

OBSERVER'S REPORT
DIGITAL VIBROSEIS RECORDER

Petty-Ray Geophysical
Division
Geosource Inc.

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|-------------------------|-----------------------------|--|-------------------------------------|------------------------|
| CLIENT COCORP | AREA MINN LINE #5 | STATE MINN | COUNTY POPE & STEARNS | DATE 8-12-79 |
| CREW NO. 6834 | TERRAIN DIRT ROAD | WEATHER CLEAR to PARTLY CLOUDY | LINE NO. 5 | |

| REC. NO. | SWEEP POINT | PATCH LOCATIONS | CDP SW. | NO VIB | AMP GAIN | TAPE RL. NO. | FILTER | | | REMARKS |
|----------|-------------|-----------------|---------|--------|----------|--------------|--------|------|-----|---|
| | | | | | | | LOCUT | 60 ~ | OFF | |
| 1 | 933 | PULSE | 1 | | | 535 | OUT | IN | | B.O.T. #535 FILE #900-10 SEC. ALONE'S. |
| 2 | 934-935 | DRD | 2 | | | | | | | RECORDER SET UP BETWEEN STRS. #75+76 |
| 3 | 936-939 | DRD | 4 | | | | | | | |
| 4 | 953-954 | Sum Test | 2 | | | | | | | |
| 5 | 960-961 | NRJ Test | 2 | | | | | | | |
| 6 | 932 | Similarity | 1 | 5 | | | | | 50% | |
| 7 | 001 | WINDSTRIP | 1 | | | | | | | CHECKING LINE. |
| 8 | 002 | 1 | 4 | 5 | | | | | 70% | 1-96 CORRELATION MADE ON FILE #002. |
| 9 | 003 | 3 | 6 | 3 | | | | | | |
| 10 | 004 | 5 | 8 | 5 | | | | | | |
| 11 | 005 | 7 | 10 | 7 | | | | | | STRS. #105+106 LINE OFFSET 1320' SOUTH |
| 12 | SKIP | 9 | 12 | 8 | | | | | | V.P. #9 SKIPPED DUE TO HOUSE |
| 13 | 006 | 10 | 13 | 10 | | | | | | V.P. #10 STACKED ON LAST HALF DUE TO HOUSE. |
| 14 | 007 | 11 | 14 | 11 | | 535 | | | | E.O.T. #535 |
| 15 | 008 | 12 | 15 | 12 | | 536 | | | 50% | B.O.T. #536 FILE #900-10 SEC. ALONE'S. V.P. #12 STACKED ON FIRST HALF DUE TO HOUSE. |
| 16 | SKIP | 13 | 16 | 13 | | | | | | V.P. #13 SKIPPED DUE TO HOUSE. |
| 17 | 009 | 15 | 18 | 15 | | | | | 70% | |
| 18 | 010 | 17 | 20 | 17 | | | | | | |
| 19 | 011 | 18 | 21 | 18 | | | | | 50% | V.P. #18 STACKED ON FIRST HALF DUE TO HOUSE. |
| 20 | SKIP | 19 | 22 | 19 | | | | | | V.P. #19 SKIPPED DUE TO HOUSE. |
| 21 | 012 | 21 | 24 | 21 | | | | | 70% | |
| 22 | 013 | 23 | 26 | 23 | | | | | | STR. #121 OPEN DUE TO CHURCH. |
| 23 | 014 | 25 | 28 | 25 | | | | | | |
| 24 | 015 | 27 | 30 | 27 | | 536 | | | | E.O.T. #536 |
| 25 | 016 | 29 | 32 | 29 | | 537 | | | | B.O.T. #537 FILE #900-10 SEC. ALONE'S. |

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| TOTAL SETUPS | TOTAL SWEEPS | TOTAL COVERAGE | TOTAL FIELD TIME | DRIVING TIME | SYSTEM NO. MDS-10 SEG8 MPX-12B |
| SWEEP FREQUENCY 8-40 Hz / 22 SEC. | SWEEP PATTERN CODE #5163 | SWEEPS PER PATTERN 16 | SWEEP PATTERNS PER SETUP 1 | PATCH PATTERN 1111222222211111 | CODE #2125 |
| GEOPHONES PER PATCH 24 | NO. OF RECORDING PATCHES 96 | TYPE VIBRATOR 4-91100 1-9900 | TYPE GEOPHONE ETL-EV22B | FREQUENCY 7.5 Hz | STATION INTERVAL 330' |
| REMARKS 4 M.S. SAMPLE RATE | 42 SEC. RECORD LENGTH. | OBSERVER J.D. SIMMONS / KRAMER | PARTY MGR. | LINE DIR. W → E 1 TO 24 | |

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| CLIENT CDCORP | AREA MINN LINE #5 | STATE MINN | COUNTY POPE + STEARNS | DATE 8-12-79 |
| CREW NO. 6834 | TERRAIN DIRT ROAD | WEATHER CLEAR TO PARTLY CLOUDY | | LINE NO. 5 |

| REC. NO. | SWEEP POINT | PATCH LOCATIONS | CDP SW. | NO VIB | AMP GAIN | TAPE RL. NO. | FILTER | | REMARKS |
|----------|----------------|---------------------|---------------|--------|----------|--------------|--------|------|---|
| | | | | | | | LOCUT | 60 ~ | |
| 1 | 017 | 33 - 128 | 30 | 5 | | 537 | OUT | IN | 50% V.P. # 30 SKIPPED ON FIRST HALF DUE TO HOUSE |
| 2 | SKIP | 34 - 129 | 31 | | | | | | V.P. # 31 SKIPPED DUE TO HOUSE. |
| 3 | 018 | 36 - 130 | 33 | | | | | | 70% |
| 4 | 019 | 38 - 132 | 35 | | | | | | |
| 5 | 020 | 40 - 135 | 37 | | | | | | |
| 6 | 021 | 42 - 137 | 39 | | | | | | |
| 7 | 022 | 44 - 139 | 41 | | | | | | |
| 8 | 023 | 46 - 141 | 43 | | | 537 | | | 50% E.O.T. # 537 DRIVES TURNED TO 50% FOR HOUSE. |
| 9 | 024 | 48 - 143 | 45 | | | 538 | | | B.O.T. # 538 FILE # 900-10 SEC. ALONE'S. |
| 10 | 025 | 50 - 145 | 47 | | | | | | 70% RECORDER MOVE |
| 11 | 026 | 52 - 147 | 49 | | | | | | RECORDER SET UP BETWEEN STNS # 116 & 117. |
| 12 | 027 | 54 - 149 | 10 | | | | | | |
| 13 | 028 | 56 - 151 | 12 | | | | | | 3 RAW SWEEPS MADE ON FILE # 028 (2 FOR QUALITY CONTROL + 1 FOR DR. KAUFMAN) |
| 14 | 029 | 58 - 153 | 14 | | | | | | 1-96 CORRELATION MADE ON FILE # 029 |
| 15 | 030 | 60 - 155 | 16 | | | | | | |
| 16 | 031 | 62 - 157 | 18 | | | 538 | | | E.O.T. # 538 |
| 17 | 032 | 64 - 159 | 20 | | | | | | RECORDED |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | FINISHED FOR THE DAY. |
| 20 | | | | | | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
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| 24 | | | | | | | | | |
| 25 | | | | | | | | | |

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| TOTAL SETUPS | TOTAL SWEEPS | TOTAL COVERAGE | TOTAL FIELD TIME | DRIVING TIME | SYSTEM NO. MPS-10 SEQ B MPX-28 |
| SWEEP FREQUENCY 8-40 Hz / 22 SEC | SWEEP PATTERN CODE # 5163 | SWEEPS PER PATTERN 16 | SWEEP PATTERNS PER SETUP 1 | PATCH PATTERN 1111222222221111 | CODE # 2125 |
| GEOPHONES PER PATCH 24 | NO. OF RECORDING PATCHES 96 | TYPE VIBRATOR 4-9100 1-1900 | TYPE GEOPHONE ETL-EV22B | FREQUENCY 7.5 Hz | STATION INTERVAL 330 |
| REMARKS 4 M.S. SAMPLE RATE | 42 SEC. RECORD LENGTH | OBSERVER J.O. SIMMONS / KRAMER | PARTY MGR. | | |

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Geosource Inc. 3

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| CLIENT COCORP | AREA MINN. LINE # 5 | STATE MINN. | COUNTY STEARNS | DATE 8-13-79 |
| CREW NO. 6834 | TERRAIN Dirt Roads | WEATHER Clear to Partly Cloudy - Windy | | LINE NO. 5 |

| REC. NO. | SWEEP POINT | PATCH LOCATIONS | CDP SW. | NO VIB | AMP GAIN | TAPE RL. NO. | FILTER | | REMARKS |
|--------------|--------------------|---------------------|---------|--------|----------|--------------|--------|------|---|
| | | | | | | | LOCUT | 60 ~ | |
| 1 | 933 | PULSE | 1 | | | 539 | Out | IN | BOT. #539. FILE #900-10 SEC. ALL ONE'S |
| 2 | 935 | EINT | 2 | | | | | | RECORDER SET UP BETWEEN STAS #135 + 136 |
| 3 | 936-939 | DRD | 4 | | | | | | |
| 4 | 934 | Sum Test | 2 | | | | | | |
| 5 | 940 | NRT Test | 2 | | | | | | |
| 6 | 932 | Similarity | 1 | | | | | | 50% |
| 7 | 032 | Wind Strip | 1 | | | | | | CHECKING LINE |
| 8 | 033 | 61 | 64 | 1 | | | | | 70% 1-96 CORRELATION MADE ON FILE # 033. |
| 9 | 034 | 63 | 66 | 3 | | | | | |
| 10 | 035 | 65 | 68 | 5 | | | | | |
| 11 | 036 | 67 | 70 | 7 | | | | | |
| 12 | 037 | 69 | 72 | 9 | | 539 | | | E.D.T. #539 |
| 13 | 038 | 71 | 74 | 11 | | 540 | | | 50% B.D.T. #540 FILE #900-10 SEC. ALL ONE'S. |
| 14 | SKIP | 73 | 76 | 13 | | | | | |
| 15 | SKIP | 75 | 78 | 15 | | | | | V.P. #73 + 75 SKIPPED DUE TO HOUSE. |
| 16 | 039 | 76 | 79 | 16 | | | | | |
| 17 | 040 | 77 | 80 | 17 | | | | | 70% |
| 18 | 041 | 78 | 81 | 18 | | | | | |
| 19 | 042 | 79 | 82 | 19 | | | | | |
| 20 | 043 | 80 | 83 | 20 | | | | | |
| 21 | 044 | 81 | 84 | 21 | | | | | |
| 22 | SKIP | 83 | 86 | 23 | | | | | |
| 23 | SKIP | 85 | 88 | 25 | | | | | V.P. #83 + 85 SKIPPED DUE TO WALK ONLY PERMIT (CROSS COUNTRY) |
| 24 | 045 | 86 | 89 | 26 | | 540 | | | V.P. #86 STUCK ON LAST HALF DUE TO CROSS COUNTRY. E.D.T. #540 |
| 25 | 046 | 87 | 90 | 27 | | 541 | | | B.D.T. #541 FILE #900-10 SEC. ALL ONE'S. |

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| TOTAL SETUPS | TOTAL SWEEPS | TOTAL COVERAGE | TOTAL FIELD TIME | DRIVING TIME | SYSTEM NO. MDS-10 SEGB MPX-128 |
| SWEEP FREQUENCY 8-40 Hz / 22 SEC | SWEEP PATTERN CODE # 5163 | SWEEPS PER PATTERN 16 | SWEEP PATTERNS PER SETUP 1 | PATCH PATTERN 2222 2222 (CODE # 2125) | |
| GEOPHONES PER PATCH 24 | NO. OF RECORDING PATCHES 96 | TYPE VIBRATOR 4-9100 1-9800 | TYPE GEOPHONE ETL-LV22B | FREQUENCY 75 Hz. | STATION INTERVAL 350' |
| REMARKS 4 MS SAMPLE RATE | 42 SEC RECORD LENGTH. | OBSERVER SIMMONS/KRAMER | PARTY MGR. | LINE DIR. 1 TO 24 W → E | |

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Geosource Inc. 5

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|-------------------------|-------------------------------|--|--------------------------|------------------------|
| CLIENT COCORP | AREA MINN. LINE # 5 | STATE MINN. | COUNTY STEARNS | DATE 8-14-79 |
| CREW NO. 6834 | TERRAIN DIRT ROADS | WEATHER CLEAR to PARTLY CLOUDY-WINDY | | LINE NO. 5 |

| REC. NO. | SWEEP POINT | PATCH LOCATIONS | CDP SW. | NO VIB | AMP GAIN | TAPE RL. NO. | FILTER | | REMARKS |
|--------------|---------------------|--------------------|---------|--------|----------|--------------|--------|------|--|
| | | | | | | | LOCUT | 60 ~ | |
| 1 | PULSE | 1 - 6 SEC | | | | 542 | OUT | IN | RECORDED SETUP BETWEEN STA'S 189 + 190 |
| 2 | FINI | 2 - " " | | | | | | | |
| 3 | DRD | 4 - " " | | | | | | | |
| 4 | SUM TEST | 2 - " " | | | | 542 | | | E.O.T. # 542 |
| 5 | NRT TEST | 2 - " " | | | | 543 | | | B.O.T. # 543. FILE # 900-10 SEC. ALL ONE'S |
| 6 | Similarity | 1 - 22 SEC | | 4 | | | | | 50% VIB # 1266? DOWN DUE TO BAD AXLE SEAL. |
| 7 | Wind Strip | 1 - 6 SEC | | | | | | | CHECKING WIND |
| 8 | 063 117 | 120 - 215 | 3 | 4 | | | | | 70% 1-96 CORRELATION MADE ON FILE # 063. |
| 9 | 064 118 | 121 - 216 | 4 | | | | | | |
| 10 | SKIP 119 | 122 - 217 | 5 | | | | | | |
| 11 | SKIP 121 | 124 - 219 | 7 | | | | | | V.P. # 119 - 123 SKIPPED DUE TO HOUSE + CHURCH. |
| 12 | SKIP 123 | 126 - 221 | 9 | | | | | | |
| 13 | 065 124 | 127 - 222 | 10 | | | | | | 40% V.P. # 124 STACKED ON LAST HALF DUE TO HOUSE. |
| 14 | 066 125 | 128 - 223 | 11 | | | | | | 70% |
| 15 | 067 126 | 129 - 224 | 12 | | | | | | |
| 16 | 068 127 | 130 - 225 | 13 | | | | | | |
| 17 | 069 129 | 132 - 227 | 15 | | | 543 | | | E.O.T. # 543 |
| 18 | 070 131 | 134 - 229 | 17 | | | 544 | | | B.O.T. # 544 FILE # 900-10 SEC. ALL ONE'S |
| 19 | 071 133 | 136 - 231 | 19 | | | | | | V.P. # 133 STACKED ON FIRST HALF DUE TO HOUSE. |
| 20 | SKIP 135 | 138 - 233 | 21 | | | | | | V.P. # 135 SKIPPED DUE TO HOUSE |
| 21 | 072 137 | 140 - 235 | 23 | | | | | | V.P. # 137 STACKED ON LAST HALF DUE TO HOUSE. |
| 22 | 073 138 | 141 - 236 | 24 | | | | | | |
| 23 | 074 139 | 142 - 237 | 25 | | | | | | |
| 24 | 075 141 | 144 - 239 | 27 | | | | | | V.P. # 141 STACKED ON LAST HALF DUE TO WATER WELL. |
| 25 | 076 143 | 146 - 241 | 29 | | | | | | |

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| TOTAL SETUPS | TOTAL SWEEPS | TOTAL COVERAGE | TOTAL FIELD TIME | DRIVING TIME | SYSTEM NO. MDS-10 SEGB MPX-128 |
| SWEEP FREQUENCY 8-40 HZ | SWEEP PATTERN CODE # 4163 | SWEEPS PER PATTERN 16 | SWEEP PATTERNS PER SETUP 1 | PATCH PATTERN 2222 X 2222 (CODE 2125) | |
| GEOPHONES PER PATCH 24 | NO. OF RECORDING PATCHES 96 | TYPE VIBRATOR 3-4100 1-4900 | TYPE GEOPHONE ET6 - EV 223 | FREQUENCY 25 HZ. | STATION INTERVAL 330' |
| REMARKS 4 MS. SAMPLE RATE 4/2 SEC. RECORD LENGTH. | | OBSERVER/JO SIMMONS/KRAMER | | PARTY MGR. | |

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| CLIENT COCORP | AREA MINN. LINE #5 | STATE MINN. | COUNTY STEARNS | DATE 8-14-79 |
| CREW NO. 6834 | TERRAIN Dirt Roads | WEATHER Clear to Partly Cloudy - Windy | | LINE NO. 5 |

| REC. NO. | SWEEP POINT | PATCH LOCATIONS | CDP SW. | NO VIB | AMP GAIN | TAPE RL. NO. | FILTER | | REMARKS |
|----------|-------------|-----------------|---------|--------|----------|--------------|--------|------|--|
| | | | | | | | LOCUT | 60 ~ | |
| 1 | 145 | 148 - 243 | 31 | 4 | | 544 | OUT IN | 70% | E.O.T. #544 |
| 2 | 147 | 150 - 245 | 33 | | | 545 | | | B.O.T. #545 FILE #900-10SEC. ALONES. FILE #078 WIND STRIP. |
| 3 | 149 | 152 - 247 | 35 | | | | | | 1-96 CORRELATION MADE ON FILE #080. |
| 4 | 151 | 154 - 249 | 37 | | | | | | |
| 5 | 153 | 156 - 251 | 39 | | | | | | IRAW SWEEP MADE ON FILE #082. |
| 6 | 155 | 158 - 253 | 41 | | | | | | |
| 7 | 156 | 159 - 254 | 42 | | | | | 40% | V.P. #156 STACKED ON FIRST HALF DUE TO HOUSE |
| 8 | SKIP | 160 - 255 | 43 | | | | | | V.P. #157 SKIPPED DUE TO HOUSE. |
| 9 | 159 | 162 - 257 | 45 | | | | | 70% | |
| 10 | 161 | 164 - 259 | 47 | | | 545 | | | E.O.T. #545 |
| 11 | 162 | 165 - 260 | 48 | | | 546 | | | B.O.T. #546 FILE #900-10SEC. ALONES. |
| 12 | 163 | 166 - 261 | 49 | | | | | | RECORDER MOVE RECORDER SET UP BETWEEN STAS. #4195 |
| 13 | SKIP | 168 - 263 | — | | | | | | V.P. #165 SKIPPED DUE TO HOUSE. |
| 14 | 167 | 170 - 265 | 48 | | | 546 | | | E.O.T. #546 FINISHED FOR THE DAY. |
| 15 | | | | | | | | | E.O.L. #5 |
| 16 | | | | | | | | | |
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| TOTAL SETUPS | TOTAL SWEEPS | TOTAL COVERAGE | TOTAL FIELD TIME | DRIVING TIME | SYSTEM NO. MDS-10 SEGB MPX-128 |
| SWEEP FREQUENCY 8-40 Hz / 22 SEC. | SWEEP PATTERN CODE #4163 | SWEEPS PER PATTERN 16 | SWEEP PATTERNS PER SETUP 1 | PATCH PATTERN 2222 2222 (CODE #2125) | |
| GEOPHONES PER PATCH 24 | NO. OF RECORDING PATCHES 96 | TYPE VIBRATOR 3-4100 1-4900 | TYPE GEOPHONE ETH-EV22B | FREQUENCY 7.5 Hz. | STATION INTERVAL 330' |
| REMARKS 4ms. SAMPLE RATE 42 SEC. RECORD LENGTH | | OBSERVER SIMMONS/KRAMER | | PARTY MGR. | |