01 | | | | | | | | | | | | | | | |
| 2601 | 877 | 6:10 | | | | | | | | | | | | | | | |
| 2605 | 878 | 6:19 | | | | 2228 | | | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

} SKIP FOR HIGHWAY + HOUSES

} SKIP FOR WATERWELL

T

T VIB#32 - ENGINE OIL LEAK

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____

Observer _____ Page 4 of 5



Amoco Production Company Seismic Observers Form

Spread Layout
Directions EAST EAST No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2

Distance _____ SeisGrp. 50m
Tr. No. Int. _____

No. Seis. 12 = 12 Spacing 4.2'
Per Grp. Total No. No. Inline No. Xline Inline Xline

Each Source Pattern
No. Indiv. Sources 8
Inline Xline Spacing Bump to Bump

No. Moves 8 Dist. Each 4'
Per Source Inline Xline Move Inline Xline

Vibrator #18 P.W.
Model

Sweep 10 To 56 Hz. 30 Drive 80%
Frequency Length

Party 045 Date 9/8/90
County MOUNTAIN State N.D. Line 002
OAC No.

Seis's SM-7 V Seis's _____
Type Comp. Direction Type Comp. Direction

Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction

Amplifiers GEOSPACE SGR IV 400 Samp. Int. 4 Ms; Rec. Lth. 50 Sec.
Manuf. Model No. Channels

Filter - / - Hz. IPW / 2 Db/Oct; 60 Hz. Rej. OUT
low high low high In or Out

SGR'S IV SGR Trucks 5 IV
No. In Field No. In Field

Vibrator Electronic Pelton ADVANCE II
Manuf. Model

Reference Taper 500 ms Mode LINEAR % 100%
Reference Phase 0°

| General | | | | Spread | | | | Vibrating | | | | Instruments | | | |
|---------------------|----------------|------|---------------|---|------|-----|------|-------------------|-------|---------------------|------------------|------------------|---------|------|-----------------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | T=Truck on Line |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | Preamp. | MODE | |
| | | 7:43 | | | | | | | | | | | | | |
| 2613 | Noise File 881 | 9:29 | 2-3 mph | 2513 | | | 2912 | | | 8 | 1 | E | 45 | V | |
| 2613 | | 882 | 9:37 | | | | | | | 8 | 8 | E | 45 | V | T |
| 2617 | | 883 | 9:46 | | | | | | | | | | | | T |
| 2621 | | 884 | 9:55 | | | | | | | | | | | | |
| 2625 | | 885 | 10:05 | | | | | | | | | | | | |
| 2629 | | 886 | 10:14 | | | | | | | | | | | | |
| 2633 | | 887 | 10:23 | | | | | | | | | | | | |
| 2637 | | 888 | 10:32 | | | | | | | | | | | | |
| 2641 | | 889 | 10:42 | | | | | | | | | | | | |
| 2645 | | 890 | 10:51 | | | | | | | | | | | | |
| 2649 | | 891 | 11:00 | | | | | | | | | | | | |
| 2653 | | 892 | 11:09 | | | | | | | | | | | | |
| 2657 | Skip | | | | | | | | | | | | | | |
| 2661 | | 893 | 11:19 | | | | | | | | | | | | |
| 2665 | | 894 | 11:28 | | | | | | | | | | | | |
| 2669 | | 895 | 11:37 | | | | | | | | | | | | |
| 2673 | | 896 | 11:45 | 2-3 mph | 2513 | | 2912 | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
Calling in Boxes * NO CROSS LINE, TODAY *
Skip for House

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet ; Rain ; Snow ; Lightning ;
Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
Temperature: 55-90 °F;
Trail Conditions County Road

Leave Town 7:00 Leave Field 4:22 Expm Time _____
Arrive Field 7:23 Arrive Town 4:47 Down Time _____
Total Travel Time _____ Number Men Rec. 18

Daily Summary 48 / 39 Total To Date For Month _____
No Profiles _____ No Profiles 256 / 179
Miles Traversed _____ Miles Traversed _____
Observer McEvoy-Zebrowski Page 1 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 9/8/90
 County Mountain State N.D. Line 0012
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction

Seis's _____ Ref. Amoco NB# _____
Type Comp. Direction pg.

Amplifiers _____ No. Channels _____ Samp. Int. _____ Ms; Rec. Lth _____ Sec.
Manuf. Model

Filter _____ Hz. _____ Db/Oct. 60 Hz. Rej. _____
low high low high In or Out

Vibrator _____
Model

No. Seis. _____ Spacing _____
 Per Grp. _____
Total No. No. Inline No. Xline Inline Xline

Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

SGR'S _____ SGR Trucks _____
No. In Field No. In Field

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | |
|---------------------|----------------|------|---------------|---|-----|-----|-----------|------------------------------|------------------|-------|---------------------|------------------|------------------|---------|------|-----------------|--|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | T=Track on Line | |
| 2749 | 911 | 2:38 | 2-3 mph | 2513 | | | 2912 | | | 8 | 8 | E | 45 | V | | | |
| 2753 | 912 | 2:47 | | | | | | | | | | | | | | | |
| 2757 | Skip | | | | | | | | | | | | | | | | |
| 2761 | Skip | | | | | | | | | | | | | | | | |
| 2765 | 913 | 3:00 | | | | | | | | | | | | | T | | |
| 2769 | 914 | 3:09 | | | | | | | | | | | | | T | | |
| 2773 | 915 | 3:18 | | | | | | | | | | | | | T | | |
| 2777 | 916 | 3:28 | | | | | | | | | | | | | T | | |
| 2781 | 917 | 3:37 | | | | | | | | | | | | | | | |
| 2785 | Skip | | | | | | | | | | | | | | | | |
| 2789 | Skip | | | | | | | | | | | | | | | | |
| 2793 | 918 | 3:50 | | | | | | | | | | | | | T | | |
| 2797 | 919 | 3:59 | | | | | | | | | | | | | T | | |
| 2801 | 920 | 4:08 | | | | | | | | 8 | 8 | E | 45 | V | | | |
| 7801 | Noise File 921 | 4:10 | 2-3 mph | 2513 | | | 2912 | | | 8 | 1 | E | 45 | V | | | |

Vibrator Electronic _____
 Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

} Skip for house

Antenna lowered, itself again

} Skip for house

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 9/9/90
 County MOUNTAIN State N. DAK. Line OAC No. 002

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources 8
 Inline Xline Spacing Bumper To Bumper
 No. Moves Per Source 8 Dist. Each Move 4'
 Inline Xline

Seis's SM-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers CASA COSMOS SGR III & IV 80/400 Samp. Int. 2/4 Ms/Rec. Lth 22/50 Sec.
 Filter low high Hz. IPW 2 Db/Oct; 60 Hz. Rej. OUT
 In or Out

No. Seis. Per Grp. 12 = 12 Spacing 4.2m
 Total No. No. Inline No. Xline Inline Xline

Vibrator #18 P.W.
 Model
 Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

SGR'S 211-IV's 80-III's SGR Trucks 2-III's 5-IV's
 No. In Field No. In Field

| Source Point Number | General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|-----------|---------------|---|------|------|------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|-----|------------------|
| | File Number | Time | WIND VELOCITY | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MEG | T-TRUCKS ON LINE |
| | | 7:49 | | | | | | | | | | | | | | |
| 2805 | None FILE | 922 9:58 | | 2705 | 3104 | 4501 | 4550 | | | | 8 | 1 | E | 45 | V | |
| 2805 | | 923 10:08 | 7 MPH | | | | | | | | 8 | 8 | E | 45 | V | T |
| 2809 | | 924 10:19 | | | | | | | | | | | | | | T |
| 2813 | | 925 10:28 | | | | | | | | | | | | | | |
| 2817 | | 926 10:37 | 7 MPH | | | | | | | | | | | | | |
| 2821 | | 927 10:46 | | | | | | | | | | | | | | |
| 2825 | SKIP | | | | | | | | | | | | | | | |
| 2829 | SKIP | | | | | | | | | | | | | | | |
| 2833 | | 928 11:08 | 75 MPH | | | | | | | | | | | | | |
| 2837 | | 929 11:19 | | | | | | | | | | | | | | |
| 2841 | | 930 11:28 | | | | | | | | | | | | | | |
| 2845 | | 931 11:40 | | | | | | | | | | | | | | |
| 2849 | | 932 11:50 | | | | | | | | | | | | | | |
| 2853 | | 933 11:59 | | | | | | | | | | | | | | |
| 2857 | | 934 12:08 | | | | | | | | | | | | | | |
| 2861 | | 935 12:17 | | | | | | | | | | | | | | |
| 2865 | | 936 12:27 | > 5 MPH | 2705 | 3104 | 4501 | 4550 | | | | | | | | | |

Vibrator Electronic PELTON ADVANCED II
 Reference Taper 500ms Mode LINEAR % 100
 Reference Phase 0°

Remarks: (Additional remarks on back of sheet.)

CALLING IN BOXES
 TRAFFIC ON COUNTY ROADS ALL DAY

SKIP FOR HOUSE

PHONES REPAIRED ON STA 2822 AFTER FILE # 927

VIBS STACKING FOR CULVERT

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town 6:52 Leave Field 5:50 Expm Time _____
 Arrive Field 7:30 Arrive Town 6:52 Down Time _____
 Total Travel Time 2hr. Number Men Rec. 18

Daily Summary
 No Profiles 53 UPS 45
 Miles Traversed _____
 Observer M. E. Van Zeeuw
 Total To Date For Month
 No Profiles 309 UPS 224
 Miles Traversed _____
 Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/9/90
Month Day Year
 County MOUNTAIN State N.Dak. Line 0012
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's

Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

SGR'S

No. In Field _____ SGR Trucks _____
No. In Field

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|-------|---------------|---|------|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|
| Source Point Number | File Number | Time | WIND VELOCITY | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE |
| 2869 | 937 | 12:35 | >5MPH | 2705 | 304 | 4501 | 4550 | | | | 8 | 8 | E | NS | V |
| 2873 | 938 | 12:45 | | | | | | | | | | | | | |
| 2877 | 939 | 12:56 | | | | | | | | | | | | | |
| 2881 | 940 | 1:05 | | | | | | | | | | | | | |
| 2885 | 941 | 1:17 | | | | | | | | | | | | | |
| 2889 | 942 | 1:26 | | | | | | | | | | | | | |
| 2893 | 943 | 1:35 | | | | | | | | | | | | | |
| 2897 | 944 | 1:44 | | | | | | | | | | | | | |
| 2901 | 945 | 1:55 | >5MPH | | | | | | | | | | | | |
| 2905 | 946 | 2:04 | 8-10MPH | | | | | | | | | | | | |
| 2909 | 947 | 2:13 | 15MPH | | | | | | | | | | | | |
| 2913 | 948 | 2:23 | 17MPH | | | | | | | | | | | | |
| 2917 | 949 | 2:37 | 8MPH | | | | | | | | | | | | |
| 2921 | 950 | 2:47 | 6MPH | | | | | | | | | | | | |
| 2925 | 951 | 2:57 | 8MPH | | | | | | | | 8 | | | | |
| 2929 | 952 | 3:06 | 75MPH | | | | | | | | 7 | | | | |
| 2933 | 953 | 3:15 | 1 | | | | | | | | | | | | |
| 2937 | 954 | 3:26 | 75MPH | 2705 | 3104 | 4501 | 4550 | | | | | | | | |

Vibrator Electronic _____ Manuf. _____ Model _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

ANTENNA BLEP DOWN 2 STANDS

CUSTOM TO 20MPH - VIB # 33 MISSED SWEEP 8

VIB # 32+ ADDING OIL

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: _____
 Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: _____
 (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 2 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 9 / 90
Month Day Year
 County MOUNTAIN State N. DAK. Line 0012
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction

Amplifiers _____ Smp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out

No. Seis. _____ Spacing _____
 Per Grp. _____
Total No. No. Inline No. Xline Inline Xline

SGR'S _____ SGR Trucks _____
No. in Field No. in Field

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | | |
|---------------------|-------------|------|---------------|---|------|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|-------|------------------|--|--|
| Source Point Number | File Number | Time | WIND VELOCITY | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MOORE | T-TRUCKS ON LINE | | |
| 2941 | SKIP | | | 2905 | 3104 | 4501 | 4550 | | | | 8 | 8 | E | 45 | V | | | |
| 2945 | SKIP | | | | | | | | | | | | | | | | | |
| 2949 | 955 | 3:38 | 75 MPH | | | | | | | | | | | | | | | |
| 2953 | 956 | 3:47 | 1 | | | | | | | | | | | | | | | |
| 2957 | 957 | 3:59 | 75 MPH | | | | | | | | | | | | | | | |
| 2961 | SKIP | | | | | | | | | | | | | | | | | |
| 2965 | SKIP | | | | | | | | | | | | | | | | | |
| 2969 | 958 | 4:11 | 5 MPH | | | | | | | | | | | | | | | |
| 2973 | 959 | 4:20 | 6 MPH | | | | | | | | | | | | | | | |
| 2977 | 960 | 4:29 | 9 MPH | | | | | | | | | | | | | | | |
| 2981 | 961 | 4:39 | 75 MPH | | | | | | | | | | | | | | | |
| 2985 | 962 | 4:48 | | | | | | | | | | | | | | | | |
| 2989 | 963 | 4:57 | | | | | | | | | | | | | | | | |
| 2993 | 964 | 5:06 | | | | | | | | | | | | | | | | |
| 2997 | 965 | 5:15 | | | | | | | | | | | | | | | | |
| 3001 | 966 | 5:24 | | | | | | | | | | | | | | | | |
| 3005 | 967 | 5:33 | | | | | | | | | | | | | | | | |
| 3009 | SKIP | | | 2705 | 3104 | 4501 | 4550 | | | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____
 Reference Phase _____
Manuf. Model %

Remarks: (Additional remarks on back of sheet.)

} SKIP FOR HOUSE
 } SKIP FOR HOUSE
 } STACKING FOR HOUSE
 } SKIP FOR HOUSE

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 645 Date 9/9/90
Month Day Year
County MOUNTAIN State N. DAK. Line 0012
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
Distance _____ SeisGrp. _____
Tr. No. Int. _____

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
No. Moves _____ Dist. Each _____
Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____

No. Seis. Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Sweep _____ To _____ Hz. Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
Manuf. Model No. Channels
Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out

SGR'S _____ SGR Trucks _____
No. In Field No. In Field

Vibrator Electronic _____
Manuf. Model
Reference Taper _____ Mode _____ % _____
Reference Phase _____

| General | | | Spread | | | | Vibrating | | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) |
|---------------------|-------------|-----------|---|------|------|------|------------------------------|------------------|-------|---------------------|------------------|------------------|---------|-------|---|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | Gains | |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | | MODE |
| 3013 | SKIP | | 2705 | 3104 | 4501 | 4550 | | | | | | | | | SKIP FOR HOUSE |
| 8005 | HOUSE FIVE | 9:08 5:36 | | | | | | | | | | | | | |
| | E.O.R | 9:55 5:37 | 2705 | 3104 | 4501 | 4550 | | | | | | | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
Temperature: _____ °F;
Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
Arrive Field _____ Arrive Town _____ Down Time _____
Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
Miles Traversed _____
Observer _____

Total To Date For Month

No Profiles _____
Miles Traversed _____
Page 4 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/10/90
 County Mountain/Ward State N.D. Line OAC No. 0012

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. 50m
 Tr. No. Int. _____

Each Source Pattern
 No. Indiv. Sources 8 Spacing Bumpers Bumper
 Inline Xline Inline Xline
 No. Moves Per Source 8 Dist. Each Move 4'
 Inline Xline Inline Xline

Seis's SM-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____

Vibrator
 Model #18 P.W.
 Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

Amplifiers Gus & Geospace SGR III & IV 50/400 Samp. Int. 2/4 Ms/Rec. Lth. 30/50 Sec.
 Filter _____ Hz. IPW 2 Db/Oct: 60 Hz. Rej. out
 low high low high In or Out

No. Seis. Per Grp. 12 = 12 Spacing 4.2'
 Total No. No. Inline No. Xline Inline Xline

SGR'S 80 III's, 211 IV's SGR Trucks 2 III 5 IV
 No. In Field No. In Field

| General | | | | Spread | | | | Vibrating | | | | Instruments | | | |
|---------------------|----------------|-------|---------------|---|------|------|------|------------------------------|------------------|-------|---------------------|------------------|------------------|----------|------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preampl. | MODE |
| | | 7:50 | | | | | | | | | | | | | |
| 8017 | Noise File 971 | 10:34 | 18 mph | 2913 | 3357 | 4551 | 4600 | | | | 8 | 1 | E | 45 | V |
| 3017 | 972 | 10:42 | | | | | | | | | 8 | 8 | E | 45 | V |
| 3021 | 973 | 10:51 | | | | | | | | | 8 | | | | |
| 3025 | 974 | 11:00 | | | | | | | | | 8 | | | | |
| 3029 | 975 | 11:14 | | | | | | | | | 7 | | | | |
| 3033 | 976 | 11:23 | | | | | | | | | | | | | |
| 3037 | 977 | 11:32 | | | | | | | | | | | | | |
| 3041 | 978 | 11:42 | | | | | | | | | | | | | |
| 3045 | 979 | 11:51 | | | | | | | | | | | | | |
| 3049 | 980 | 12:00 | | | | | | | | | | | | | T |
| 3053 | 981 | 12:09 | 18 mph | | | | | | | | | | | | |
| 3057 | 982 | 12:19 | 18-20 mph | | | | | | | | | | | | |
| 3061 | 983 | 12:30 | | | | | | | | | | | | | |
| 3065 | 984 | 12:59 | | | | | | | | | | | | | |
| 3069 | 985 | 1:07 | | | | | | | | | | | | | |
| 3073 | Skip | | | | | | | | | | | | | | |
| 3077 | Skip | | 18-20 mph | 2913 | 3357 | 4551 | 4600 | | | | 7 | | | | |

Vibrator Electronic Pelton ADVANCE II
 Reference Taper 500 ms Mode Linear % 100%
 Reference Phase 0°

Remarks: (Additional remarks on back of sheet.)

Calling in Boxes, LATE START on IV's, Laying out crossline first
 Void, File # 969 on both & file # 970 on III's, No file 970 on IV's
 Vib # 31 killed last sweep - Phase problem
 Vib # 86 missed # 5
 Vib # 84 missed sweeps 3 & 4
 Pause to reposition the antenna
 Vib # 83 killed # 7
 } Skip for House

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 45-90 °F
 Trail Conditions County Road

Leave Town 6:50 Leave Field 6:40 Expm Time _____
 Arrive Field 7:26 Arrive Town 7:45 Down Time _____
 Total Travel Time _____ Number Men Rec. 19

Daily Summary
 No Profiles 55 vp/47
 Miles Traversed _____
 Observer McEvoy-Zebrowski Page 1 of 4
 Total To Date For Month
 No Profiles 364 vp/271
 Miles Traversed _____



Amoco Production Company Seismic Observers Form

Party 045 Date 9/10/90
 County MOUNTAIN / WARD State N.D. Line 0012
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Ref. Amoco NB#

pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms/Rec. Lth. _____ Sec. _____

Filter

low / high Hz. low / high Db/Oct; 60 Hz. Rej. _____ In or Out _____

No. Seis. Per Grp.

Total No. _____ No. Inline _____ No. Xline _____ Spacing _____
 Inline Xline

SGR'S

No. In Field _____

SGR Trucks

No. In Field _____

| General | | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|------|---------------|---|------|------|------|-------------------|-------|---------------------|------------------|------------------|---------|------|-----------------|-------------------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | Preamp. | MODE | T=Track on Line | |
| 3081 | 986 | 1:19 | 18-20 mph | 2913 | 3351 | 4551 | 4600 | | | 7 | 8 | E | 45 | ✓ | T | Vib #83 Killed #8 |
| 3085 | 987 | 1:29 | | | | | | | | 8 | | | | | T | |
| 3089 | 988 | 1:38 | | | | | | | | | | | | | | |
| 3093 | 989 | 1:48 | | | | | | | | | | | | | | |
| 3097 | 990 | 1:59 | | | | | | | | | | | | | | |
| 3101 | 991 | 2:08 | | | | | | | | | | | | | T | |
| 3105 | 992 | 2:17 | | | | | | | | | | | | | | |
| 3109 | 993 | 2:26 | | | | | | | | | | | | | | |
| 3113 | 994 | 2:34 | | | | | | | | | | | | | | |
| 3117 | Skip | | | | | | | | | | | | | | | |
| 3121 | Skip | | | | | | | | | | | | | | | |
| 3125 | 995 | 2:47 | | | | | | | | | | | | | | |
| 3129 | 996 | 2:56 | | | | | | | | | | | | | | |
| 3133 | 997 | 3:06 | | | | | | | | | | | | | | |
| 3137 | 998 | 3:15 | | | | | | | | | | | | | | Vib #83 Killed #7 |
| 3141 | 999 | 3:24 | | | | | | | | | | | | | | Vib #86 Killed #8 |
| 3145 | 1000 | 3:36 | | | | | | | | | | | | | | |
| 3149 | 1001 | 3:45 | 18-20 mph | 2913 | 3351 | 4551 | 4600 | | | | | | | | | |

Vibrator Electronic

Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 2 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 10 / 90
 County MOUNTAIN / WARD State N. D. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's

Type _____ Comp. _____ Direction _____
 Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec. _____
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out _____

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

SGR'S

No. In Field _____ SGR Trucks _____ No. In Field _____

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | |
|---------------------|-------------|------|---------------|---|------|------|-----------|-------------------|-------|---------------------|------------------|------------------|----------|------|-------------------|--|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | Preampl. | MODE | T = Truck on Line | |
| 3153 | 1002 | 3:58 | 15-18 mph | 2913 | 3357 | 4551 | 4600 | | | 8 | 8 | E | 45 | V | T | |
| 3157 | 1003 | 4:07 | | | | | | | | | | | | | | |
| 3161 | 1004 | 4:17 | | | | | | | | | | | | | | |
| 3165 | Skip | | | | | | | | | | | | | | | |
| 3169 | Skip | | | | | | | | | | | | | | | |
| 3173 | 1005 | 4:29 | | | | | | | | | | | | | | |
| 3177 | 1006 | 4:37 | | | | | | | | | | | | | | |
| 3181 | 1007 | 4:46 | | | | | | | | | | | | | | |
| 3185 | 1008 | 4:55 | | | | | | | | | | | | | | |
| 3189 | Skip | | | | | | | | | | | | | | | |
| 3193 | Skip | | | | | | | | | | | | | | | |
| 3197 | 1009 | 5:06 | | | | | | | | | | | | | | |
| 3201 | 1010 | 5:15 | | | | | | | | | | | | | | |
| 3205 | 1011 | 5:23 | | | | | | | | | | | | | | |
| 3209 | 1012 | 5:32 | | | | | | | | | | | | | | |
| 3213 | 1013 | 5:41 | | | | | | | | | | | | | | |
| 3217 | 1014 | 5:50 | | | | | | | | | | | | | | |
| 3221 | 1015 | 5:59 | 15-18 mph | 2913 | 3357 | 4551 | 4600 | | | | | | | | | |

Vibrator Electronic _____ Manuf. _____ Model _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Vib # 83 Killed # 6
 } Skip for House
 Vib # 86 Killed # 6
 T
 } Skip for House

Vib # 31 missed # 2, 4, 6 & 7

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: _____
 Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: _____
 (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary
 No Profiles _____ Miles Traversed _____
 Total To Date For Month
 No Profiles _____ Miles Traversed _____
 Observer _____ Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/10/90
 County Mountain/Ward State N.D. Line 0012
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____ Spacing _____
 Sources _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth _____ Sec.
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

No. Seis. _____ Spacing _____
 Per Grp. _____
Total No. No. Inline No. Xline Inline Xline

Vibrator _____
Model
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

| General | | | Spread | | | | Vibrating | | | | Instruments | | | |
|---------------------|-------------|------|---|------|------|------|------------------------------|--------------------|-------|---------------------|------------------|------------------|---------|-------|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near- Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | GAINS |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | |
| 3225 | 1016 | 6:07 | 18-20 mph | 2913 | 3359 | 4551 | 4600 | | | 8 | 8 | E | 45 | V |
| 3229 | 1017 | 6:16 | | | | | | | | | | | | |
| 3233 | 1018 | 6:25 | | | | | | | | 8 | 8 | E | 45 | V T |
| 8233 | Noise File | 1019 | 6:29 | 2913 | 3359 | 4551 | 4600 | | | 8 | 1 | E | 45 | V |
| | EDR | 9999 | | | | | | | | | | | | |

Vibrator Electronic _____
Manuf. Model
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary Total To Date For Month
 No Profiles _____ No Profiles _____
 Miles Traversed _____ Miles Traversed _____
 Observer _____ Page 4 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/11/80
 County WARD/KENNELL State N. DAKOTA Line 0012
 Month Day Year
 OAC No.

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int. 50m

Each Source Pattern
 No. Indiv. Sources 8
 Inline Xline
 Spacing Bumper - 1/2 Bumper
 Inline Xline
 No. Moves Per Source 8
 Inline Xline
 Dist. Each Move 41
 Inline Xline

Seis's SM-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers Quest 80/400 2/4 Ms; Rec. Lth 3/50 Sec.
 Manuf. Model No. Channels
 Filter _____ Hz. IPW 2 Db/Oct: 60 Hz. Rej. ONE
 low high low high In or Out
 Sweep 10 To 86 Hz. 30 Drive 80%
 Frequency Length
 SGR'S 211-IV's 80-TII's SGR Trucks 5-IV's 8-TII's
 No. In Field No. In Field

No. Seis. Per Grp. 12 = 12
 Total No. No. Inline No. Xline
 Spacing 4.2m
 Inline Xline

Vibrator H18 P.W.
 Model

Vibrator Electronic PELTON ADVANCED II
 Manuf. Model
 Reference Taper 500ms Mode LINEAR % 100
 Reference Phase 00

| Source Point Number | General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|-------|---------------|---|-----|-----|-----|------------------------------|------|---------------------|------------------|------------------|-------|---------|------|------------------|
| | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | MODE | T-TRUCKS ON LINE |
| | | 8:16 | | | | | | | | | | | | | | |
| 8237 | None FICE | 10:20 | 10:41 | 2-3 mph | 337 | 357 | 460 | 465 | | | | 8 | 1 | E | 45V | |
| 3237 | | 10:21 | 10:52 | | | | | | | | | 8 | 8 | E | 45V | T |
| 3241 | | 10:22 | 11:01 | | | | | | | | | | | | | T |
| 3245 | | 10:23 | 11:14 | | | | | | | | | | | | | |
| 3249 | SKIP | | | | | | | | | | | | | | | |
| 3253 | | 10:24 | 11:25 | | | | | | | | | | | | | |
| 3257 | | 10:25 | 11:33 | | | | | | | | | | | | | |
| 3261 | | 10:26 | 11:46 | | | | | | | | | | | | | |
| 3265 | | 10:27 | 11:53 | | | | | | | | | | | | | |
| 3269 | | 10:28 | 12:04 | | | | | | | | | | | | | T |
| 3273 | | 10:29 | 12:15 | | | | | | | | | | | | | |
| 3277 | | 10:30 | 12:24 | | | | | | | | | | | | | |
| 3281 | | 10:31 | 12:33 | 2-3 mph | | | | | | | | | | | | |
| 3285 | SKIP | | | | | | | | | | | | | | | |
| 3289 | | | | | | | | | | | | | | | | |
| 3297 | SKIP | | | | | | | | | | | | | | | |
| | | | | | 337 | 357 | 460 | 465 | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)

CALLING IN BOXES

Vib #31 missed #6

T Vibs stacking up for culvert

Vibs driving Around Donnybrook

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet Rain Snow Lightning
 Wind: (0-12 MPH) (13-24 MPH) (25-40 MPH)
 Temperature: 65-95 °F
 Trail Conditions Country Road

Leave Town 7:11 Leave Field 6:55 Expm Time _____
 Arrive Field 7:59 Arrive Town 7:45 Down Time _____
 Total Travel Time _____ Number Men Rec. 19

Daily Summary 65 up / 41 Total To Date For Month
 No Profiles _____ No Profiles 429 up / 312
 Miles Traversed _____ Miles Traversed _____
 Observer M. E. V. - Z. B. A. S. K. I. Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/11/90
 County WARD/DENVER State N. DAK. Line 002
 Month Day Year
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int. _____

Each Source Pattern

No. Indiv. _____
 Sources _____ Inline _____ Xline _____
 Spacing _____ Inline _____ Xline _____
 No. Moves _____ Dist. Each _____
 Per Source _____ Inline _____ Xline _____
 Move _____ Inline _____ Xline _____

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

Seis's _____ Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers _____ No. Channels _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out
 SGR'S _____ SGR Trucks _____
 No. In Field No. In Field

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

| General | | | Spread | | | | Vibrating | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) | |
|---------------------|-------------|------|---|------|------|------|------------------------------|------|-----------|-----------|-------------|------------------|------|---|---|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of | | Gains | | MODE | | FEEDBACK ON LINE |
| | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | Front | Vibrators | Sweeps | Vibrator Heading | | Preamplifier | |
| 3301 | Skip | | 3137 | 3577 | 4601 | 4650 | | | | | | | | | Skip for town of Donnybrook |
| 3305 | | | | | | | | | | | | | | | |
| 3309 | | | | | | | | | | | | | | | |
| 3313 | | | | | | | | | | | | | | | |
| 3317 | | | | | | | | | | | | | | | |
| 3321 | | | | | | | | | | | | | | | |
| 3325 | | | | | | | | | | | | | | | Skip for house |
| 3329 | Skip | | | | | | | | | | | | | | |
| 3333 | Skip | | | | | | | | | | | | | | Vib # 32 overheating, Vib # 31 missed #188, Vib # 83, missed #8 |
| 3337 | 1032 | 1:28 | 3-5 mph | | | | | | | 7 | 8 | E | 45 | V | |
| 3341 | 1033 | 1:38 | | | | | | | | 7 | | | | | |
| 3345 | 1034 | 1:47 | | | | | | | | 7 | | | | T | |
| 3349 | 1035 | 1:57 | 3-5 mph | | | | | | | 8 | | | | T | |
| 3353 | 1036 | 2:06 | 2-3 mph | | | | | | | | | | | T | |
| 3357 | 1037 | 2:15 | | | | | | | | | | | | T | Skip for house |
| 3361 | Skip | | | | | | | | | | | | | | |
| 3365 | Skip | | | | | | | | | | | | | | |
| 3369 | 1038 | 2:27 | 2-3 mph | 3137 | 3577 | 4601 | 4650 | | | | | | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Expm Time _____ Down Time _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 2 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/11/90
 County Ward/Renville State N.D. Line 0012
 Month Day Year
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern

No. Indiv. _____
 Sources _____ Inline _____ Xline _____ Spacing _____ Inline _____ Xline _____
 No. Moves _____ Dist. Each _____
 Per Source _____ Inline _____ Xline _____ Move _____ Inline _____ Xline _____

Vibrator

Model _____
 Sweep _____ To _____ Hz, _____ Drive _____
 Frequency _____ Length _____

Seis's

Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out _____

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

SGR'S

No. In Field _____ SGR Trucks _____ No. In Field

| Source Point Number | General | | | Spread | | | | Vibrating | | | | | Instruments | | | | |
|---------------------|-------------|------|---------------|---|------|------|------|------------------------------|------|---------------------|------------------|------------------|-------------|---------|------|----------|---|
| | File Number | Time | WIND VELOCITY | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | Meof | T-Tracks | |
| 3373 | 1039 | 2:36 | 2-3 mph | 3137 | 3577 | 4601 | 4650 | | | | 8 | 8 | E | 45 | V | | |
| 3377 | 1040 | 2:44 | 0 mph | | | | | | | | | | | | | | |
| 3381 | Skip | | | | | | | | | | | | | | | | |
| 3385 | 1041 | 2:59 | | | | | | | | | | | | | | | |
| 3389 | 1042 | 3:09 | | | | | | | | | | | | | | | |
| 3393 | 1043 | 3:21 | 0 mph | | | | | | | | | | | | | | |
| 3397 | 1044 | 3:31 | 2-3 mph | | | | | | | | | | | | | | T |
| 3401 | 1045 | 3:41 | | | | | | | | | | | | | | | T |
| 3405 | 1046 | 3:50 | | | | | | | | | | | | | | | |
| 3409 | 1047 | 3:59 | | | | | | | | | | | | | | | |
| 3413 | 1048 | 4:09 | | | | | | | | | | | | | | | |
| 3417 | 1049 | 4:18 | 2-3 mph | | | | | | | | | | | | | | |
| 3421 | Skip | | | | | | | | | | | | | | | | |
| 3425 | | | | | | | | | | | | | | | | | |
| 3429 | | | | | | | | | | | | | | | | | |
| 3433 | Skip | | | | | | | | | | | | | | | | |
| 3437 | 1050 | 4:40 | 5 mph | | | | | | | | | | | | | | |
| 3441 | 1051 | 4:50 | 5 mph | 3137 | 3577 | 4601 | 4650 | | | | | | | | | | |

Vibrator Electronic _____ Manuf. _____ Model _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Skip ditch too steep
 Vibs shaking in Ditch for next 6 miles
 Skip for house

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 11 / 90
 County WARD / BEAUVILLE State N. DAK. Line 0012
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern

No. Individ. Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

Seis's _____ Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth _____ Sec. _____
 Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
 low high low high In or Out
 SGR'S _____ SGR Trucks _____
 No. In Field No. In Field

No. Seis. Per Grp. _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

| Source Point Number | General | | | WIND VELOCITY | Spread | | | | Vibrating | | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) |
|---------------------|-------------------|--------------|---|---------------|--------|------|------------------------------|-------------------|-----------|---------------------|------------------|------------------|-------|-------------|--|------|---|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | TE Tracks on Line | | |
| | | | Tr. | | Tr. | Tr. | | Tr. | Back | | | | Front | Preamp. | | MADE | |
| 3445 | 1052 | 5:00 | 3137 | 3577 | 4601 | 4650 | | | | 8 | 8 | E | 45 | V | Vibs stacking in 8th position for Road | | |
| 3449 | Skip | | | | | | | | | | | | | | } Skip for house | | |
| 3453 | Skip | | | | | | | | | | | | | | | | |
| 3457 | 1053 | 5:12 | | | | | | | | | | | | | | | |
| 3461 | 1054 | 5:26 | | | | | | | | | | | | T | Vibs stacking in Position #8 for Road, Vib #84 Killed #1 | | |
| 3465 | 1055 | 5:35 | | | | | | | | | | | | | | | |
| 3469 | 1056 | 5:45 | | | | | | | | | | | | | | | |
| 3473 | 1057 | 5:54 | 5 mph | | | | | | | | | | | T | Vib #33 missed #4 | | |
| 3477 | Skip | | | | | | | | | | | | | | Skip for steep ditch + Road | | |
| 3481 | 1058 | 6:06 | 2-3 mph | | | | | | | | | | | | | | |
| 3485 | 1059 | 6:15 | | | | | | | | | | | | | | | |
| 3489 | 1060 | 6:25 | | | | | | | | | | | | T | | | |
| 3493 | 1061 | 6:34 | | | | | | | | 8 | 8 | E | 45 | V | | | |
| 8493 | Noise File EOR | 1062 9999 | 6:37 | 2-3 mph | 3137 | 3577 | 4601 | 4650 | | 8 | 1 | E | 45 | V | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ; Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ; Temperature: _____ °F; Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Exprm Time _____ Down Time _____

Daily Summary: No Profiles _____ Miles Traversed _____
 Total To Date For Month: No Profiles _____ Miles Traversed _____

Observer _____ Page 4 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/12/90
 County Renville State N.D. Line OAC No. 1

Spread Layout
 Directions East East No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources 8
 Spacing Bumper to Bumper
 No. Moves Per Source 8 Dist. Each 4'

Seis's SM-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers Gust Geospace SGR III & IV 50/289 Samp. Int. 2/4 Ms. Rec. Lth. 32/50 Sec.
 Filter _____ Hz IPW / 2 Db/Oct: 60 Hz. Rej. out
 low high low high In or Out
 SGR'S 80 III, 199 IV SGR Trucks 2 III, 5 IV
 No. In Field No. In Field

Distance _____ SeisGrp. 50 m.
 Tr. No. Int. _____

Vibrator #18 P.W.
 Model _____

No. Seis. Per Grp. 12 = 12 Spacing 4.2m
 Total No. No. Inline No. Xline Inline Xline

Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

Vibrator Electronic Pelton Advance II
 Reference Taper 500 ms Mode Linear % 100%
 Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | |
|---------------------|-------------|-------|---------------|---|------|------|-----------|-------------------|-------|---------------------|------------------|------------------|---------|------|----|---|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | Preamp. | MODE | | |
| | | 8:03 | | | | | | | | | | | | | | |
| 8497 | Noise File | 1063 | 9:29 | > 5 MPH | 3397 | 3685 | 4651 | 4700 | | | | 8 | 1 | E | 45 | V |
| 3497 | | 1064 | 9:38 | 5 MPH | | | | | | | | 8 | 8 | E | 45 | V |
| 3501 | Skip | | | | | | | | | | | | | | | |
| 3505 | Skip | | | | | | | | | | | | | | | |
| 3509 | Skip | | | | | | | | | | | | | | | |
| 3513 | 1065 | 10:08 | 7 MPH | | | | | | | | | | | | | |
| 3517 | 1066 | 10:17 | | | | | | | | | | | | | | |
| 3521 | 1067 | 10:27 | | | | | | | | | | | | | | |
| 3525 | 1068 | 10:39 | 7 MPH | | | | | | | | | | | | | |
| 3529 | 1069 | 10:49 | | | | | | | | | | | | | | |
| 3533 | 1070 | 10:58 | | | | | | | | | | | | | | |
| 3537 | 1071 | 11:07 | | | | | | | | | | | | | | |
| 3541 | 1072 | 11:16 | 9 MPH | | | | | | | | | | | | | |
| 3545 | Skip | | | | | | | | | | | | | | | |
| 3549 | 1093 | 11:28 | | | | | | | | | | | | | | |
| 3553 | 1074 | 11:38 | | | | | | | | | | | | | | |
| 3557 | Skip | | 7 MPH | | 3397 | 3685 | 4651 | 4700 | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
 Calling in Boxes, Vib shaking in ditches until VP 3573
 Skip for house
 Gustw to 18 MPH
 SKIP FOR WINDMILL
 #31 Missed #2+3
 SKIP FOR WATER WELL

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 50-85 °F.
 Trail Conditions County Roads

Leave Town 6:45 Leave Field 4:05 Expm Time _____
 Arrive Field 7:52 Arrive Town 5:42 Down Time _____
 Total Travel Time 2 1/2 hrs. Number Men Rec. 20

Daily Summary
 No Profiles 48 UPS 35
 Miles Traversed _____
 Observer McEvoy - Zebroski
 Total To Date For Month
 No Profiles 477 UPS 337
 Miles Traversed _____
 Page 1 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 12 / 90
 County REAVILLE State N.D. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Smp. Int. _____ Ms; Rec. Lth. _____ Sec. _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

No. Seis. _____
 Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

| General | | | Spread | | | | Vibrating | | | | Instruments | | Remarks: (Additional remarks on back of sheet.) | | |
|---------------------|-------------|-------|---|------|------|------|------------------------------|------|-----------|-----------|-------------|------------------|---|------|--|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Near. Seis. Offset | | Number Of | | Gains | | | | |
| | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | Front | Vibrators | Sweeps | Vibrator Heading | Preamp. | MODE | T=Tracks on Line |
| 3561 | SKIP | | 3397 | 3685 | 4651 | 4700 | | | | 8 | 8 | E | 45 | V | |
| 3565 | | | | | | | | | | | | | | | } SKIP FOR WATERWELL & HIGHWAY |
| 3569 | | | | | | | | | | | | | | | |
| 3573 | SKIP | | | | | | | | | | | | | | |
| 3577 | 1075 | 11:56 | | | | | | | | | | | | | AF84-KILLING #6, 7, +8 - WIND GUSTING TO 18MPH |
| 3581 | 1076 | 12:08 | | | | | | | | | | | | | |
| 3585 | 1077 | 12:17 | | | | | | | | | | | | | |
| 3589 | 1078 | 12:27 | | | | | | | | 8 | | | | | |
| 3593 | 1079 | 12:43 | | | | | | | | 7 | | | | | UNBS STRACKEN - CULVERTS - AF84 - KILLING SWEEPS |
| 3597 | 1080 | 12:55 | | | | | | | | | | | | | |
| 3601 | 1081 | 1:04 | | | | | | | | | | | | | |
| 3605 | 1082 | 1:13 | | | | | | | | | | | | | |
| 3609 | 1083 | 1:23 | | | | | | | | | | | | | |
| 3613 | 1084 | 1:32 | | | | | | | | | | | | | |
| 3617 | 1085 | 1:41 | | | | | | | | | | | | | |
| 3621 | 1086 | 1:50 | | | | | | | | | | | | | T TRUCK (SEMI) ON LINE 3545 -> HIGH |
| 3625 | 1087 | 1:59 | | | | | | | | | | | | | UN86 - MISSED SWEEPS 5, 6 |
| 3629 | SKIP | | 3397 | 3685 | 4651 | 4700 | | | | | | | | | SKIP FOR OIL BATTERY TANKS |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Exprm Time _____ Down Time _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 2 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 12 / 90
 County Renville State N.D. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's

Type _____ Comp. _____ Direction _____
 Seis's _____
Type Comp. Direction

Seis's

Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out _____

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

SGR'S

No. In Field _____

SGR Trucks

No. In Field _____

| Source Point Number | General | | Wind Velocity | Spread | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Vibrating | | | | Instruments | | | |
|---------------------|-------------|------|---------------|---|------|------|------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|-------------|-------------------|--|--|
| | File Number | Time | | Source Point Number At Seismometer Group For The Following Traces | | | | | Back | Front | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MODE | T= Trucks on Line | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | | | | | | | | | | |
| 3633 | SKIP | | | 3397 | 3685 | 4651 | 4700 | | | | 8 | 8 | E | 45 | V | | | |
| 3639 | SKIP | | | | | | | | | | | | | | | | | |
| 3641 | 1088 | 2:13 | 15-18 MPH | | | | | | | | 8 | | | | | | | |
| 3645 | SKIP | | | | | | | | | | | | | | | | | |
| 3649 | 1089 | 2:24 | | | | | | | | | 6 | | | | | | | #32 - CHECKING OIL #84 - KILLING SWEEPS - CHECKING IT OUT. |
| 3653 | 1090 | 2:33 | | | | | | | | | 6 | | | | | | | |
| 3657 | 1091 | 2:42 | | | | | | | | | 7 | | | | | | | |
| 3661 | 1092 | 2:54 | | | | | | | | | 8 | | | | | | | T |
| 3665 | 1093 | 3:03 | | | | | | | | | | | | | | | | T |
| 3669 | 1094 | 3:12 | 15-18 MPH | | | | | | | | | | | | | | | #83 MISSED #8 - ANTENNA BLEND DOWN |
| 3673 | 1095 | 3:23 | 18-25 MPH | | | | | | | | | | | | | | | WIND GUSTING TO 25-30 MPH |
| 3677 | 1096 | 3:32 | | | | | | | | | | | | | | | | |
| 3681 | 1097 | 3:42 | | | | | | | | | | | | | | | | |
| 3685 | SKIP | | | | | | | | | | | | | | | | | SKIP FOR NO PEAK IF |
| 81085 | Noise File | 1098 | 3:45 | 18-25 MPH | 3397 | 3685 | 4651 | 4700 | | | | | | | | | | |
| | E.O.R. | 9999 | 3:45 | | | | | | | | | | | | | | | |

Vibrator Electronic

Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Expm Time _____ Down Time _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 15 / 90
 County Renville State N.D. Line OAC No. 1012

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. 50 m
 Tr. No. Int. _____

Each Source Pattern
 No. Indiv. Sources 8
 Inline Xline Spacing Bumper to Bumper
 No. Moves Per Source 8 Dist. Each Move 4'
 Inline Xline Inline Xline

Vibrator
 Model #18 P.W.

No. Seis. Per Grp. 12 = 12 Spacing 4.2 m
 Total No. No. Inline No. Xline Inline Xline

Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

Seis's Sm-7 V Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Amplifiers Gust Geospace SGR III & IV 50/400 Samp. Int. 2/4 Ms. Rec. Lth. 32/50 Sec.
 Manuf. Model No. Channels
 Filter - - Hz. IPW, 2 Db/Oct: 60 Hz. Rej. out
 low high low high In or Out
 SGR'S 80 III, 216 IV SGR Trucks 2 III, 5 IV
 No. In Field No. In Field

Vibrator Electronic Pelton Advance II
 Reference Taper 500 ms Mode LINEAR % 100%
 Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | | |
|---------------------|-------------|-------|---------------|---|------|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|--------------------|---|---|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | T = Trucks on Line | | |
| | | 8:14 | | | | | | | | | | | | | | | | |
| 8865 | Noise File | 1099 | 10:55 | 5-7 mph | 3861 | 4260 | 4701 | 4750 | | | | | 7 | 1 | E | 45 | V | |
| 3861 | Skip | | | | | | | | | | | | | | | | | |
| 3865 | 1100 | 11:09 | | | | | | | | | | | 7 | 8 | E | 45 | V | T |
| 3869 | 1101 | 11:18 | | | | | | | | | | | 8 | | | | | |
| 3873 | 1102 | 11:27 | | | | | | | | | | | | | | | | |
| 3877 | 1103 | 11:36 | | | | | | | | | | | | | | | | |
| 3881 | 1104 | 11:45 | | | | | | | | | | | | | | | | |
| 3885 | 1105 | 11:55 | | | | | | | | | | | | | | | | T |
| 3889 | 1106 | 12:04 | 5-7 mph | | | | | | | | | | | | | | | |
| 3893 | 1107 | 12:13 | 8-10 mph | | | | | | | | | | | | | | | |
| 3897 | 1108 | 12:22 | | | | | | | | | | | 8 | | | | | |
| 3901 | 1109 | 12:31 | | | | | | | | | | | 7 | | | | | |
| 3905 | Skip | | | | | | | | | | | | | | | | | |
| 3909 | Skip | | | | | | | | | | | | | | | | | |
| 3913 | 1110 | 12:41 | | | | | | | | | | | | | | | | |
| 3917 | 1111 | 12:50 | | | | | | | | | | | | | | | | |
| 3921 | 1112 | 12:59 | 8-10 mph | | 3861 | 4260 | 4701 | 4750 | | | | | 7 | | | | | |

Remarks: (Additional remarks on back of sheet.)
 Calling in Boxes Late start - crew laying out crossline.
 Calling 2nd spread - 1-1.0, located 5 mi. So. on Hwy 83.
 Skip for Road
 Vib # 77 being worked on
 T Reset sent
 Vib # 84 killed # 1 & 8
 Vib # 84 killed # 7
 Vib # 84 - electronics problem - Vib's stacking in position # 1
 } Skip for house

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet Rain Snow Lightning
 Wind: (0-12 MPH) (13-24 MPH) (25-40 MPH)
 Temperature: 60-70 °F
 Trail Conditions County Roads

Leave Town 6:50 Leave Field 6:32 Expm Time _____
 Arrive Field 7:35 Arrive Town 7:25 Down Time _____
 Total Travel Time _____ Number Men Rec. 18

Daily Summary
 No Profiles 58 vp / 46
 Miles Traversed _____
 Observer Zebarski

Total To Date For Month
 No Profiles 535 vp / 383
 Miles Traversed _____
 Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 15 / 90
 County Renville State N.D. Line 0012
 OAC No.

Spread Layout
 Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int. _____

Each Source Pattern
 No. Indiv. _____
 Sources _____ Inline _____ Xline _____
 Spacing _____
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline _____ Xline _____

Seis's _____ Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
 low high low high In or Out

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

SGR'S _____ SGR Trucks _____
 No. In Field No. In Field

| Source Point Number | General | | | Wind Velocity | Spread | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Vibrating | | | Instruments | | |
|---------------------|-------------|------|---|---------------|--------|------|------|-------|------------------------------|---------------------|------------------|------------------|---------|------|-----------------|-------|-----|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Back | Front | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MODE | T=Track on Line | Gains | |
| | | | Tr. | | Tr. | Tr. | | | | | | | | | | | Tr. |
| 3925 | 1113 | 1:07 | 3861 | 4260 | 4701 | 4750 | | | | | 7 | 8 | E | 45 | V | T | |
| 3929 | 1114 | 1:16 | | | | | | | | | 7 | | | | | T | |
| 3933 | 1115 | 1:28 | | | | | | | | | 7 | | | | | | |
| 3937 | Skip | | | | | | | | | | | | | | | | |
| 3941 | Skip | | | | | | | | | | | | | | | | |
| 3945 | 1116 | 1:44 | | | | | | | | | 8 | | | | | | |
| 3949 | 1117 | 1:52 | | | | | | | | | | | | | | | |
| 3953 | 1118 | 2:01 | | | | | | | | | | | | | | | |
| 3957 | Skip | | | | | | | | | | | | | | | | |
| 3961 | 1119 | 2:11 | | | | | | | | | | | | | | | |
| 3965 | 1120 | 2:20 | 5-7 mph | | | | | | | | | | | | | | |
| 3969 | 1121 | 2:31 | 7-10 mph | | | | | | | | | | | | | | |
| 3973 | 1122 | 2:40 | | | | | | | | | | | | | | T | |
| 3977 | Skip | | | | | | | | | | | | | | | | |
| 3981 | Skip | | | | | | | | | | | | | | | | |
| 3985 | 1123 | 2:53 | | | | | | | | | | | | | | T | |
| 3989 | 1124 | 3:02 | | | | | | | | | | | | | | | |
| 3993 | 1125 | 3:10 | 7-10 mph | 3861 | 4260 | 4701 | 4750 | | | | 8 | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

} Skip for house
 Vibs stacked in Position #8

Skip for water line

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary
 No Profiles _____ Miles Traversed _____
 Total To Date For Month
 No Profiles _____ Miles Traversed _____
 Observer _____ Page 2 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 15 / 90
 County Renville State N.D. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Seis's

Type _____ Comp. _____ Direction _____
 Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out _____

SGR'S

No. In Field _____

SGR Trucks

No. In Field _____

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | |
|---------------------|-------------|------|---------------|---|------|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|-------|------|-------------------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | MODE | T = Track on LINE |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | | |
| 3997 | 1126 | 3:22 | 7-10 mph | 3861 | 4260 | 4701 | 4750 | | | | | | | | | |
| 4001 | 1127 | 3:31 | | | | | | | | | | | | | | |
| 4005 | 1128 | 3:40 | | | | | | | | | | | | | | |
| 4009 | Skip | | | | | | | | | | | | | | | |
| 4013 | 1129 | 3:49 | | | | | | | | | | | | | | |
| 4017 | 1130 | 3:58 | | | | | | | | | | | | | | |
| 4021 | 1131 | 4:07 | | | | | | | | | | | | | | |
| 4025 | 1132 | 4:16 | | | | | | | | | | | | | | |
| 4029 | 1133 | 4:25 | | | | | | | | | | | | | | |
| 4033 | 1134 | 4:33 | | | | | | | | | | | | | | |
| 4037 | 1135 | 4:42 | | | | | | | | | | | | | | |
| 4041 | 1136 | 4:51 | | | | | | | | | | | | | | |
| 4045 | 1137 | 5:00 | | | | | | | | | | | | | | |
| 4049 | 1138 | 5:09 | | | | | | | | | | | | | | |
| 4053 | 1139 | 5:17 | | | | | | | | | | | | | | |
| 4057 | 1140 | 5:26 | | | | | | | | | | | | | | |
| 4061 | 1141 | 5:35 | 7-10 mph | | | | | | | | | | | | | |
| 4065 | Skip | | | 3861 | 4260 | 4701 | 4750 | | | | | | | | | |

Vibrator Electronic

Manuf. _____ Model _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Skip for pipeline

T
T
T

Skip for house

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Expm Time _____ Down Time _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Spread Layout East East No. Fold _____
 Directions East East Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. 50 m.
 Tr. No. _____

Each Source Pattern
 No. Indiv. Sources 8 Spacing Bumper to Bumper
 Inline Xline Inline Xline
 No. Moves Per Source 8 Dist. Each Move 4'
 Inline Xline Inline Xline

Vibrator # 18 P.W.
 Model _____
 Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

Party 045 Date 9 / 16 / 90
 County Renville State N.D Line 002
 OAC No. _____

Seis's SM-7 ✓ Seis's _____
 Type Comp. Direction Type Comp. Direction

Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers GEOSPACE SGR IV 400 Samp. Int. 4 Ms; Rec. Lth. 50 Sec.
 Manuf. Model No. Channels

Filter - / - Hz. ZPW / 2 Db/Oct; 60 Hz. Rej. out
 low high low high In or Out
 SGR'S 213 II SGR Trucks SIVs, 2 IIIs
 No. In Field No. In Field

Vibrator Electronic Pelton Advance II
 Reference Taper 500 ms Mode Linear % 100%
 Reference Phase 0°
 Manuf. Model

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|----------------|-------|---------------|---|------|-----|-----------|------------------------------|------|---------------------|------------------|------------------|-------|---------|------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | MODE |
| | | 7:39 | | | | | | | | | | | | | |
| 8093 | <u>NO FILE</u> | 1147 | 9:54 | 3 mph | 3973 | | 4923 | | | 7 | 1 | E | 45 | V | |
| 4093 | | 1148 | 10:02 | | | | | | | 7 | 8 | E | 45 | V | |
| 4097 | | 1149 | 10:12 | | | | | | | 6 | | | | | |
| 4101 | | 1150 | 10:21 | | | | | | | 6 | | | | | |
| 4105 | | 1151 | 10:31 | | | | | | | 7 | | | | | |
| 4109 | | 1152 | 10:40 | | | | | | | | | | | | |
| 4113 | | 1153 | 10:49 | | | | | | | | | | | | |
| 4117 | | 1154 | 10:57 | | | | | | | | | | | | |
| 4121 | | 1155 | 11:06 | | | | | | | | | | | | |
| 4125 | | 1156 | 11:15 | | | | | | | | | | | | |
| 4129 | | 1157 | 11:24 | | | | | | | | | | | | |
| 4133 | Skip | | | | | | | | | | | | | | |
| 4137 | 1158 | 11:34 | | | | | | | | | | | | | |
| 4141 | 1159 | 11:43 | 3 mph | | | | | | | | | | | | |
| 4145 | Skip | | | | | | | | | | | | | | |
| 4149 | Skip | | | | | | | | | | | | | | |
| 4153 | Skip | | | | 3973 | | 4923 | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
Colling in Boxes * NO CROSSLINE TODAY *
Vib # 33 NO OPERATOR
Vib # 31 Electronics Problem
Vibs stacking in Position # 6 for Culvert
Skip for Culvert
Skip for house

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet Rain Snow Lightning
 Wind: (0-12 MPH) (13-24 MPH) (25-40 MPH)
 Temperature: 35-80 °F
 Trail Conditions County Roads

Leave Town 6:51 Leave Field 6:40 Expm Time _____
 Arrive Field 7:20 Arrive Town 7:20 Down Time _____
 Total Travel Time _____ Number Men Rec. 18

Daily Summary 76 vp / 49 Total To Date For Month _____
 No Profiles _____ No Profiles 611 vp / 432
 Miles Traversed _____ Miles Traversed _____
 Observer Zebroski Page 1 of 5



Amoco Production Company Seismic Observers Form

Party 045 Date 9/16/90
 County Renville State N.D. Line 0D12
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern

No. Indiv. _____
 Sources _____ Inline _____ Xline _____
 Spacing _____ Inline _____ Xline _____
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____ Inline _____ Xline _____

Vibrator

Model _____

No. Seis. _____
 Per Grp. _____ = _____
 Total No. No. Inline No. Xline Spacing _____
 Inline _____ Xline _____

Sweep _____ To _____ Hz. _____ Drive _____
 Frequency _____ Length _____

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Ref. Amoco NB#

pg _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____

Samp. Int. _____ Ms; Rec. Lth. _____ Sec. _____

Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out _____

SGR'S

No. In Field _____

SGR Trucks

No. In Field _____

| Source Point Number | General | | | Wind Velocity | Spread | | | | Vibrating | | | | | Instruments | | | |
|---------------------|-------------|-------|---|---------------|--------|-----|------------------------------|------------------|-----------|---------------------|------------------|------------------|---------|-------------|-----------------|-------|--------------------------|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MODE | T=Track on Line | | |
| | | | Tr. | | Tr. | Tr. | | Tr. | Back | | | | | | | Front | |
| 4157 | 1160 | 11:59 | 3 mph | 3993 | | | 4423 | | | | | 7 | 8 | E | 45 | ✓ | |
| 4161 | 1161 | 12:08 | | | | | | | | | | | | | | | |
| 4165 | 1162 | 12:17 | | | | | | | | | | | | | | | T |
| 4169 | 1163 | 12:26 | | | | | | | | | | | | | | | T |
| 4173 | 1164 | 12:34 | 3 mph | | | | | | | | | | | | | | Vib # 84 missed # 8 |
| 4177 | 1165 | 12:51 | 5 mph | | | | | | | | | | | | | | Vib # 33 in Vib # 31 out |
| 4181 | Skip | | | | | | | | | | | | | | | | Skip for Highway |
| 4185 | 1166 | 1:02 | | | | | | | | | | | | | | | |
| 4189 | 1167 | 1:11 | | | | | | | | | | | | | | | |
| 4193 | 1168 | 1:20 | | | | | | | | | | | | | | | |
| 4197 | 1169 | 1:30 | | | | | | | | | | 7 | | | | | T |
| 4201 | 1170 | 1:39 | 5 mph | | | | | | | | | 8 | | | | | Vib # 84 killed # 1 |
| 4205 | 1171 | 1:48 | 7 mph | | | | | | | | | | | | | | |
| 4209 | 1172 | 1:58 | | | | | | | | | | | | | | | |
| 4213 | 1173 | 2:08 | | | | | | | | | | | | | | | |
| 4217 | 1174 | 2:18 | | | | | | | | | | | | | | | |
| 4221 | 1175 | 2:27 | | | | | | | | | | | | | | | |
| 4225 | 1176 | 2:36 | 2 mph | 3993 | | | 4423 | | | | | 8 | | | | | |

Vibrator Electronic

Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: _____
 Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: _____
 (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____

Observer _____

Page 2 of 5



Amoco Production Company Seismic Observers Form

Party 045 Date 9/16/90
 County Renville State ND Line 00/2
Month Day Year
OAC No.

Spread Layout

Directions No. Fold
Increasing SP. No. Tr. 1 to Tr. 2
 Distance SeisGrp.
Tr. No. Int.

Each Source Pattern

No. Indiv.
 Sources Spacing
Inline Xline Inline Xline
 No. Moves Dist. Each
 Per Source Move
Inline Xline Inline Xline

Seis's Seis's
Type Comp. Direction Type Comp. Direction
 Seis's Ref. Amoco NB# pg.
Type Comp. Direction
 Amplifiers Samp. Int. Ms:Rec.Lth Sec.
Manuf. Model No. Channels
 Filter Hz. Db/Oct; 60 Hz. Rej.
low high low high In or Out
 SGR'S SGR Trucks
No. In Field No. In Field

No. Seis. Spacing
 Per Grp. =
Total No. No. Inline No. Xline Inline Xline

Vibrator Model
 Sweep To Hz. Drive
Frequency Length

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|------|---------------|-----|-----|------|------------------------------|------------------|-------|---------------------|------------------|------------------|---------|------|---------|
| Source Point Number | File Number | Time | Wind Velocity | | | | Perp. Offset Of Source Point | Near-Seis Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | T-Track |
| 4229 | 1177 | 2:45 | 5-7 mph | | | 3993 | | | | 8 | 8 | E | 45 | ✓ | T |
| 4233 | 1178 | 2:54 | | | | | | | | | | | | | |
| 4237 | 1179 | 3:04 | | | | | | | | | | | | | |
| 4241 | 1180 | 3:13 | | | | | | | | | | | | | |
| 4245 | 1181 | 3:23 | | | | | | | | | | | | | |
| 4249 | 1182 | 3:32 | | | | | | | | 8 | | | | | |
| 4253 | Skip | | | | | | | | | | | | | | |
| 4257 | Skip | | | | | | | | | | | | | | |
| 4261 | 1183 | 3:42 | | | | | | | | 7 | | | | | |
| 4265 | 1184 | 3:51 | | | | | | | | | | | | | |
| 4269 | 1185 | 4:00 | | | | | | | | | | | | | |
| 4273 | 1186 | 4:09 | 5-7 mph | | | | | | | 7 | | | | | |
| 4277 | Skip | | | | | | | | | | | | | | |
| 4281 | | | | | | | | | | | | | | | |
| 4285 | | | | | | | | | | | | | | | |
| 4289 | | | | | | | | | | | | | | | |
| 4293 | | | | | | | | | | | | | | | |
| 4297 | Skip | | | | | 3993 | | | | | | | | | |

Vibrator Electronic Manuf. Model
 Reference Taper Mode %
 Reference Phase

Remarks: (Additional remarks on back of sheet.)

Skip for House

Vib # 83 Leaking Fitting - Vib # 31 missed sweeps 4 & 7

Skip for Water lines

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: °F;
 Trail Conditions

Leave Town Leave Field Exprm Time
 Arrive Field Arrive Town Down Time
 Total Travel Time Number Men Rec.

Daily Summary

No Profiles
 Miles Traversed

Total To Date For Month

No Profiles
 Miles Traversed



Amoco Production Company Seismic Observers Form

Party 045 Date 9/16/90
 County Renville State N.D. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

| General | | | Spread | | | | Vibrating | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) | |
|---------------------|-------------|------|---|-----|-----|-----|------------------------------|------|-----------|-----------|-------------|------------------|------|---|--------------------------------|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of | | Gains | | MODE | | T-Tank on Line |
| | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | Front | Vibrators | Sweeps | Vibrator Heading | | Preamp. | |
| 4301 | Skip | | 3993 | | | 440 | | | | | | | | | Skip, for oil tank |
| 4305 | 1187 | 4:23 | | | | | | | | 8 | 8 | E | 45 | V | |
| 4309 | 1188 | 4:31 | | | | | | | | | | | | | Vib #31 missed sweep 5,6,7 & 8 |
| 4313 | 1189 | 4:41 | | | | | | | | | | | | | Vib #31 missed #1 |
| 4317 | 1190 | 4:50 | | | | | | | | | | | | | |
| 4321 | 1191 | 4:59 | | | | | | | | | | | | | |
| 4325 | Skip | | | | | | | | | | | | | | } Skip for storage tanks |
| 4329 | Skip | | | | | | | | | | | | | | |
| 4333 | 1192 | 5:10 | | | | | | | | | | | | | |
| 4337 | Skip | | | | | | | | | | | | | | Skip, for Pipe line |
| 4341 | 1193 | 5:20 | | | | | | | | | | | | | |
| 4345 | Skip | | | | | | | | | | | | | | } Skip for No Permit |
| 4349 | | | | | | | | | | | | | | | |
| 4353 | | | | | | | | | | | | | | | |
| 4357 | | | | | | | | | | | | | | | |
| 4361 | | | | | | | | | | | | | | | |
| 4365 | | | | | | | | | | | | | | | |
| 4369 | Skip | | 3993 | | | 440 | | | | | | | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Exprn Time _____ Down Time _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 4 of 5



Amoco Production Company Seismic Observers Form

Party 045 Date 9/16/90
 County Renville State N.D. Line 0012
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int.

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
 inline Xline inline Xline
 No. Moves Per Source _____ Dist. Each Move _____
 inline Xline inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
 Frequency Length

Seis's _____ Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____
 Amplifiers _____ Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out
 SGR'S _____ No. In Field _____ SGR Trucks _____ No. In Field

No. Seis. Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline inline Xline

| General | | | Spread | | | | Vibrating | | | | | Instruments | | |
|---------------------|-----------------|------|---------------|---|-----|------|-----------|------------------------------|------|---------------------|------------------|------------------|-------|---------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. |
| 4373 | Skip | | | 3773 | | 4423 | | | | | | | | |
| 4377 | 1194 | 5:38 | 7-10 mph | | | | | | 8 | 8 | E | 45 | ✓ | |
| 4381 | 1195 | 5:46 | | | | | | | | | | | | |
| 4385 | Skip | | | | | | | | | | | | | |
| 4389 | Skip | | | | | | | | | | | | | |
| 4393 | 1196 | 5:57 | 7-10 mph | 3773 | | 4423 | | | 8 | 8 | E | 45 | ✓ | |
| 8393 | Noise File 1197 | 5:58 | 7-10 mph | 3773 | | 4423 | | | 8 | 1 | E | 45 | ✓ | |

Vibrator Electronic _____ Manuf. _____ Model _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

Skip for No permit,
 Vib # 86 missed # 3, 4, 5, Vib # 32 missed # 7 + 8
 } Skip for House
 Vib # 31 missed # 3

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Exprm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 5 of 5



Amoco Production Company Seismic Observers Form

Party 045 Date 9/17/90
 County Renville/McHenry State N.D. Line 0012
 OAC No.

Spread Layout
 Directions East East No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. 50m
 Tr. No. Int. _____

Each Source Pattern
 No. Indiv. Sources 8
 Inline Xline Spacing Bumper to Bumper
 No. Moves Per Source 8 Dist. Each 4'
 Inline Xline Move Inline Xline

Seis's SM-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers Gust + Geospace SGR III & IV 80/400 Samp. Int. 2/4 Ms; Rec. Lth. 32/50 Sec.
 Filter _____ Hz. IPW / 2 Db/Oct; 60 Hz. Rej. out
 low high low high In or Out
 SGR'S 80 III, 216 IV's SGR Trucks 2 III, 5 IV
 No. In Field No. In Field

No. Seis. Per Grp. 12 = 12 Spacing 4.2m
 Total No. No. Inline No. Xline Inline Xline

Vibrator #18 P.W.
 Model
 Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

Vibrator Electronic Peterson Advance II
 Reference Taper 500 ms Mode Linear % 100%
 Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | | Instruments | | | | |
|---------------------|-------------|-----------|---------------|---|-------|-------|-----------|------------------------------|--------------------|-------|---------------------|------------------|------------------|---------|------|-----------------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near- Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MODE | T-Track on Line |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | | |
| | | 7:41 | | | | | | | | | | | | | | |
| 8401 | Noise File | 1198 9:53 | 5-7 mph | 47301 | 47311 | 47351 | 4800 | | | 8 | 1 | E | 45 | V | | |
| 4357 | Skip | | | | | | | | | 8 | 8 | E | 45 | V | T | |
| 4461 | 1199 | 10:07 | | | | | | | | | | | | | | |
| 4405 | Skip | | | | | | | | | | | | | | | |
| 4409 | Skip | | | | | | | | | | | | | | | |
| 4413 | 1200 | 10:19 | | | | | | | | | | | | | T | |
| 4417 | 1201 | 10:27 | | | | | | | | | | | | | | |
| 4421 | 1202 | 10:37 | | | | | | | | | | | | | | |
| 4425 | 1203 | 10:46 | | | | | | | | | | | | | | |
| 4429 | 1204 | 10:55 | | | | | | | | | | | | | | |
| 4433 | 1205 | 11:04 | | | | | | | | | | | | | T | |
| 4437 | 1206 | 11:13 | | | | | | | | | | | | | T | |
| 4441 | 1207 | 11:22 | | | | | | | | | | | | | | |
| 4445 | 1208 | 11:31 | | | | | | | | | | | | | | |
| 4449 | 1209 | 11:39 | | | | | | | | | | | | | | |
| 4453 | 1210 | 11:48 | | | | | | | | | | | | | | |
| 4457 | 1211 | 11:57 | 5-7 mph | 47301 | 47311 | 47351 | 4800 | | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
 Calling in Boxes
 Skip for Bridge
 Skip for House

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 56-60 °F
 Trail Conditions county Roads

Leave Town 6:38 Leave Field 5:00 Expm Time _____
 Arrive Field 7:18 Arrive Town 5:51 Down Time _____
 Total Travel Time _____ Number Men Rec. 18

Daily Summary
 No Profiles 48 up / 45
 Miles Traversed _____
 Observer Zebroski
 Total To Date For Month
 No Profiles 659 up / 477
 Miles Traversed _____
 Page 1 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 9/17/90
 County Renville/McHenry State N.D. Line 0876
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

SGR'S _____ SGR Trucks _____
No. In Field No. In Field

| General | | | Spread | | | | Vibrating | | | Instruments | | | | |
|---------------------|-------------|-------|---------------|---|------|------|-----------|-------------------|-------|---------------------|------------------|------------------|----------|------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | Preampl. | MODE |
| 4461 | 1212 | 12:06 | 5-7 mph | 4301 | 4731 | 4751 | 4800 | | | 8 | 8 | E | 45 | ✓ |
| 4465 | 1213 | 12:15 | | | | | | | | | | | | |
| 4469 | 1214 | 12:23 | | | | | | | | | | | | |
| 4473 | 1215 | 12:32 | | | | | | | | | | | | |
| 4477 | 1216 | 12:41 | | | | | | | | | | | | |
| 4481 | 1217 | 12:50 | | | | | | | | | | | | |
| 4485 | 1218 | 12:59 | | | | | | | | | | | | |
| 4489 | 1219 | 1:08 | | | | | | | | | | | | |
| 4493 | 1220 | 1:17 | | | | | | | | | | | | |
| 4497 | 1221 | 1:25 | | | | | | | | | | | | |
| 4501 | 1222 | 1:35 | | | | | | | | | | | | |
| 4505 | 1223 | 1:43 | | | | | | | | | | | | |
| 4509 | 1224 | 1:52 | | | | | | | | | | | | |
| 4513 | 1225 | 2:01 | | | | | | | | | | | | |
| 4517 | 1226 | 2:10 | | | | | | | | | | | | |
| 4521 | 1227 | 2:19 | | | | | | | | | | | | |
| 4525 | 1228 | 2:27 | | | | | | | | | | | | |
| 4529 | 1229 | 2:36 | 5-7 mph | 4301 | 4731 | 4751 | 4800 | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Manuf. _____ Model _____
 Reference Phase _____ Mode _____ % _____

Remarks: (Additional remarks on back of sheet.)

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: _____
 Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: _____
 (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 2 of 3



Amoco Production Company Seismic Observers Form

Party 095 Date 9/17/90
 County Renville/McHenry State N.D. Line OD12
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int. _____

Each Source Pattern

No. Indiv. _____
 Sources _____ Inline _____ Xline _____
 Spacing _____ Inline _____ Xline _____
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____ Inline _____ Xline _____

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency _____ Length _____

Seis's

Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____
 Amplifiers _____ Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Filter _____ low / high _____ Hz. _____ low / high _____ Db/Oct: 60 Hz. Rej. _____ In or Out _____
 SGR'S _____ No. In Field _____ SGR Trucks _____ No. In Field _____

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

| Source Point Number | General | | | Spread | | | | Vibrating | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) | | |
|---------------------|-------------|------|---------------|---|------|------|------|------------------------------|------|---------------------|------------------|------------------|-------|---------|---|---|-----------------|
| | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | MODE | T=Track on Line |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | | | |
| 4533 | 1230 | 2:45 | 5-7 mph | 4301 | 4731 | 4751 | 4800 | | | 8 | 8 | E | 45 | V | | Light Rain Falling, for the rest of the day | |
| 4537 | 1231 | 2:54 | | | | | | | | | | | | | | | |
| 4541 | 1232 | 3:02 | | | | | | | | | | | | | | | |
| 4545 | 1233 | 3:11 | 5-7 mph | | | | | | | | | | | | | | |
| 4549 | 1234 | 3:20 | 2-3 mph | | | | | | | 8 | | | | | | Vib # 21, missed #8 | |
| 4553 | 1235 | 3:30 | | | | | | | | 7 | | | | | | Vib # 31, Drive pump problem | |
| 4557 | 1236 | 3:38 | | | | | | | | | | | | | | | |
| 4561 | 1237 | 3:47 | | | | | | | | | | | | | | | |
| 4565 | 1238 | 3:56 | | | | | | | | 7 | | | | | | | |
| 4569 | 1239 | 4:07 | | | | | | | | 8 | | | | | | | |
| 4573 | 1240 | 4:15 | | | | | | | | | | | | | T | | |
| 4577 | 1241 | 4:24 | | | | | | | | | | | | | T | | |
| 4581 | 1242 | 4:34 | | | | | | | | | | | | | T | | |
| 4585 | 1243 | 4:43 | | | | | | | | 8 | 8 | E | 45 | V | T | | |
| 8585 | Noise Fik | 1244 | 4:46 | 2-3 mph | 4301 | 4731 | 4751 | 4800 | | | 8 | 1 | E | 45 | V | | |
| | EDR | 9999 | | | | | | | | | | | | | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Expm Time _____ Down Time _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 3 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 9/19/90
 County McHenry State N.D. Line 002
 OAC No.

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. 50m
 Tr. No. Int. _____

Each Source Pattern
 No. Indiv. Sources 8
 Inline Xline Spacing Bumper to Bumper
 No. Moves 8 Dist. Each 4'
 Per Source Inline Xline Move Inline Xline

Vibrator #18 P.W.
 Model
 Sweep 10 To 56 Hz. 30 Drive 80%
 Frequency Length

Seis's Sm-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers GEOSPACE SGR IV 400 Samp. Int. 4 Ms; Rec. Lth 50 Sec.
 Manuf. Model No. Channels
 Filter — — Hz. IPW 2 Db/Oct; 60 Hz. Rej. out
 low high low high In or Out
 SGR'S 213 IVs SGR Trucks 2 III, 5 IV
 No. In Field No. In Field

No. Seis. 12 = 12
 Per Grp. Total No. No. Inline No. Xline Spacing 4.2m
 Inline Xline

Vibrator Electronic Pelton Advance II
 Reference Taper 500 ms Mode LINEAR % 100%
 Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | |
|---------------------|-------------|-------|---------------|---|------|-----|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|----------|------|---------|---------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preampl. | MODE | T=Truck | on line |
| | | 5:57 | | | | | | | | | | | | | | | |
| 8589 | noise file | 1245 | 9:54 | | 4489 | | 4888 | | | | 8 | 1 | E | 45 | V | | |
| 4589 | | 1246 | 10:01 | > 5 MPH | | | | | | | 8 | 8 | E | 45 | V | | |
| 4593 | SKIP | | | | | | | | | | | | | | | | |
| 4597 | Skip | | | | | | | | | | | | | | | | |
| 4601 | Skip | | | | | | | | | | | | | | | | |
| 4605 | 1247 | 10:14 | | | | | | | | | | | | | | | |
| 4609 | 1248 | 10:23 | | | | | | | | | | | | | | | |
| 4613 | 1249 | 10:31 | | | | | | | | | | | | | | | |
| 4617 | 1250 | 10:40 | | | | | | | | | | | | | | | |
| 4621 | Skip | | | | | | | | | | | | | | | | |
| 4625 | Skip | | | | | | | | | | | | | | | | |
| 4629 | 1251 | 10:51 | | | | | | | | | | | | | | | |
| 4633 | 1252 | 11:00 | | | | | | | | | | | | | | | |
| 4637 | Skip | | | | | | | | | | | | | | | | |
| 4641 | 1253 | 11:11 | | | | | | | | | | | | | | | |
| 4645 | Skip | | | | | | | | | | | | | | | | |
| 4649 | Skip | | | | 4489 | | 4888 | | | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
 Calling in Boxes NO CROSSLINE TODAY
 SKIP FOR HOUSE
 SKIP FOR WATERWELL
 WATERWELL
 SKIP FOR HOUSE

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet Rain Snow Lightning
 Wind: (0-12 MPH) (13-24 MPH) (25-40 MPH)
 Temperature: 50-75 °F.
 Trail Conditions County Roads

Leave Town 6:47 Leave Field 5:36 Exprn Time _____
 Arrive Field 7:43 Arrive Town 6:21 Down Time _____
 Total Travel Time 2hr Number Men Rec. 19

Daily Summary
 No Profiles 68 UPS 46
 Miles Traversed _____

Total To Date For Month
 No Profiles 726 UPS 523
 Miles Traversed _____

Observer McEvoy-Zebroski Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 19 / 90
 County McHenry State N.D. Line 0012
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. Int. _____

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency Length

Seis's _____ Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
 low high low high In or Out
 SGR'S _____ SGR Trucks _____
 No. In Field No. In Field

No. Seis. _____
 Per Grp. _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

| General | | | Spread | | | | Vibrating | | | | | Instruments | | |
|---------------------|-------------|-------|---|-----|------|-----|------------------------------|------|---------------------|------------------|------------------|-------------|---------|-------------------|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | T = track on line |
| | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | |
| 4653 | SKIP | | | | 4489 | | | | | | | | | |
| 4657 | 1254 | 11:22 | | | | | | | | | | | | |
| 4661 | 1255 | 11:31 | | | | | | | | | | | | |
| 4665 | SKIP | | | | | | | | | | | | | |
| 4669 | SKIP | | | | | | | | | | | | | |
| 4673 | 1256 | 11:41 | | | | | | | | | | | | |
| 4677 | 1257 | 11:51 | | | | | | | | | | | | |
| 4681 | 1258 | 12:00 | | | | | | | | | | | | |
| 4685 | 1259 | 12:08 | | | | | | | | | | | | |
| 4689 | 1260 | 12:18 | | | | | | | | | | | | |
| 4693 | 1261 | 12:27 | | | | | | | | | | | | |
| 4697 | 1262 | 12:41 | | | | | | | | | | | | |
| 4701 | SKIP | | | | | | | | | | | | | |
| 4705 | SKIP | | | | | | | | | | | | | |
| 4709 | SKIP | | | | | | | | | | | | | |
| 4713 | 1263 | 12:54 | | | | | | | | | | | | |
| 4717 | 1264 | 1:03 | | | | | | | | | | | | |
| 4721 | 1265 | 1:12 | | | 4489 | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Manuf. _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

SKIP FOR HOUSE

SKIP FOR HOUSE

VIBS STACKING

SKIP FOR HOUSE

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Exprm Time _____ Down Time _____

Daily Summary
 No Profiles _____ Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____ Miles Traversed _____
 Page 2 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 19 / 90
 County McHenry State N.D. Line 0012
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
 Frequency Length

Seis's _____ Seis's _____
 Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
 Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
 low high low high In or Out
 SGR'S _____ SGR Trucks _____
 No. In Field No. In Field

No. Seis. _____ Spacing _____
 Per Grp. _____
 Total No. No. Inline No. Xline Inline Xline

| General | | | Spread | | | | Vibrating | | | | | Instruments | | | |
|---------------------|-------------|------|---------------|---|-----|-----|-----------|-----------------------------|------|---------------------|------------------|------------------|-------|----------|------|
| Source Point Number | File Number | Time | Wind Velocity | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp Offset Of Source Point | Back | | | | Front | Preampl. | MADE |
| 4725 | 1266 | 1:20 | | 4489 | | | 4888 | | | 8 | 8 | E | 45 | ✓ | |
| 4729 | 1267 | 1:29 | | | | | | | | | | | | | |
| 4733 | 1268 | 1:38 | | | | | | | | | | | | | |
| 4737 | 1269 | 1:47 | | | | | | | | | | | | | |
| 4741 | 1270 | 1:56 | | | | | | | | | | | | | |
| 4745 | 1271 | 2:04 | | | | | | | | | | | | | |
| 4749 | SKIP | | | | | | | | | | | | | | |
| 4753 | SKIP | | | | | | | | | | | | | | |
| 4757 | 1272 | 2:15 | | | | | | | | | | | | | |
| 4761 | 1273 | 2:24 | | | | | | | | | | | | | |
| 4765 | 1274 | 2:33 | | | | | | | | | | | | | |
| 4769 | 1275 | 2:42 | | | | | | | | | | | | | |
| 4773 | 1276 | 2:50 | | | | | | | | | | | | | |
| 4777 | 1277 | 2:59 | | | | | | | | | | | | | |
| 4781 | 1278 | 3:09 | | | | | | | | | | | | | |
| 4785 | 1279 | 3:18 | | | | | | | | | | | | | |
| 4789 | 1280 | 3:27 | | | | | | | | | | | | | |
| 4793 | SKIP | | | 4489 | | | 4888 | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

SKIP FOR WINDMILLS

T MOWER WORKING ON HIGH END

SKIP FOR CULTERS

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Expm Time _____ Down Time _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 19 / 90
 County McHenry State N.D. Line 0012
OAC No.

Spread Layout
 Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr 2
 Distance _____ SeisGrp. _____
Tr No. Int.

Each Source Pattern
 No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ **Seis's** _____
Type Comp. Direction Type Comp. Direction
Seis's _____ **Ref. Amoco NB#** _____
Type Comp. Direction pg.
Amplifiers _____ **Samp. Int.** _____ **Ms; Rec. Lth.** _____ **Sec.** _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
SGR'S _____ **SGR Trucks** _____
No. In Field No. In Field

No. Seis. Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator _____
Model
 Sweep _____ To _____ Hz. Drive _____
Frequency Length

| Source Point Number | General | | Spread | | | | Vibrating | | | | | Instruments | | | | | |
|---------------------|-------------|------|---|-----|------|-----|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|-----------------|--|--|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | T=Track on Line | | |
| 4797 | 1281 | 3:39 | | | 4483 | | | | | | | | | | | | |
| 4801 | 1282 | 3:49 | | | | | | | | | | | | | | | |
| 4805 | 1283 | 3:58 | | | | | | | | | | | | | | | |
| 4809 | SKIP | | | | | | | | | | | | | | | | |
| 4813 | SKIP | | | | | | | | | | | | | | | | |
| 4817 | 1284 | 4:10 | | | | | | | | | | | | | | | |
| 4821 | SKIP | | | | | | | | | | | | | | | | |
| 4825 | SKIP | | | | | | | | | | | | | | | | |
| 4829 | 1285 | 4:21 | | | | | | | | | | | | | | | |
| 4833 | 1286 | 4:30 | | | | | | | | | | | | | | | |
| 4837 | 1287 | 4:39 | | | | | | | | | | | | | | | |
| 4841 | 1288 | 4:48 | | | | | | | | | | | | | | | |
| 4845 | 1289 | 4:57 | | | | | | | | | | | | | | | |
| 4849 | 1290 | 5:05 | | | | | | | | | | | | | | | |
| 4853 | 1291 | 5:14 | | | 4484 | | | | | | | | | | | | |
| 8853 | Noise Flag | 1292 | 5:15 | | 4484 | | | | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

} SKIP FOR HOUSE

#86 MISSED SWEEP #6
 T #31 MISSED SWEEP #1 - GRAVEY TRACK ON LINE

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Exprm Time _____ Down Time _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 4 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/21/90
 County M-Henry State N. Dak. Line 002
 OAC 1

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources 8
 Inline Xline Spacing Bumper - No. Bumper

Seis's SM-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____

Distance _____
 Tr. No. SeisGrp Int. 50m

No. Moves Per Source 8
 Inline Xline Dist. Each Move 41
 Inline Xline

Amplifiers Cuskosone SGR 100
 Manuf. Model No. Channels
 Filter _____ Hz. EPW 2 Db/Oct; 60 Hz. Rej. Out
 low high low high In or Out

Vibrator #18 P.W.
 Model

No. Seis. Per Grp. 12 = 12
 Total No. No. Inline No. Xline Spacing 4.2m
 Inline Xline

Sweep 10 To 96 Hz. 30 Drive 80%
 Frequency Length

SGR'S 80-III's 212-IV's SGR Trucks 2-III's 5-IV's
 No. In Field No. In Field

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | |
|---------------------|-------------|------|---------------------|---|------|------|-----------|------------------------------|------|---------------------|------------------|------------------|-------|---------|------|----------|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | MODE | T-Tracks |
| | | 8:22 | | | | | | | | | | | | | | |
| 8861 | Noise End | 1292 | 10:25 | 4757 | 5152 | 4801 | 4850 | | | 8 | 1 | E | US | V | | |
| 4857 | SK IP | | | | | | | | | 8 | 8 | E | US | V | | |
| 4861 | | 1294 | 10:33 | | | | | | | | | | | | | |
| 4865 | | 1295 | 10:44 | | | | | | | | | | | | | |
| 4869 | | 1296 | 10:53 | | | | | | | | | | | | | |
| 4873 | | 1297 | 11:05 | | | | | | | | | | | | | |
| 4877 | | 1298 | 11:14 | | | | | | | | | | | | | |
| 4881 | | 1299 | 11:23 | | | | | | | | | | | | | |
| 4885 | | 1300 | 11:31 | | | | | | | | | | | | | |
| 4889 | | 1301 | 11:40 | | | | | | | | | | | | | |
| 4893 | | 1302 | 11:50 | | | | | | | | | | | | | |
| 4897 | | 1303 | 11:59 | | | | | | | | | | | | | |
| 4901 | | 1304 | 12:10 | | | | | | | | | | | | | |
| 4905 | | 1305 | 12:19 | | | | | | | | | | | | | |
| 4909 | | 1306 | 12:27 | | | | | | | | | | | | | |
| 4913 | | 1307 | 12:36 | | | | | | | | | | | | | |
| 4917 | | 1308 | 12:45 | 4757 | 5152 | 4801 | 4850 | | | | | | | | | |

Vibrator Electronic PECTOR ADVANCED II
 Reference Taper Manuf. 500ms Mode LINEAR % 100
 Reference Phase 00

Remarks: (Additional remarks on back of sheet.)

CACING IN BUSH
TRAFFIC ON ROAD ALL DAY

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Damp Wet
 Dry Ground ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 45-60 °F
 Trail Conditions Country Road

Leave Town 7:18 Leave Field 5:51 Expm Time _____
 Arrive Field 8:02 Arrive Town 6:34 Down Time _____
 Total Travel Time _____ Number Men Rec. 18

Daily Summary
 No Profiles 51 UPS 43
 Miles Traversed _____
 Observer MEEVON
 Total To Date For Month
 No Profiles 777 UPS 569
 Miles Traversed _____
 Page 1 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 21 / 90
 County M^CHENRY State N. DAKOTA Line 0072
Month Day Year
OAC No.

Spread Layout
 Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern
 No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec. _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out

No. Seis. _____
 Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

SGR'S _____ SGR Trucks _____
No. In Field No. In Field

| General | | | | Spread | | | | Vibrating | | | | Instruments | | | | | | |
|---------------------|-------------|-------|---------------------|---|------|------|------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|-------------------|-----|-----|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | TE TRUCKS ON LINE | | |
| | | | | | | | | | | | | | | | | | Tr. | Tr. |
| 4921 | 1309 | 12:54 | | 4757 | 5156 | 4804 | 4850 | | | | 8 | 8 | E | 45 | V | | | |
| 4925 | 1310 | 1:03 | | | | | | | | | | | | | | | | |
| 4929 | 1311 | 1:11 | | | | | | | | | | | | | | | | |
| 4933 | 1312 | 1:20 | | | | | | | | | | | | | | | | |
| 4937 | 1313 | 1:29 | | | | | | | | | | | | | | | | |
| 4941 | 1314 | 1:38 | | | | | | | | | | | | | | | | |
| 4945 | 1315 | 1:46 | | | | | | | | | | | | | | | | |
| 4949 | SKIP | | | | | | | | | | 8 | | | | | | | |
| 4953 | SKIP | | | | | | | | | | | | | | | | | |
| 4957 | 1316 | 1:57 | | | | | | | | | 7 | | | | | | | |
| 4961 | 1317 | 2:09 | | | | | | | | | 8 | | | | | | | |
| 4965 | 1318 | 2:20 | | | | | | | | | 8 | | | | | | | |
| 4969 | 1319 | 2:29 | | | | | | | | | 7 | | | T | | | | |
| 4973 | 1320 | 2:40 | | | | | | | | | 8 | | | | | | | |
| 4977 | 1321 | 2:49 | | | | | | | | | | | | | | | | |
| 4981 | 1322 | 2:57 | | | | | | | | | | | | | | | | |
| 4985 | 1323 | 3:07 | | | | | | | | | | | | | | | | |
| 4989 | 1324 | 3:16 | | 4757 | 5156 | 4804 | 4850 | | | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____
 Reference Phase _____
Manuf. Model %

Remarks: (Additional remarks on back of sheet.)

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____
 Arrive Field _____
 Total Travel Time _____
 Leave Field _____
 Arrive Town _____
 Number Men Rec. _____
 Exprm Time _____
 Down Time _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 2 of 3



Amoco Production Company Seismic Observers Form

Party 045 Date 9/22/90
 County McHENRY State N. Dak. Line OAC No. 0012

Spread Layout

Directions EAST EAST No. Fold _____
 Increasing Tr. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp _____
 Tr. No. Int. 50m

Each Source Pattern

No. Indiv. Sources 8
 Inline _____ Xline _____
 Spacing Bumper-To-Bumper
 Inline _____ Xline _____
 No. Moves Per Source 8
 Inline _____ Xline _____
 Dist. Each Move 4'
 Inline _____ Xline _____

Vibrator

#18 P.w.
 Model _____

No. Seis. Per Grp. 12 = 12
 Total No. No. Inline No. Xline
 Spacing 4.2m
 Inline _____ Xline _____

Sweep 10 To 56 Hz, 30 Drive 8070
 Frequency Length

Seis's Sm-7 V
 Type Comp. Direction
 Seis's _____
 Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers Geospace SGR III + IV 80/400 Samp. Int. 2/4 Ms. Rec. Lth 32/50 Sec.
 Manuf. Model No. Channels
 Filter _____ Hz 1PW 2 Db/Oct. 60 Hz. Rej. OUT
 low high low high In or Out
 SGR'S 80-III's 213-IV's SGR Trucks 2-III's 5-IV's
 No. In Field No. In Field

Vibrator Electronic PELTON ADVANCED II
 Manuf. Model
 Reference Taper 500ms Mode LINEAR % 100
 Reference Phase 0°

| Source Point Number | General | | | Spread | | | | Vibrating | | | | Instruments | | | | |
|---------------------|-------------|------|------------------|---|------|------|------|-------------------|-------|---------------------|------------------|------------------|---------|-------|------------------|--|
| | File Number | Time | WIND VELOCITY | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | Preamp. | MOORE | T-Trucks of Line | |
| | | 7:46 | | | | | | | | | | | | | | |
| 8061 | Norse Fork | 1338 | 9:50 | 4961 | 5374 | 4851 | 4900 | | | 7 | 1 | E | 45 | V | | |
| 5061 | | 1339 | 10:00 | | | | | | | 7 | 8 | E | 45 | V | T | |
| 5065 | | 1340 | 10:13 | | | | | | | 7 | | | | | | |
| 5069 | | 1341 | 10:26 | | | | | | | 8 | | | | | | |
| 5073 | | 1342 | 10:35 | | | | | | | | | | | | | |
| 5077 | | 1343 | 10:44 | | | | | | | | | | | | | |
| 5081 | | 1344 | 10:54 | | | | | | | | | | | | | |
| 5085 | | 1345 | 11:03 | | | | | | | | | | | | | |
| 5089 | | 1346 | 11:11 | | | | | | | | | | | | | |
| 5093 | | 1347 | 11:22 | | | | | | | | | | | | | |
| 5097 | | 1348 | 11:31 | | | | | | | | | | | | | |
| 5101 | | SKIP | | | | | | | | | | | | | | |
| 5105 | | SKIP | | | | | | | | | | | | | | |
| 5109 | | 1349 | 11:42 | | | | | | | | | | | | | |
| 5113 | | 1350 | 11:51 | | | | | | | | | | | | | |
| 5117 | | 1351 | 12:00 | | | | | | | | | | | | | |
| 5121 | | 1352 | 12:09 | 4961 | 5374 | 4851 | 4900 | | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)

CALLING IN BOXES
 SEMI ONLINE (HAY HAWKERS - AN DAY - 5140 -> 5081)
 * THERE IS A WACKAWAY + A WIDELINE SPREAD (7 miles SOUTH)*
 } SKIP FOR WINDMILL

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet ; Rain ; Snow ; Lightning ;
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: 35-55 °F;
 Trail Conditions Courty Road

Leave Town 6:40 Leave Field 5:13 Expm Time _____
 Arrive Field 7:31 Arrive Town 6:23 Down Time _____
 Total Travel Time 2hr. Number Men Rec. 18

Daily Summary

No Profiles 54 UPS 45
 Miles Traversed _____
 Observer M. E. Evoy

Total To Date For Month

No Profiles 831 UPS 612
 Miles Traversed _____
 Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 22 / 90
 County McHENRY State AL. DAK. Line 0012
 OAC No.

Spread Layout
 Directions _____ No. Fold _____
 _____ Increasing S.F. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern
 No. Indiv. _____
 Sources _____ Inline _____ Xline _____
 Spacing _____ Inline _____ Xline _____
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____ Inline _____ Xline _____

Seis's _____ Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____
 Amplifiers _____ Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms. Rec. Lth. _____ Sec. _____
 Filter _____ low / high _____ Hz. _____ low / high _____ Db/Oct: 60 Hz. Rej. _____ In or Out _____

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

Vibrator _____ Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
 Frequency _____ Length _____

SGR'S _____ No. In Field _____
 SGR Trucks _____ No. In Field _____

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | | |
|---------------------|-------------|------|---------------|---|------|------|-----------|------------------------------|------------------|-------|---------------------|------------------|------------------|---------|------|-------------------|--|--|
| Source Point Number | File Number | Time | WIND VELOCITY | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | TE TRACKS ON LINE | | |
| 5197 | 1369 | 2:43 | 10-15MPH | 4961 | 5376 | 4851 | 4900 | | | | 8 | 8 | E | 45 | V | | | |
| 5201 | SKIP | | | | | | | | | | | | | | | | | |
| 5205 | 1 | | | | | | | | | | | | | | | | | |
| 5209 | SKIP | | | | | | | | | | | | | | | | | |
| 5213 | 1370 | 2:56 | | | | | | | | | | | | | | | | |
| 5217 | 1371 | 3:05 | | | | | | | | | | | | | | | | |
| 5221 | 1372 | 3:14 | 10-15MPH | | | | | | | | | | | | | | | |
| 5225 | 1373 | 3:23 | 15-20MPH | | | | | | | | | | | | | | | |
| 5229 | SKIP | | | | | | | | | | | | | | | | | |
| 5233 | SKIP | | | | | | | | | | | | | | | | | |
| 5237 | 1374 | 3:33 | | | | | | | | | 8 | | | | | | | |
| 5241 | 1375 | 3:44 | | | | | | | | | 7 | | | | | | | |
| 5245 | 1376 | 3:52 | | | | | | | | | 7 | | | | | | | |
| 5249 | 1377 | 4:01 | | | | | | | | | 7 | | | | | | | |
| 5253 | 1378 | 4:11 | | | | | | | | | 8 | | | | | | | |
| 5257 | 1379 | 4:20 | | | | | | | | | | | | | | | | |
| 5261 | 1380 | 4:28 | | | | | | | | | | | | | | | | |
| 5265 | 1381 | 4:37 | | 4961 | 5376 | 4851 | 4900 | | | | | | | | | | | |

Vibrator Electronic _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Taper _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

SKIP FOR HIGHWAY + TOWER

SKIP FOR HOUSE

#86 - GETTING NEW BATTERIES

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 22 / 90
Month Day Year
 County M^CHENRY State N. Dak. Line 0012
OAC No.

Spread Layout
 Directions _____ No. Fold _____
Increasing Sft. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern
 No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ **Seis's** _____
Type Comp. Direction Type Comp. Direction
Seis's _____ **Ref. Amoco NB#** _____ pg. _____
Type Comp. Direction
Amplifiers _____ **Samp. Int.** _____ **Ms; Rec. Lth** _____ **Sec.** _____
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
SGR'S _____ **SGR Trucks** _____
No. In Field No. In Field

No. Seis. _____
 Per Grp. _____ = _____
Total No. No. Inline No. Xline
 Spacing _____
Inline Xline
 Vibrator _____
 Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

| General | | | Spread | | | | Vibrating | | | | Instruments | | Remarks: (Additional remarks on back of sheet.) |
|---------------------|-------------|------|---|-----|-----|-----|------------------------------|------|---------------------|------------------|------------------|---------|---|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | |
| | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | Front | | | Preamp. | TE TRACKS ON LINE |
| 5269 | 1382 | 4:46 | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 5273 | 1383 | 4:55 | | | | | | | | | | | |
| 8273 | Noise File | 4:57 | | | | | | | | | | | |
| | E.O.R. | 9999 | | | | | | | | | | | |
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Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary **Total To Date For Month**
 No Profiles _____ No Profiles _____
 Miles Traversed _____ Miles Traversed _____
 Observer _____ Page 4 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/23/90
 County McHENRY State N. Dak Line 042 OAC No. 1/2

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. SM
 Tr. No. Int. 50m

Each Source Pattern
 No. Indiv. Sources 8 Spacing 200m
 Inline Xline Inline Xline
 No. Moves Per Source 8 Dist. Each Move 4'
 Inline Xline Inline Xline

Seis's SM-7 Type Comp. Direction
 Seis's _____ Type Comp. Direction
 Ref. Amoco NB# _____ pg. _____
 Amplifiers GEOSPAC SGR IV 400 Samp. Int. 4 Ms; Rec. Lth. 50 Sec.
 Filter _____ Hz. IPW/2 Db/Oct; 60 Hz. Rej. OUT

No. Seis. Per Grp. 12 = 12 Spacing 4.2m
 Total No. No. Inline No. Xline Inline Xline

Vibrator #18 P.W. Model
 Sweep 10 To 56 Hz. 30 Drive 80% SGR'S 211-IV's SGR Trucks 5-TV's
 Frequency Length No. In Field No. In Field

Vibrator Electronic DEWON ADVANCED II
 Reference Taper 500ms Mode LINEAR % 100
 Reference Phase 0°

| Source Point Number | General | | Spread | | | | Vibrating | | | | Instruments | | | | | | | |
|---------------------|-------------|------|---------------------|---|-----|-----|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|-------|------|-----------|-------|
| | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | Gains | MODE | TE-TRUCKS | LINES |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | | | | |
| | | 8:07 | | | | | | | | | | | | | | | | |
| 8277 | Nurse Free | 1385 | 9:59 | | | 577 | 552 | | | | 8 | 1 | E 45 | U | | | | |
| 5277 | | 1386 | 10:07 | | | | | | | | 8 | 8 | E 45 | V | | | | |
| 5281 | | 1387 | 10:17 | | | | | | | | | | | | | | | |
| 5285 | | 1388 | 10:27 | | | | | | | | | | | | | | | |
| 5289 | | 1389 | 10:36 | | | | | | | | | | | | | | | |
| 5293 | | 1390 | 10:47 | | | | | | | | | | | | | | | |
| 5298 | | 1391 | 11:15 | | | | | | | | | | | | | | | |
| 5301 | | 1392 | 11:32 | | | | | | | | | | | | | | | |
| 5305 | | 1393 | 11:44 | | | | | | | | | | | | | | | |
| 5309 | | 1394 | 11:56 | | | | | | | | | | | | | | | |
| 5313 | | 1395 | 12:07 | | | | | | | | 8 | | | | | | | |
| 5317 | | SKIP | | | | | | | | | | | | | | | | |
| 5321 | | SKIP | | | | | | | | | | | | | | | | |
| 5325 | | SKIP | | | | | | | | | | | | | | | | |
| 5329 | | SKIP | | | | | | | | | | | | | | | | |
| 5333 | | 1396 | 12:33 | | | | | | | | 6 | | | | | | | |
| 5336 | | 1397 | 12:43 | | | 577 | 552 | | | | 8 | | | | | | | |

Remarks: (Additional remarks on back of sheet.)

CALINA IN BOXES, NO CROSSLINE TODAY
 VIBS SHAKING IN DITCH
 THERE IS A WALKWAY + A WHEELING (4 miles South)

ANTENNA BLEED DOWN
 #79 - REPLACING PAD CHAIN BOLTS - VIBS STACKING

VIBS IN LOW DRIVE

VIB# 32 - STUCK - GETTING WINCHED OUT
 SKIP - TOO WET IN DITCH
 SKIP FOR HOUSE

#32 & 33 - DRIVING UP - VIBS STACKING - LAST POSITION

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground Wet Rain Snow Lightning
 Wind: (0-12 MPH) (13-24 MPH) (25-40 MPH)
 Temperature 39-60 °F
 Trail Conditions COUNTRY ROAD

Leave Town 6:47 Leave Field 4:36 Expm Time _____
 Arrive Field 7:48 Arrive Town 5:44 Down Time _____
 Total Travel Time 2hr. Number Men Rec. 18

Daily Summary
 No Profiles 54 UPS 27
 Miles Traversed _____
 Observer McEvoy

Total To Date For Month
 No Profiles 885 UPS 639
 Miles Traversed _____
 Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 23 / 90
 County McHENRY State N. DAK. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2

Distance _____ SeisGrp. _____
Tr. No. Int.

No. Seis. _____ Spacing _____
Per Grp. Total No. No. Inline No. Xline Inline Xline

Each Source Pattern

No. Indiv. _____
 Sources _____ Spacing _____
Inline Xline Inline Xline

No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction

Seis's _____ Ref. Amoco NB# _____
Type Comp. Direction pg.

Amplifiers _____, Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
Manuf. Model No. Channels

Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out

SGR'S _____ SGR Trucks _____
No. In Field No. In Field

Vibrator Electronic _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____
Manuf. Model

| Source Point Number | General | | | Spread | | | | Vibrating | | | | Instruments | | | |
|---------------------|-------------|-------|---------------------|---|-----|-----|-----|------------------------------|------|---------------------|------------------|------------------|-------|---------|------|
| | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | | | | Front | Preamp. | HEAD |
| 5341 | 1398 | 12:59 | | 577 | | 582 | | | | 8 | 8 | E | 45 | V | |
| 5345 | 1399 | 1:08 | | | | | | | | | | | | | |
| 5349 | 1400 | 1:18 | | | | | | | | | | | | | |
| 5353 | 1401 | 1:28 | | | | | | | | | | | | | |
| 5357 | 1402 | 1:38 | | | | | | | | | | | | | |
| 5361 | 1403 | 1:47 | | | | | | | | | | | | | |
| 5365 | 1404 | 1:57 | | | | | | | | | | | | | |
| 5369 | 1405 | 2:07 | | | | | | | | 8 | | | | | |
| 5373 | SKIP | | | | | | | | | | | | | | |
| 5377 | 1406 | 2:26 | | | | | | | | 7 | | | | | |
| 5381 | 1407 | 2:37 | | | | | | | | 7 | | | | | |
| 5385 | 1408 | 2:48 | | | | | | | | 8 | | | | | |
| 5389 | 1409 | 2:58 | | | | | | | | | | | | | |
| 5393 | 1410 | 3:08 | | | | | | | | | | | | | |
| 5397 | SKIP | | | | | | | | | | | | | | |
| 5401 | SKIP | | | | | | | | | | | | | | |
| 5405 | SKIP | | | | | | | | | | | | | | |
| 5409 | 1411 | 3:23 | | 577 | | 582 | | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)

SKIP - TOO WET
 VIB # 32 - Checking Dr.

VIBS STACKING IN LAST POSITION

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning ;
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH) ;
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Expm Time _____ Down Time _____

Daily Summary
 No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month
 No Profiles _____
 Miles Traversed _____
 Page 2 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9 / 23 / 90
Month Day Year
 County McHENRY State N. DAK. Line 0012
OAC No.

Spread Layout
 Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern
 No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ **Seis's** _____
Type Comp. Direction Type Comp. Direction
Seis's _____ **Ref. Amoco NB#** _____
Type Comp. Direction pg.
Amplifiers _____ **Samp. Int.** _____ **Ms; Rec. Lth.** _____ **Sec.** _____
Manuf. Model No. Channels
 Filter low / high Hz. low / high Db/Oct; 60 Hz. Rej. In or Out
SGR'S _____ **SGR Trucks** _____
No. In Field No. In Field

No. Seis. Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator _____
Model
 Sweep _____ To _____ Hz. Drive _____
Frequency Length

Vibrator Electronic _____
Manuf. Model
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

| General | | | Spread | | | | Vibrating | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) | | | |
|---------------------|-------------|------|---|-----|-----|-----|------------------------------|------|-----------|---------------------|------------------|------------------|----------|---|-----------|------|--|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis Offset | | Vibrating | | Gains | | | | | | |
| | | | Tr. | Tr. | Tr. | Tr. | Perp. Offset Of Source Point | Back | Front | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preampl. | MAG | TE TRACKS | LINE | |
| 5413 | 1412 | 3:35 | | | | | 5177 | | | P | P | E | 45 | V | | | |
| 5417 | SKIP | | | | | | | | | | | | | | | | |
| 5421 | | | | | | | | | | | | | | | | | |
| 5425 | | | | | | | | | | | | | | | | | |
| 5429 | | | | | | | | | | | | | | | | | |
| 5433 | | | | | | | | | | | | | | | | | |
| 5437 | SKIP | | | | | | | | | | | | | | | | |
| 5441 | | | | | | | | | | | | | | | | | |
| 5445 | | | | | | | | | | | | | | | | | |
| 5449 | | | | | | | | | | | | | | | | | |
| 5453 | | | | | | | | | | | | | | | | | |
| 5457 | | | | | | | | | | | | | | | | | |
| 5461 | | | | | | | | | | | | | | | | | |
| 5465 | | | | | | | | | | | | | | | | | |
| 5469 | | | | | | | | | | | | | | | | | |
| 5473 | | | | | | | | | | | | | | | | | |
| 5477 | | | | | | | | | | | | | | | | | |
| 5481 | SKIP | | | | | | 5177 | | | | | | | | | | |

SKIP FOR NO ACCESS

SKIP FOR NO ACCESS

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/24/90
 County McHENRY State N. DAK. Line OAC No. 0012

Spread Layout
 Directions EAST EAST No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp _____
 Tr. No. Int. 50m

Each Source Pattern
 No. Indiv. 8
 Sources _____ Spacing Bumper to Bumper
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each 41
 Per Source _____ Move _____
 Inline Xline Inline Xline

Seis's SM-7 Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____
 Amplifiers Geospace SGR III + IV 801400
 Manuf. Model No. Channels Samp. Int. 214 Ms; Rec. Lth. 305 Sec.
 Filter _____ / _____ Hz. EPW / 2 Db/Oct: 60 Hz. Rej. OUT
 low high low high In or Out

No. Seis. 12 = 12
 Per Grp. Total No. No. Inline No. Xline Spacing 4.2m
 Inline Xline

Vibrator #18 Pkw. Model _____
 Sweep 10 To 36 Hz. 30 Drive 80%
 Frequency Length

SGR'S 217-IV's III's-80 SGR Trucks 5-IV's 2-III's
 No. In Field No. In Field

Vibrator Electronic DELTON ADVANCED II
 Reference Taper 500ms Mode LINEAR % 100
 Reference Phase 0°

| Source Point Number | General | | Spread | | | | Vibrating | | | | Instruments | | | | | | |
|---------------------|-------------|------|---|--------|------|-------|------------------------------|-------------------|--|---------------------|------------------|------------------|---------|------|-----------|----|-----|
| | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | MOOE | TE-Trails | SP | LWD |
| Tr. | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | | | | | | | | |
| | | 7:51 | | | | | | | | | | | | | | | |
| 8493 | House Falls | 1413 | 9:49 | >5 MPH | 5393 | 5792 | 4901 | 4951 | | | | | | | | | |
| 5493 | SKIP | | | | | | | | | | | | | | | | |
| 5497 | | | | | | | | | | | | | | | | | |
| 5501 | | | | | | | | | | | | | | | | | |
| 5505 | | | | | | | | | | | | | | | | | |
| 5509 | | | | | | | | | | | | | | | | | |
| 5513 | SKIP | | | | | | | | | | | | | | | | |
| 5517 | | 1416 | 9:56 | | | | | | | | | | | | | | |
| 5521 | | 1417 | 10:06 | | | | | | | | | | | | | | |
| 5525 | | 1418 | 10:16 | | | | | | | | | | | | | | |
| 5529 | | 1419 | 10:26 | | | | | | | | | | | | | | |
| 5533 | | 1420 | 10:35 | | | | | | | | | | | | | | |
| 5537 | | 1421 | 10:45 | | | | | | | | | | | | | | |
| 5541 | SKIP | | | | | | | | | | | | | | | | |
| 5545 | SKIP | | | | | | | | | | | | | | | | |
| 5549 | | 1422 | 11:01 | | | | | | | | | | | | | | |
| 5553 | | 1423 | 11:15 | 75 MPH | 5393 | 5792 | 4901 | 4951 | | | | | | | | | |

Remarks: (Additional remarks on back of sheet.)
 CALLING IN BOXES THERE IS A WALKWAY + ACROSS LINE TODAY
 ALSO A WIRELINE
 } SKIP NO ACCESS
 } SKIP FOR HOUSE + HWAY
 #33 - MISSED #7+8
 T

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 60-85 °F;
 Trail Conditions COUNTRY ROAD

Leave Town 6:41 Leave Field 2:56 Expm Time _____
 Arrive Field 7:35 Arrive Town 3:55 Down Time _____
 Total Travel Time 2hr. Number Men Rec. 18

Daily Summary
 No Profiles 39 UPS 25
 Miles Traversed _____
 Observer M. E. W.

Total To Date For Month
 No Profiles 924 UPS 664
 Miles Traversed _____
 Page 1 of _____



Amoco Production Company Seismic Observers Form

Party 045 Date 9/24/90
 County M & HENRY State N. DAK. Line 0012
 OAC No.

Spread Layout

Directions _____ No. Fold _____
 Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
 Tr. No. _____ Int. _____

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
 Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
 Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
 Frequency Length

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Seis's

Type _____ Comp. _____ Direction _____

Ref. Amoco NB#

pg. _____

Amplifiers

Manuf. _____ Model _____ No. Channels _____

Samp. Int. _____ Ms; Rec. Lth. _____ Sec.

Filter

low / high Hz. low / high

Db/Oct; 60 Hz. Rej. _____
 In or Out

No. Seis. Per Grp. _____ Spacing _____
 Total No. No. Inline No. Xline Inline Xline

SGR'S

No. In Field _____

SGR Trucks

No. In Field _____

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | | | |
|---------------------|-------------|-------|---|-----|------|------|------------------------------|--------------------|-------|---------------------|------------------|------------------|---------|------|--------|---------|--|--|--|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near. Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | | | | |
| | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | TRUCKS | ON LINE | | | |
| 5557 | 1424 | 11:24 | 8 | -1 | 8MPH | 5353 | 5792 | 4921 | 4950 | | | 8 | 8 | E | 45 | V | | | |
| 5561 | SKIP | | | | | | | | | | | | | | | | | | |
| 5565 | SKIP | | | | | | | | | | | | | | | | | | |
| 5569 | 1425 | 11:40 | | | | | | | | | | | | | | | | | |
| 5573 | 1426 | 11:50 | | | | | | | | | | | | | | | | | |
| 5577 | 1427 | 11:59 | | | | | | | | | | | | | | | | | |
| 5581 | 1428 | 12:09 | | | | | | | | | | 8 | | | | | | | |
| 5585 | 1429 | 12:21 | | | | | | | | | | 7 | | | | | | | |
| 5589 | 1430 | 12:33 | | | | | | | | | | 8 | | | | | | | |
| 5593 | 1431 | 12:43 | 8 | -18 | MPH | | | | | | | | | | | | | | |
| 5597 | SKIP | | | | | | | | | | | | | | | | | | |
| 5601 | SKIP | | | | | | | | | | | | | | | | | | |
| 5605 | 1432 | 12:57 | 18 | -25 | MPH | | | | | | | | | | | | | | |
| 5609 | SKIP | | | | | | | | | | | | | | | | | | |
| 5613 | 1433 | 1:10 | | | | | | | | | | | | | | | | | |
| 5617 | 1434 | 1:22 | | | | | | | | | | | | | | | | | |
| 5621 | 1435 | 1:31 | | | | | | | | | | | | | | | | | |
| 5625 | 1436 | 1:41 | 18 | -25 | MPH | 5353 | 5792 | 4921 | 4950 | | | 8 | | | | | | | |

Vibrator Electronic

Reference Taper _____ Manuf. _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

#33- Electronic Problems

} TOO WET TO SHAKE

SKIP FOR ROAD
 WIND GUSTS TO 30 MPH

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Exprn Time _____ Down Time _____

Daily Summary

No Profiles _____
 Miles Traversed _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____

Observer _____ Page 2 of _____



Amoco Production Company Seismic Observers Form

Party 045 Date 9/24/90
 County McHENRY State N. DAK. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Smp. Int. _____ Ms; Rec. Lth. _____ Sec.
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

No. Seis. Per Grp. _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator Electronic _____
Manuf. Model
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

| General | | | Spread | | | | Vibrating | | | | | Instruments | | Remarks: (Additional remarks on back of sheet.) | |
|---------------------|-------------|------|---|------|------|------|------------------------------|-------------------|--|---------------------|------------------|------------------|--------------|---|-----------------------------------|
| Source Point Number | File Number | Time | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamplifier | | Mode |
| | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | | | | |
| 5629 | 1437 | 1:51 | 20-25MPH | 5393 | 5792 | 4901 | 4951 | | | 8 | 8 | E | 45V | | WIND GUSTS 30-35MPH |
| 5633 | 1438 | 2:01 | | | | | | | | | | | | | |
| 9037 | 1439 | 2:10 | | | | | | | | | | | | | |
| 5641 | SKIP | | | | | | | | | | | | | | SKIP NO PERMIT |
| 5645 | 1440 | 2:24 | | | | | | | | | | | | | SHUT DOWN - TOO WINDY FOR ANTENNA |
| 8645 | Nurse K16 | 1441 | 2:27 | 5393 | 5792 | 4901 | 4951 | | | | | | | | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Arrive Field _____ Total Travel Time _____
 Leave Field _____ Arrive Town _____ Number Men Rec. _____
 Exprm Time _____ Down Time _____

Daily Summary

No Profiles _____
 Miles Traversed _____
 Observer _____

Total To Date For Month

No Profiles _____
 Miles Traversed _____
 Page 3 of _____



Amoco Production Company Seismic Observers Form

Party 045 Date 9/25/90
Month Day Year
 County McHenry/Pease State N. Dak. Line 0012
OAC No.

Spread Layout
 Directions EAST EAST No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2

Each Source Pattern
 No. Indiv. Sources 8
In-line X-line
 Spacing Bumper-To-Bumper
In-line X-line
 No. Moves Per Source 8
In-line X-line
 Dist. Each Move 4'
In-line X-line

Seis's SM-7
Type Comp. Direction
 Seis's _____
Type Comp. Direction
 Ref. Amoco NB# _____
 Amplifiers Geospace SGR-114 80/400 Samp. Int. 2/9 Ms. Rec. Lth. 30/50 Sec.
Manuf. Model No. Channels
 Filter low high Hz 10W/2 Db/Oct; 60 Hz. Rej. OUT
low high low high In or Out

No. Seis. Per Grp. 12 = 12
Total No. No. In-line No. X-line
 Spacing 4.2m
In-line X-line

Vibrator #18 P.W.
Model
 Sweep 10 To 56 Hz, 30 Drive 80%
Frequency Length

SGR'S 80-11's 213-11's SGR Trucks 2-11's 5-11's
No. In Field No. In Field

Vibrator Electronic PELTON ADVANCED II
Manuf. Model
 Reference Taper 500MS Mode LINEAR % 100
 Reference Phase 0°

| General | | | Spread | | | | Vibrating | | | | Instruments | | | Remarks: (Additional remarks on back of sheet.) | | |
|---------------------|-------------|------|---------------------|---|------|------|-----------|------------------|-------|---------------------|------------------|------------------|---------|---|--|------------------|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Near-Seis Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | Back | Front | | | | Preamp. | | M100E | T-TRUCKS ON LINE |
| | | 8:05 | | | | | | | | | | | | | | |
| 8649 | Noise File | 1443 | 9:56 | 5463 | 5862 | 4951 | 5000 | | | 8 | 1 | E | 45 | V | CALLING IN BOXES | |
| 5649 | | 1444 | 10:06 | | | | | | | 8 | 8 | E | 45 | V | VIBS IN DITCH | |
| 5653 | | 1445 | 10:16 | | | | | | | 7 | | | | | #21 - MISSING SWEEPS | |
| 5657 | | 1446 | 10:26 | | | | | | | 1 | | | | | VIBS STACKING | |
| 5659 | | 1447 | 10:35 | | | | | | | 7 | | | | | | |
| 5661 | | 1448 | 10:45 | | | | | | | 8 | | | | | | |
| 5665 | | 1449 | 10:55 | | | | | | | 8 | | | | | | |
| 5669 | SKIP | | | | | | | | | | | | | | TOO WET TO SHAKE | |
| 5673 | | 1450 | 11:13 | | | | | | | 7 | | | | | #21 - MISSING SWEEPS | |
| 5677 | | 1451 | 11:23 | | | | | | | | | | | | | |
| 5681 | | 1452 | 11:33 | | | | | | | | | | | | | |
| 5685 | | 1453 | 11:43 | | | | | | | | | | | | | |
| 5689 | | 1454 | 11:53 | | | | | | | | | | | | T #32 - LEAK - VIBS STACKING | |
| 5693 | | 1455 | 12:03 | | | | | | | 7 | | | | | #31 - REPLACING CHAIN BOLTS | |
| 5697 | | 1456 | 12:14 | | | | | | | 8 | | | | | | |
| 5701 | | 1457 | 12:24 | | | | | | | 7 | | | | | | |
| 5705 | SKIP | | | 5463 | 5862 | 4951 | 5000 | | | | | | | | No Permit (LINE CHANGES STOPS UP ROAD) | |

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground; Wet; Rain; Snow; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: 50-80 °F;
 Trail Conditions GRAVEL ROAD

Leave Town 6:43 Leave Field 5:41 Expm Time _____
 Arrive Field 7:40 Arrive Town 6:54 Down Time _____
 Total Travel Time 2hr. Number Men Rec. 1

Daily Summary
 No Profiles 55 UPS 40
 Miles Traversed _____
 Observer M. Evoy

Total To Date For Month
 No Profiles 979 UPS 704
 Miles Traversed _____
 Page 1 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/25/90
 County MENARD/PRECE State ALABAMA Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____ Spacing _____
 Sources _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's _____ Type _____ Comp. _____ Direction _____
 Seis's _____ Type _____ Comp. _____ Direction _____
 Ref. Amoco NB# _____ pg. _____
 Amplifiers _____ Manuf. _____ Model _____ No. Channels _____ Samp. Int. _____ Ms; Rec. Lth _____ Sec. _____
 Filter _____ low / high Hz. _____ low / high Db/Oct; 60 Hz. Rej. _____ In or Out _____
 SGR'S _____ No. In Field _____ SGR Trucks _____ No. In Field _____

No. Seis. _____ = _____ Spacing _____
 Per Grp. _____
Total No. No. Inline No. Xline Inline Xline

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | |
|---------------------|-------------|-------|---------------------|---|------|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|-------|--------|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Preamp. | Gains | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | | MADE | TESTED |
| 5709 | 1458 | 12:37 | | 5703 | 5802 | 4951 | 5000 | | | 8 | 8 | E 45 | V | | | |
| 5713 | 1459 | 12:48 | | | | | | | | 8 | | | | | | |
| 5717 | 1460 | 12:58 | | | | | | | | 8 | | | | | | |
| 5721 | 1461 | 1:10 | | | | | | | | 7 | | | | | | |
| 5725 | 1462 | 1:20 | | | | | | | | 7 | | | | | | |
| 5729 | 1463 | 1:30 | | | | | | | | 7 | | | | | | |
| 5733 | SKIP | | | | | | | | | 8 | | | | | | |
| 5737 | SKIP | | | | | | | | | | | | | | | |
| 5741 | 1464 | 1:45 | | | | | | | | | | | | | | |
| 5745 | 1465 | 1:55 | | | | | | | | | | | | | | |
| 5749 | 1466 | 2:05 | | | | | | | | | | | | | | |
| 5753 | 1467 | 2:15 | | | | | | | | | | | | | | |
| 5757 | SKIP | | | | | | | | | | | | | | | |
| 5761 | SKIP | | | | | | | | | | | | | | | |
| 5765 | SKIP | | | | | | | | | | | | | | | |
| 5769 | SKIP | | | | | | | | | | | | | | | |
| 5773 | 1468 | 2:36 | | | | | | | | | | | | | | |
| 5777 | 1469 | 2:46 | | 5703 | 5802 | 4951 | 5000 | | | | | | | | | |

Vibrator Electronic _____ Manuf. _____ Model _____
 Reference Taper _____ Mode _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

U1B5 STACKING } U.P.# OFF BY 4 ON THESE 3 "U.P.'s
 (5709 SHOULD BE 5713, ETC)
 #83- TRANSMISSION PROBLEMS
 } SKIP FOR WINDMILL
 U1B5 STACKING
 } SKIP FOR WINDMILL
 SKIP FOR ROAD
 U1B5 ON ROAD - POWER DOWN REPAIRING A SET OF PHONES (STA. 5762)

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary Total To Date For Month
 No Profiles _____ No Profiles _____
 Miles Traversed _____ Miles Traversed _____
 Observer _____ Page 2 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/25/90
 County McHENRY/PIECE State N. DAK. Line 0012
Month Day Year
OAC No.

Spread Layout

Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern

No. Indiv. _____ Spacing _____
 Sources _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Vibrator

Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____ pg. _____
Type Comp. Direction
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth. _____ Sec.
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out
 SGR'S _____ SGR Trucks _____
No. In Field No. In Field

No. Seis. _____ Spacing _____
 Per Grp. _____
Total No. No. Inline No. Xline Inline Xline

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | | |
|---------------------|-------------|------|---------------------|---|------|------|-----------|------------------------------|-------------------|-------|---------------------|------------------|------------------|---------|------|-------|----|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near-Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | Mode | TETRA | ON |
| 5781 | 1470 | 2:56 | | 5963 | 5862 | 4451 | 5000 | | | 8 | 8 | E | 45 | V | | | |
| 5785 | 1471 | 3:05 | | | | | | | | | | | | | | | |
| 5789 | 1472 | 3:14 | | | | | | | | | | | | | | | |
| 5793 | 1473 | 3:23 | | | | | | | | | | | | | | | |
| 5797 | 1474 | 3:33 | | | | | | | | | | | | | | | |
| 5801 | 1475 | 3:42 | | | | | | | | | | | | | | | |
| 5805 | SKIP | | | | | | | | | | | | | | | | |
| 5809 | SKIP | | | | | | | | | | | | | | | | |
| 5813 | SKIP | | | | | | | | | | | | | | | | |
| 5817 | SKIP | | | | | | | | | | | | | | | | |
| 5821 | 1476 | 4:08 | | | | | | | | | | | | | | | |
| 5825 | 1477 | 4:17 | | | | | | | | | | | | | | | |
| 5829 | 1478 | 4:27 | | | | | | | | | | | | | | | |
| 5833 | SKIP | | | | | | | | | | | | | | | | |
| 5837 | 1479 | 4:42 | | | | | | | | | | | | | | | |
| 5841 | 1480 | 4:51 | | | | | | | | | | | | | | | |
| 5845 | 1481 | 5:00 | | | | | | | | | | | | | | | |
| 5849 | SKIP | | | 5963 | 5862 | 4451 | 5000 | | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____
 Reference Phase _____
Manuf. Model %

Remarks: (Additional remarks on back of sheet.)

} SKIP FOR HOUSE

SKIP FOR HOUSE

T

SKIP FOR WATERWELL

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary Total To Date For Month
 No Profiles _____ No Profiles _____
 Miles Traversed _____ Miles Traversed _____
 Observer _____ Page 3 of 4



Amoco Production Company Seismic Observers Form

Party 045 Date 9/25/90
Month Day Year
 County McHENRY/PIERCE State N. DAK. Line 0012
OAC No.

Spread Layout
 Directions _____ No. Fold _____
Increasing SP. No. Tr. 1 to Tr. 2
 Distance _____ SeisGrp. _____
Tr. No. Int.

Each Source Pattern
 No. Indiv. Sources _____ Spacing _____
Inline Xline Inline Xline
 No. Moves _____ Dist. Each _____
 Per Source _____ Move _____
Inline Xline Inline Xline

Seis's _____ Seis's _____
Type Comp. Direction Type Comp. Direction
 Seis's _____ Ref. Amoco NB# _____
Type Comp. Direction pg.
 Amplifiers _____ Samp. Int. _____ Ms; Rec. Lth _____ Sec.
Manuf. Model No. Channels
 Filter _____ Hz. _____ Db/Oct; 60 Hz. Rej. _____
low high low high In or Out

No. Seis. _____
 Per Grp. _____ = _____ Spacing _____
Total No. No. Inline No. Xline Inline Xline

Vibrator _____ Model _____
 Sweep _____ To _____ Hz. _____ Drive _____
Frequency Length

SGR'S _____ SGR Trucks _____
No. In Field No. In Field

| General | | | Spread | | | | Vibrating | | | | Instruments | | | | | |
|---------------------|-------------|------|---------------------|---|------|------|-----------|------------------------------|--------------------|-------|---------------------|------------------|------------------|---------|------|------------------|
| Source Point Number | File Number | Time | Controller Location | Source Point Number At Seismometer Group For The Following Traces | | | | Perp. Offset Of Source Point | Near. Seis. Offset | | Number Of Vibrators | Number Of Sweeps | Vibrator Heading | Gains | | |
| | | | | Tr. | Tr. | Tr. | Tr. | | Back | Front | | | | Preamp. | MODE | TETRACKS ON LINE |
| 5853 | 1482 | 5:11 | | 5963 | 5862 | 4951 | 5000 | | | 8 | 8 | E 45 | V | | | |
| 5857 | SKIP | | | | | | | | | | | | | | | |
| 5861 | 1483 | 5:22 | | | | | | | | | | | | | | |
| 8961 | Noise File | 1484 | 5:25 | 5963 | 5862 | 4951 | 5000 | | | | | | | | | |
| | E.O.R | 9999 | 5:26 | | | | | | | | | | | | | |

Vibrator Electronic _____
 Reference Taper _____ Mode _____ Model _____ % _____
 Reference Phase _____

Remarks: (Additional remarks on back of sheet.)

SKIP FOR RAILROAD TRACKS

Note: Use separate line for each record. Make original and copy. Send original to district geophysicist. Use separate sheet for each seismic line.

Weather: Dry Ground ; Wet ; Rain ; Snow ; Lightning
 Wind: (0-12 MPH) ; (13-24 MPH) ; (25-40 MPH)
 Temperature: _____ °F;
 Trail Conditions _____

Leave Town _____ Leave Field _____ Expm Time _____
 Arrive Field _____ Arrive Town _____ Down Time _____
 Total Travel Time _____ Number Men Rec. _____

Daily Summary
 No Profiles _____ Miles Traversed _____
Total To Date For Month
 No Profiles _____ Miles Traversed _____
 Observer _____ Page 4 of 4