Attachment L-1

Geophysical Investigation of Bayo Canyon Aggregate Area
Los Alamos, New Mexico
prepared by ARM Geophysics
(on CD included with this document)

Geophysical Investigation of Bayo Canyon Aggregate Area Los Alamos, New Mexico

ARM Project No.: 07254

December 14, 2007

Prepared for:

TerranearPMC
1911 Central Ave.
Los Alamos, NM 87544

Prepared by:

1129 West Governor Road, PO Box 797
Hershey, PA 17033-0797
(717) 533-8600

1 EXECUTIVE SUMMARY

ARM Geophysics performed a non-intrusive geophysical investigation at Bayo Canyon, Los Alamos, New Mexico from August 14th through 22nd, 2006. These surveys were performed to identify buried material and former structures in Technical Area (TA) 10, located 0.5 mi west of the Los Alamos County Sewage Treatment Plant. To achieve this objective surveys were performed using terrain conductivity (EM31), high sensitivity metal detector (EM61), and digital ground penetrating radar (GPR) surveys.

Survey areas were selected by TerranearPMC and were based on historical documentation, the work plan and infield decisions.

These areas include:

- **Areas within Consolidated Unit (CU) 10-002(a)-99** consists of multiple sites, many of which are only indirectly related by historical process. The CU consists of now-removed liquid disposal pits and lines and the existing SWMU 10-007 debris landfill. The following are the primary geophysical targets in the CU:
  - *Building Debris Landfill (SWMU 10-007)*
  - *Alleged Septic Leach Field*
  - *Buried Pipes and Structures Associated with former Radiochemistry Building*
- **SWMU 10-004(a) Former Septic Tank and Related Structures.**
- **Suspect Landfill AOC 10-009**

The geophysical targets of this investigation, exclusive of SWMU 10-007, are assumed to have been removed during the D& D activities conducted in the 1960s. However, more data was required to confirm removal and/or more precise location of remaining structures if present. The results of the investigation corroborate the removal of the target structures since no geophysical anomalies were observed that would suggest their presence.

The construction debris buried in SWMU 10-007 during D& D activities was associated with the demolition of surface structures. The geophysical techniques were applied in this area to delineate the extent of the buried construction debris. The EM results identified a kidney-shaped anomaly that is attributed to the buried material and disturbed subsurface conditions. GPR data acquired over this same area identified various anomalous shapes, including tabular bodies, that are interpreted as buried demolition debris.

TABLE OF CONTENTS

1.0 Executive Summary i

2.0 Introduction and Scope 1

3.0 Methodology 2
- 3.1. Geodetic Positioning 2
- 3.2. Terrain Conductivity (EM31) 2
- 3.3. High-sensitivity Metal Detector (EM61) 2
- 3.4. Ground Penetrating Radar (GPR) 3

4.0 Results and Discussion 4
- 4.1. central Area of Consolidated Unit 10-002(a)-99 4
  - 4.1.1. Building Debris Landfill (SWMU 10-007) 4
  - 4.1.2. Alleged Septic Leach Field 4
  - 4.1.3. Buried Pipes Associated with Radiochemistry Building and SWMU 10-002(b) 4
- 4.2. SWMU 10-004(a) 5
- 4.3. Former Landfill AOC 10-009 5

5.0 Conclusions 6

LIST OF FIGURES

Figure 1 – Buried metal anomaly (EM61) map of SWMU 10-007, Building Debris Landfill
Figure 2 – Terrain conductivity (EM31) map of SWMU 10-007, Building Debris Landfill
Figure 3 - GPR line location map - Alleged Septic Leach Field
Figure 4 - Terrain conductivity map of Former Radiochemistry Building area & SWMU 10-004(b)
Figure 5 – Buried metal anomaly map (EM61) of Former Radiochemistry Building area & SWMU 10-002(b)
Figure 6 - Terrain conductivity map (EM31) of SWMU 10-004(a)
Figure 7 - Buried metal anomaly map (EM61) of SWMU 10-004(a)
Figure 8 - Terrain conductivity map (EM31) of Suspect Landfill AOC 10-009
Figure 9 - Buried metal anomaly map (EM61) Suspect Landfill AOC 10-009

LIST OF APPENDICES

Appendix A: Interpreted GPR profiles

2 INTRODUCTION AND SCOPE

ARM Geophysics performed a non-intrusive geophysical investigation at Bayo Canyon, Los Alamos, New Mexico from August 14th through 22nd, 2006. These surveys were performed to identify buried material and former structures in Technical Area (TA) 10, located 0.5 mi west of the Los Alamos County Sewage Treatment Plant. To achieve this objective surveys were performed using electrical magnetic (EM) terrain conductivity (EM31), high sensitivity metal detector (EM61), and digital ground penetrating radar (GPR) surveys.

Survey areas were selected by TerranearPMC and were based on historical documentation. These areas include:

- **Areas within Consolidated Unit (CU) 10-002(a)-99** consists of multiple sites, many of which are only indirectly related by historical process. The CU consists of now-removed liquid disposal pits and lines and the existing SWMU 10-007 debris landfill. The following are the primary geophysical targets in the CU:
  - *Building Debris Landfill (SWMU 10-007)*
  - *Alleged Septic Leach Field*
  - *Buried Pipes and Structures Associated with former Radiochemistry Building*
- **SWMU 10-004(a) former septic tank and related structures**
- **Suspect Landfill AOC 10-009**

This report presents the methods of the investigation in Section 3. A discussion of the results is presented in Section 4. Finally, the conclusions of the investigation is presented in Section 5.

3 METHODOLOGY

All operational methods used were in accordance to proper procedures as outlined in the operation manual or operating instructions for each respective instrument. Methodology is detailed below for the geophysical instruments used and any accessory equipment.

3.1 GEODETIC POSITIONING

All geophysical instruments were integrated with a differential global positioning system (GPS) to allow real-time navigation along planned survey routes. This provides accurate location of geophysical measurements, eliminates the need to establish a local reference grid and allows direct data integration with LANL's geographic information system (GIS). The geographic positions of all measurement points were acquired at 1-s intervals as the geophysical data were collected. The data were acquired using a differential system, which allowed accurate positioning in real-time with accuracy of less than 1 meter. All geographic data are presented in New Mexico State Plane Coordinate System, North American Datum 1983, Central Zone, US survey feet.

3.2 TERRAIN CONDUCTIVITY (EM31)

The EM31 instrument uses the principle of electromagnetic induction to measure the electrical conductivity of the ground. Lateral changes in terrain conductivity can indicate the presence of disturbed ground, disposal areas, buried metallic and non-metallic waste, and impacted ground water. In addition, the method is also useful in detecting linear metal objects such as utilities.
A Geonics EM31-MK2 was used to conduct the survey. The EM31 operates in accordance with the theory of operation at low induction numbers. An alternating current is passed through a transmitter coil to induce eddy currents into the ground below the instrument. These eddy currents generate a secondary magnetic field. The quadrature-phase component of the induced secondary magnetic field is detected by a receiver coil and measured by the instrument. The measured response is linearly related to the terrain conductivity. The instrument converts the measured signal and displays it as terrain conductivity in millisiemens per meter (mS/m).
For this investigation, EM31 data were recorded at approximately 2-ft intervals along lines spaced approximately 10-ft apart. Higher resolution coverage was completed in selected target areas using a 5-ft line spacing. Line and station separation sometimes varied depending upon surface obstructions such as the presence of cultural interference, buildings, and dense vegetation. Geodetic coordinates were recorded at 1-s intervals using an integrated GPS. A base station free from cultural interference, such as aboveground metal objects and overhead power lines, was occupied at the beginning and end of each survey day to calibrate the instrument and perform system functional tests. During these system tests, battery, phasing, and sensitivity checks were performed.

3.3 HIGH-SENSITIVITY METAL DETECTOR (EM61)

Buried metal objects can be effectively located using a Geonics EM61-MK2 High-Sensitivity Metal Detector. The EM61 is a time domain electromagnetic system that can discriminate between conductive soils and metal objects. It has numerous advantages over other commonly used metal detection devices. For example, it is significantly less sensitive to cultural interference.
The EM61 generates rapid electromagnetic pulses and measures the subsurface response between pulses. Secondary EM fields are generated in the ground after each pulse. These fields dissipate rapidly in earth materials but remain for a longer time in buried metal objects. The EM61 measures the prolonged metal response only after the earth response has dissipated. This response is measured and displayed in millivolts (mV).
For this investigation, data were collected at less than 2-ft intervals along lines spaced approximately 10-ft apart. Higher resolution coverage was completed in selected areas using a 5-ft line spacing. Line and station separation sometimes varied depending upon surface

obstructions. Geodetic coordinates were recorded at 1-s intervals using an integrated GPS so each measurement point could be accurately located.

3.4 GROUND PENETRATING RADAR (GPR)

The GPR technique uses the transmission and reflection of radio waves to image objects beneath the ground surface. The technique responds to changes in the electrical properties of the earth or buried materials. A GPR target must possess electrical characteristics that are different from the surrounding media in order to be detected. When the transmitted wave encounters an anomalous object or layer, the wave is reflected back to the surface where it is recorded and analyzed. The waves are transmitted rapidly such that a continuous subsurface image is generated as the transmitter is pulled along the ground surface.

The GPR survey was performed using a digital SIR-3000 Subsurface Interface Radar System, manufactured by Geophysical Survey Systems, Inc. Following initial field tests to determine maximum penetration and sufficient resolution, a 200 MHz transducer was chosen to perform the detailed survey. Data were digitally recorded, displayed, and analyzed during acquisition to allow real-time interpretation. Line locations were chosen based on historical locations of target features such as pits and shafts or suspect buried features, such as a leach field.

In-field signal velocity calculations and depth calibrations were performed by recording two-way signal travel times over objects with known depths. In addition, hyperbolic fitting was performed by computer to calculate signal travel time and more accurately estimate target depths.

4 RESULTS AND DISCUSSION

4.1 CENTRAL AREA OF CONSOLIDATED UNIT 10-002(A)-99

4.1.1 BUILDING DEBRIS LANDFILL (SWMU 10-007)

The purpose of investigating the Building Debris Landfill was to delineate the lateral extent of the disposal area. To achieve this objective, terrain conductivity (EM31), high sensitivity metal detector (EM61), and ground penetrating radar (GPR) techniques were used.

Figure 1 presents a plan map of the EM61 data. These data show high amplitude anomalies and abrupt lateral variations that suggest the presence of buried metal objects. Since the EM61 only responds to metal objects, values above background indicate the presence of metal. The results presented in Figure 1 show a kidney-shaped anomaly in the western portion of the survey area that is consistent with the suspected location of the debris landfill. Additional anomalies (reddish to pink in color) located near the eastern border of this survey area are attributed to interference from fence posts and other metal objects that were being temporarily stored there.

Figure 2 presents a plan map of the EM31 data, which generally conforms with the EM61 data. The interpreted boundary of the debris landfill was refined using the GPR data. Nine GPR lines were run in a radial pattern over the suspected landfill boundaries. The GPR data is presented in Appendix A. The results generally corroborate the EM data with a one exception. The area near GPR line 65 appears to be outside the main EM anomaly. However, the GPR results indicate an anomaly exists outside the interpreted EM anomaly area. It is likely that the source of the GPR anomaly is nonmetallic (probably concrete) and therefore did not produce a significant EM response. The debris landfill boundary shown in Figure 1 is a combined interpretation of all geophysical data sets (EM31, EM61 and GPR). The inferred area of the debris landfill is 6010 square feet.

4.1.2 ALLEGED SEPTIC LEACH FIELD

Historical documents indicate a former septic leach field exists northeast of the Central Area. The alleged leach field was apparently associated with structures that were removed from the area that is now considered the Central Area (within the fenced boundary). Based on ARM's professional judgment and experience with these types of structures at LANL, they usually contained no metal and cannot be mapped using EM techniques. For this reason only GPR was used. Numerous GPR lines were collected in an attempt to identify any existing buried pipelines extending into the suspect area. In addition, lines were run to look for lateral variations that may be associated with disturbed subsurface conditions. The locations of the GPR lines are shown in Figure 3.

Detailed computer analysis of the GPR data showed no anomalies that could be confidently attributed to the alleged leach field.

4.1.3 BURIED PIPES ASSOCIATED WITH RADIOCHEMISTRY BUILDING AND SWMU 10-002(B)

Historical documents show the presence of buried pipes extending from the former Radiochemistry Building to a septic tank(s) located north of the building and within the present Central Area. EM data were acquired over these areas as shown in the terrain conductivity (EM-31) map (Figure 4). These results do not show any linear anomalies that would suggest the presence of pipelines. GPR data were acquired over these areas as well but no anomalies were observed that could be confidently attributed to pipelines.

SWMU 10-002(b) was a solid and liquid waste pit located on the south side of the radiochemistry laboratory building. At the time of this investigation, a large (~4-inch) metal pipe with elbow joint was visually observed at the surface on at east side of the suspected pit

location (this pipe has since been removed). EM61 data were acquired over the area in an attempt to map any buried metal objects such as tanks or pipes. The EM61 data are shown in Figure 5. The only anomalies observed in this area were associated with surface interference from the pipe observed at the ground surface.
GPR data were also acquired over the area shown in Figure 5, but no evidence of a buried structure was observed and delineating a disturbed area was not possible. Finally, radiofrequency pipe locator methods were used in an attempt to trace the possible subsurface route of the exposed pipe, but no consistent signal was observed.

4.1.4 SWMU 10-004(A)

EM and GPR techniques were used at SWMU 10-004(a) to detect any subsurface anomaly that may be attributed to buried structures. The terrain conductivity data are shown in Figure 6. The high amplitude anomaly near the center of the survey area is attributed to surface metal interference caused by equipment temporarily stored at the surface in this area. Similarly, the EM61 data shown in Figure 7 also shows this interference. No other EM anomalies were observed that could be attributed to buried structures or pipes. GPR data (lines 53, 54, 55 on Figure 7) were acquired over a subtle linear EM anomaly, but the results showed no evidence of buried objects.

4.2 SUSPECT LANDFILL AOC 10-009

The suspect landfill area was surveyed with EM and GPR techniques in an attempt to delineate the lateral extent of the alleged disposal area. The terrain conductivity data (EM31) is shown in Figure 8. These data exhibit a halo of high conductivities associated with interference from the surrounding chain-link fence. No other anomaly inside the chain-link fence interference suggest the presence of buried debris. The EM61 data shown in Figure 9 shows a similar response; no significant target anomalies were observed. A previous radiological survey identified a "hotspot" within the survey area (stripped area in figures). ARM relocated in this area using GPS during the geophysical investigations. Further visual observations of this area revealed the presence of disseminated quantities of mm-size yellow material exposed at the surface. GPR data were acquired over this area to identify possible buried materials. The GPR results showed no evidence that would suggest the presence of a significant quantity of buried debris.

5 CONCLUSIONS

The targets of this geophysical investigation for SWMU 10-004(b), 10-004(a), 10-002(b) and the leach field are assumed to have been removed during the D&D operations of surface and buried structures in the 1960s. However, more data was required to confirm this. The results of the current investigation corroborate the removal of the target structures (or that they never existed) since no geophysical anomalies were observed that would suggest their presence.
The geophysical investigation of the suspect landfill at AOC 10-009 revealed no anomaly or anomalous data that could be attributed to buried material or debris.
Finally geophysical techniques were applied to SWMU 10-007 to delineate the extent of the buried construction debris known to exist in the area.. The EM results identified a kidney shaped anomaly that was attributed to buried material and disturbed subsurface conditions. GPR data acquired over this same area identified various anomaly shapes including tabular bodies that are interpreted as demolition debris. The inferred area of the debris landfill is 6010 square feet.

FIGURES

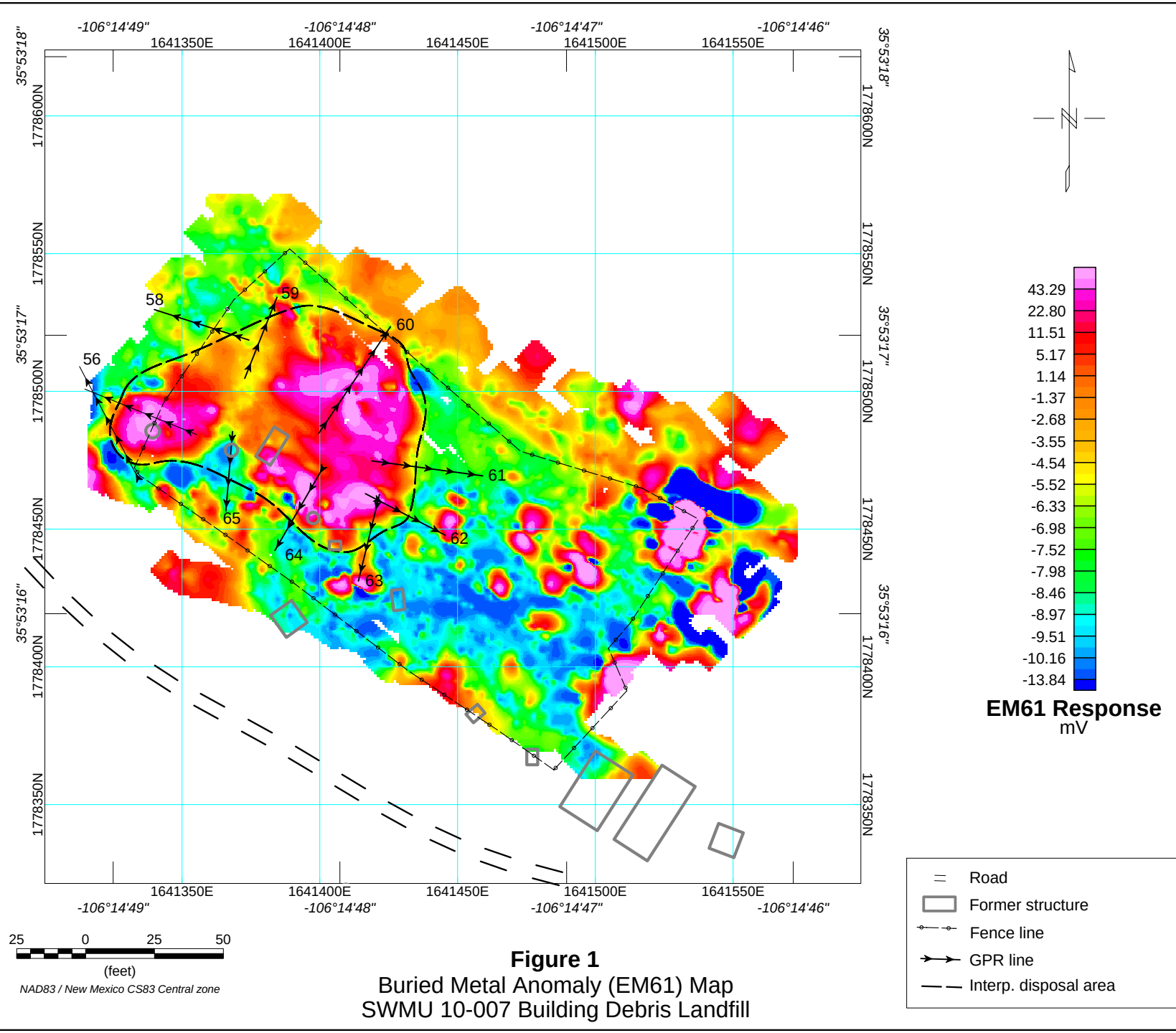


Figure 1
Buried Metal Anomaly (EM61) Map
SWMU 10-007 Building Debris Landfill

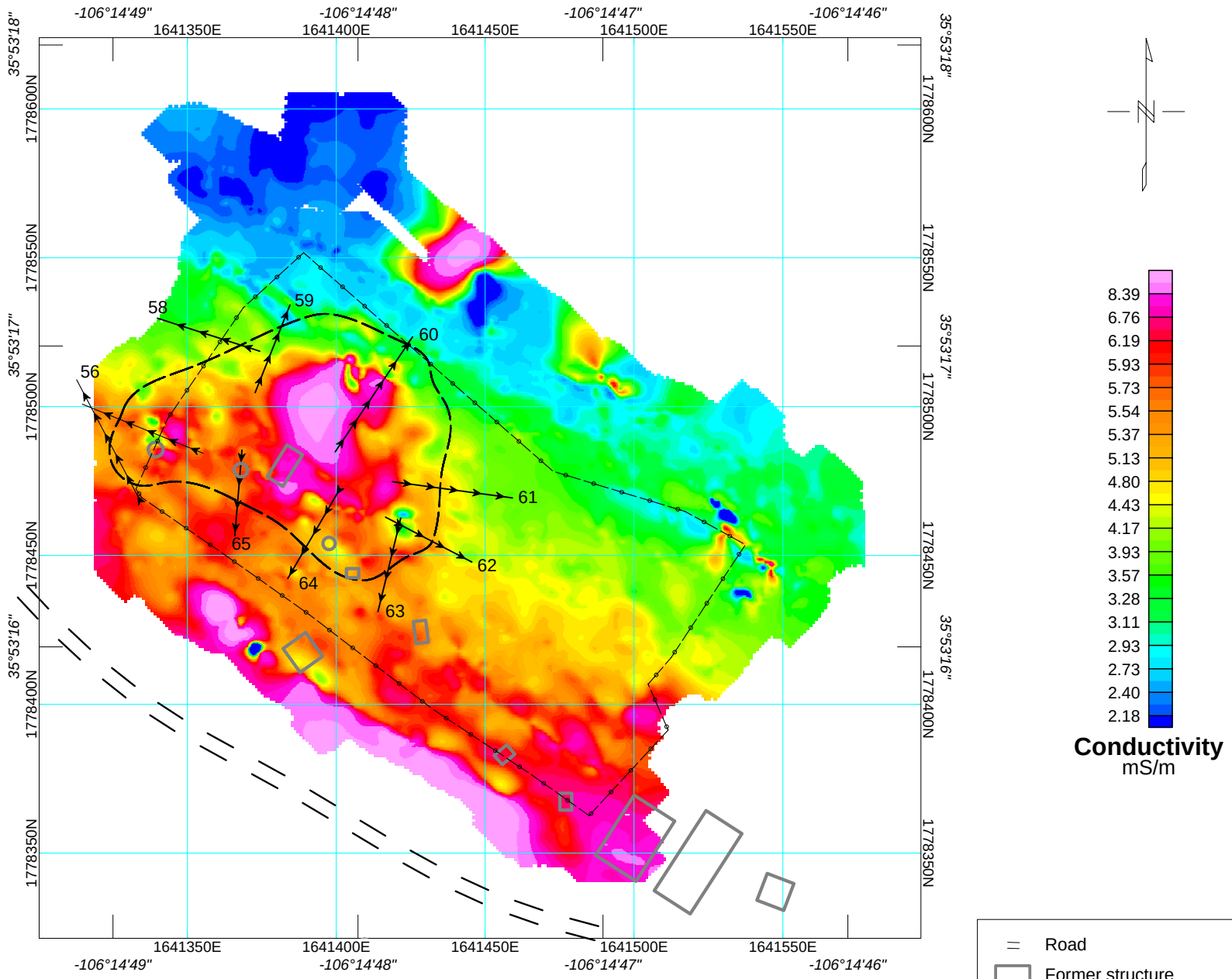


Figure 2

Terrain Conductivity (EM31) Map
SWMU 10-007 Building Debris Landfill

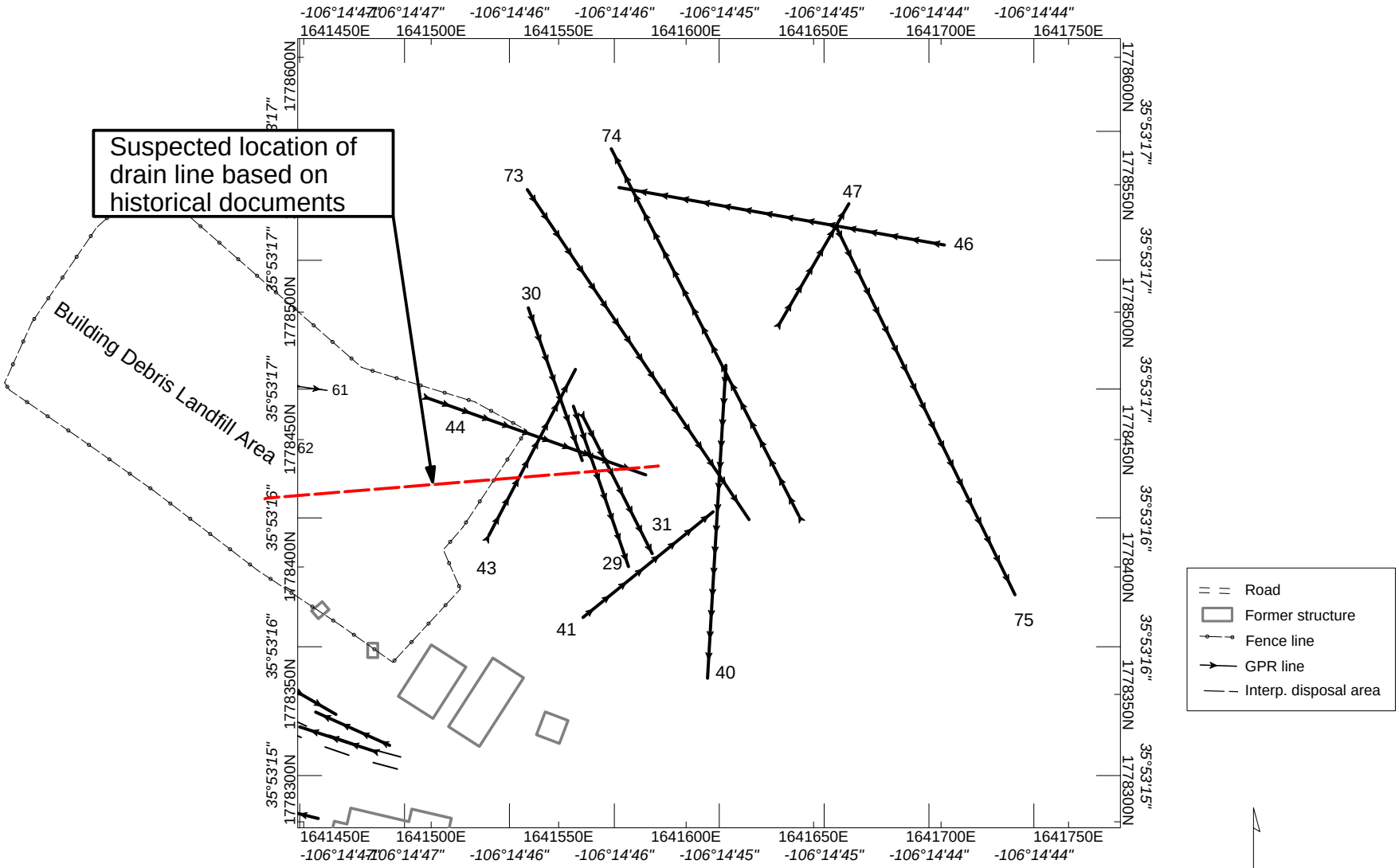
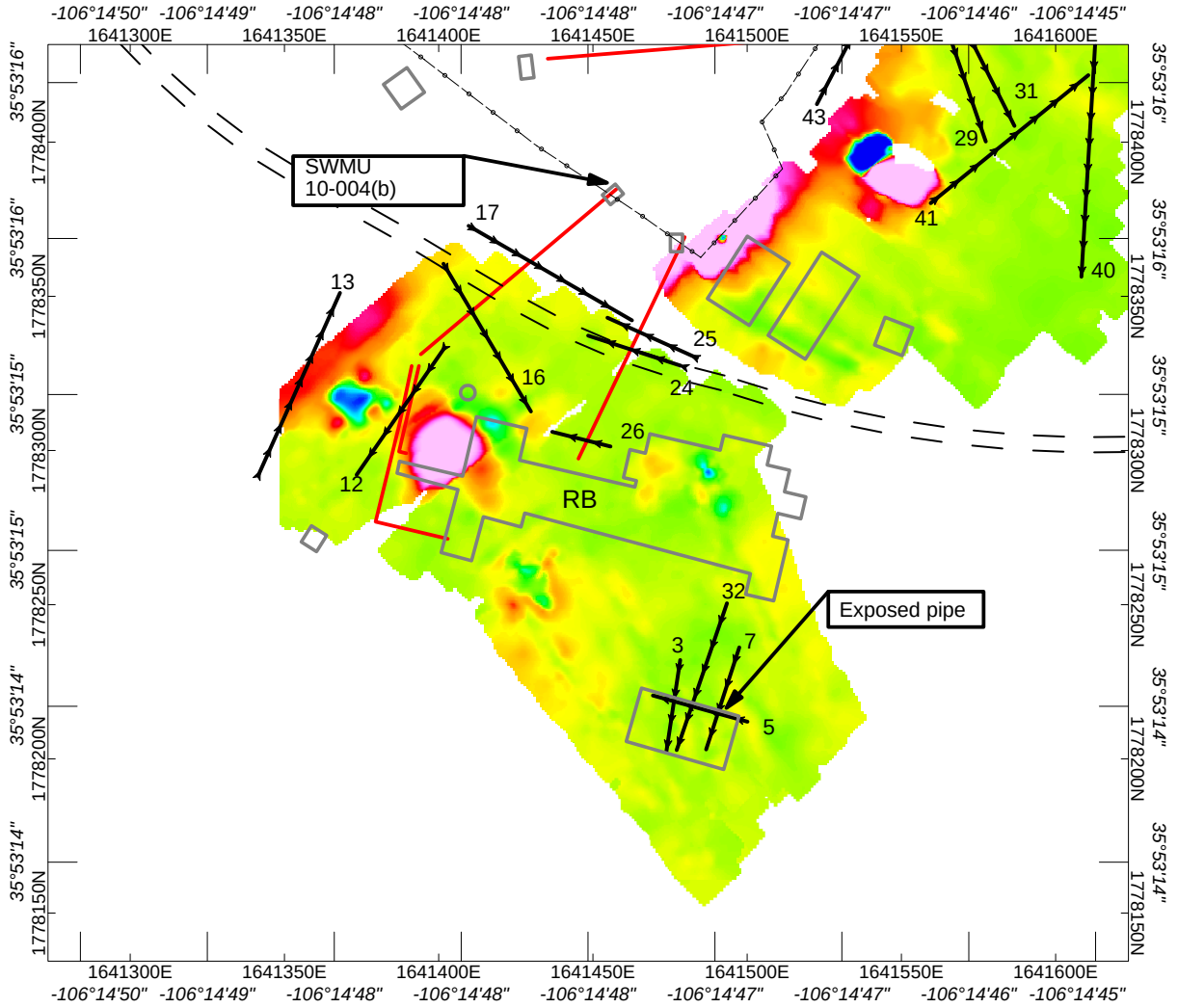


Figure 3

GPR Line Location Map
Alleged Septic Leach Field



Terrain Conductivity

mS/m

-4.09 -0.00 1.35 2.25 3.07 3.95 4.90 6.20

25 0 25 50 75

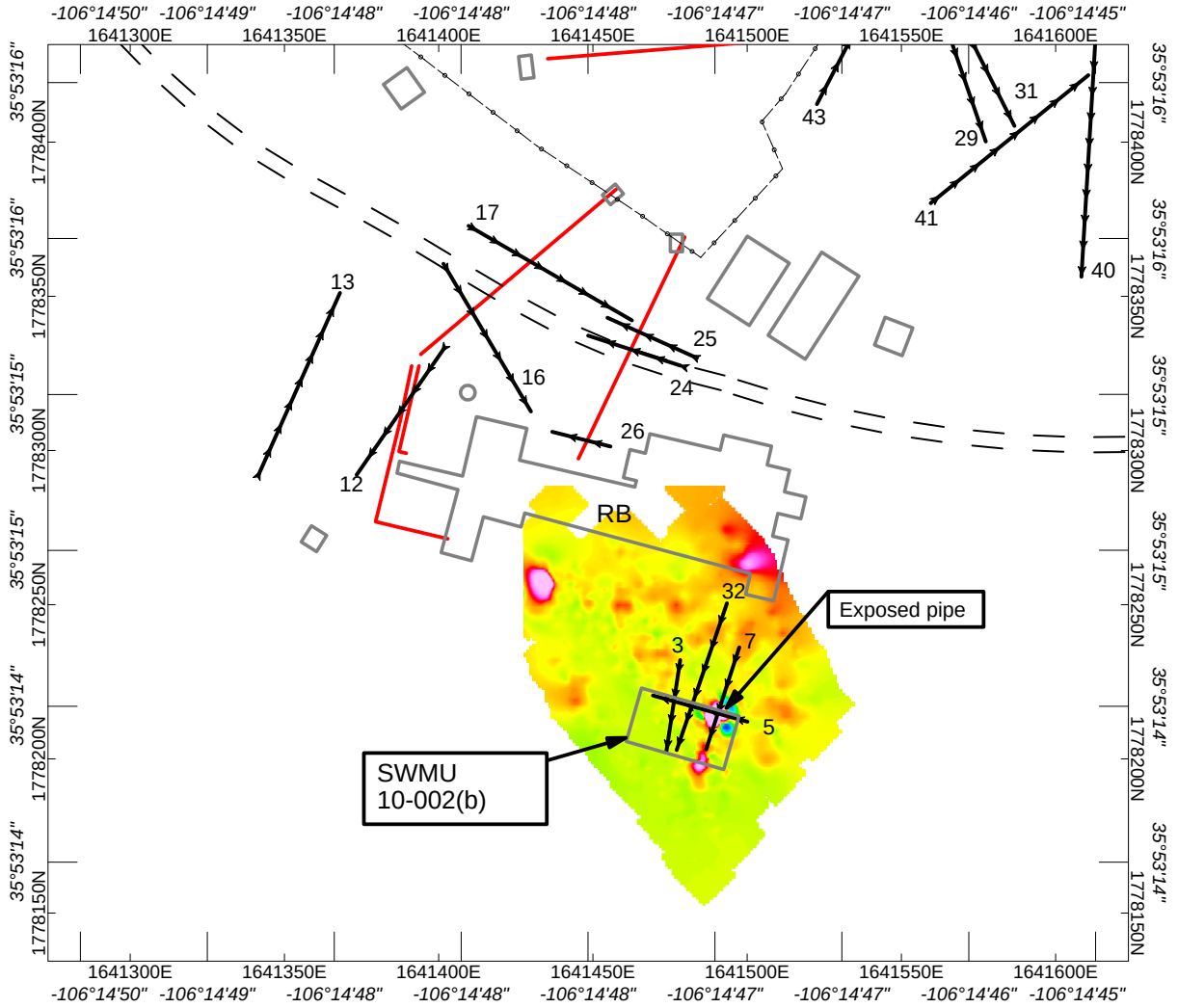
(feet)

NAD83 / New Mexico CS83 Central zone

- Road
- Former structure
- Fence line
- GPR line
- Interp. disposal area
- Buried pipe shown on historical drawings

Figure 4

Terrain Conductivity (EM31) Map
Former Radiochemistry Building (RB) Area
& SWMU 10-004(b)



EM61 Response

mV

-123.44 -36.82 -11.43 9.48 25.66 48.81 89.63

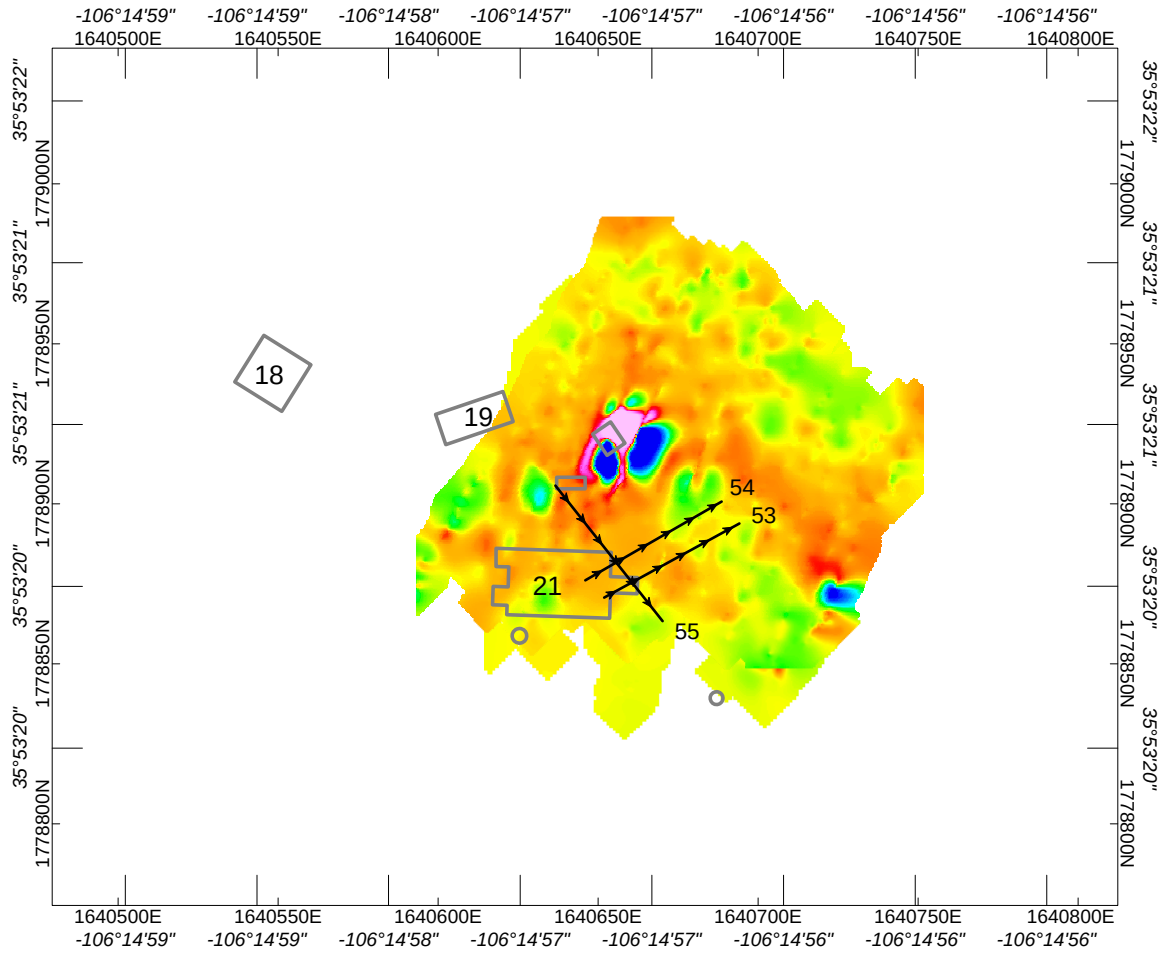
25 0 25 50 75

(feet)

NAD83 / New Mexico CS83 Central zone

Road
Former structure
Fence line
GPR line
Interp. disposal area
Buried pipe shown on historical drawings

Figure 5
Buried Metal Anomaly (EM61) Map
Former Radiochemistry Building (RB) Area
SWMU 10-002(b)



Terrain Conductivity

mS/m

0.63 1.65 1.98 2.23 2.45 2.67 2.92 3.22 3.86

25 0 25 50 75

(feet)

NAD83 / New Mexico CS83 Central zone

Road

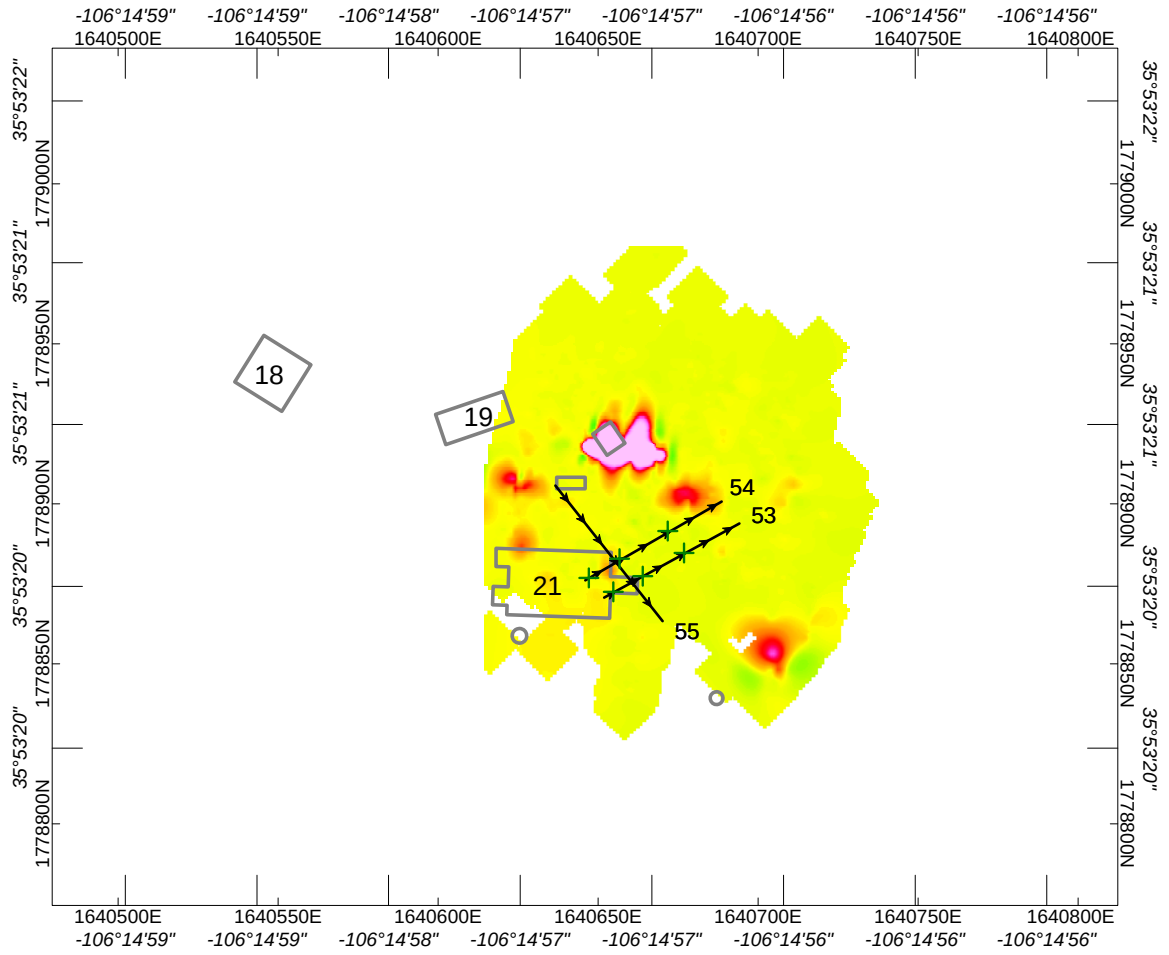
Former structure

Fence line

GPR line

Figure 6

Terrain Conductivity (EM31) Map
SWMU 10-004(a)



EM61 Response

mV

-343.64 -102.75 -23.01 36.52 92.45 166.51

25 0 25 50 75

(feet)

NAD83 / New Mexico CS83 Central zone

Road

Former structure

Fence line

GPR line

Figure 7

Buried Metal Anomaly (EM61) Map

SWMU 10-004(a)

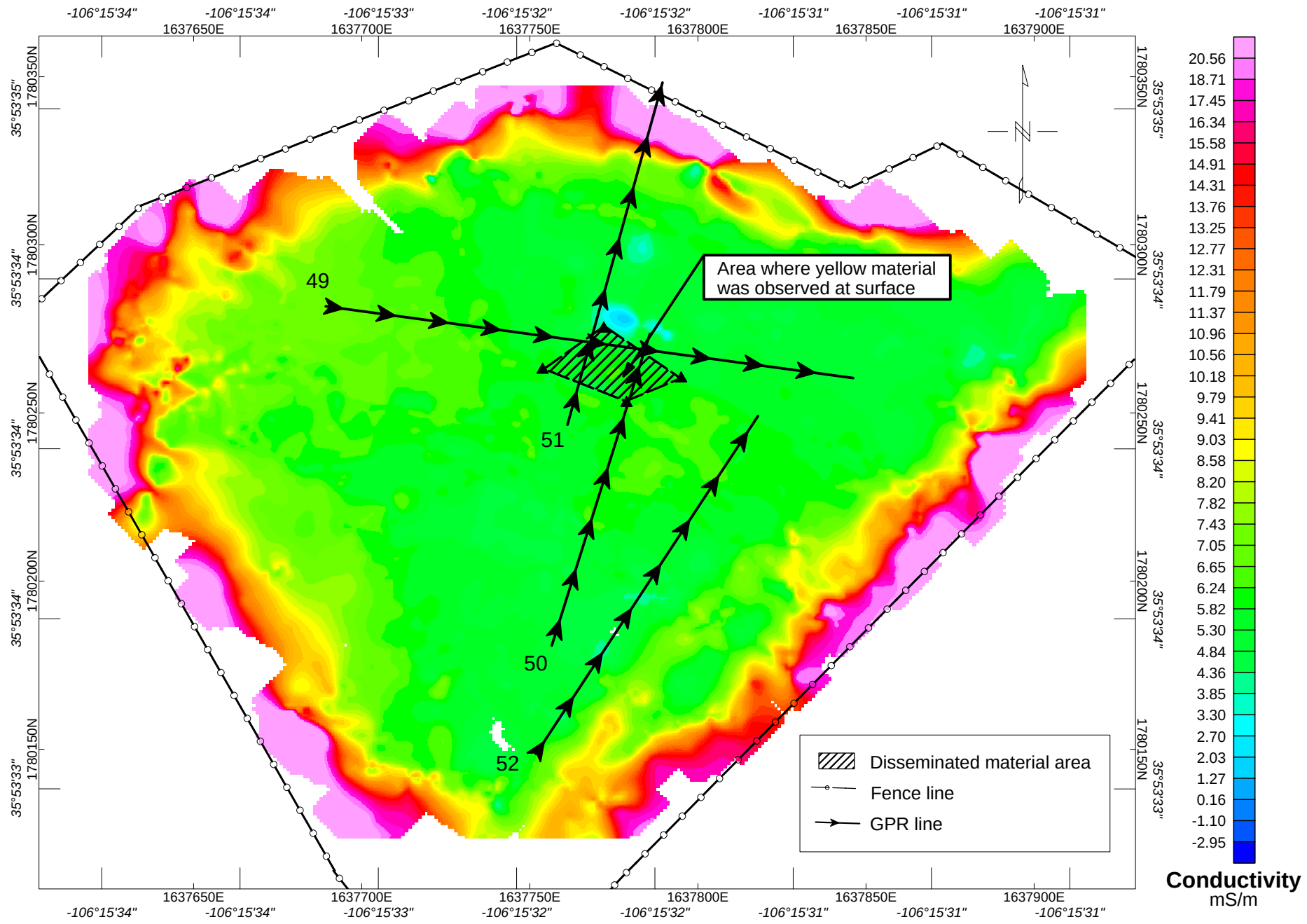


Figure 8
Terrain Conductivity (EM31) Map
Suspect Landfill AOC 10-009

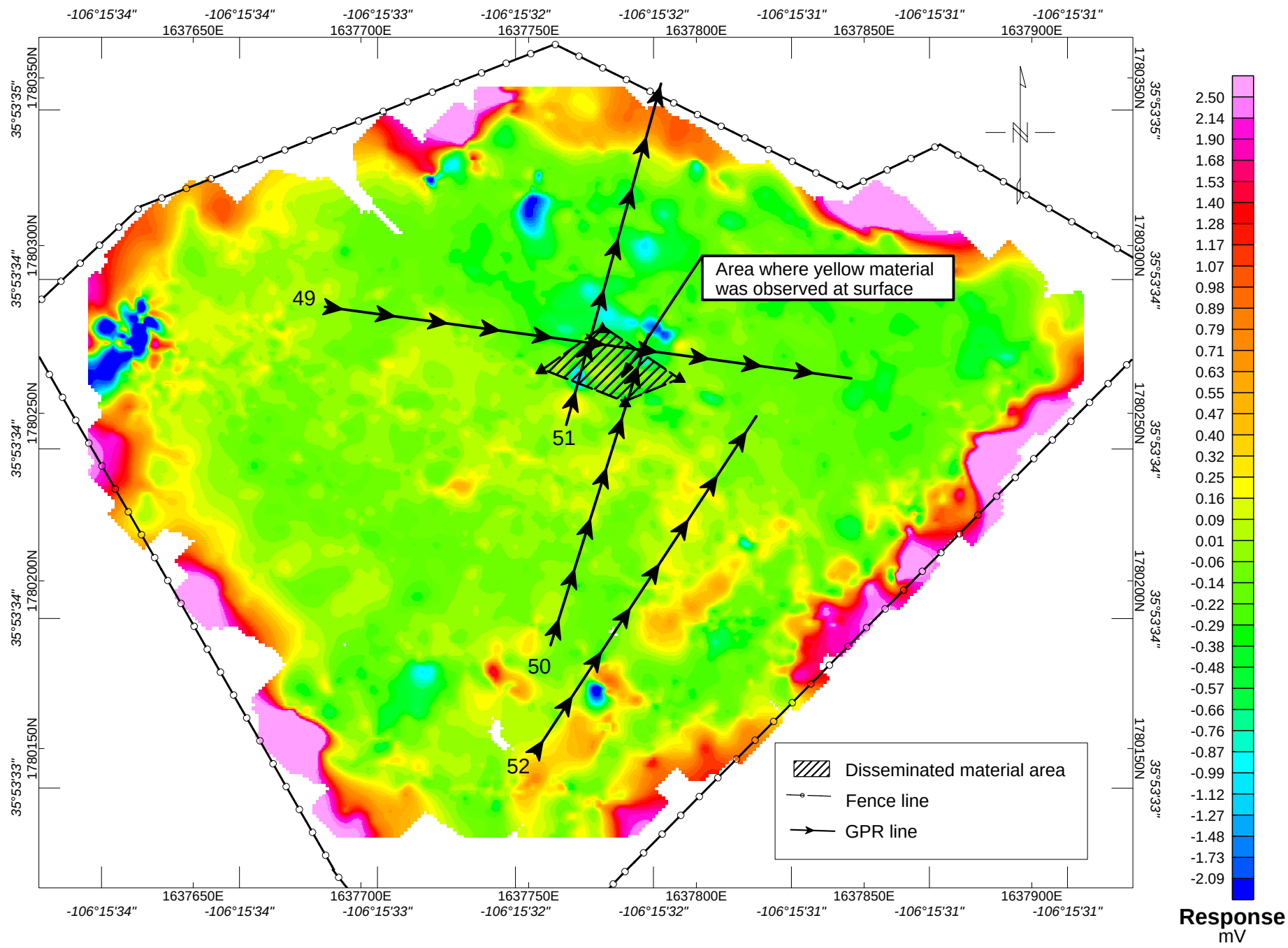
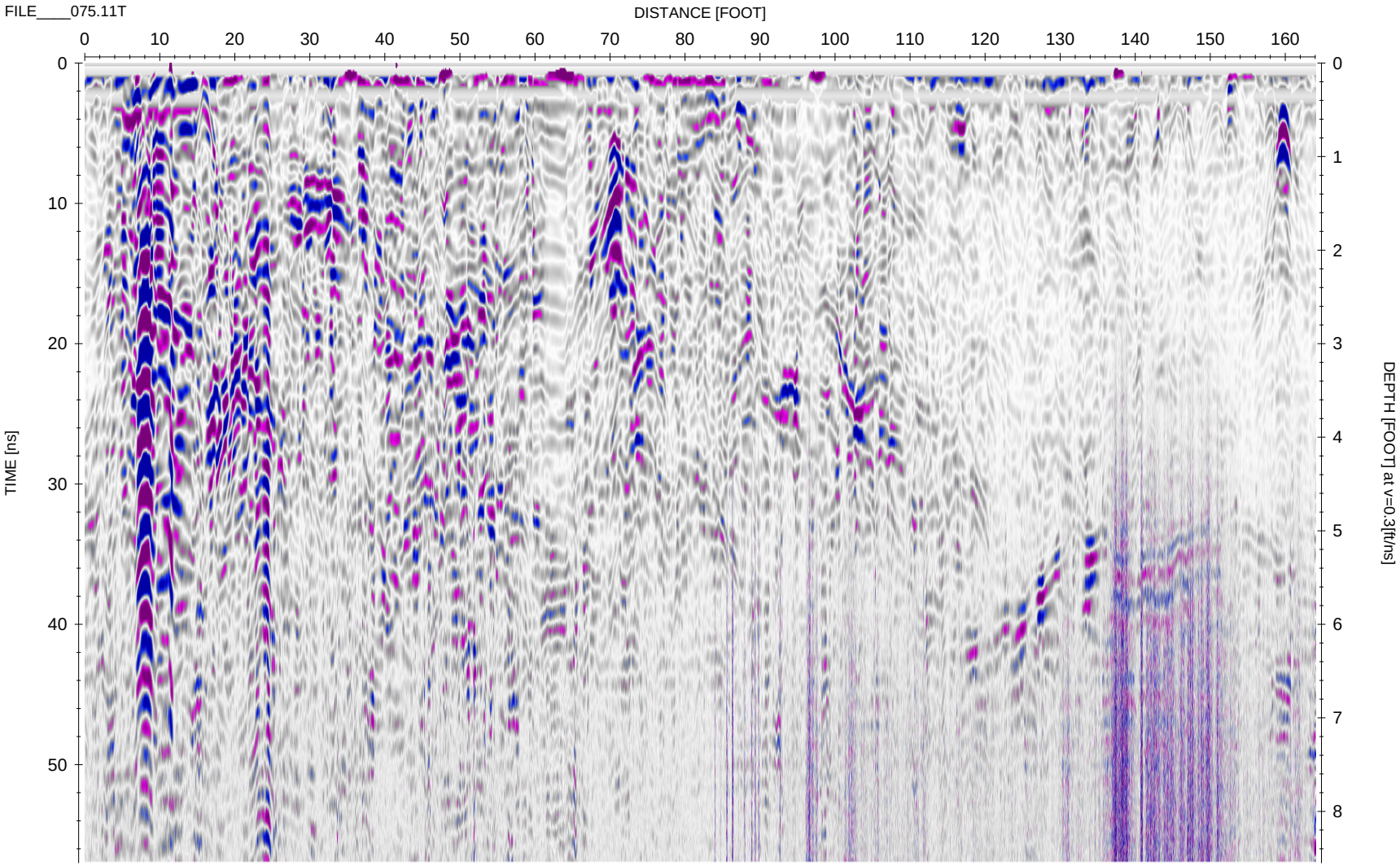
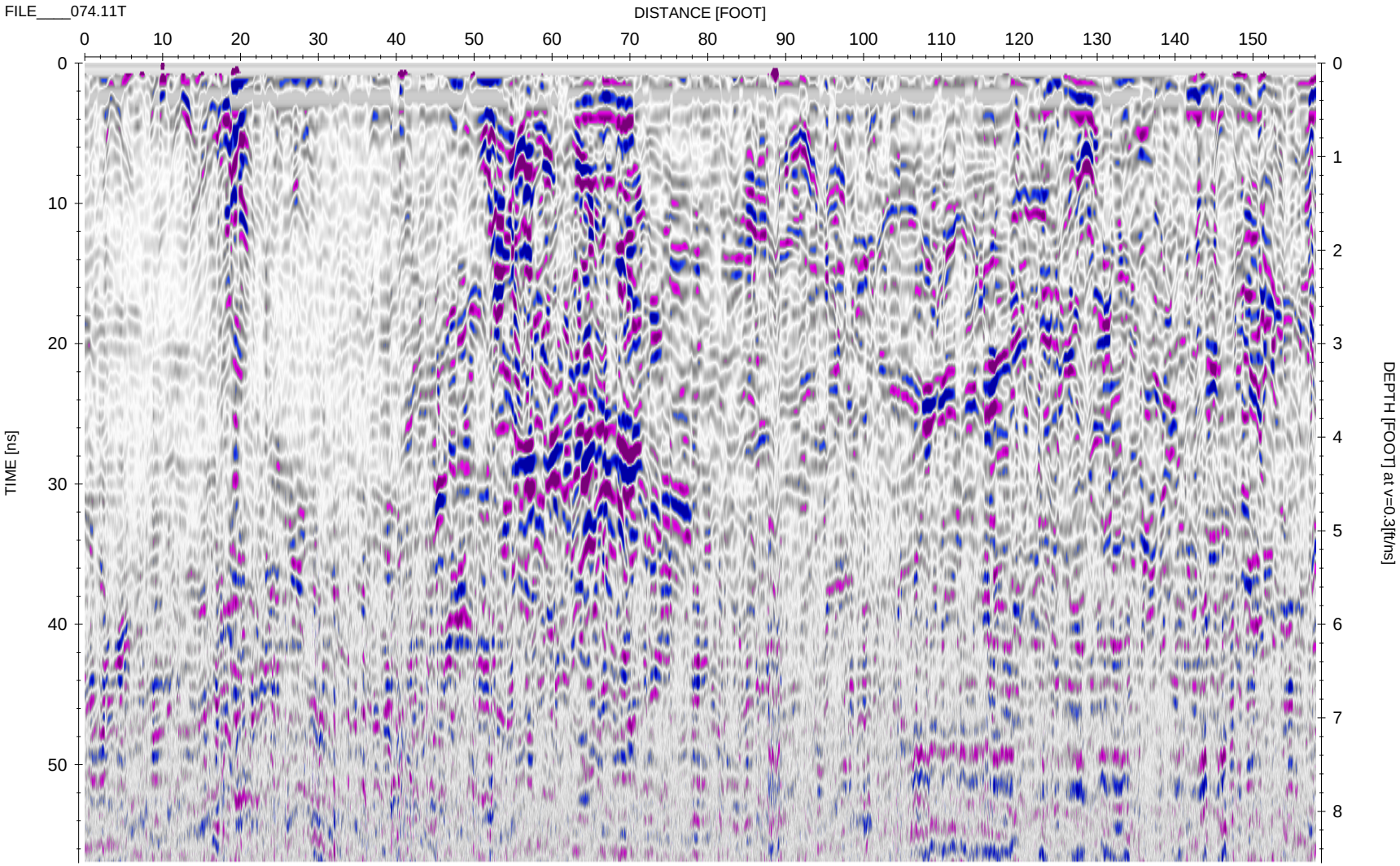
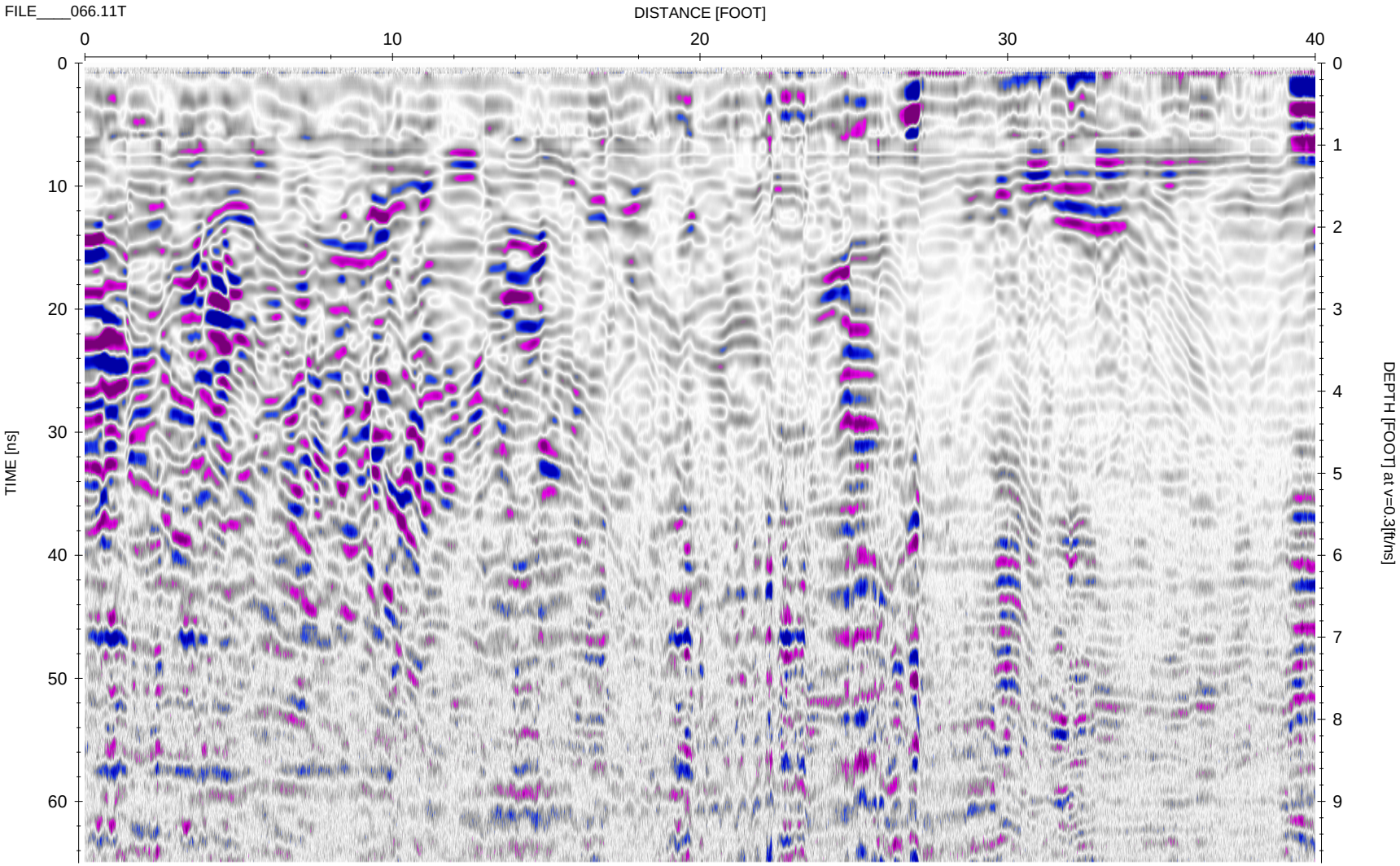


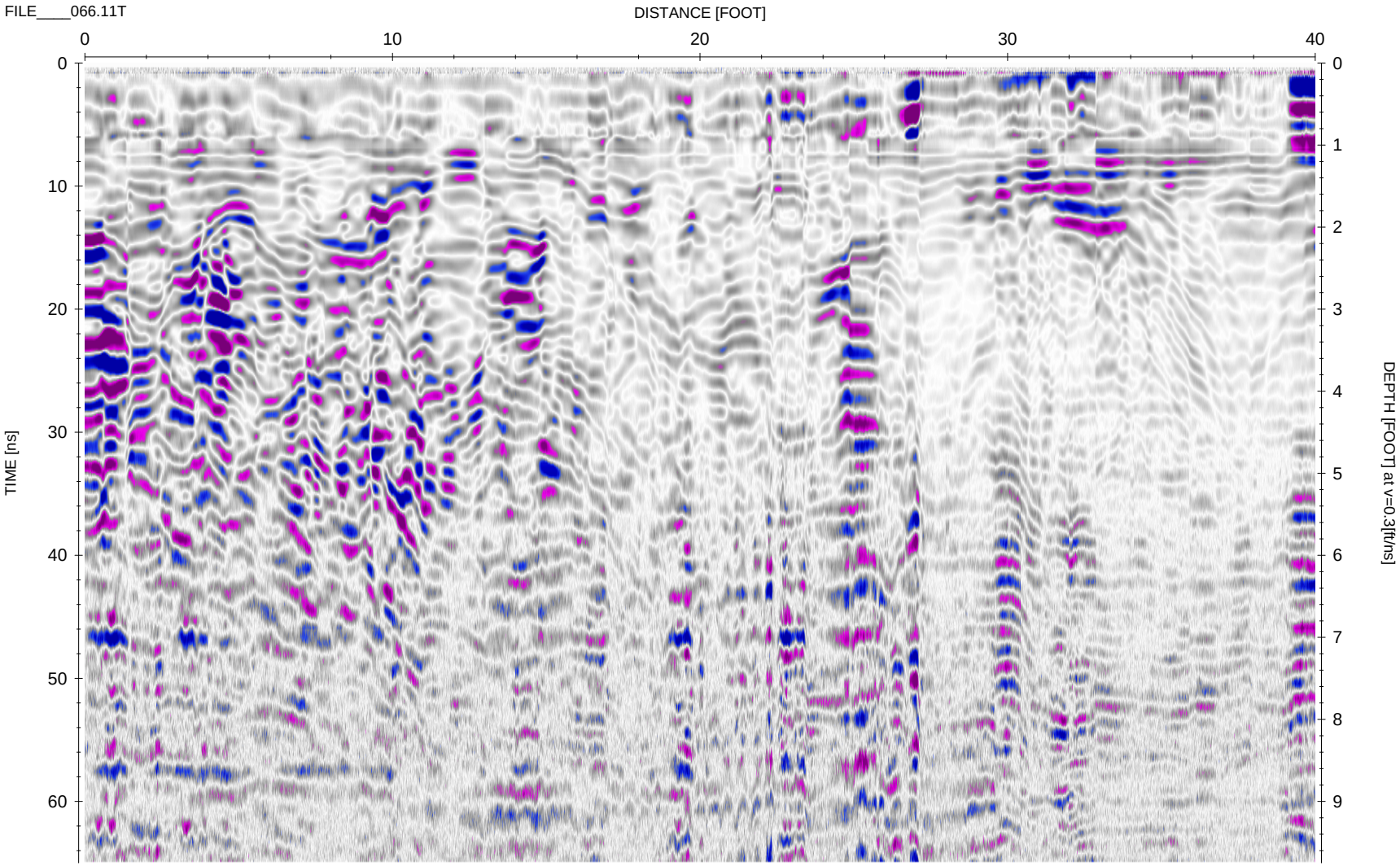
Figure 9
Buried Metal Anomaly (EM61) Map
Suspect Landfill AOC 10-009

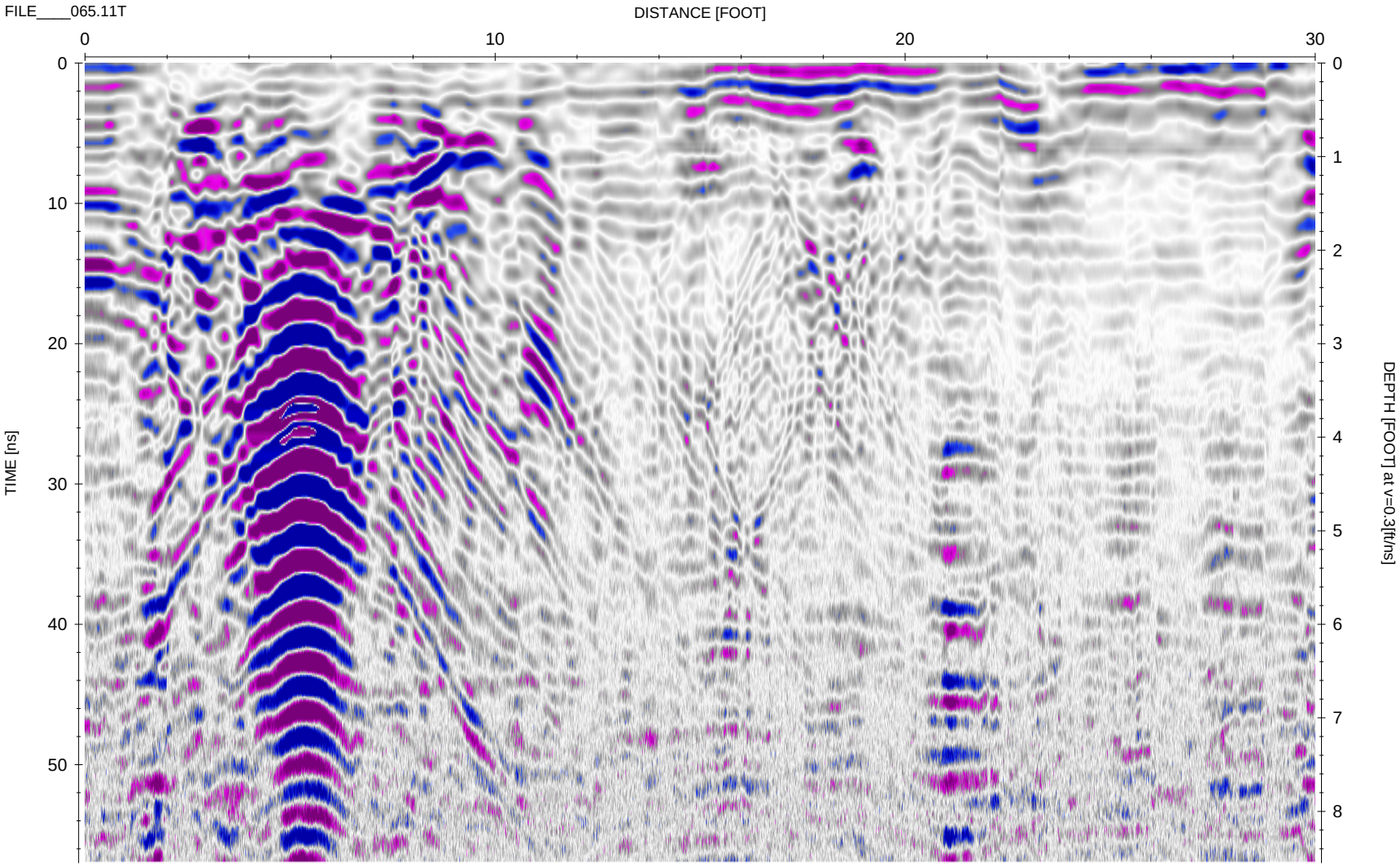
APPENDIX A
GPR PROFILES

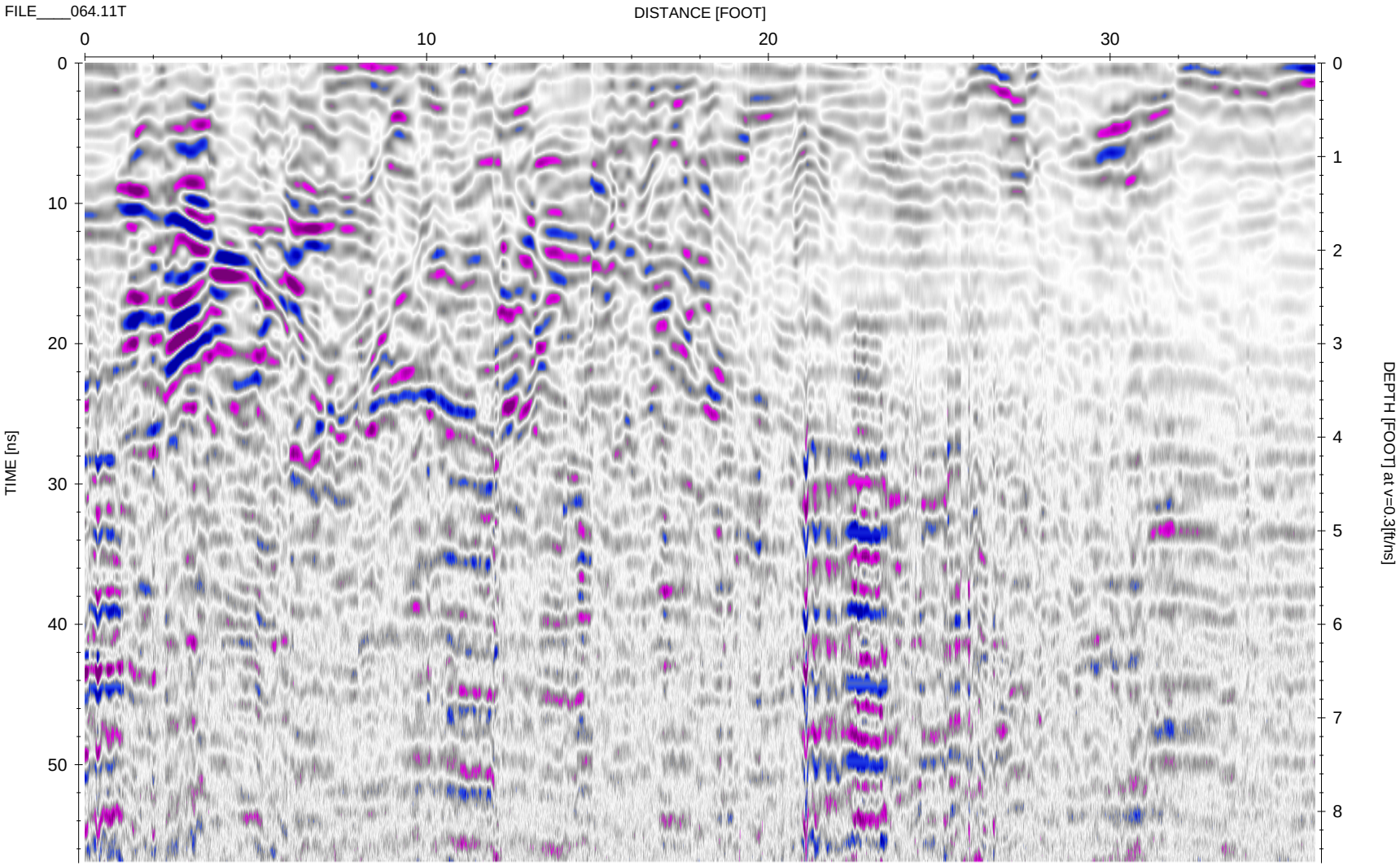

FILE____075.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

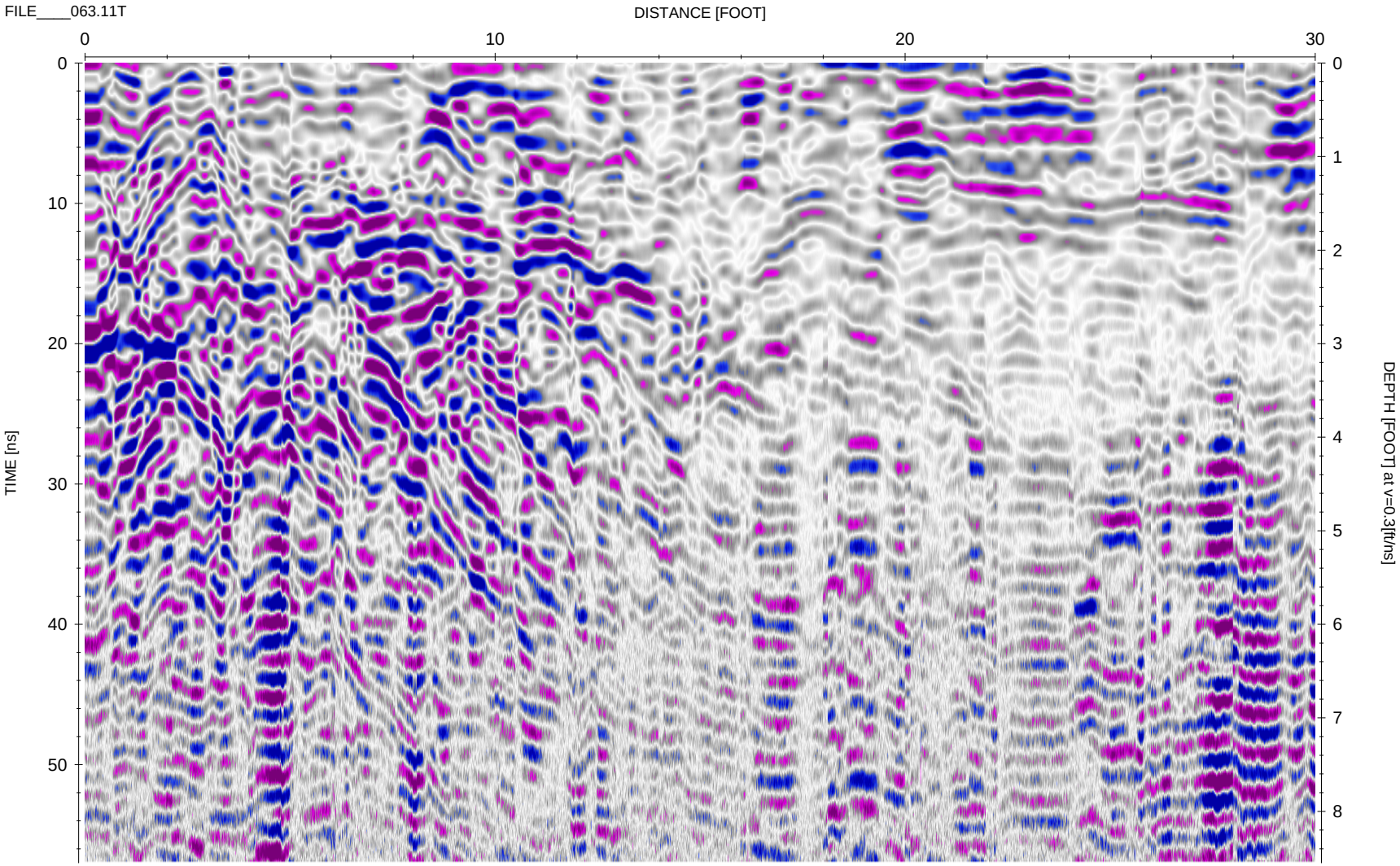

FILE____074.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

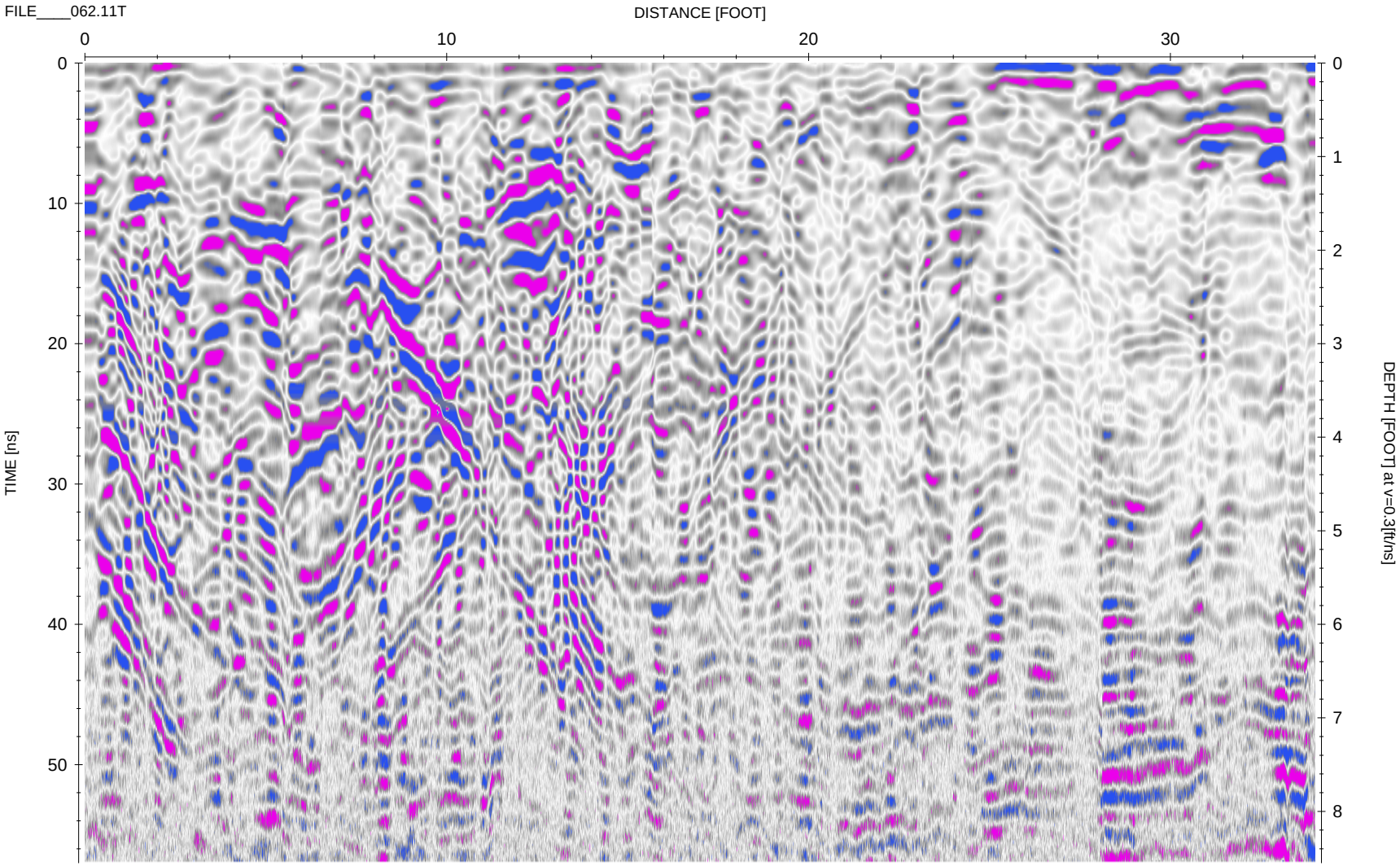

FILE____066.11T
DISTANCE [FOOT]
0
10
20
30
40
TIME [ns]
0
10
20
30
40
50
60
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8
9

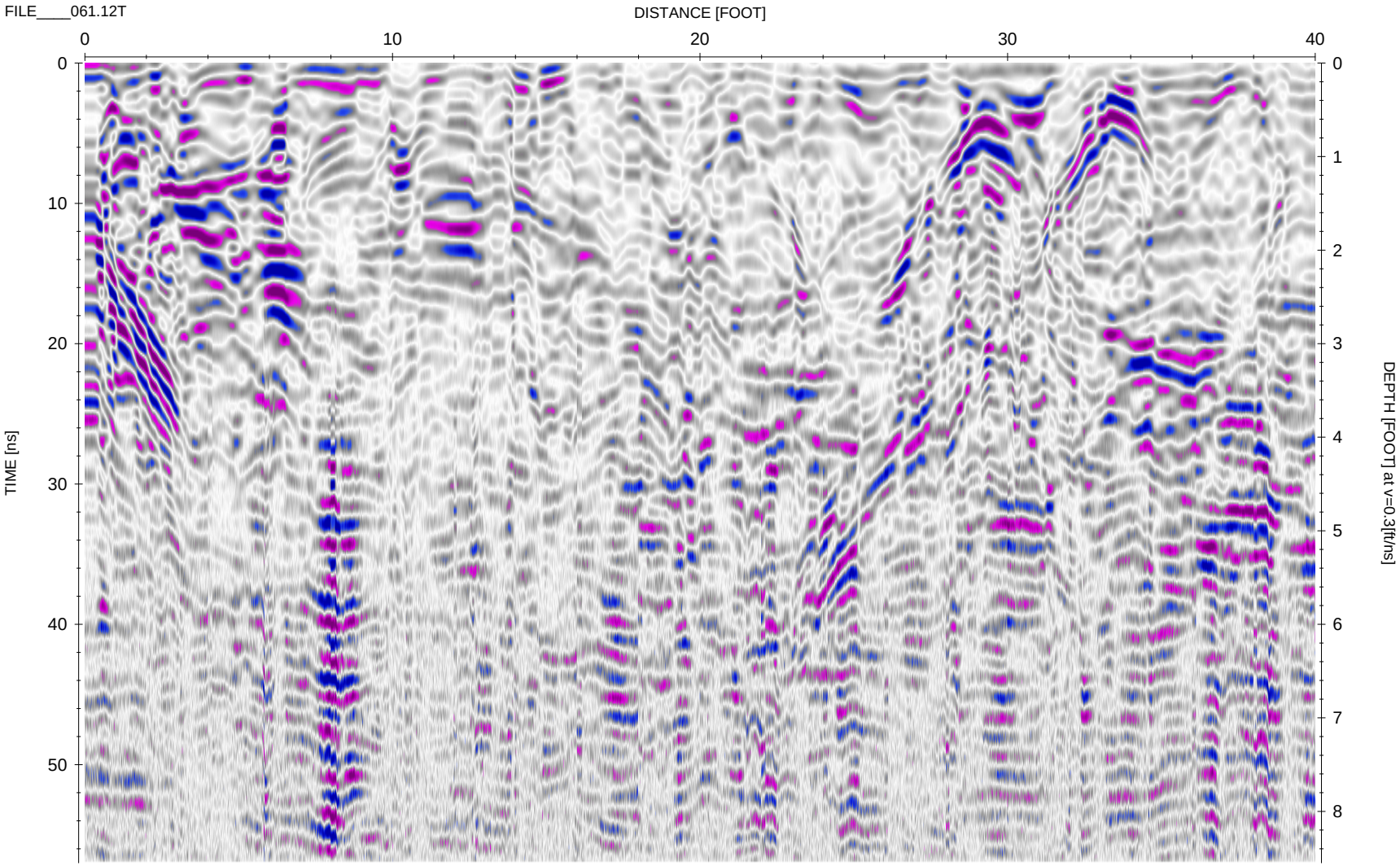

FILE____066.11T
DISTANCE [FOOT]
0
10
20
30
40
TIME [ns]
0
10
20
30
40
50
60
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8
9

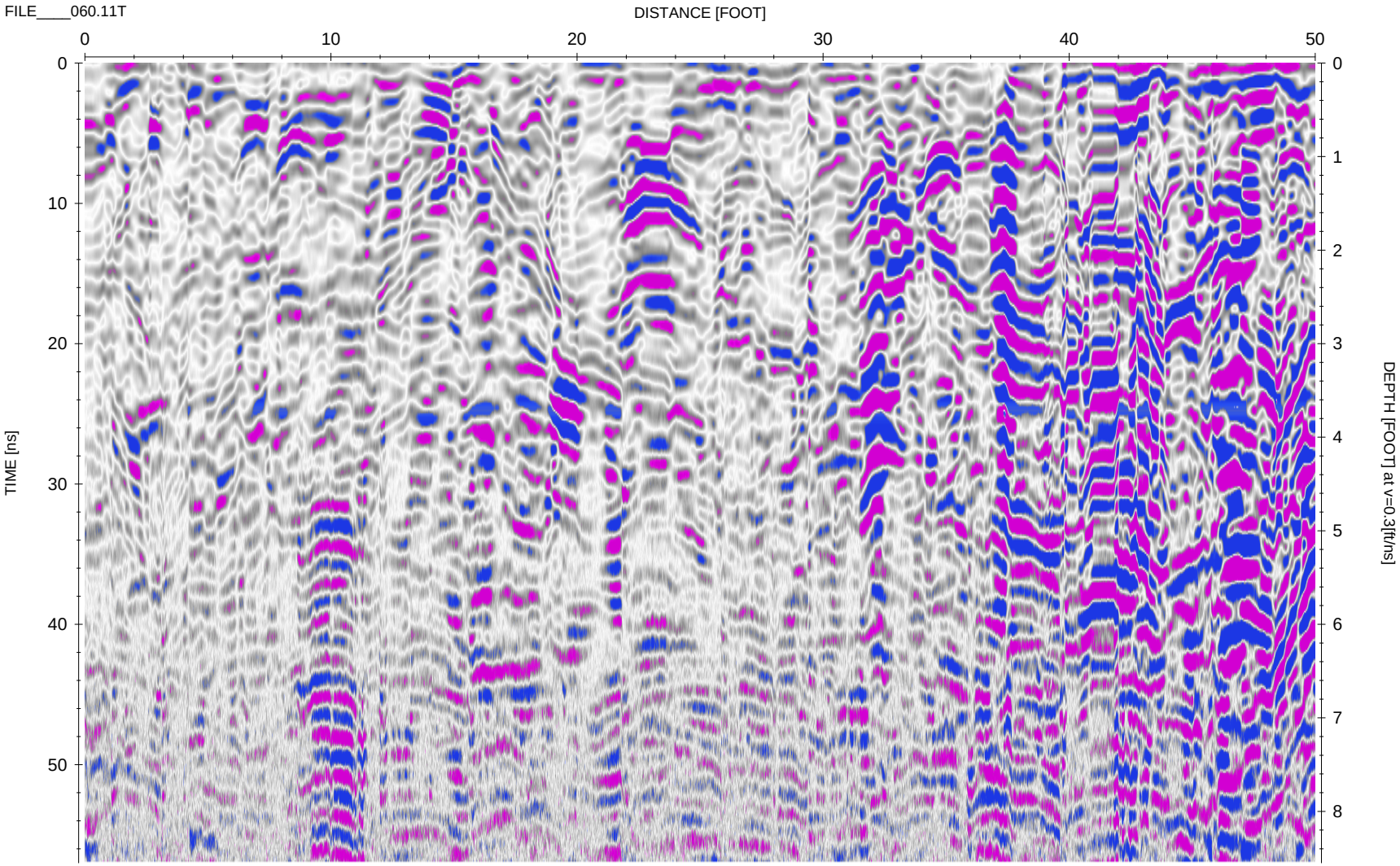

FILE____065.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

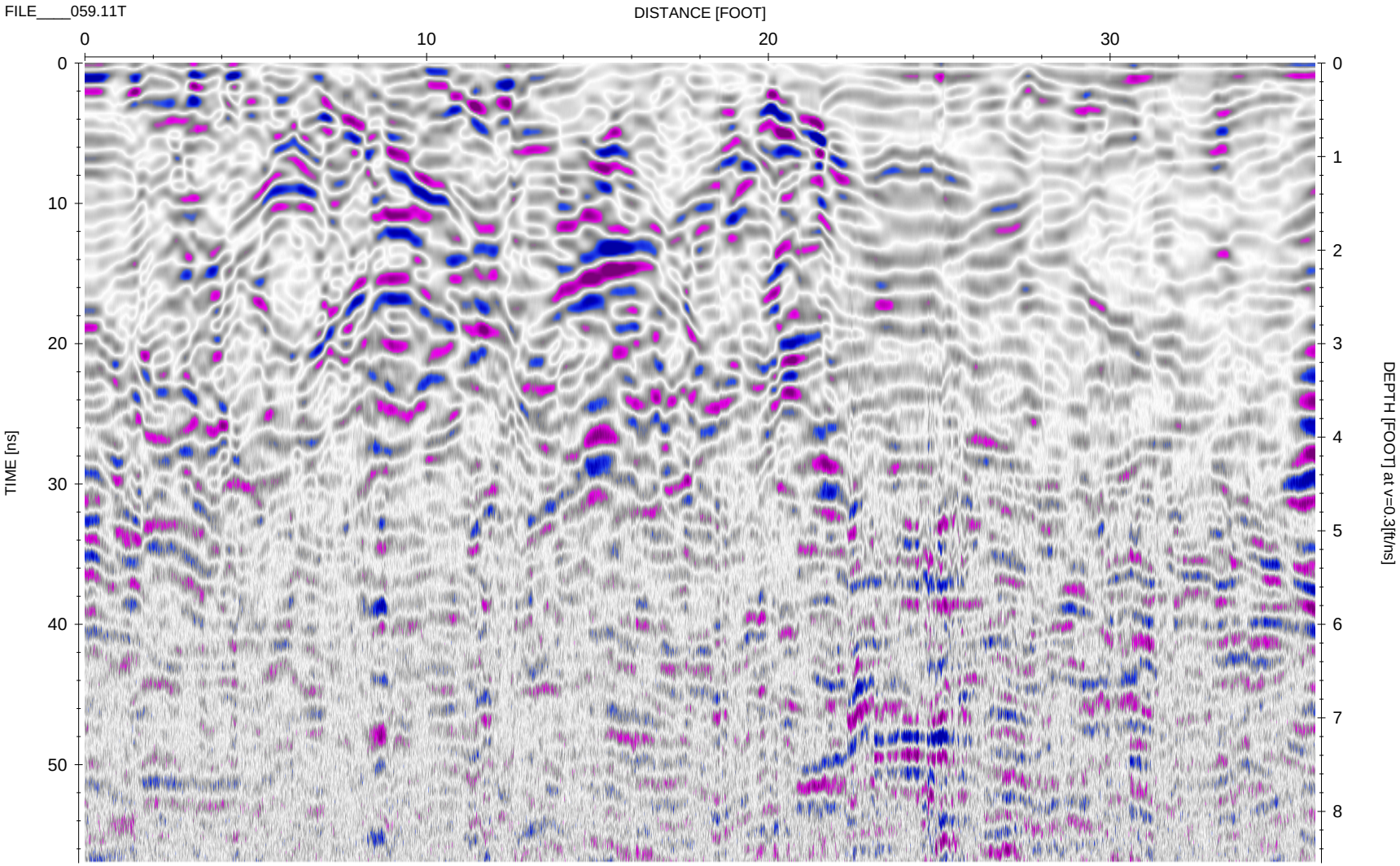

FILE____064.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

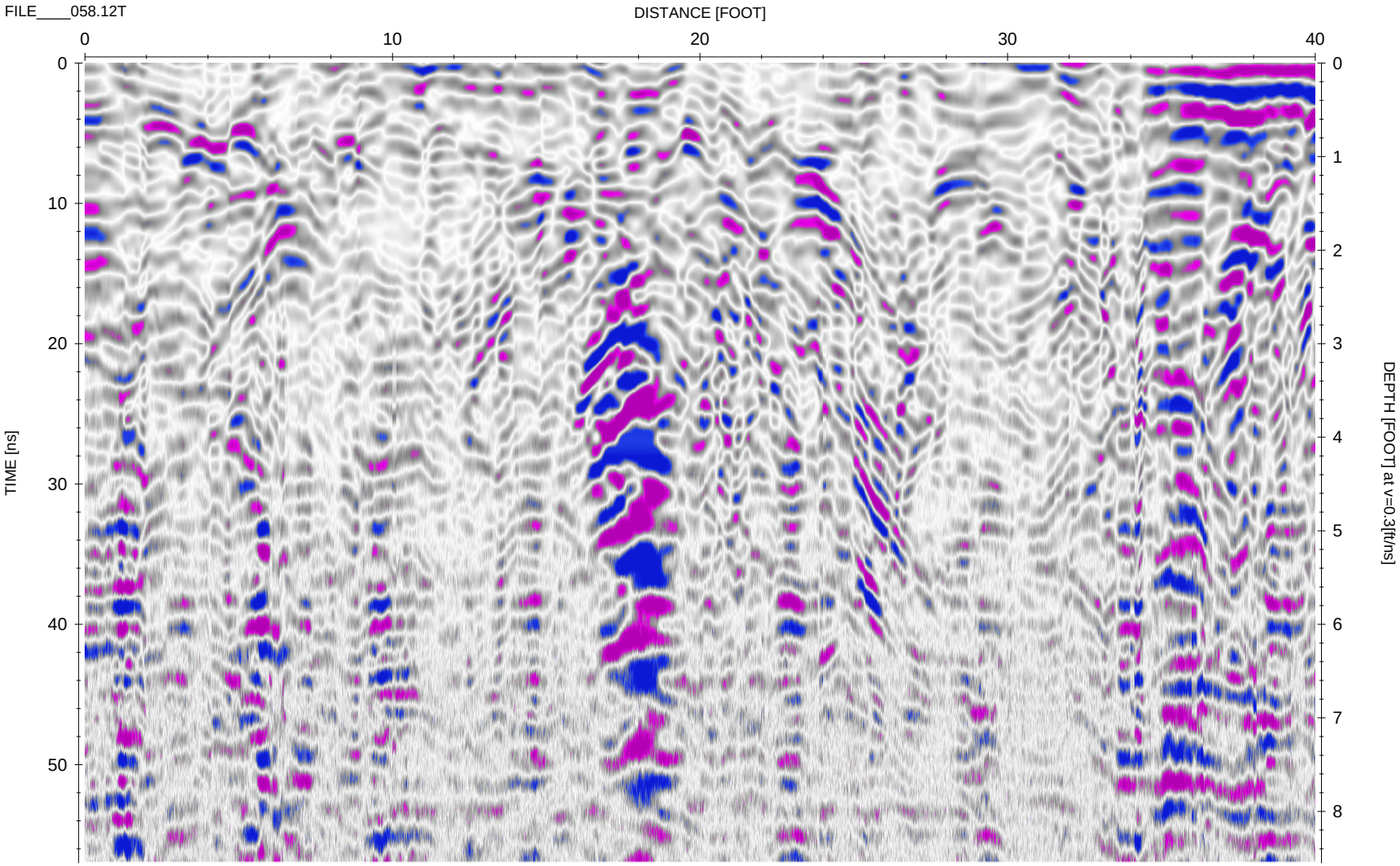

FILE____063.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

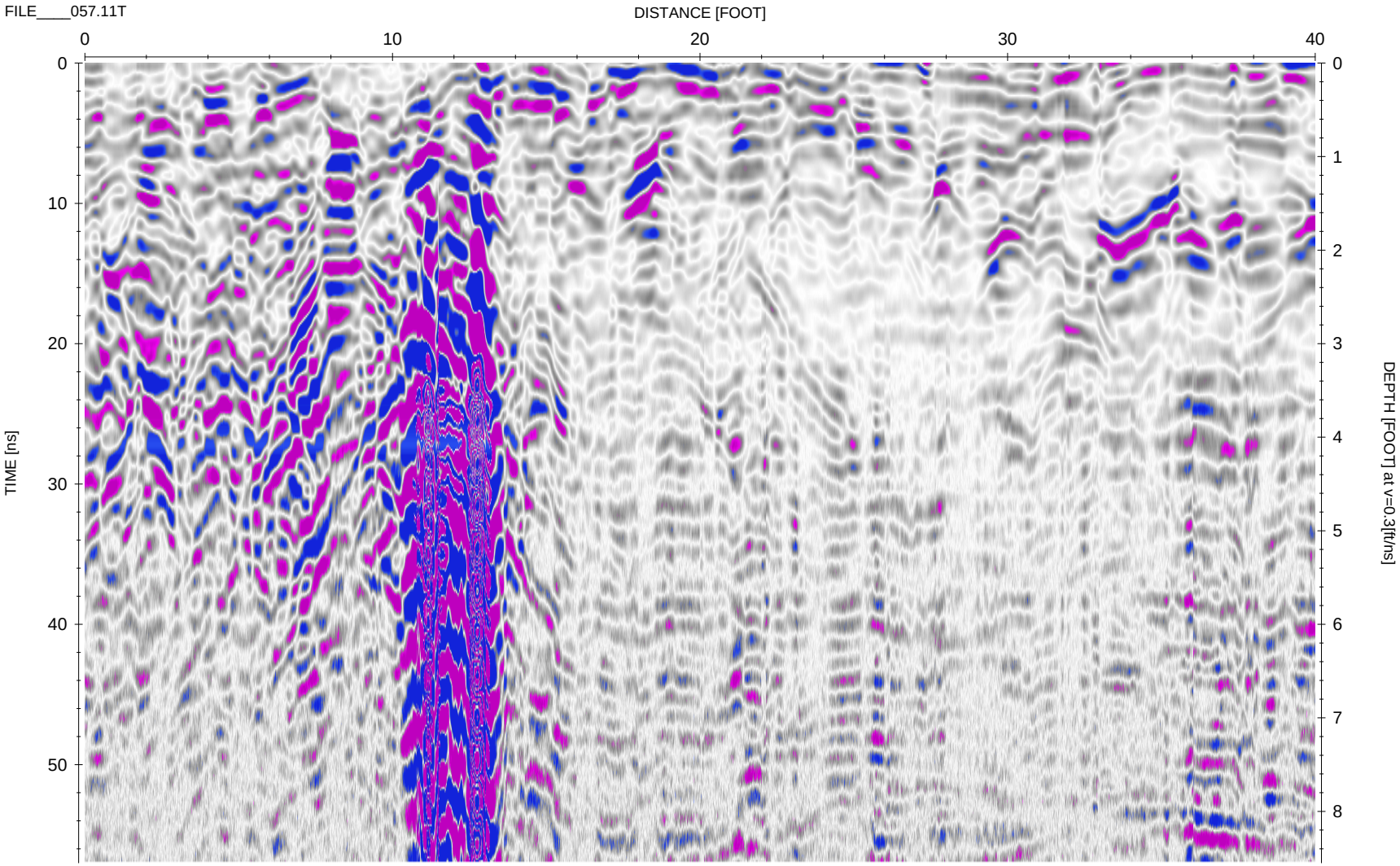

FILE____062.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

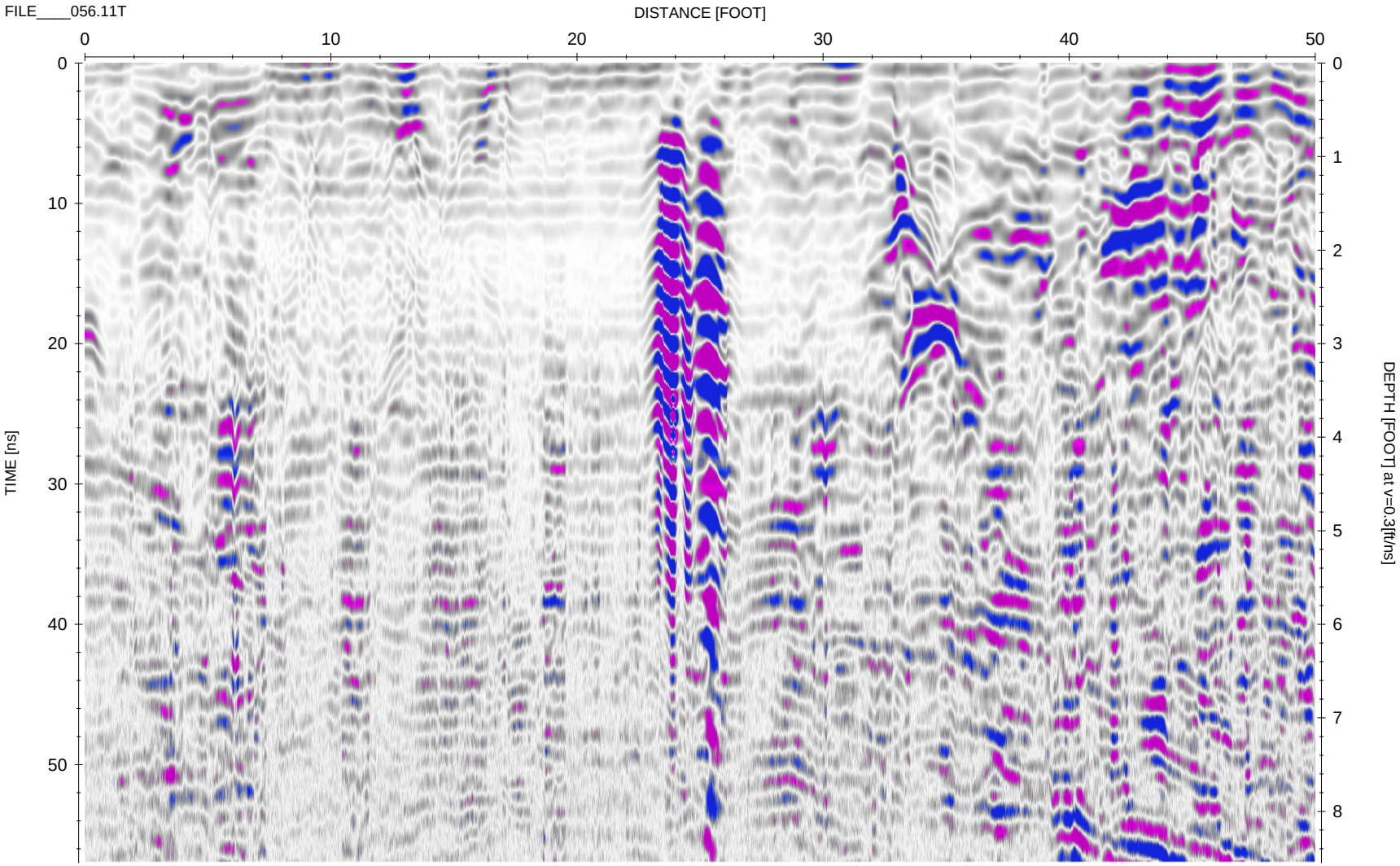

FILE____061.12T
DISTANCE [FOOT]
0
10
20
30
40
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

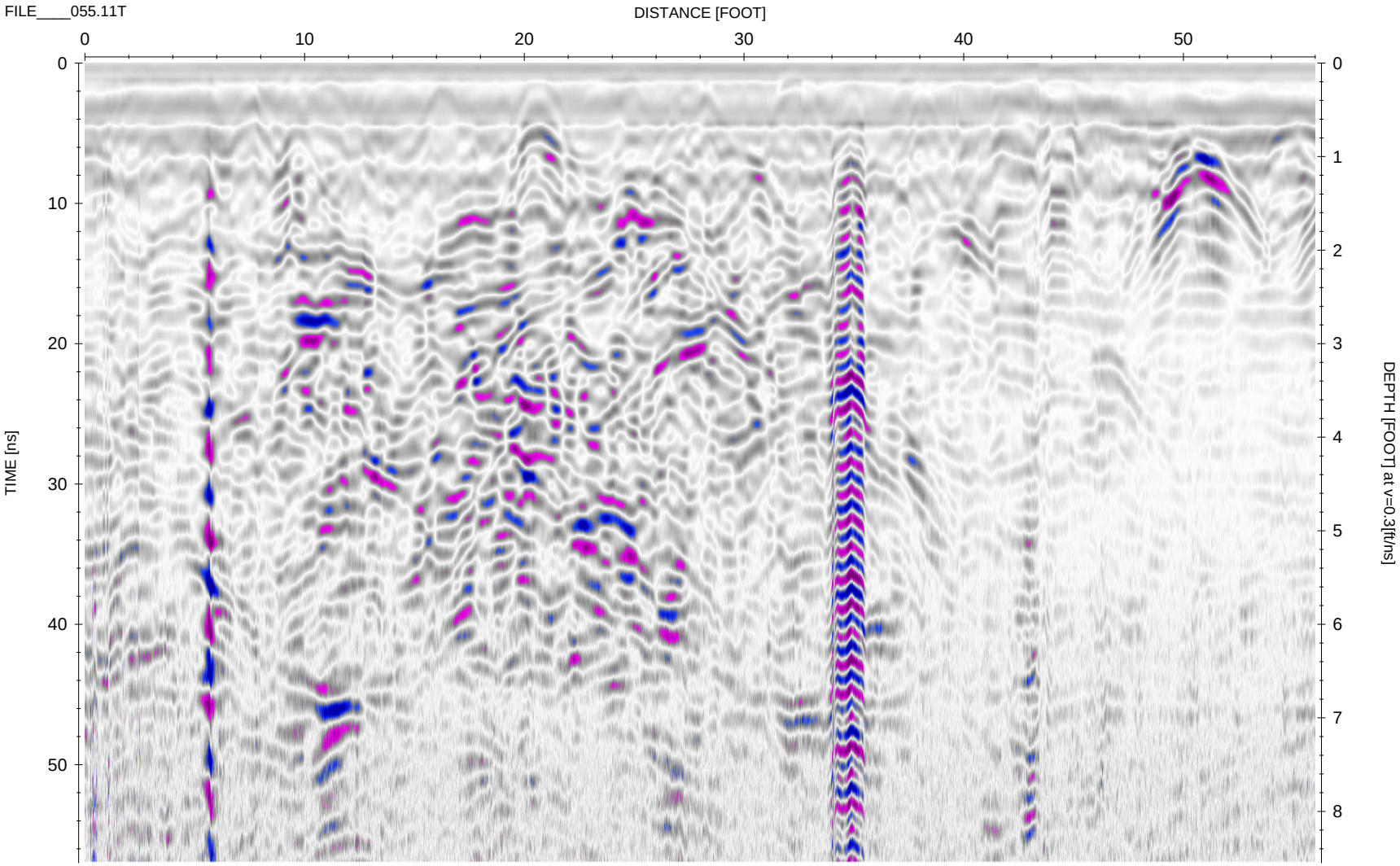

FILE____060.11T
DISTANCE [FOOT]
0
10
20
30
40
50
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

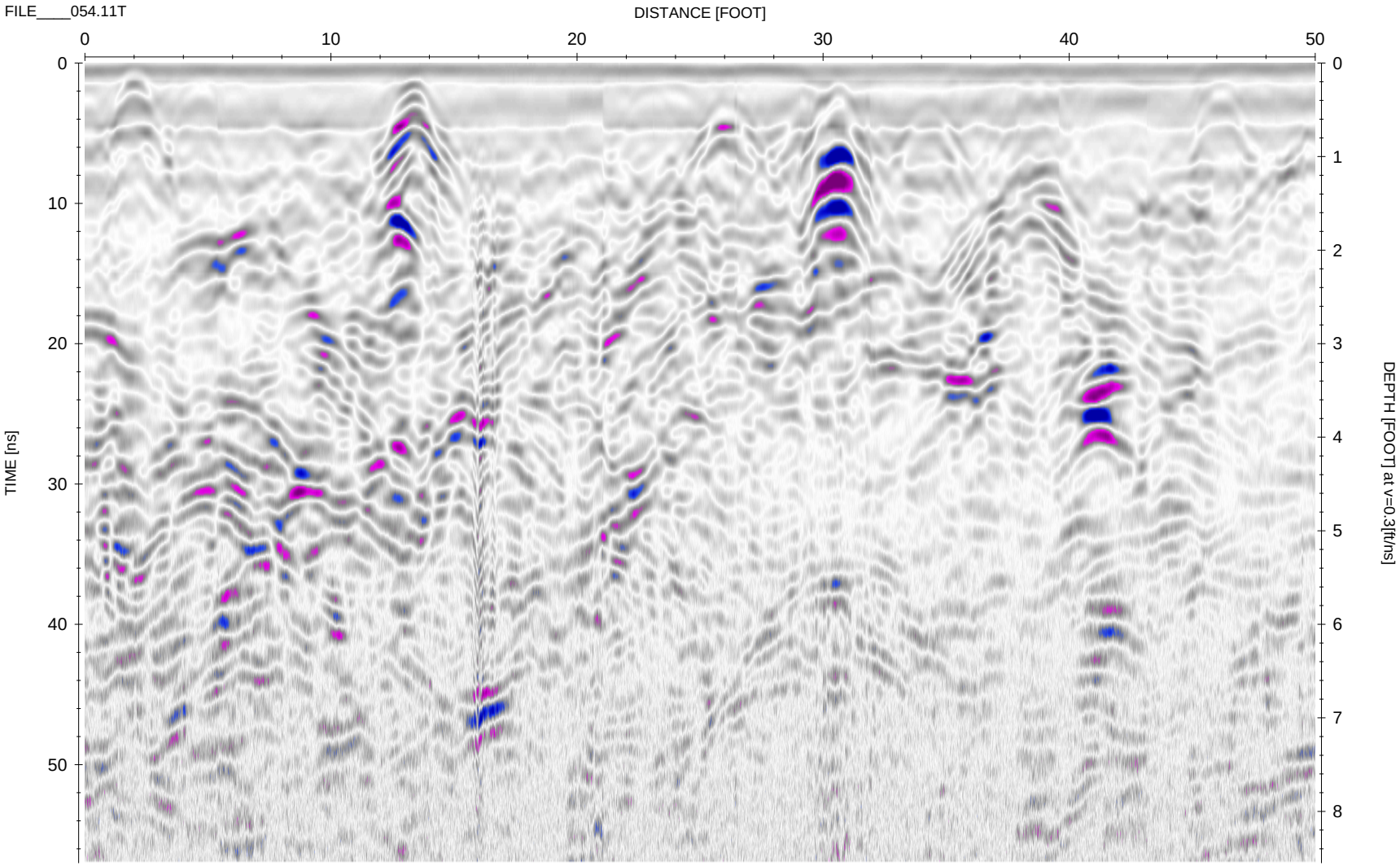

FILE____059.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

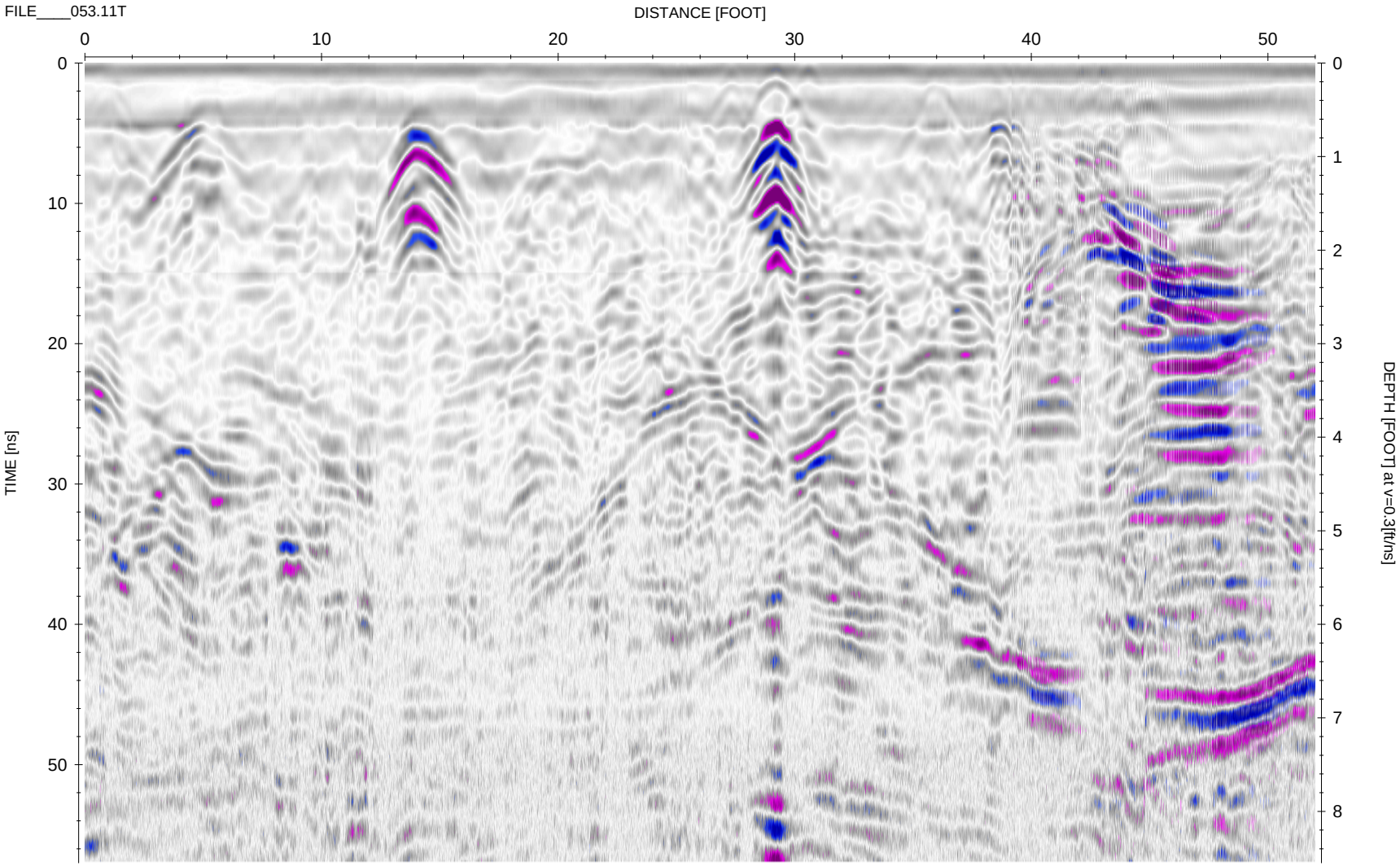

FILE____058.12T
DISTANCE [FOOT]
0
10
20
30
40
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

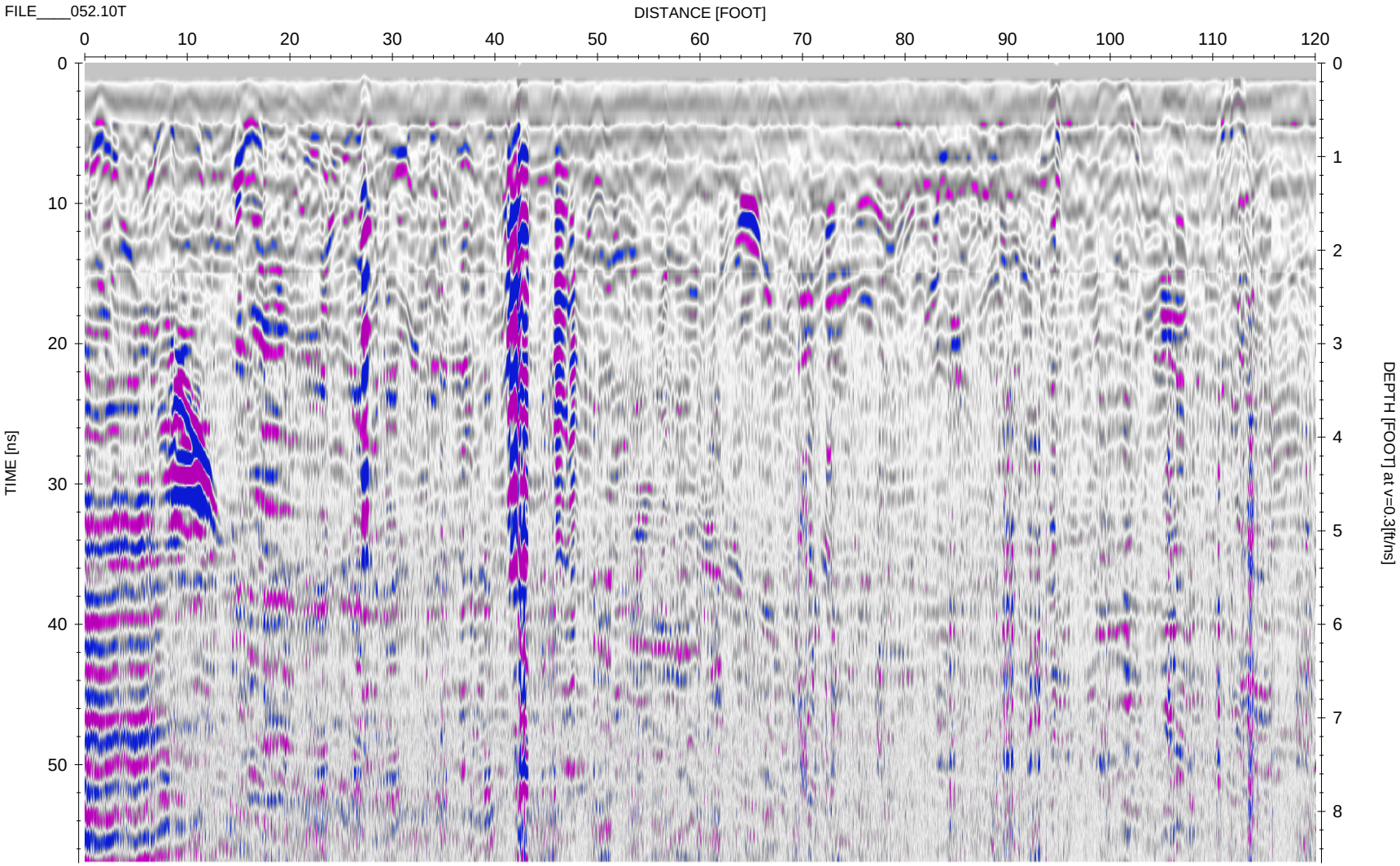

FILE____057.11T
DISTANCE [FOOT]
0
10
20
30
40
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

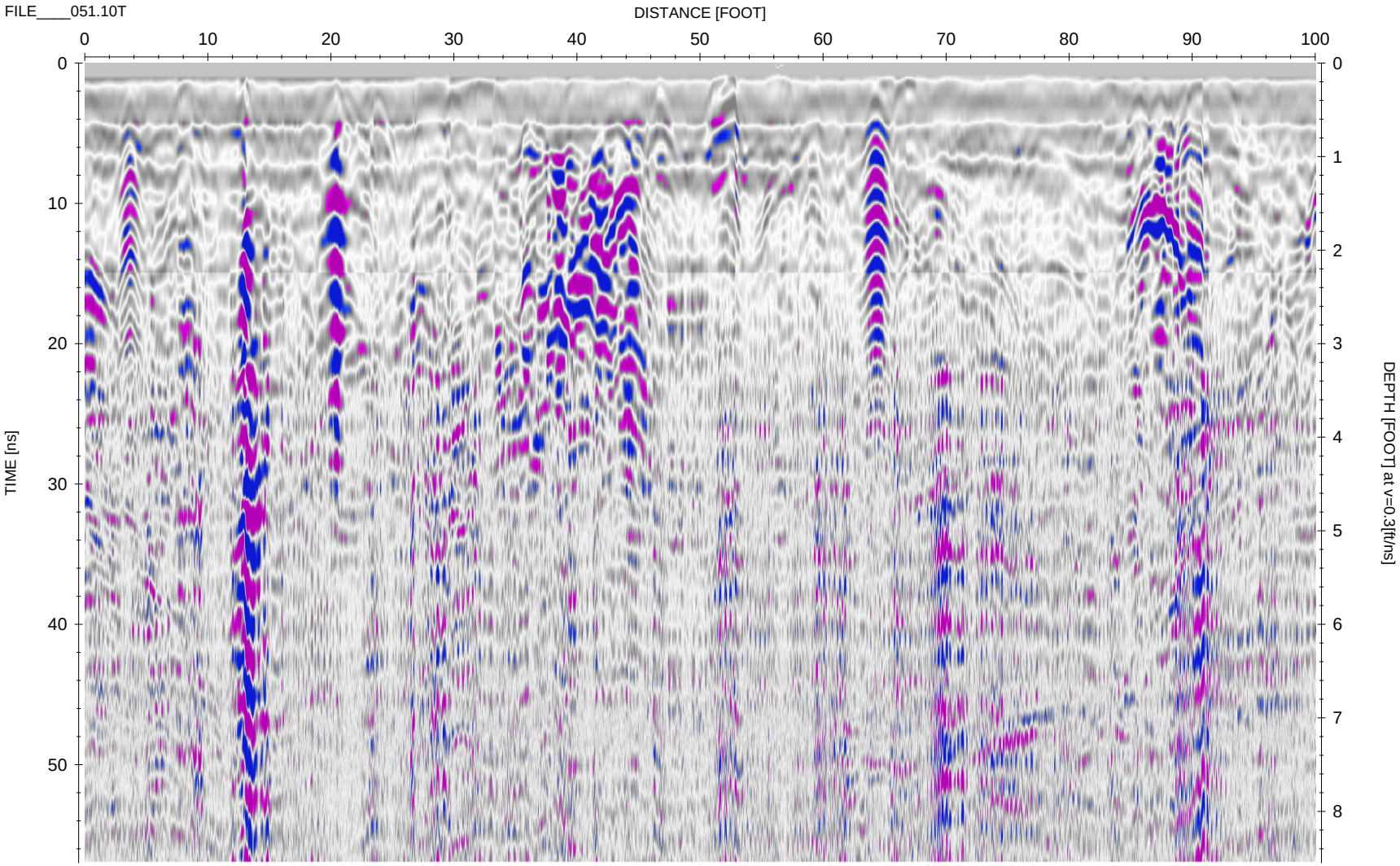

FILE____056.11T
DISTANCE [FOOT]
0
10
20
30
40
50
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

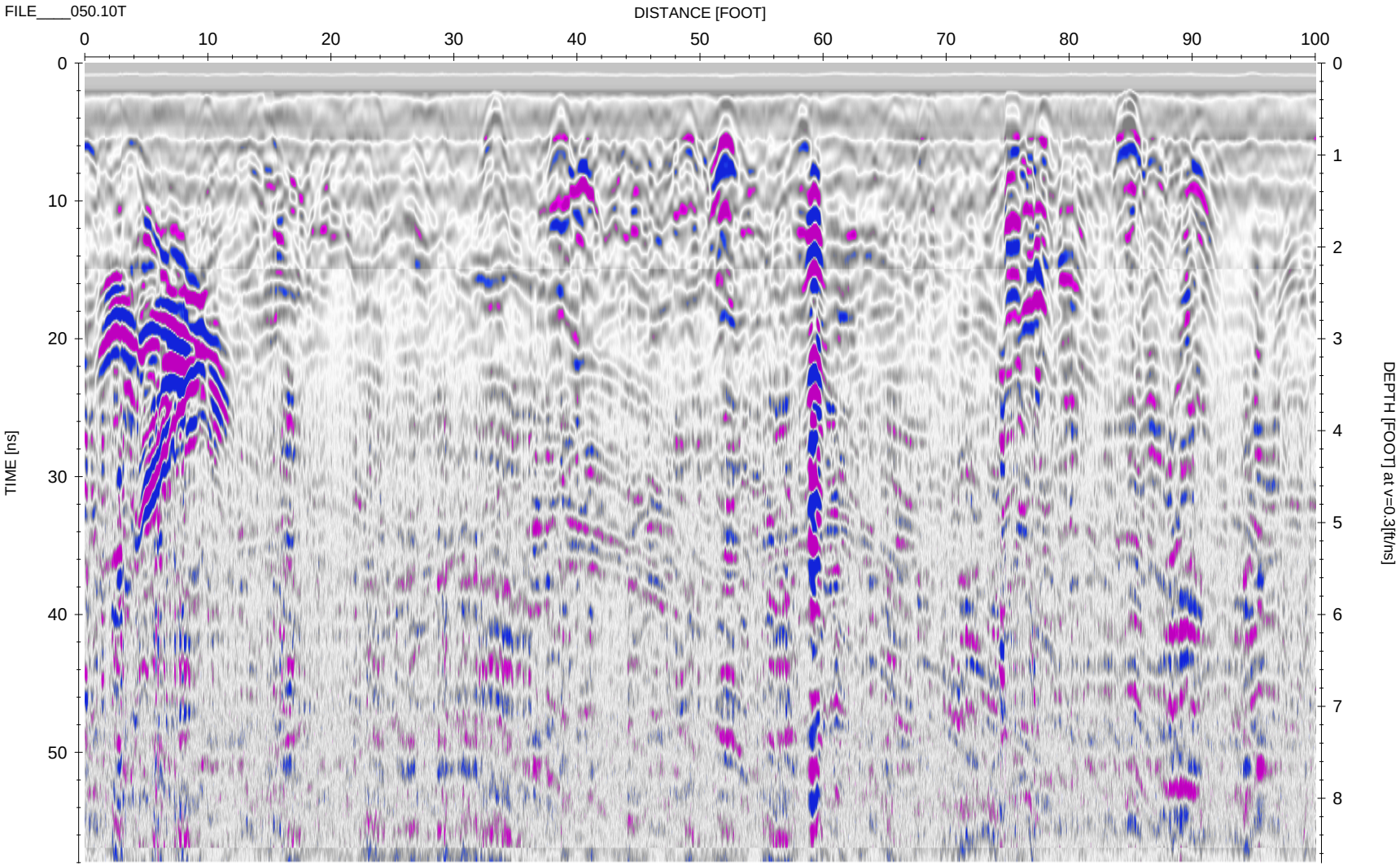

FILE____055.11T
DISTANCE [FOOT]
0
10
20
30
40
50
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

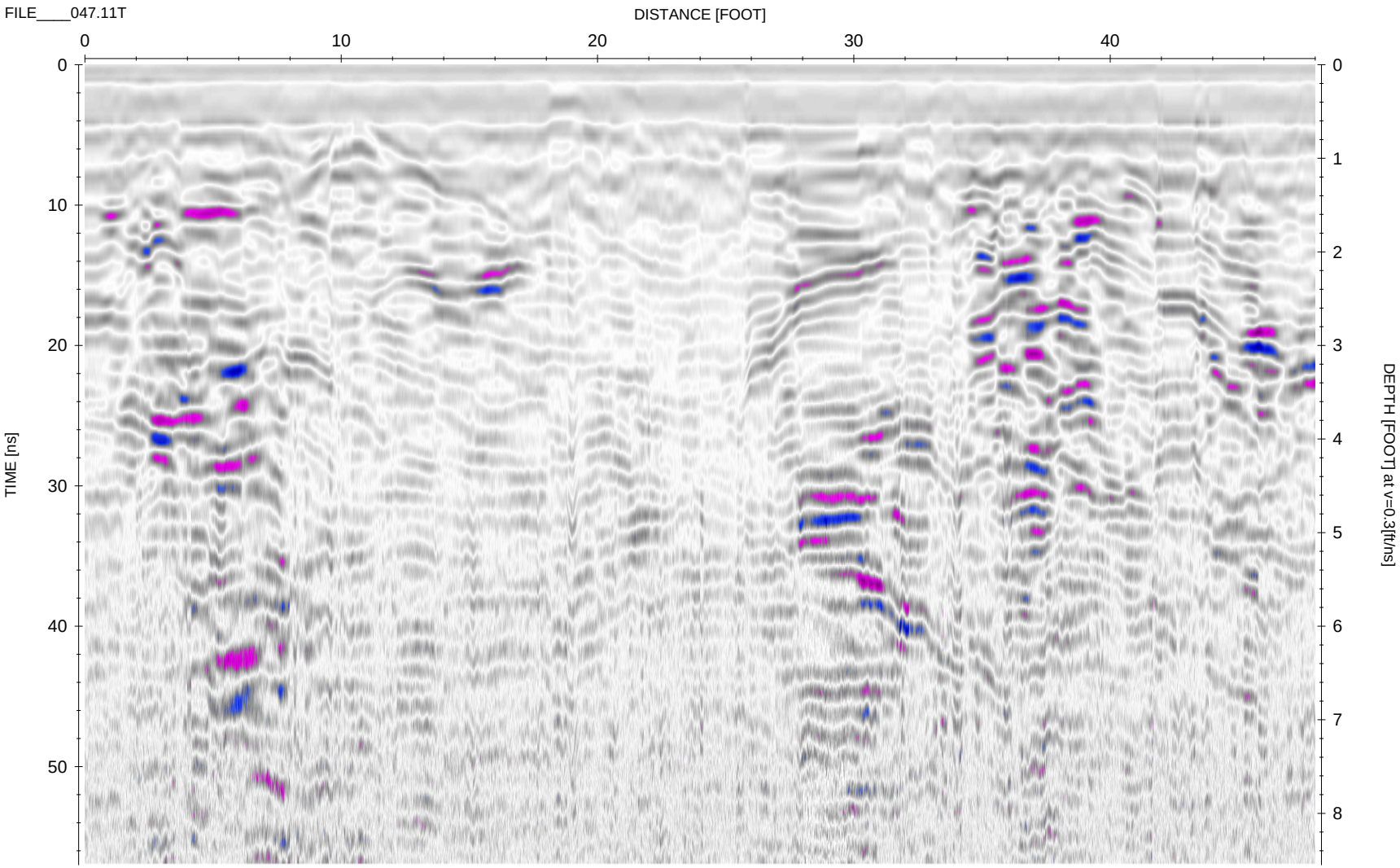

FILE____054.11T
DISTANCE [FOOT]
0
10
20
30
40
50
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

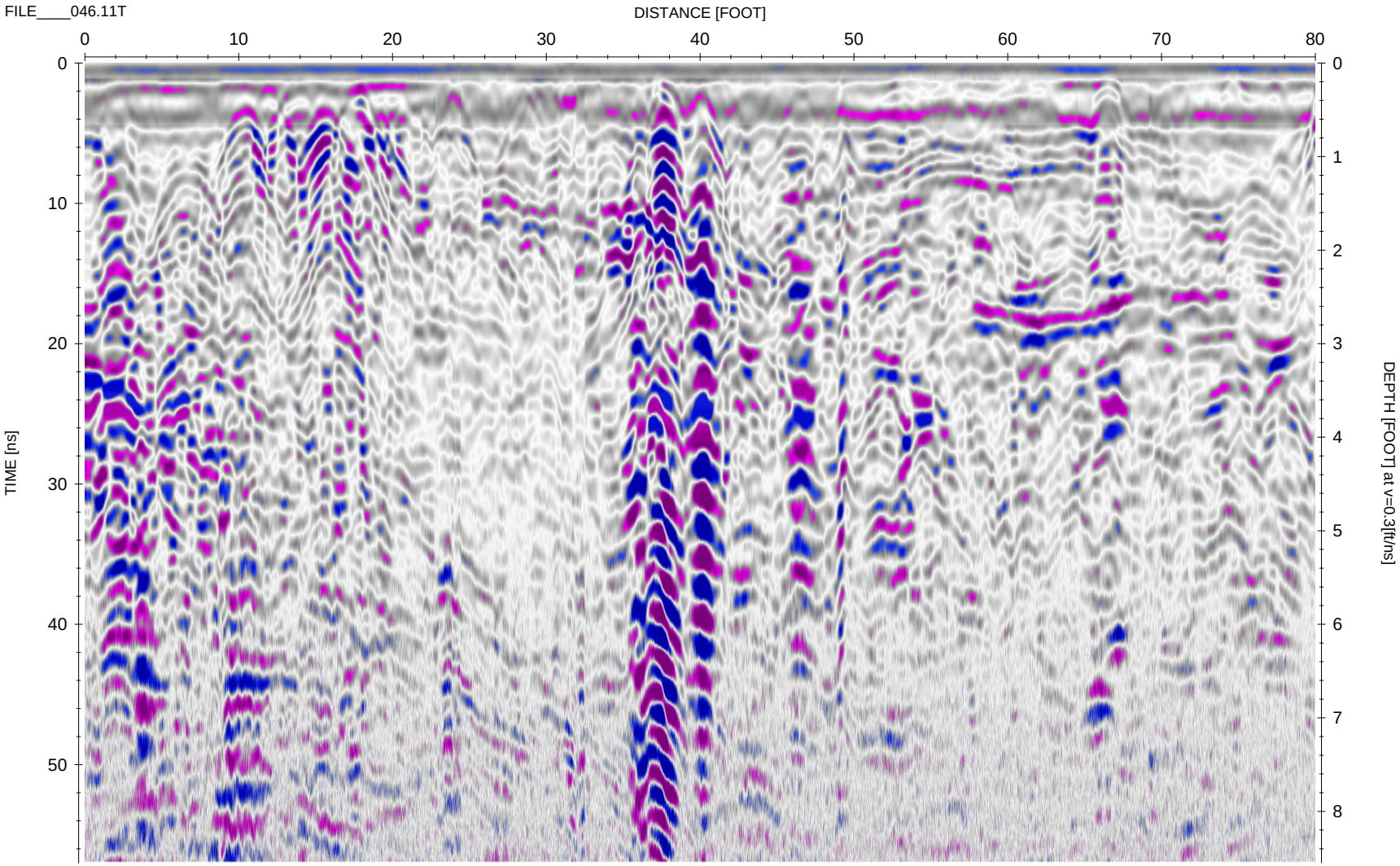

FILE____053.11T
DISTANCE [FOOT]
0
10
20
30
40
50
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

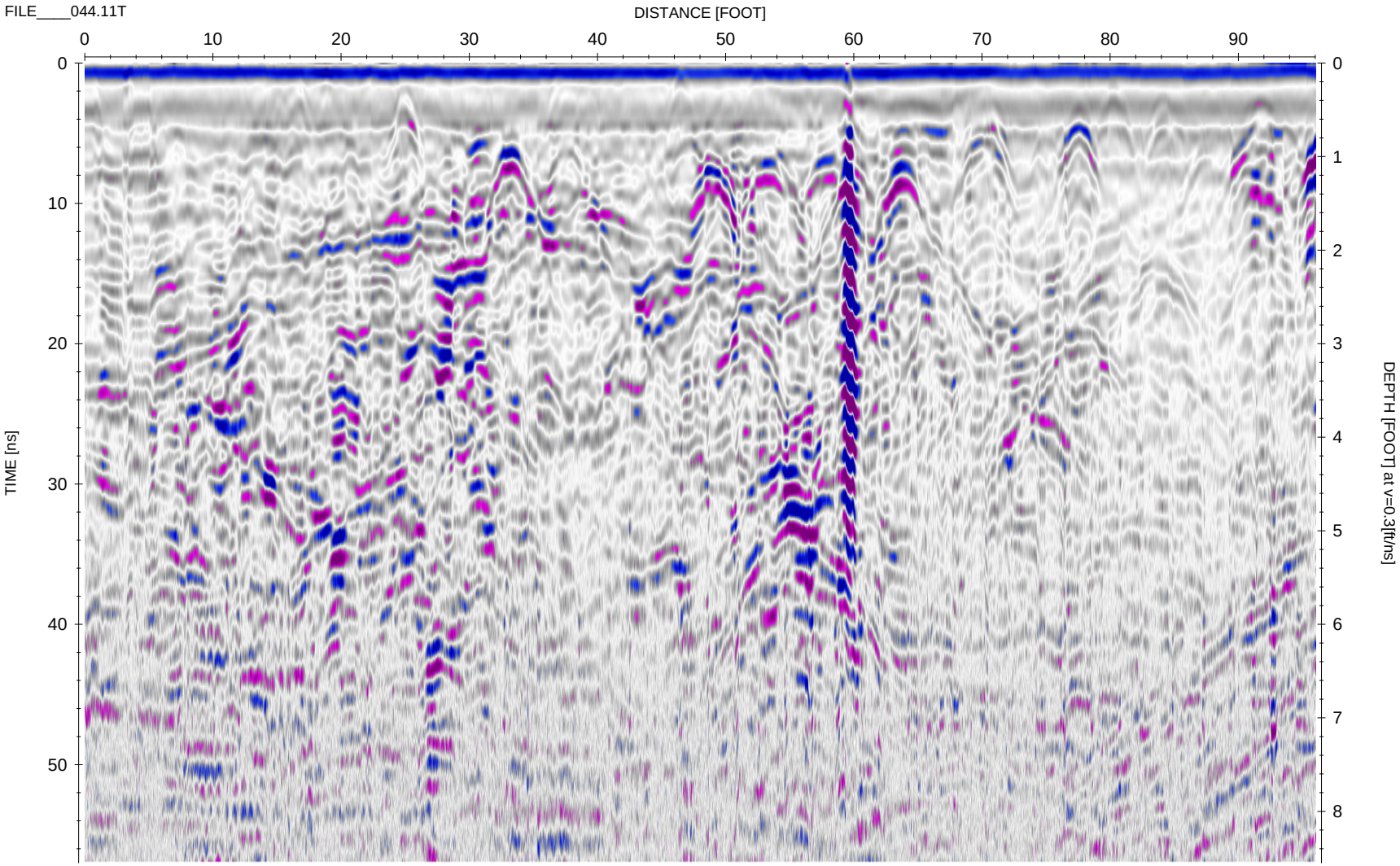

FILE____052.10T
DISTANCE [FOOT]
0
10
20
30
40
50
60
70
80
90
100
110
120
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

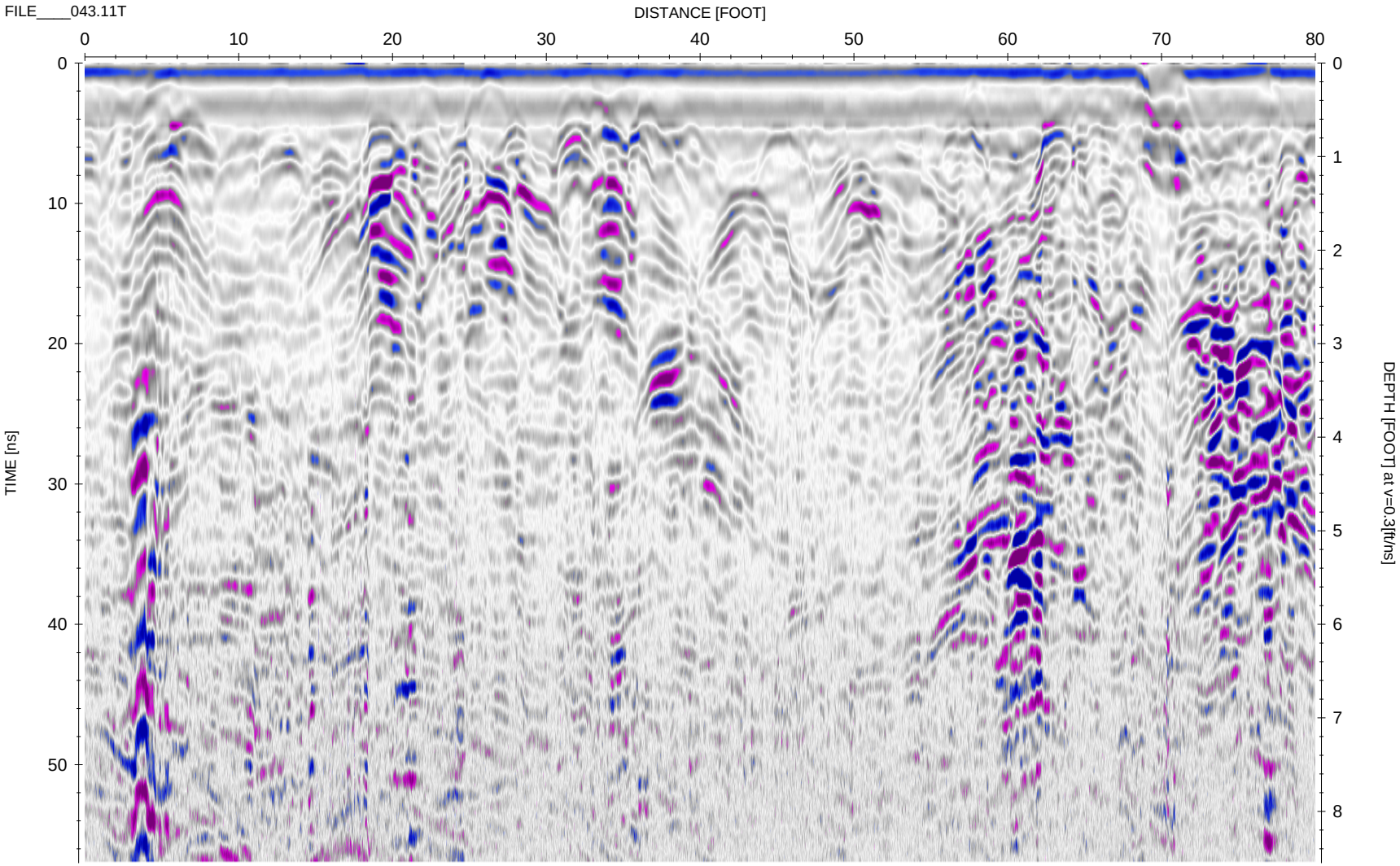

FILE____051.10T
DISTANCE [FOOT]
0
10
20
30
40
50
60
70
80
90
100
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

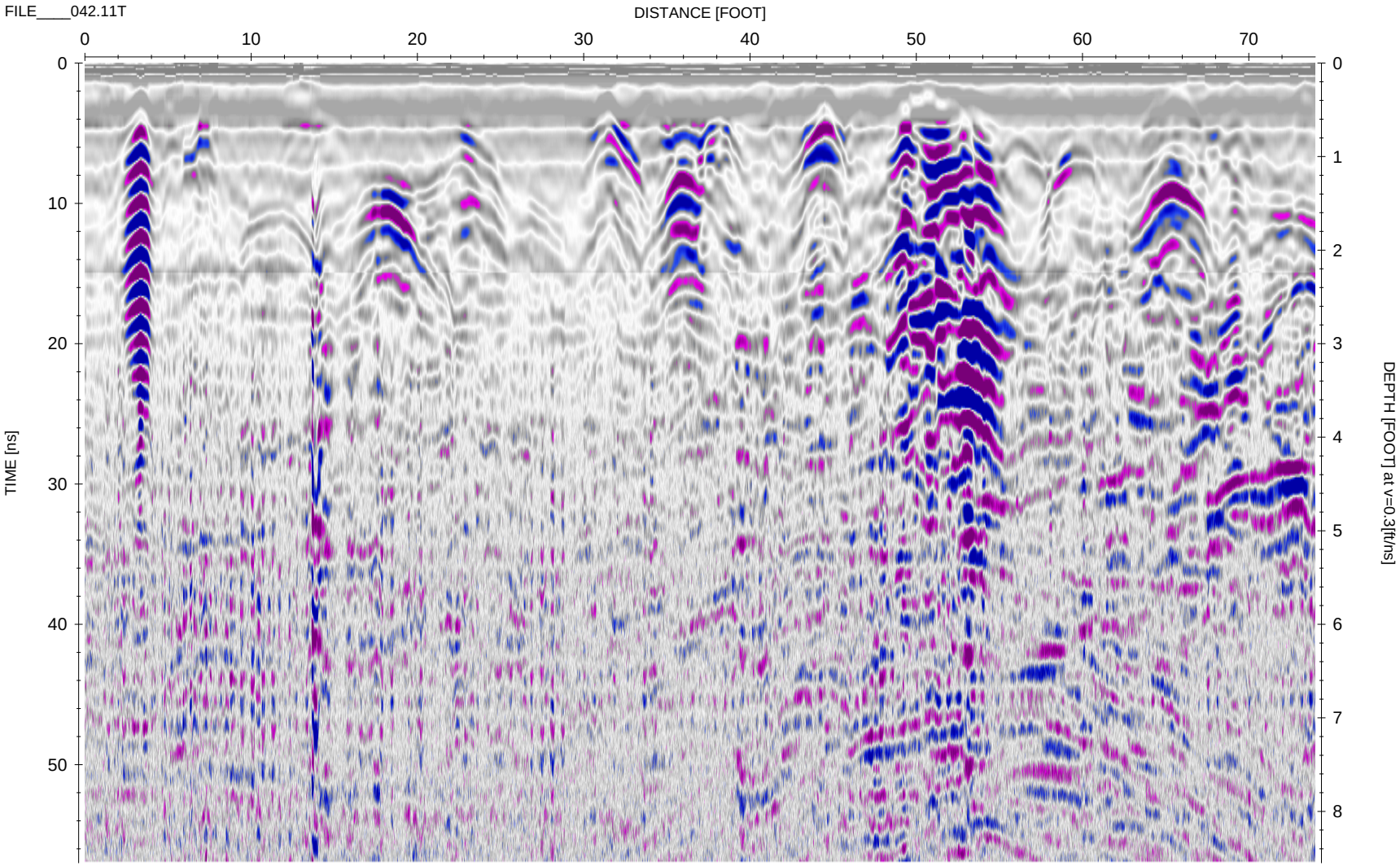

FILE____050.10T
DISTANCE [FOOT]
0
10
20
30
40
50
60
70
80
90
100
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

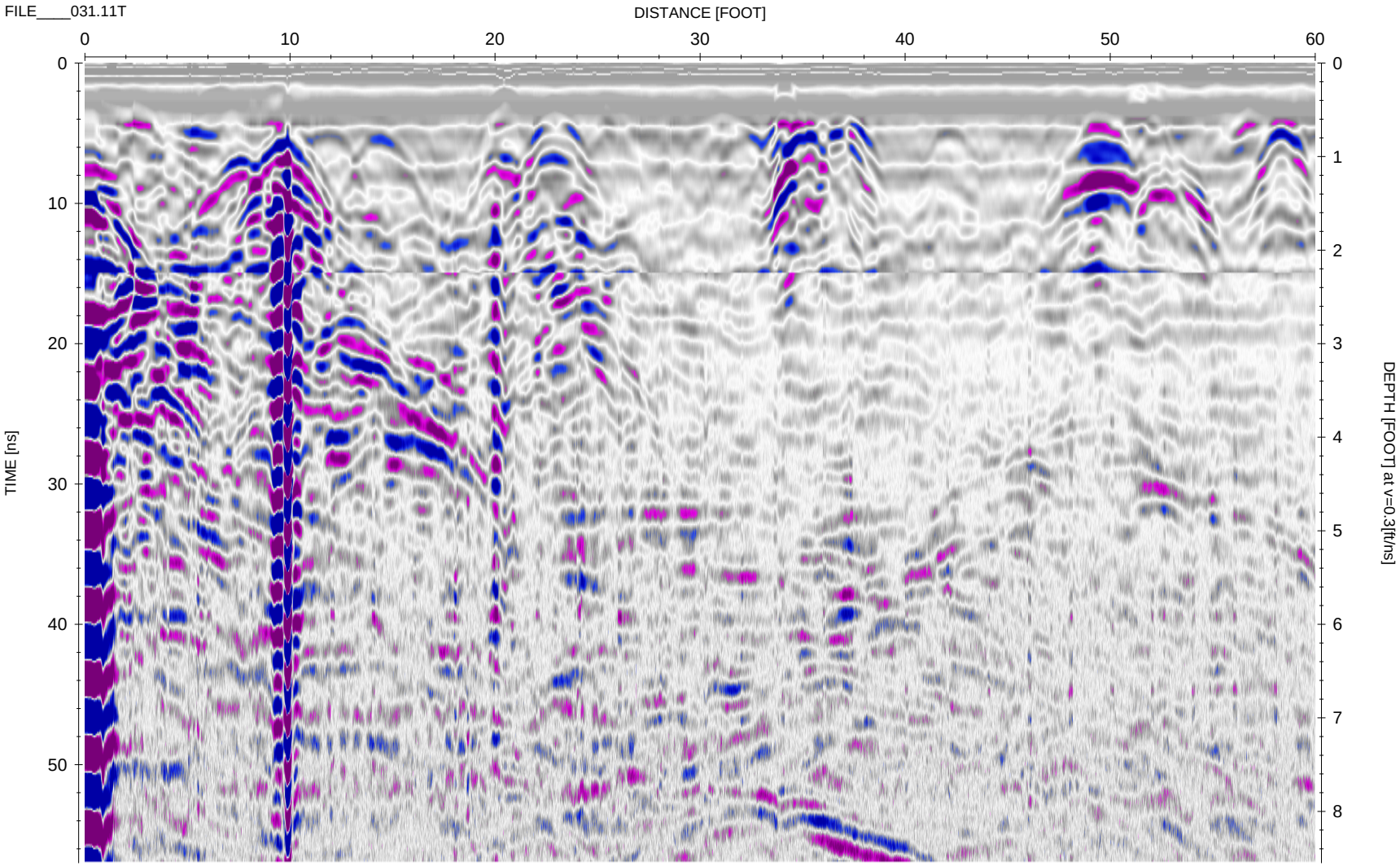

FILE____047.11T
DISTANCE [FOOT]
0
10
20
30
40
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

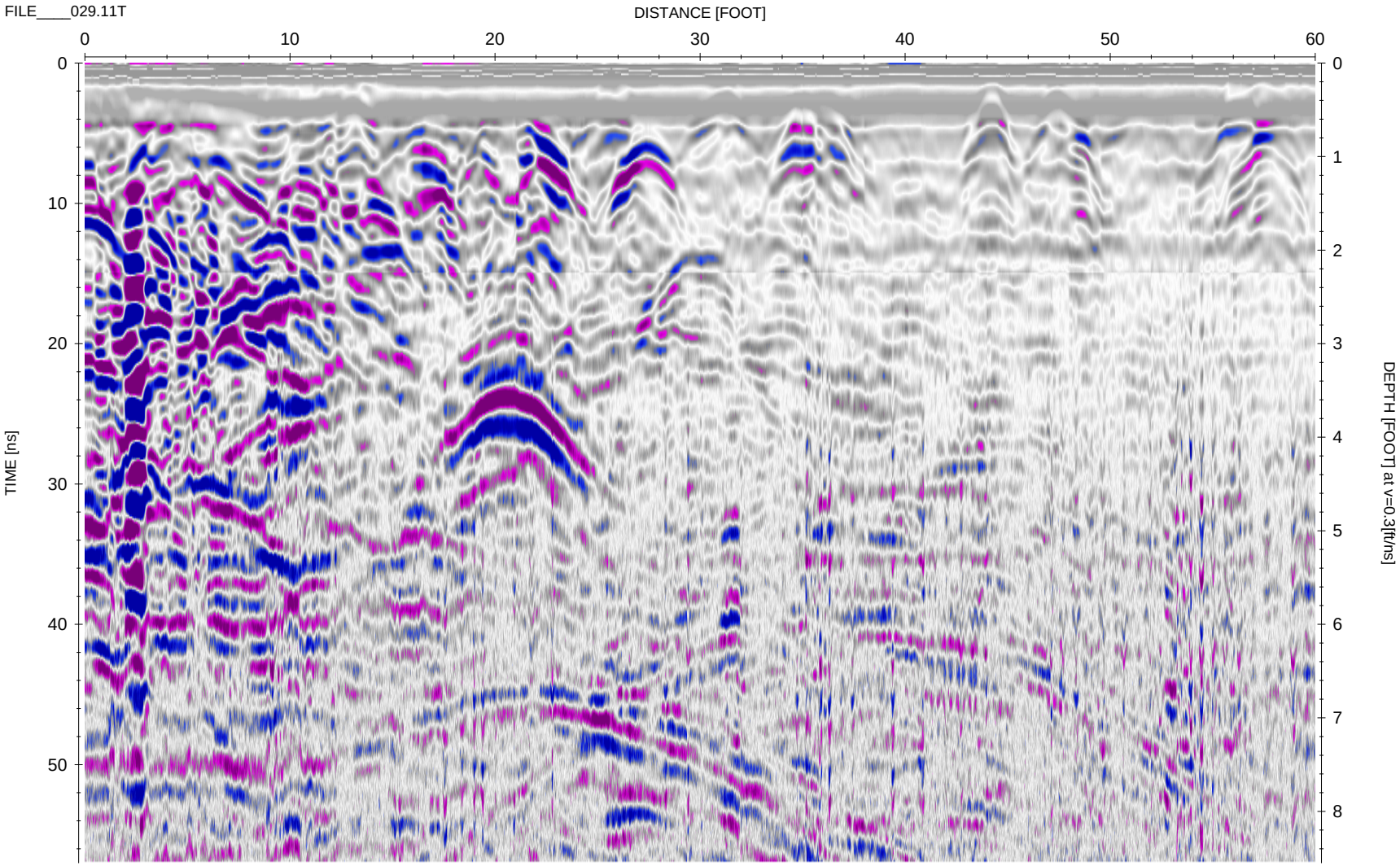

FILE____046.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
70
80
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

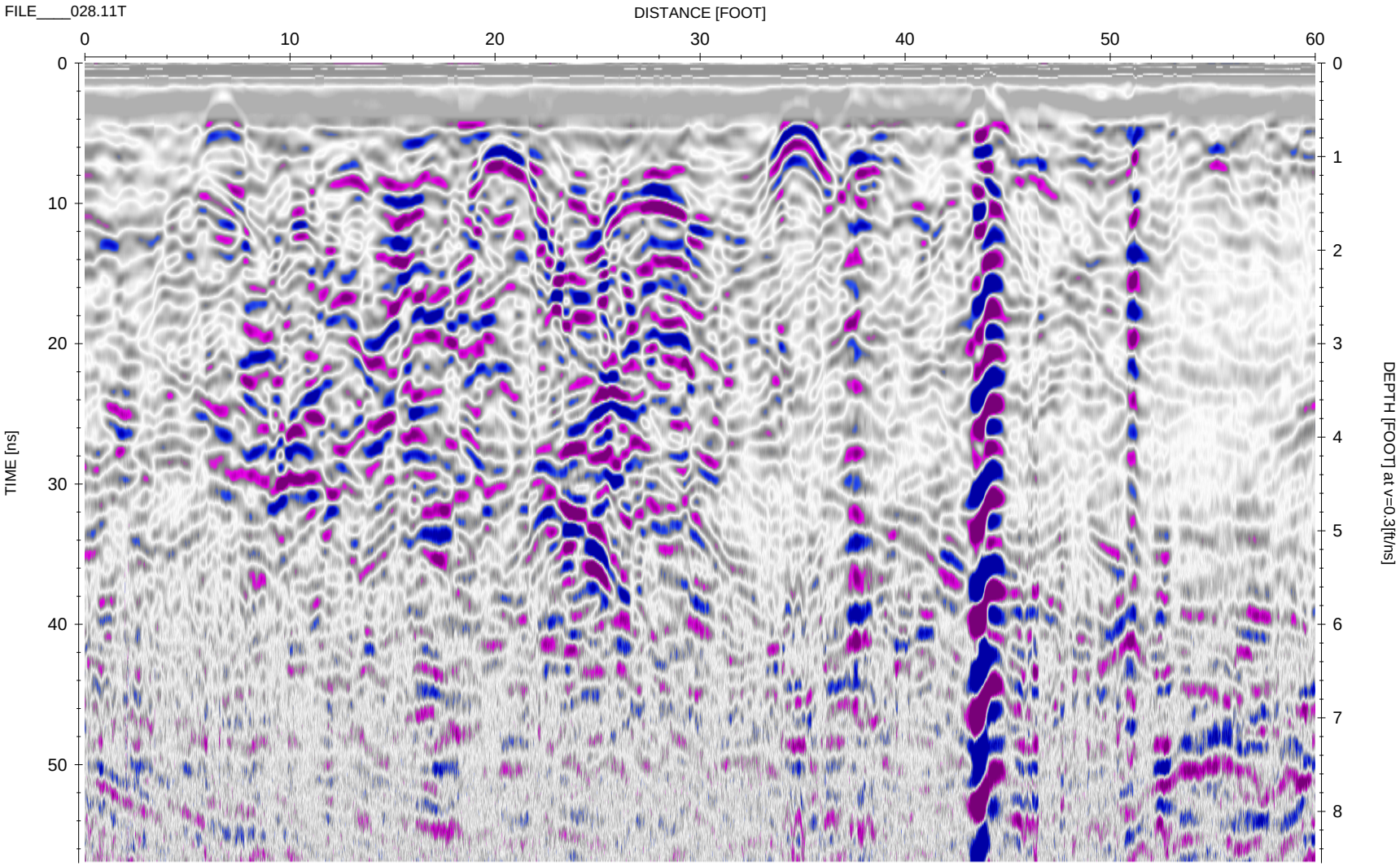

FILE____044.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
70
80
90
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

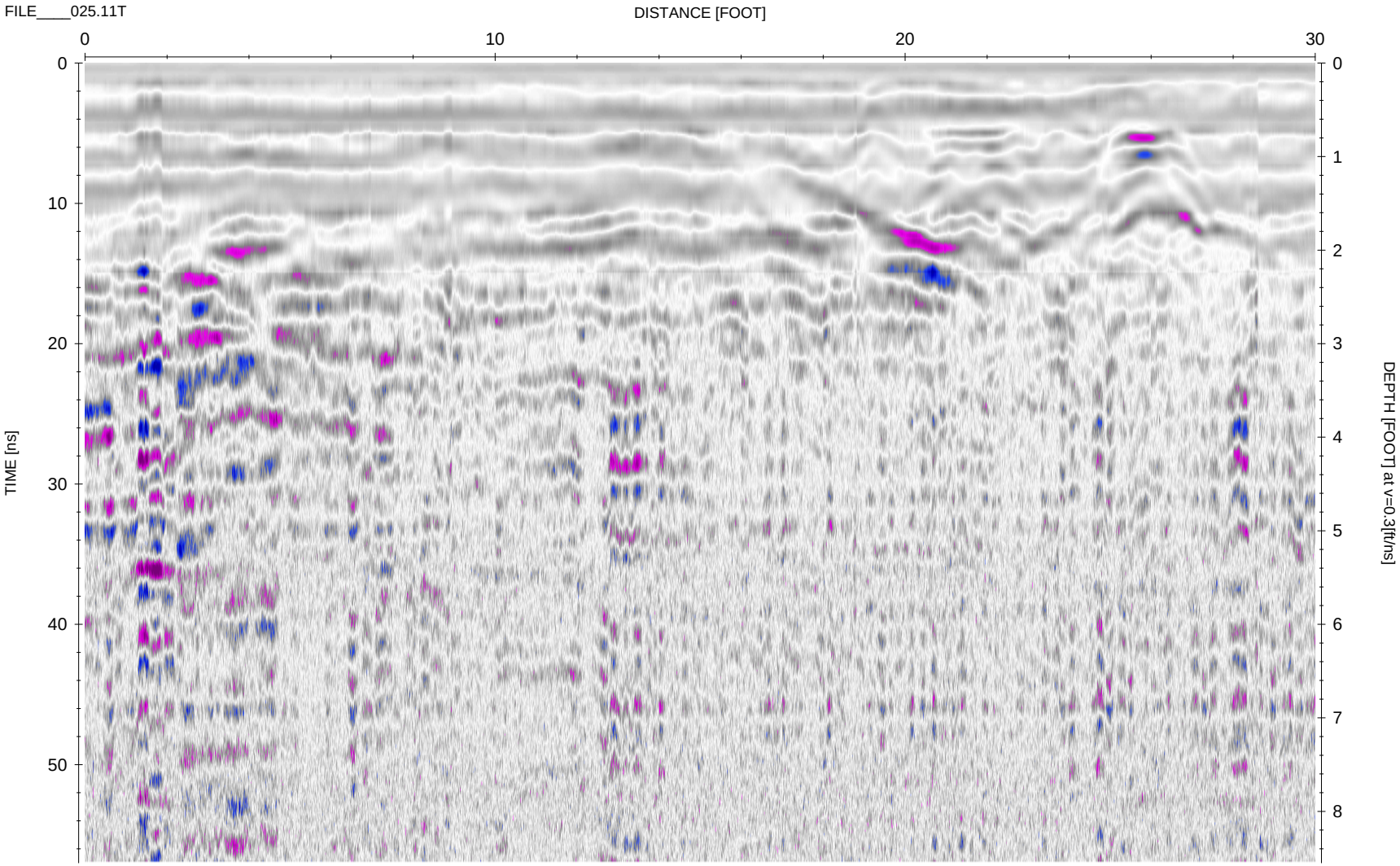

FILE____043.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
70
80
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

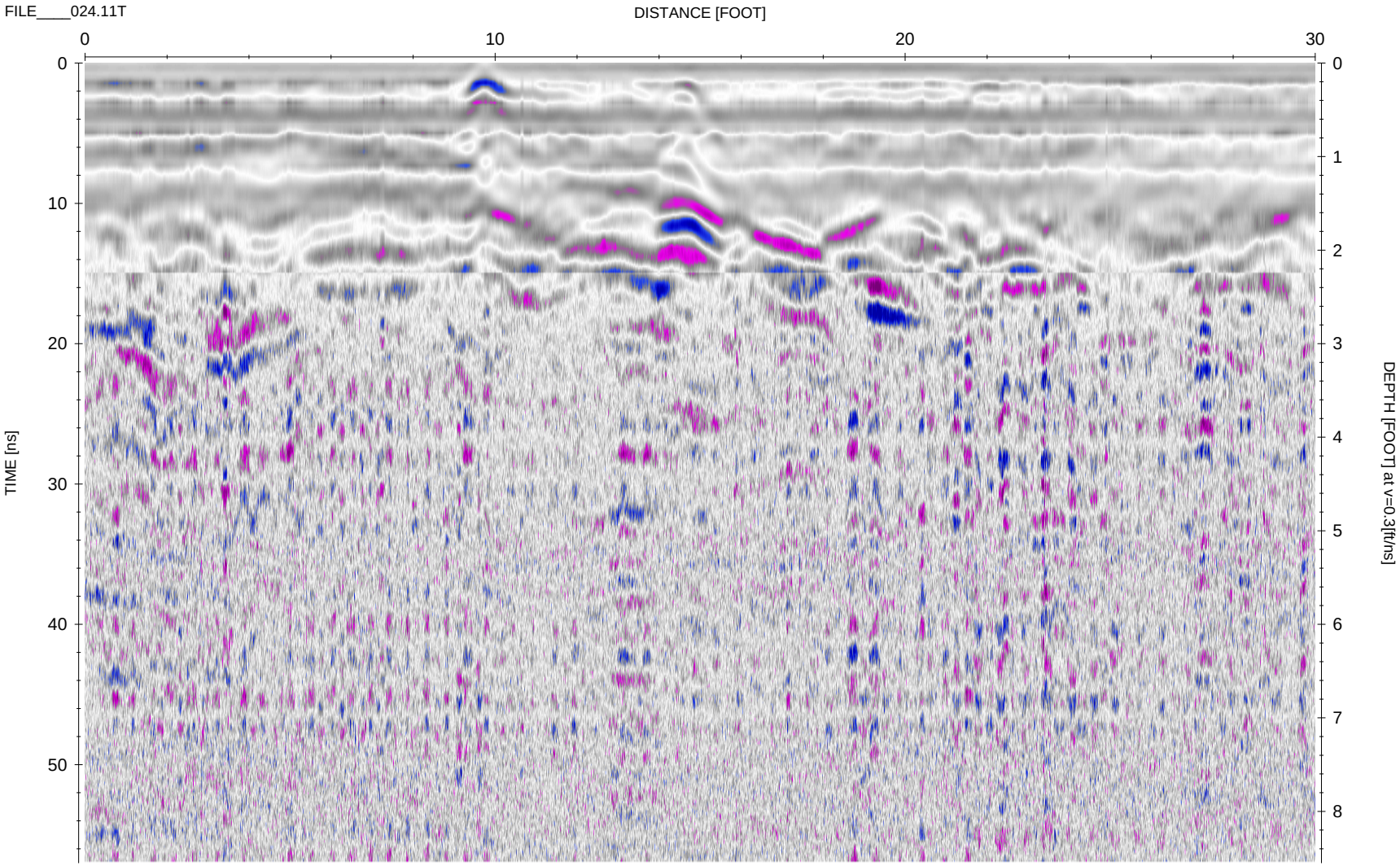

FILE____042.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
70
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

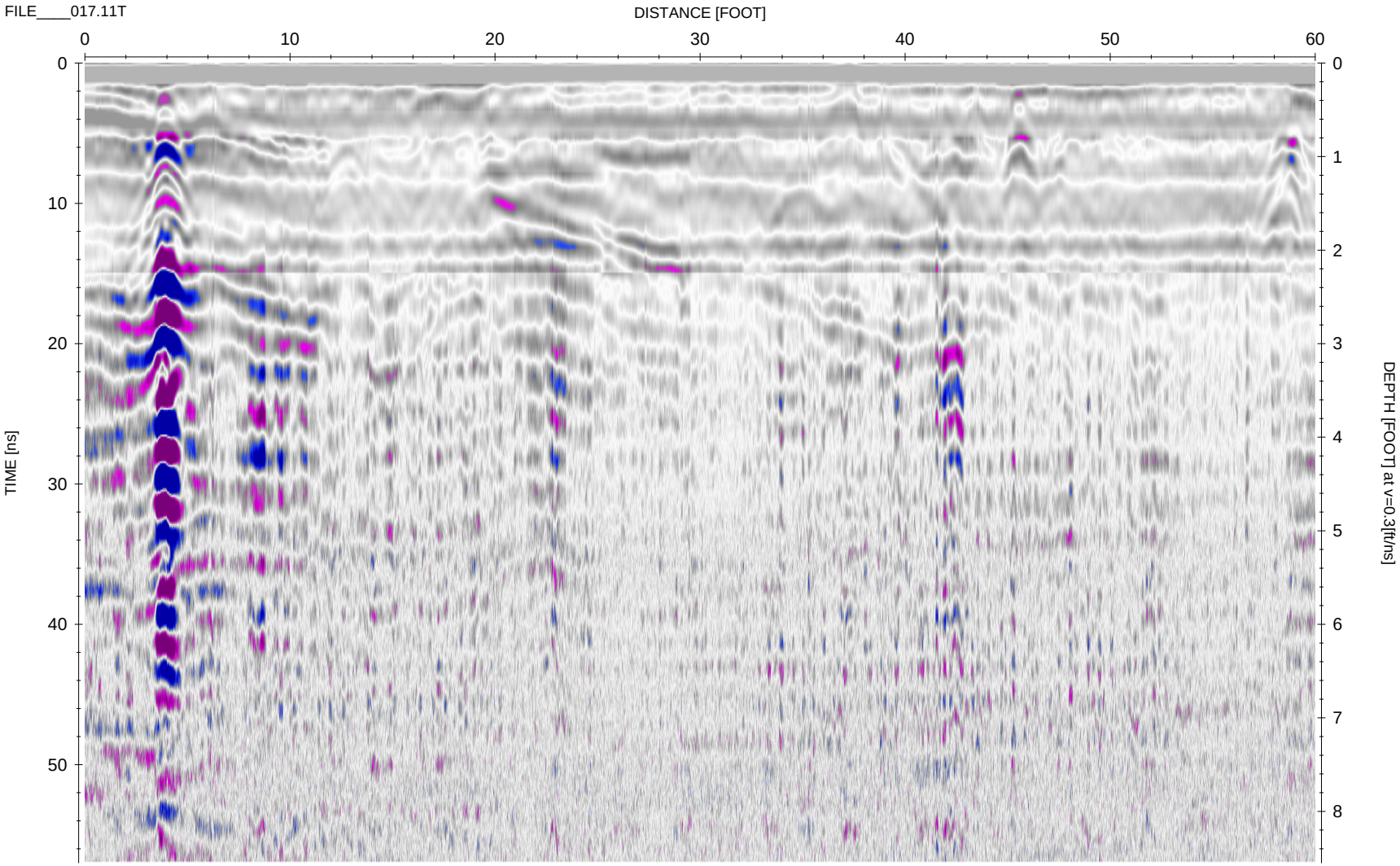

FILE____031.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

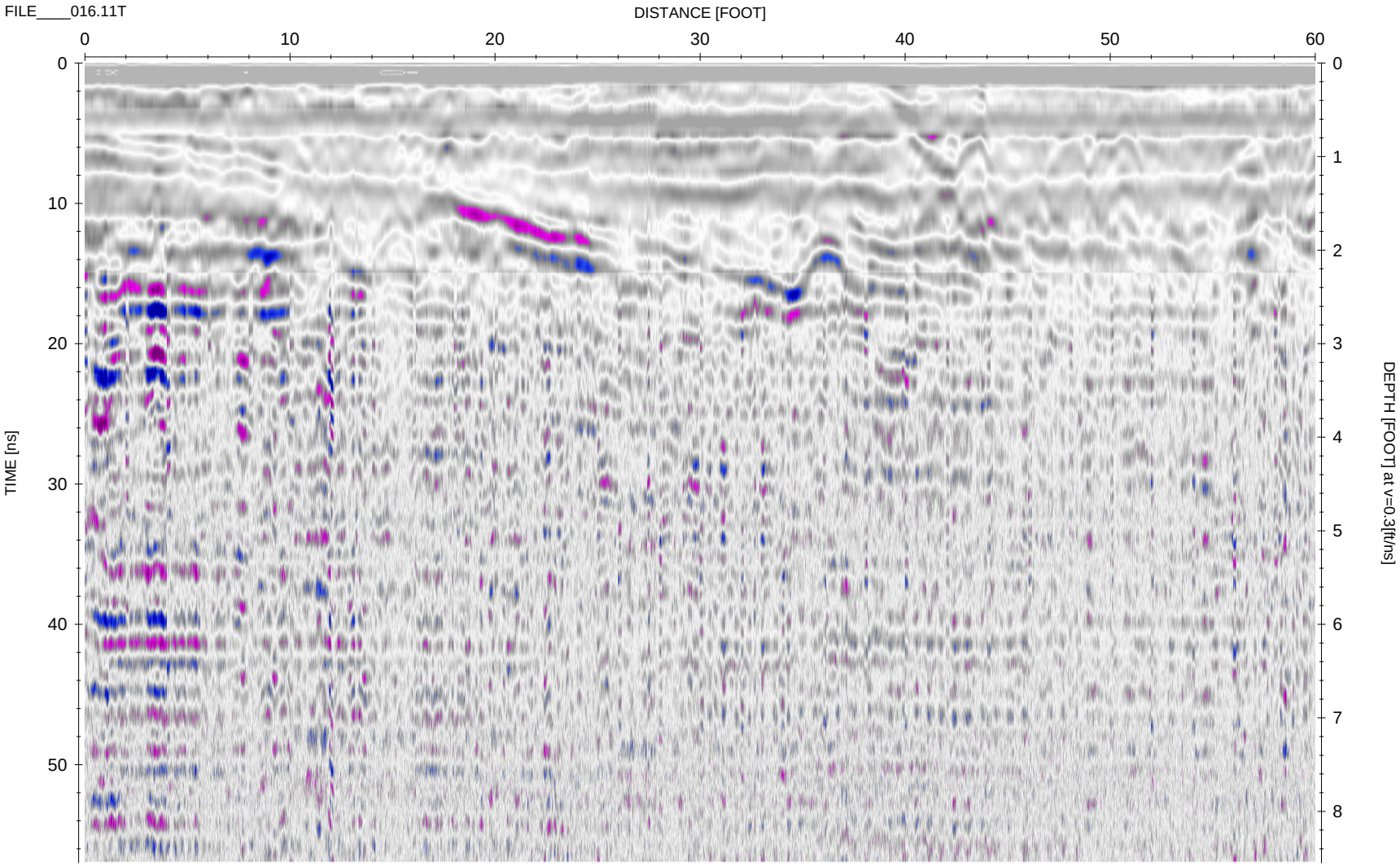

FILE____029.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

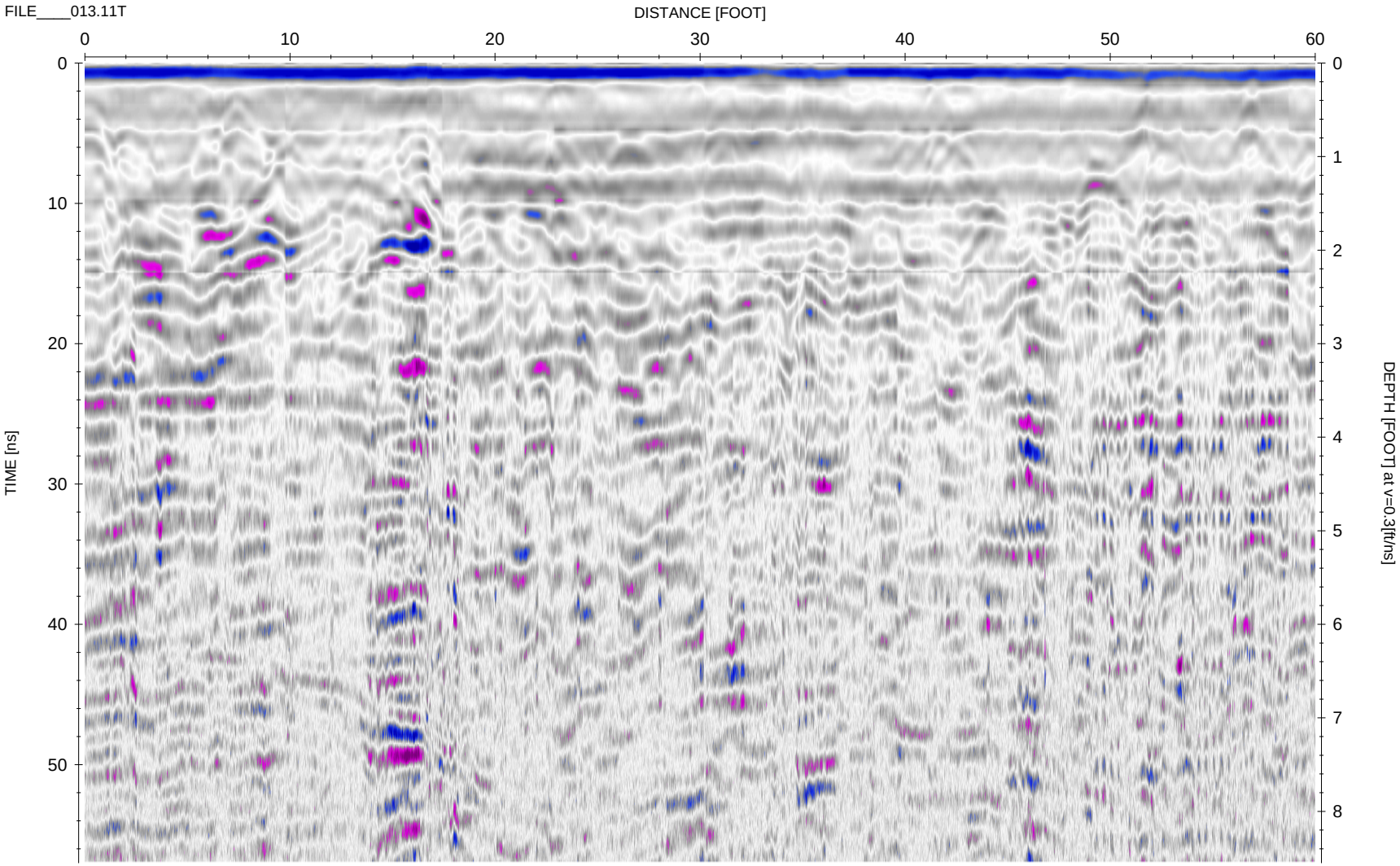

FILE____028.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

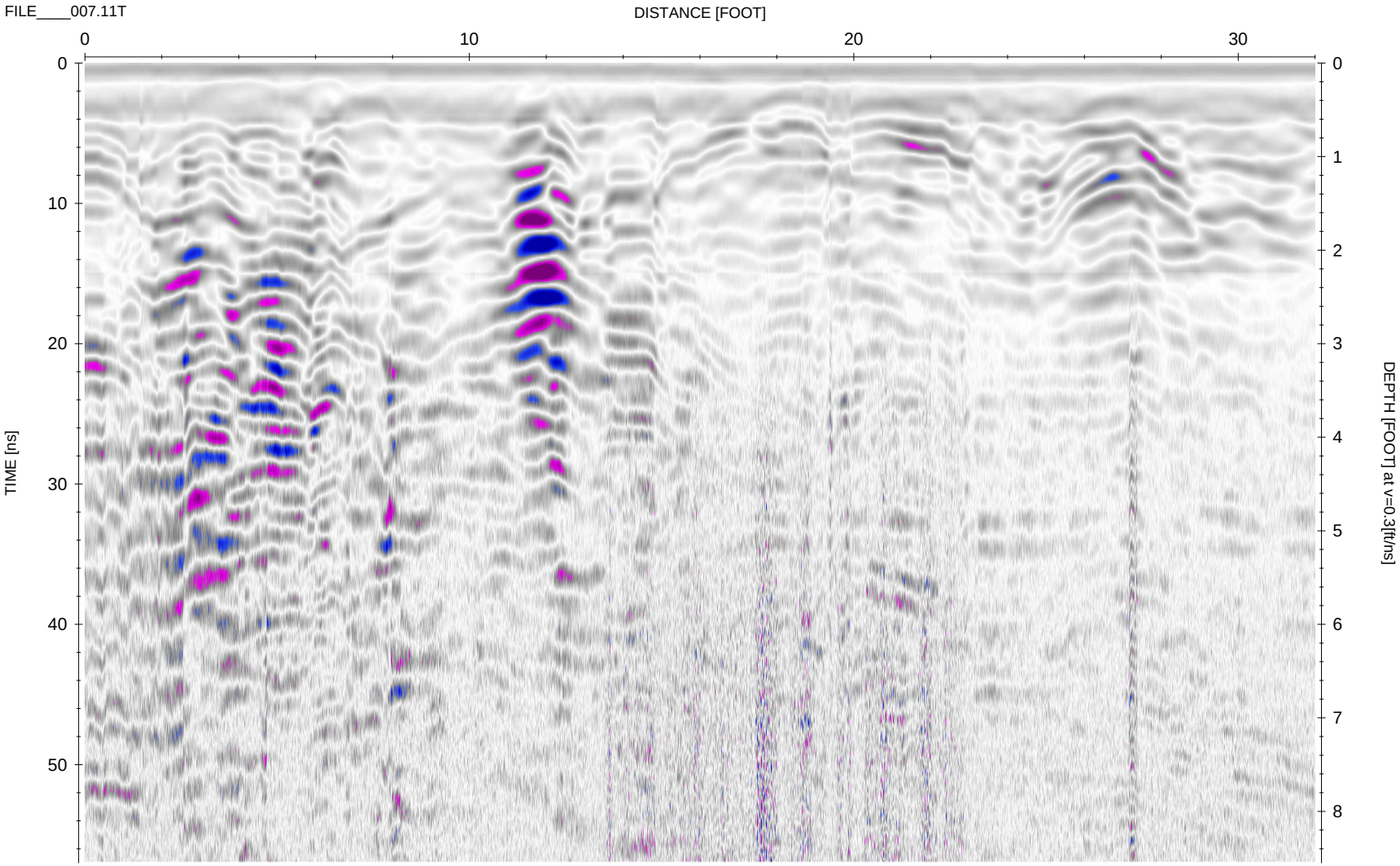

FILE____025.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

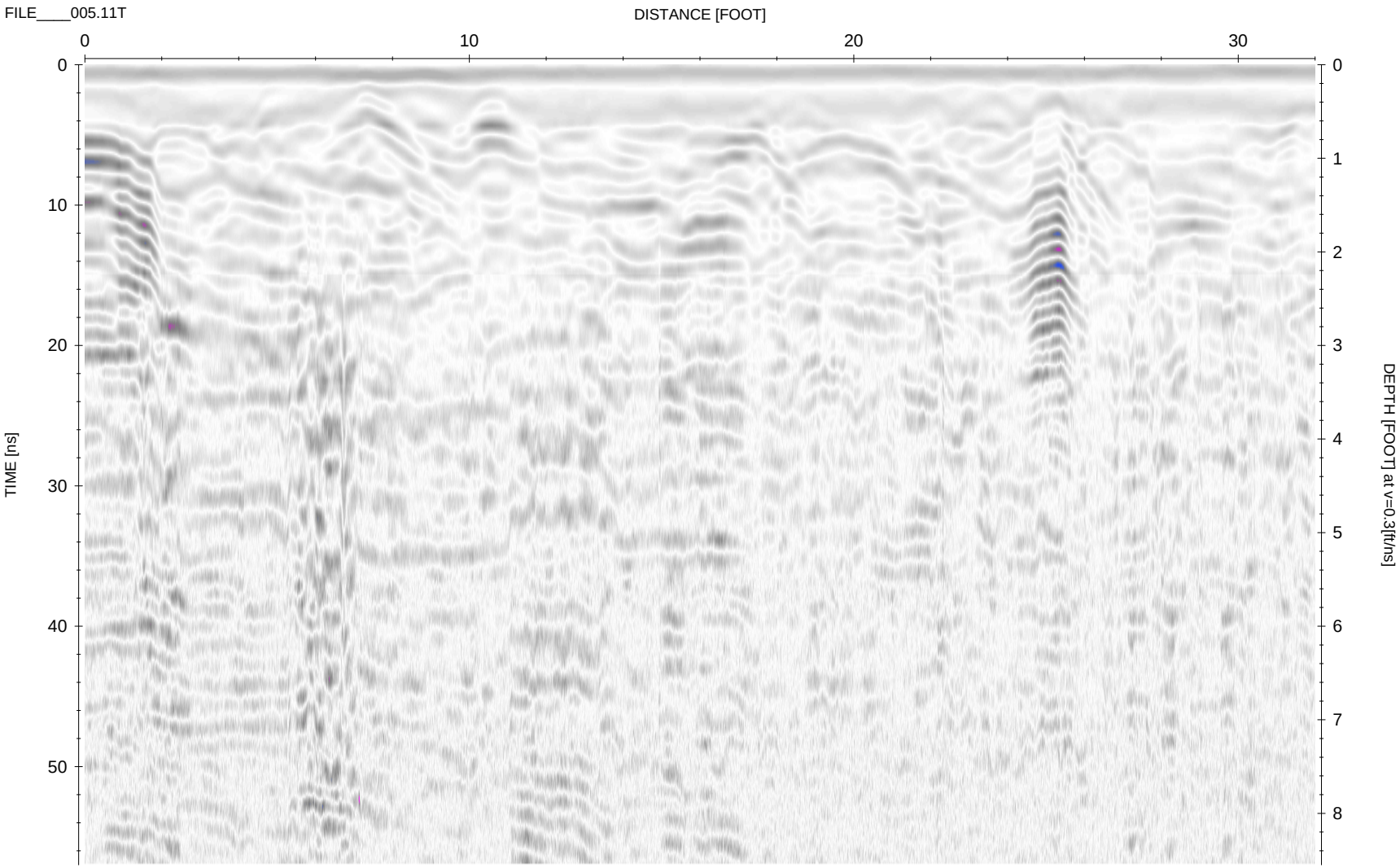

FILE____024.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8

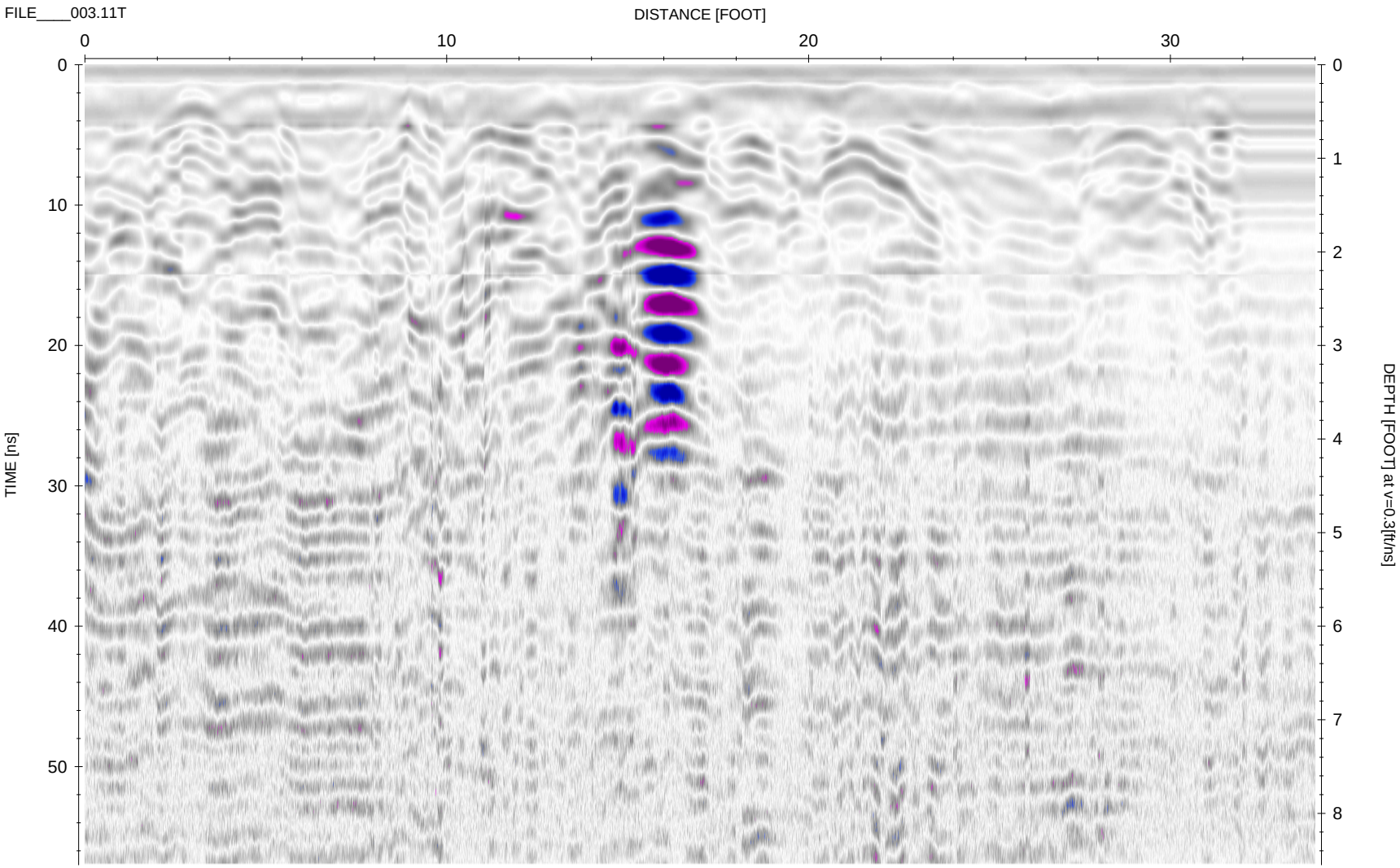

FILE____017.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8


FILE____016.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8


FILE____013.11T
DISTANCE [FOOT]
0
10
20
30
40
50
60
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8


FILE____007.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8


FILE____005.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8


FILE____003.11T
DISTANCE [FOOT]
0
10
20
30
TIME [ns]
0
10
20
30
40
50
DEPTH [FOOT] at v=0.3[ft/ns]
0
1
2
3
4
5
6
7
8