



ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Refraction Seismic Survey to Investigate Depth to Bedrock
Upper McKee Creek

TOTAL COST: \$17,445.84

AUTHOR(S): Bruce Wrightson MSc, P.Geol.

SIGNATURE(S): Bruce Wrightson

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S): August and September, 2019

STATEMENT OF WORK EVENT NUMBER(S)/DATE(S): 5771979 January, 2020

YEAR OF WORK: 2019

PROPERTY NAME: Upper McKee Creek

CLAIM NAME(S) (on which work was done): Top of the Hill

COMMODITIES SOUGHT: placer gold

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN:

MINING DIVISION: Atlin

NTS / BCGS: 104N043

LATITUDE: 59° 29' 45"

LONGITUDE: 133° 29' 0" (at centre of work)

UTM Zone: 8 **EASTING:** 585900 **NORTHING:** 6596200

OWNER(S): Bruce Wrightson

MAILING ADDRESS: 240053 Range Road 282 Chestermere AB T1X 0M8

OPERATOR(S) [who paid for the work]: Bruce Wrightson

MAILING ADDRESS: 240053 Range Road 282 Chestermere AB T1X 0M8

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization,
size and attitude. **Do not use abbreviations or codes**)

Refraction seismic

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (in metric units)		ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)	
GEOLOGICAL (scale, area)					
Ground, mapping					
Photo interpretation					
GEOFYSICAL (line-kilometres)					
Ground					
Magnetic					
Electromagnetic					
Induced Polarization					
Radiometric					
Seismic		1500m 150m	Proposed completed	Top of the Hill	\$17,445.84
Other					
Airborne					
GEOCHEMICAL (number of samples analysed for ...)					
Soil					
Silt					
Rock					
Other					
DRILLING (total metres, number of holes, size, storage location)					
Core					
Non-core					
RELATED TECHNICAL					
Sampling / Assaying					
Petrographic					
Mineralographic					
Metallurgic					
PROSPECTING (scale/area)					
PREPATORY / PHYSICAL					
Line/grid (km)					
Topo/Photogrammetric (scale, area)					
Legal Surveys (scale, area)					
Road, local access (km)/trail					
Trench (number/metres)					
Underground development (metres)					
Other					
			TOTAL COST	\$17,445.84	

Refraction Seismic Survey

to Investigate

Depth to Bedrock

Upper McKee Creek

Tenure Number: 1066132

(164 hectares)

NTS Map No. 104N043

NAD 83 Projection – UTM zone 8

Atlin Mining District

Northwestern British Columbia

Property Owner and Operator

Bruce Wrightson

240053 Range Road 282

Chestermere AB T1X 0M8

January 2020

Conducted by:

Bruce Wrightson, MSc, P.Geol.

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Introduction

Placer claim 1066132 is located on the upper reaches of McKee Creek in the Atlin gold camp. McKee Creek flows west and southwest into Atlin Lake about 14 kilometers south of the village of Atlin. The creek is about 12 kilometers long and has been worked primarily in the middle third section of its length. Hydraulic mining started in 1903 and has accounted for most of the gold production up to 1946.

The water source for the early hydraulic mining on McKee was gravity feed from a water reservoir located near the headwaters of the creek. Placer claim 1066132 is located in the upper reaches of McKee, covers 164 hectares and encompasses the area underlying the old dam (Fig. 1), the historical water reservoir and the region between the dam and placer leases further downstream.



Fig. 1 View of upper McKee Creek valley and historical hydraulic mining dam site.

A consequence of this location is that the area has never been mined nor explored for potential gold bearing channel gravel deposits.

Bruce Wrightson is the owner of placer claim 1066132 and has undertaken a preliminary exploration project to investigate depth to bedrock. Refraction seismic using a propane powered impact hammer as a seismic source was chosen as no surface disturbance occurs.

Field work took place from August 30 to September 2, 2019, inclusive. Travel from Calgary to Atlin occurred during the last week of August and return to Calgary took place at the end of the first week of September..

Accessibility, Climate, Local Resources, Infrastructure and Physiography

Atlin, the most northerly community in British Columbia, lies east of the Coast Range Mountains approximately 140 kilometers east of Juneau, Alaska. It is situated on the east shore of Atlin Lake (Fig. 2) at an elevation of 2,190 feet (670m) ASL and is accessed from Jakes Corner and the Alaska Highway by a 92 kilometer part hard top, part gravel road. Whitehorse, Yukon, located 82 kilometers to the northwest of Jakes Corner, provides most services and facilities required in support of placer mining, including an international airport that offers daily flights to other Western Canada centers.

Gravel roads and mining trails negotiable by 4WD-equipped vehicles provide excellent access in the area. Gravel road access to McKee Creek along the Warm Bay Road can be

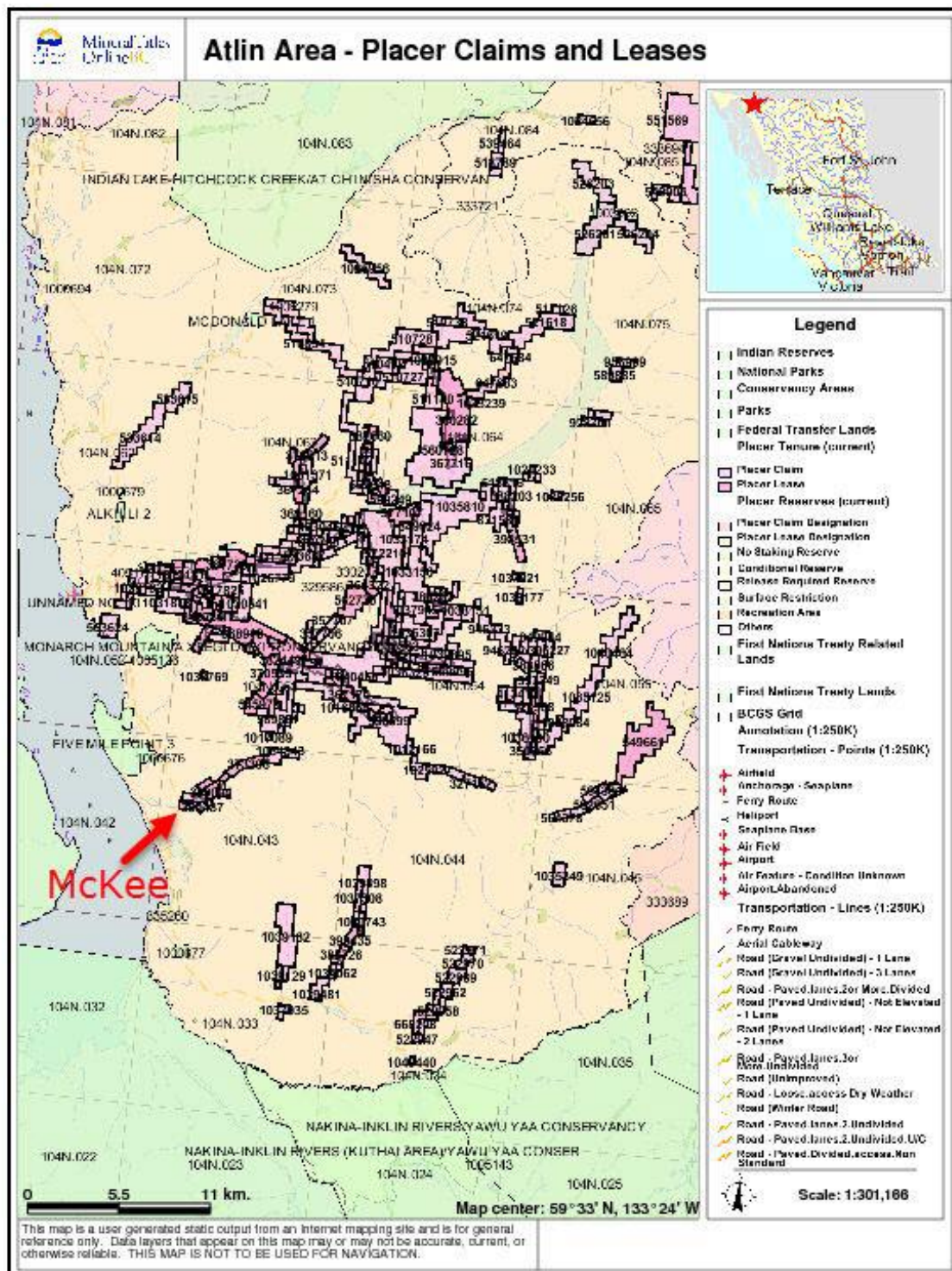


Fig 2. Regional 1:300000 scale map showing placer gold leases and claims in the Atlin area.

considered excellent by northwest British Columbia standards, primarily due to the historic and present placer mining activity.

At one time, a trail located just north of McKee Creek bridge provided access to upper McKee. The road has been seldom used in recent years, is partially over grown and is currently impassable. Mining roads from Spruce Creek or Otter Creek into Upper Spruce Creek provide alternative access to upper McKee. Trails from Spruce Creek road extend into the old dam site on upper McKee (Fig. 3).

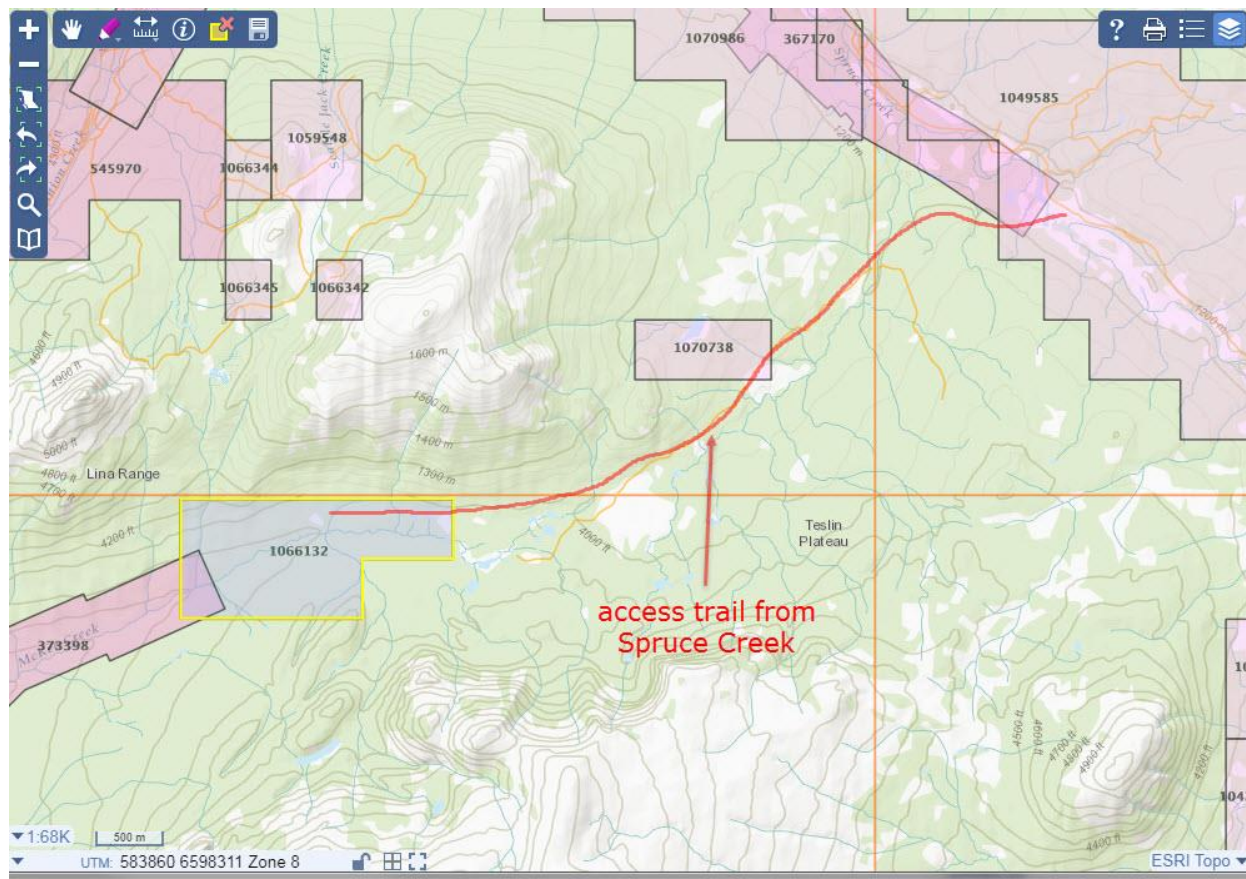


Fig 3. Topographic map showing location of placer claim 1066132 and access to Upper McKee Creek.

Atlin's climate is typical of northern British Columbia; January temperatures average -15°C and snowfall averages two metres; summers are pleasant with average temperatures of 20°C and variable amounts of precipitation. Precipitation is reported to approximate 30 millimeters during the summer months.

The Atlin region features topography that is significantly different from the coastal ranges, and consists of gently rounded mountains with relief approximating 1,000 meters.

Summer season is short, with approximately 70 frost-free days. Overburden stripping can commence by early May and should be completed by October. Gravel can be processed in wash plants during the frost free time. Ground geophysics is ideal almost all year round except December and January.

History

Atlin became known as a productive Canadian placer gold camp in the year 1898, when two prospectors found gold in paying quantities in several creeks. It is estimated that the Atlin camp has produced much more than a million ounces of placer gold.

Placer gold nuggets from the Atlin gold camp often show an association with bull quartz fragments, so it can be assumed at least in part, Atlin placer gold is sourced to quartz vein systems that have since had their gold zones eroded away. It can be assumed gold mineralization was limited to specific paleo-horizons. California style mother-lode gold deposits likely exist in the highly prospective formations that are masked by overburden. Source rocks for gold mineralization and the placer gold deposits are located in areas that include listwanite geology associated with the Atlin Ophiolitic Complex, the Atlin Accretionary complex, the Monarch Mountain thrust, the Otter Creek Fault, and other fault lineaments.

Current placer mining activity is centered on the historical creeks, including McKee Creek, Pine Creek, Spruce Creek, Otter Creek, Boulder Creek, Birch Creek and Wilson Creek.

McKee Creek

Gold production from early hydraulic mining on McKee Creek has been tabulated and recorded as 46,953 ounces from 1898 to 1946. Additional hydraulic mining was carried out during the 1950's, 1960's and 1970's. Some underground mining was conducted on the creek in the mid 1930's and during the 1970's. Mechanized surface mining operations have been carried out on McKee from the 1960's until 2008 and 2016 to 2018.

Atlin Area Geology

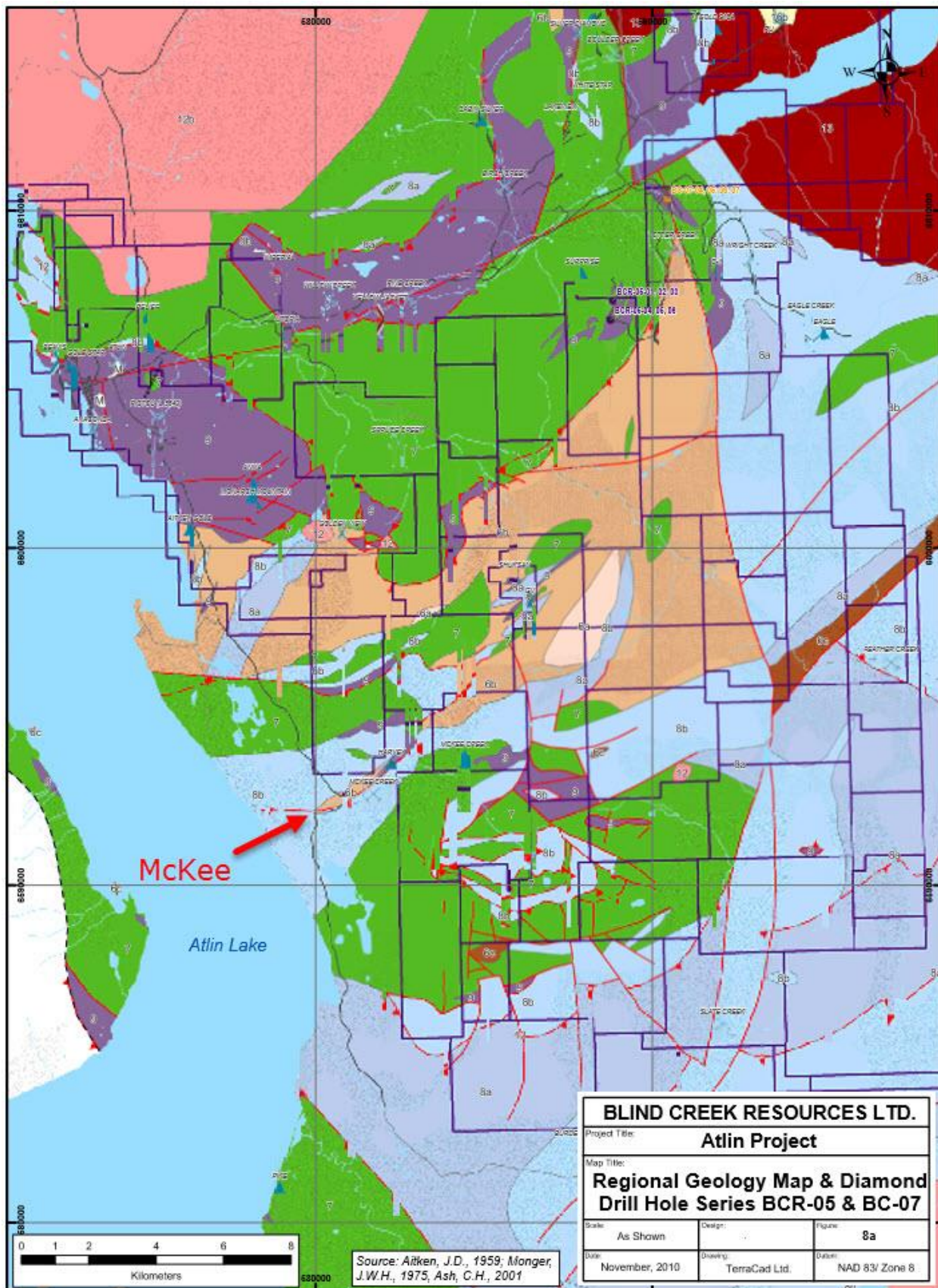
Regional Geological Setting

Federal and provincial government geological reports, Minfile data and assessment report archive system (ARIS) information are available sources concerning the geological setting and local geology of the Atlin area. Much of the following information is taken from Ash, BCDM Bulletin 108, 2001. References within brackets are those used by Ash.

The Atlin map area is situated within the Atlin placer gold camp in the northwestern Cordillera of the northern Cache Creek (Atlin) Terrane. It contains a fault bounded package of late Paleozoic and early Mesozoic dismembered oceanic lithosphere, (Monger, 1975, 1977a b, 1984; Tempelman-Kluit 1979), intruded by post-collisional Middle Jurassic, Cretaceous and Tertiary felsic plutonic rocks (Wheeler and others 1991, Mihalynuk and others 1992) (Fig. 4 regional geology of Atlin area from Bind Creek Resources, 2010). Mixed graphitic argillite and pelagic sedimentary rocks that contain minor pods and slivers of metabasalt and limestone dominate the terrane. Remnants of oceanic crust and upper mantle lithologies are concentrated at the western margin. Dismembered ophiolitic assemblages have been described at three localities along this margin: from north to south they are the Atlin, (Ash 1994), Nahlin, (Terry, 1977) and King Mountain, (Leaming, 1980) assemblages. Each area contains imbricated mantle harzburgite, crustal plutonic ultramafic cumulates gabbros and diorites, together with hypabyssal and extrusive basaltic volcanic rocks. Thick sections of late Paleozoic shallow-water limestone dominate the western margin terrane and are associated with alkali basalts. These are interpreted to be carbonate banks formed on ancient ocean islands within the former Cache Creek ocean basin, (Monger, 1977b).

The ages of the rocks in the terrane are interpreted primarily from paleontological data. Isotopic age data for oceanic crustal plutonic rocks includes a single U-Pb zircon age of around 245 Ma. for a peridotite from Cache Creek rocks in the Yukon, (Gordy and others, 1988). Fusulinid bearing limestone range in age from Carboniferous to Late Permian, with Permian faunas dominating, (Monger, 1975). Radiolarian cherts range in age from early Permian to Late Jurassic and give the youngest fossil ages. Conodonts give the widest age variation, ranging from Mississippian to Late Triassic, (Orchard, 1991).

The following five sections are quoted directly from Ash, BCDM Bulletin 108. The geology of the Atlin Project area is divisible into two distinct litho-tectonic elements. A structurally higher, imbricated sequence of oceanic crustal and upper mantle lithologies termed the 'Atlin Ophiolitic Assemblage', is tectonically superimposed over a lower and lithologically diverse sequence of steeply to moderately dipping, tectonically intercalated slices of pelagic meta-sedimentary rocks with tectonized pods and slivers of meta-basalt, limestone, and greywacke termed the 'Atlin Accretionary Complex'. Locally these rocks are intruded by the Middle Jurassic calc-alkaline Fourth of July batholith and related quartz-feldspar porphyritic and melanocratic dike rocks (Mihalynuk, et al. 1992).



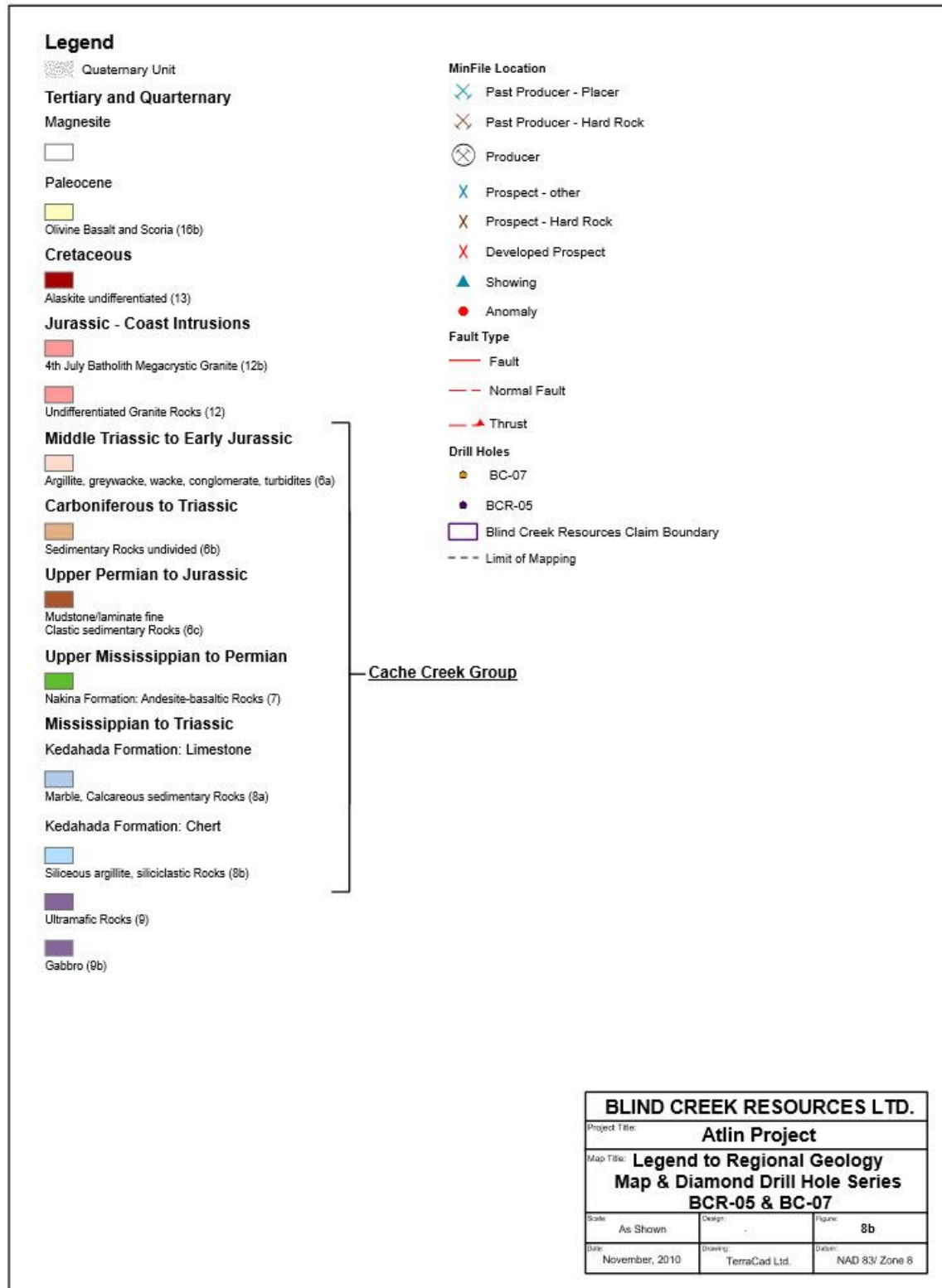


Fig 4. Regional geology and legend of the Atlin area from Blind Creek Resources.

Atlin Ophiolitic Assemblage

The Atlin ophiolitic assemblage comprises an imbricated sequence of relatively flat-lying, coherent thrust slices of obducted oceanic crustal and upper mantle rocks. Mantle lithologies are dominated by harzburgite tectonite containing subordinate dunite and lesser pyroxene dikes. The unit forms an isolated klippe that underlies Monarch Mountain and the town of Atlin, and is exposed on the northern and southern slopes of Union Mountain. Commonly the basal contact of the harzburgite unit is pervasively carbonatized and tectonized over distances of several meters or more.

Oceanic crustal lithologies in the Atlin camp, in decreasing order of abundance, include metamorphosed basalt, (also andesitic basalts-author) ultramafic cumulates, diabase, gabbro with meta-basalts dominating. The meta-basalts are generally massive, fine-grained aphanites and weather a characteristic dull green-grey colour. Locally the unit grades to medium-grained varieties or diabase. Primary textures locally identified in the meta-basalt include flow banding, auto-brecciation and rare pillow structures. Although rarely exposed, basalt contacts are commonly sheared or brecciated zones, sometimes intensely carbonatized. Petrochemical studies of these basaltic rocks (Ash, 1994) indicate they are similar in composition to basalts of normal ocean ridge settings and the chemistry also suggests a genetic relationship to the associated depleted metamorphic mantle ultramafic rocks.

Serpentinized peridotite displaying ghost cumulate textures and sporadically preserved relict poikilitic texture is suspected to originally be wehrlite. The peridotite forms an isolated thrust sheet which outcrops discontinuously along a south facing slope of Mount Munro. Extensive exploration drilling along the base of Mount Munro within the Pine Creek channel on the Yellowjacket property indicates that the serpentinized body is in structural contact with meta-basalt rocks along a gently north dipping thrust, (Marud, 1988a, b). The interface of hanging wall ultramafics and footwall meta-basalts is a zone of tectonic intercalation and carbonatization. Projection of this fault across Pine Creek valley suggests that the carbonatized and serpentinized ultramafic rocks on the summit of Spruce Mountain represent a remnant above an extension of the same tectonized and altered basal contact.

Meta-gabbro is the least commonly seen ophiolitic component in the map area. It outcrops on the northern slope of Union Mountain and along the south-facing slope of Mount Munro. It is abundant in drill core from the Yellowjacket property along Pine Creek, where it occurs as isolated pods and lenses within the Pine Creek Fault Zone (Lefebure and Gunning, 1988; Marud, 1988, a, b). On Union Mountain, gabbro occurs along the Monarch Mountain thrust as isolated dismembered blocks with faulted contacts.

Atlin Accretionary Complex

The Atlin accretionary complex comprises a series of steeply to moderately dipping lenses and slices of structurally intercalated meta-sedimentary and meta-volcanic rocks that underlie the southern half and northwest corner of the Atlin camp. Pelagic meta-sedimentary rocks dominate the unit and consist of argillite, cherty argillites, argillaceous cherts, and cherts with lesser limestone and greywacke. They range from highly mixed zones with well developed flattened fabric indicative of tectonic *mélange* to relatively coherent slices. Individual slices range in width from metres to several hundred metres. Indications of internal deformation are moderate or lacking; in a few slices stratigraphy is well preserved. Contact relationships between many individual units of the complex have not been established due to lack of exposure; however most are inferred as tectonic. Internal bedding within the individual lenses in places is parallel to the external contacts, but is more commonly strongly discordant. This argues against simple infringing of different facies.

A common feature throughout the accretionary complex, particularly in areas of moderate overburden, is closely spaced outcroppings of different lithologies with no clearly defined contacts. Such relationships are interpreted to represent areas of *mélange* in which the exposed lithologies that commonly include chert, limestone and basalt are more competent than the intervening, recessive fissile and argillaceous matrix. Such relationships are confirmed where sections are exposed along road cuts and in areas of trenching.

A review of rocks present as mapped on the surface, and significant structures relevant to listwanite gold exploration in the Atlin camp are summarized below.

The predominant unit within the Atlin Project is the Mississippian to Triassic Cache Creek Group consisting primarily of grey argillites, grey cherts to jasper cherts, including andesite, basalt and meta-andesite basalt, agglomerate varieties, and variable grey shale sediments with minor light grey limestone. Regionally, the argillites, cherts and shales are sometimes associated with minor milky and massive quartz veining, or grey to translucent crystalline quartz veining, which occasionally hosts traces of pyrite, often in cube form. Upper Mississippian to Permian ultramafic rocks, particularly altered dunite, harzburgite, wehrlite, and peridotite are present, along with pyroxenite dikes. Occasionally these rocks have been altered by serpentinization, carbonatization, silicification, and sulphidization to create listwanite sequences.

In the northwestern part of the Atlin Project area the Fourth of July Batholith rocks of Jurassic age are in contact with the Cache Creek Group. These batholithic rocks consist of megacrystic quartz feldspar monzonites, quartz monzonite and granodiorite. The quartz monzonite can be recognized in the field by an abundance of smoky quartz, small hornblende euhedra and crystals of brown sphene that catch the eye. Some outcrops are more alkalic, the potash

feldspar appearing as coarse pink phenocrysts. The Fourth of July Batholith is also host to dark green lamprophyre dikes.

A suite of felsic, two feldspar quartz porphyritic dikes that are considered to be related to the Fourth of July Batholith are erratically exposed in the Atlin Project area. They are reported in Minfiles to occur near gold bearing quartz veins, i.e. Beavis and Anaconda showings. The dikes are usually from 0.5 to 2 metres wide, have variable orientations and dip steeply, (McIvor, 1988a).

The Monarch Mountain thrust is defined by BC government geologists as the structural base of the Atlin Ophiolitic Assemblage. This flat lying thrust marks the contact zone with the underlying Atlin Accretionary Complex. It is characterized by a zone of tectonic brecciation and carbonatization, from several metres to tens of metres in width that affects both upper and lower walls of the thrust. Within this zone slices of ophiolite and the accretionary rocks intermix, and may be accompanied by alteration and development of listwanite.

Government geologists interpret the Pine Creek Fault to be a high angle east-northeast trending structure, which parallels Pine Creek and extends easterly to the Yellowjacket project. This fault is reported to be 50 metres to 70 metres in width, and according to Yellowjacket workers is closely associated with in-situ gold mineralization.

The Surprise Lake batholith of Cretaceous age lies east of the Atlin Project and is abundantly exposed in the region of Surprise Lake. The batholith comprises coarse to fine grained alaskite, with quartz-eye aplite derivative dikes. These alaskite rocks and derivatives, depending on location, host trace and larger amounts of molybdenum, tin, tungsten and uranium, and where alaskite rocks are present as dykes may exhibit high background contents of gold and silver.

Regional and local faulting (author note: often seen on aerial photographs/satellite imagery as lineaments) is present within the Atlin Project area and is deemed to have played a significant part in the ground preparation for formation of listwanite-hosted lode gold deposits that in turn contributed gold to the Atlin area creeks.

Mineral Deposit Type

Mineral deposits sought in the Atlin Project include mesothermal gold-quartz veins; shear hosted lode gold, and low sulphide gold quartz veins associated with ultramafic bodies featuring listwanite alteration.

Listwanite is an ophiolitic assemblage that features carbonatization, silicification, quartz veins, and gold-silver, (also as electrum, i.e. Imperial property) which commonly has variable but trace

amounts of chalcopyrite-arsenopyrite-stibnite-galena-sphalerite-pyrite. Mariposite, a distinctive greenish chrome-mica mineral, is a common diagnostic component.

Mineralization

The predominant mineral of interest in the Atlin Camp is placer gold, and it is estimated that much more than 1,000,000 ounces have been produced from creeks east of Atlin over the past 110 years. An unknown amount of placer gold is currently produced seasonally from selected Atlin Creeks, and during the late 1970's to late 1990's placer gold production from the camp is estimated to have been significant.

Gold nuggets may range from smaller than match head size up to exceptional nuggets of 60 ounces. During 2009 season two gold nuggets found by a metallic detector on upper Otter Creek are reported to be in the 58 and 62-ounce range. Nuggets can be flattened, rounded, irregular, and semi-crystalline to crystalline. Colour of gold is variable from creek to creek, and placer miners are quick to identify source. These nuggets invariably encapsulate coarse grains of quartz, magnetite or other rock grains.

The reported best pay channels found within the placer creeks are generally just above bedrock, but in many cases gold can be within the cracks and fissures in the upper one metre of bedrock. Otter Creek has a reported three pay horizons, one on bedrock and two upper ones several metres apart.

Spruce Creek has two pay horizons, one on bedrock or just above, with the second pay horizon up to 10-15 metres above bedrock. According to Atlin placer miners, the lower horizon gold is from Dominion Creek, while some of the upper horizon gold is from Otter Creek, having been moved around during local interglacial (Wisconsin) periods.

Gold occurrences in the Atlin camp indicate a relationship to ultramafics, Cache Creek rocks, quartz veins, listwanites, carbonatization, thrust faulting and normal faulting.

Mineralization is gold and silver, or electrum. Gold can occur freely. It can also occur in association with minor pyrite, chalcopyrite, argentiferous galena, and sphalerite. If minor chalcopyrite is present, invariably minor malachite and or azurite is present. However, all these accessory minerals can occur together or individually without gold, silver or electrum.

Geochemical pathfinders to Atlin gold showings can include the foregoing minerals, as well as arsenic and antimony.

Source of Placer Gold

Fig. 5 attempts to indicate the source areas of placer gold with arrows suggesting channel ways of shedding, with the opposite end of the arrow pointers suggesting bedrock areas still having potential to host gold (Blind Creek Resources, 2010).

It is widely accepted that the source of the abundant placer gold won from the Tertiary and Quaternary placer gravels lies in the strongly altered ultramafic rocks of the Atlin ophiolitic terrane.

The two most productive gold creeks in the Atlin camp are Pine Creek and Spruce Creek. On the basis of existing drainage patterns and pay gravels within Pine Creek one can surmise that the source of the placer gold was the ultramafic bodies of Pine Creek, upper Snake Creek, (Surprise Minfile and the Lakeview Minfile). A 1 meter wide quartz vein at the Surprise showing on upper Snake Creek is believed by Aspinall to be displaced by the Pine Creek Fault to the Lakeview property, where the same quartz vein continues north on the West side of Boulder Creek valley, then trends Northeast to Ruby Mountain and crosses Ruby Creek. (One can also surmise Ruby Creek placer gold sourced to the same quartz vein). Remnant ultramafic wedges in the upper Snake Creek area are apparently related to the ultramafic body on Pine Creek and it is possible that a thrust sheet, now eroded, has separated them.

Geological field examinations, assessment report data, and discussions with placer miners active on Spruce Creek, lead to the conclusion that a lower pay horizon in that creek came from Dominion Creek, while an upper pay horizon can be, judging from the visual characteristics of the gold, sourced to Otter Creek.

By deduction and extrapolation, it can be surmised that isolated shallow ultramafic wedges and associated Cache Creek rocks and lineaments such as those on upper Snake Creek, Dominion Creek, (including the LD property) Wilson Creek and McKee Creek, are likely original source zones that contributed much or all of their gold to the Atlin placer deposits, and that the larger ultramafic bodies in the Monarch Mountain-Pine Creek-Surprise Lake zone remain the most drill prospective for the location of deeper, bedrock gold deposits.

The broad dispersion of placer gold in the present valleys of Pine Creek and McKee Creek suggests that the fault systems contributed to movement of the gold into the present placer environments. Similar faults may have acted in the same way on Birch, Boulder, Casino and Ruby Creeks.

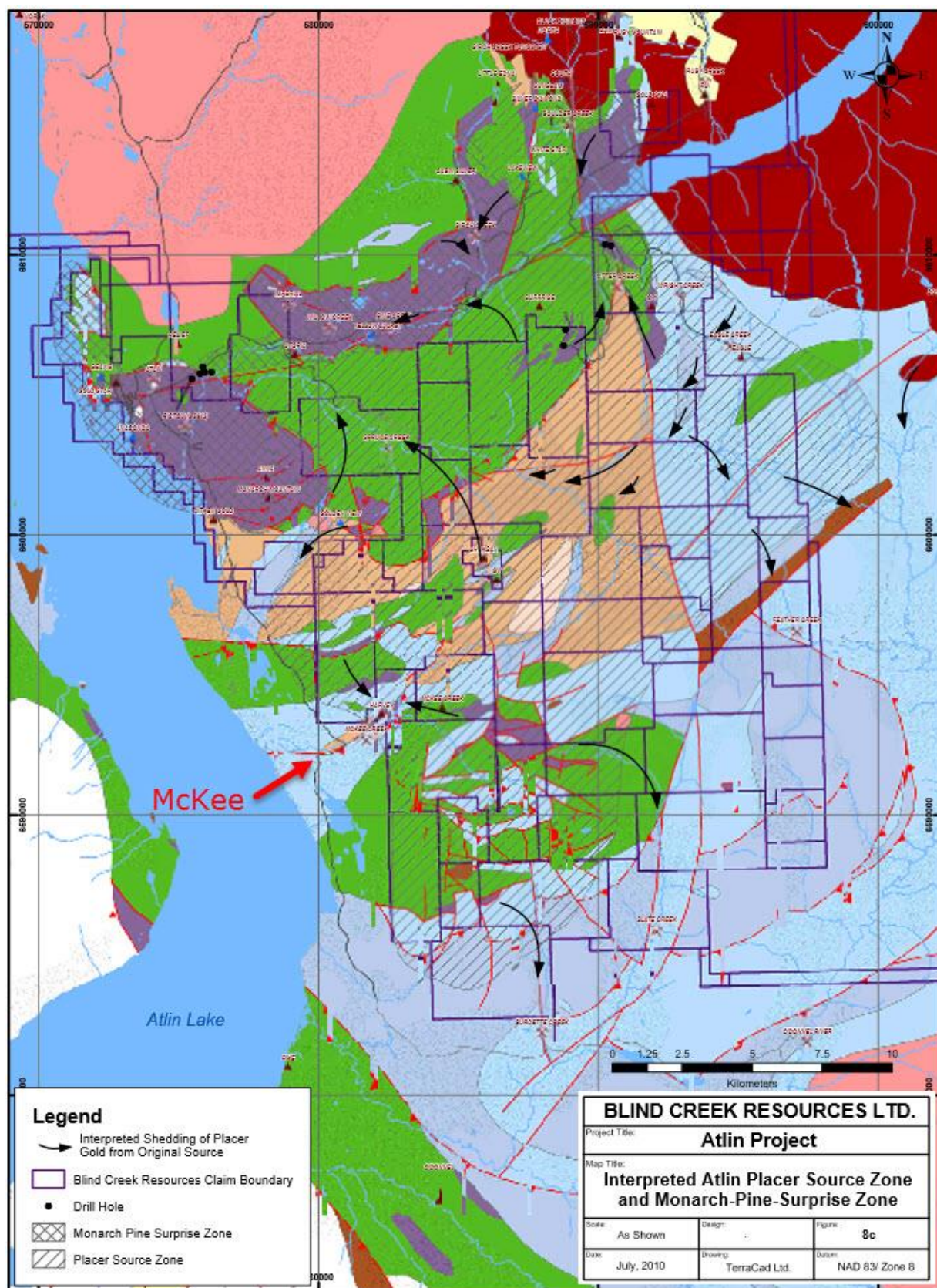


Fig 5. Possible source direction of placer gold deposits.

Atlin Pleistocene Surface Gravels With Placer Gold Implications

The Atlin area is challenged by the fact that most of the potential placer area is covered by more than 95% with overburden, only some 5% outcrop being present. Lacustrine gravels, reported up to 25 metres thick as determined by water well and other types of drilling, overlie important drill target areas in the regions of lower Pine, Spruce, and Otter creeks. Glacial tills of variable thickness cover the upper reaches of these creeks, including Dominion, Rant, Wilson and Upper McKee Creek.

Glacial till and/or stream-lacustrine gravels greatly frustrate prospecting efforts to locate the gold-bearing placer channels. Rotary drilling is the generally accepted method of locating placer channels. Refraction seismic is capable of defining bedrock geometry, assuming there is not a velocity inversion. Depth from surface to the tops of placer channels is too shallow for compressive wave seismic reflection surveys. Shear wave reflection seismic may be used for shallow investigations, but the cost of shear wave data collection is higher than a refraction survey and data processing is more complex.

Given the fact that many creeks which drain the area have yielded placer gold, a brief description of the gravels is appropriate:

1) South of Spruce Creek, within Dominion Creek and upper tributaries of Lena Creek, McKee Creek and Wilson Creek. glacial till gravels overlie the lower and medial valley slopes, whereas fluvioglacial-lacustrine gravels lie within the post-glacial lower channels of Otter Creek. Glacial gravels are estimated to be between 5 and 30 meters thick in the southern part of the area, and glacial stream-lacustrine gravels are up to 30 meters thick in the lower portion of Otter Creek.

2) Satellite imagery and field observations of mountain ranges, valleys and gullies within the centre of the Atlin area reveals a pattern of strong faulting preserved in the Cache Creek rocks. Such tectonic activity may have served to create ideal ground preparation for the introduction of lode gold. This faulting and ground preparation is conjectured to be a consequence of the intrusion of the Cretaceous age Surprise Lake Batholith to the northeast. Further conjecture may relate that event to cassiterite signatures found by Sack and Mihalynuk on placer gold from the Feather Creek area.

Hard Rock Gold Exploration Relevant to McKee Creek

In 1983 to 1984, Standard Gold Mines Ltd carried out an extensive diamond-drilling program in addition to trenching on Dominion Creek. Their principal work was directed to a small hill situated east of upper Dominion Creek where many narrow quartz veins were found within or

adjacent to a carbonatized and silicified mariposite rich ultramafic body. Though narrow these veins returned values as high as 3.95 oz/ton gold.

Placer Dome Inc. in 1987 optioned the Dominion Creek property and adjacent areas from the Surprise Lake Exploration Partnership and conducted a ten hole, 1,399.3 metre drilling program. Placer Dome drill targets included:

1. Rant Creek-Dominion Creek NE-SW inferred thrust fault system
2. Strike extensions of known alteration zones
3. flanks of magnetic highs (Ultramafic bodies)
4. Breaks and structures interpreted from field magnetic and VLF data.

Faults, quartz veins and sulphide mineralization were intersected in a number of drill holes, but no economic gold or silver values were obtained. The highest value was 0.63 ppm Au over a 1 metre length of drill core.

Geological mapping has interpreted ultramafic strata underlying placer claim 1066132. Normal faulting has been interpreted to dissect the strata under the claim (Fig. 4). It is a logical extension that hydrothermal gold bearing quartz veins could be present. The unknown is whether the bedrock has been eroded by fluvial activity and deposited as gold bearing channel gravels. The glacial history of upper McKee Creek is also unknown. Channel gravels may or may not have been deposited and may or may not have been disturbed by glacial activity.

2019 Exploration Program

No previous exploration work has been carried out on the claim. With extensive glacial till covering the area and no known historical workings, initial work becomes difficult with no specific targets to assess.

A refraction seismic program was designed to provide an initial determination of depth to bedrock. Refraction seismic will not be able to image fluvial gravel deposits but will be able to define bedrock geometry assuming there is not a velocity inversion. An impact source generates a high velocity compressional wave which cannot be used to do reflection seismic mapping of shallow deposits. Shallow seismic reflection mapping can be done using a shear wave source and 3-channel geophones. A shear wave is slower velocity than a compressional wave and can be used to map shallow features using reflection seismic. Reflection seismic processing is more rigorous than refraction seismic processing.

The purpose of the seismic program is to determine the depth to bedrock in the valley of upper McKee Creek.

Program Equipment and Design

Seismic equipment was rented from GSR in Calgary AB. Two days travel from Calgary to Atlin by trucks pulling an equipment trailer and an accommodation trailer. Two more days travel on the return trip to Calgary. Several days on location were lost due to heavy rain.

The seismic source used is a compressional impact onto a metal plate placed on the ground. A propane powered impact hammer was chosen as the source with a sledge hammer as a back-up source. Geophones utilized are SM24 marsh geophones with aluminum cases. The geophones are planted into the ground with planting poles. Geophones located below ground level establish better contact with the ground, record a better signal and minimizes external noise from windy conditions. A 48 channel geophone spread was linked and recorded on 2 – 24 channel DAQlink 3 recorders. Vscope acquisition and processing software was run on a laptop computer. A recording trigger was run from the propane hammer or sledge hammer to one of the DAQlink's.

Geophone spacing was 2.5 metres for a spread length of 120 metres (Fig. 6). In a best case scenario, a 120 m spread length could provide meaningful data to a depth of 60 m. A more conservative estimate would be good quality data to a depth of 30 m or $\frac{1}{4}$ of the spread length. Shots were taken every 2nd geophone for a total of 24 shots taken in the 120 m length with 48 records. The program was a “roll along” program with the initial 24 shots taken, then the first 12 geophones were moved from the front of the line to the end of the line. Then the full 24 shots were taken again. This results in duplication of 36 of the records each time a move is made.

Data was initially recorded using a 1.5 second recording window (Appendix 2). Wavelets were trailing off the bottom of the display so the recording window was increased to 3.0 seconds (Appendix 3). The entire line was re-shot using a 3.0 second recording window (Appendix 4). 5 shots or impacts were taken at each shot point so that data could be stacked to enhance the records to 5-fold or 500% (Appendix 5).

A 2-person crew laid out the seismic spread, conducted the survey and recorded the data.



Fig. 6 Field set-up of seismic line on upper McKee Creek.

Field Conditions

Ground conditions were very wet and the water level at the Spruce Creek ford on the access road was very high. Weather conditions did improve, however the water level remained high in McKee Creek and the bottom of the valley was saturated with water.

Access was by 4 wheel drive quads from Spruce Creek to upper McKee Creek over a very rough trail for about 9 km. Multiple trips to and from the location were needed to transport the seismic equipment (Fig. 7). The centre of McKee Creek valley is muskeg covered and the valley margins are covered with dense buck brush. Ground conditions are poor for conducting a seismic program (Fig. 8).



Fig. 7 Quads for transport of equipment and access to upper McKee Creek.



Fig. 8 View of terrain and ground cover at upper McKee Creek valley from access trail.

One day, August 30, was spent transporting equipment from Spruce Creek road into the site and laying out the geophone spread. On days 2 and 3, August 31 and September 1, refraction seismic data was collected with 5 impacts taken at every 2nd geophone location. The initial seismic line was located just east of the old dam (Fig. 9 and Fig. 10). Geophone locations were surveyed by GPS. Relative elevations of the geophones were measured using a rotating laser level. A fourth day, September 2, was spent in the field packing up the equipment and moving it back to Spruce Creek road.

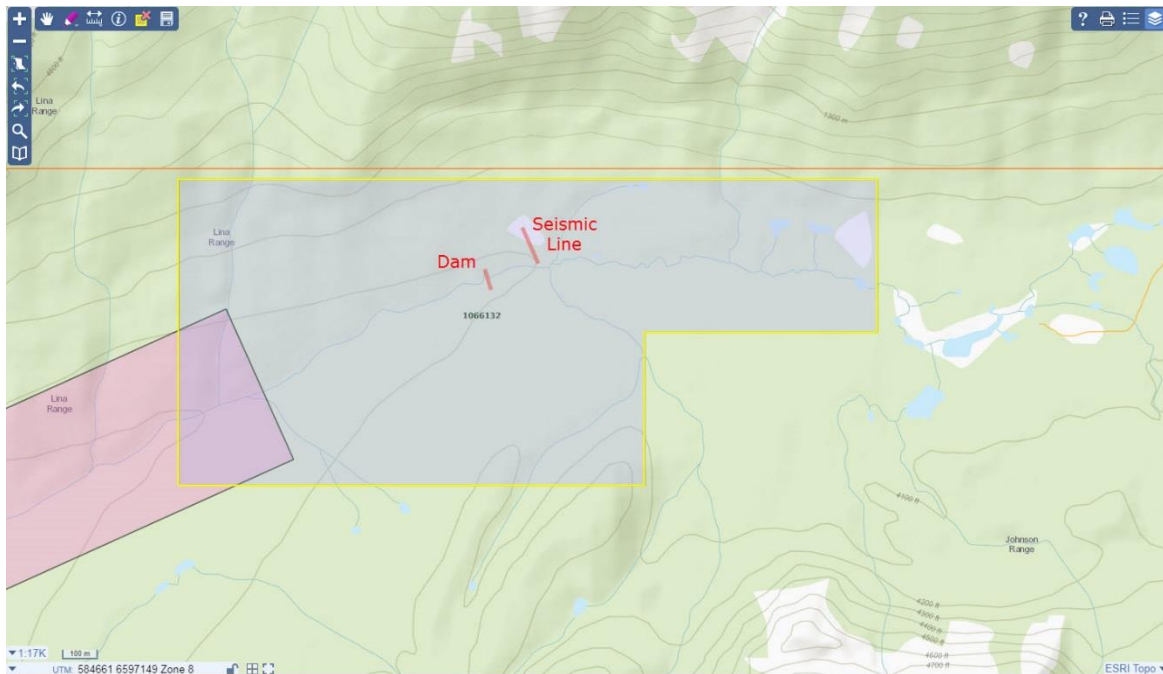


Fig. 9 Topographic map location of seismic line and the dam.



Fig. 10 Landsat image high-lighting the locations of seismic line and the dam.

Results

Data was recorded and quality checked in the field (Appendixes 2 through 5). Fig. 11 and Fig. 12 display typical seismic records. Wet ground conditions resulted in slow velocities and propagation of the signal was impeded. At distances of 20 to 30 metres from the source, the energy was completely attenuated. A 150 metre line was recorded but data useful to define depth to bedrock was not obtained. After 2 days of recording data, the program was suspended due to inability to meet the objective of the program. Interpreted seismic cross-sections could not be drawn due to attenuation of the records.

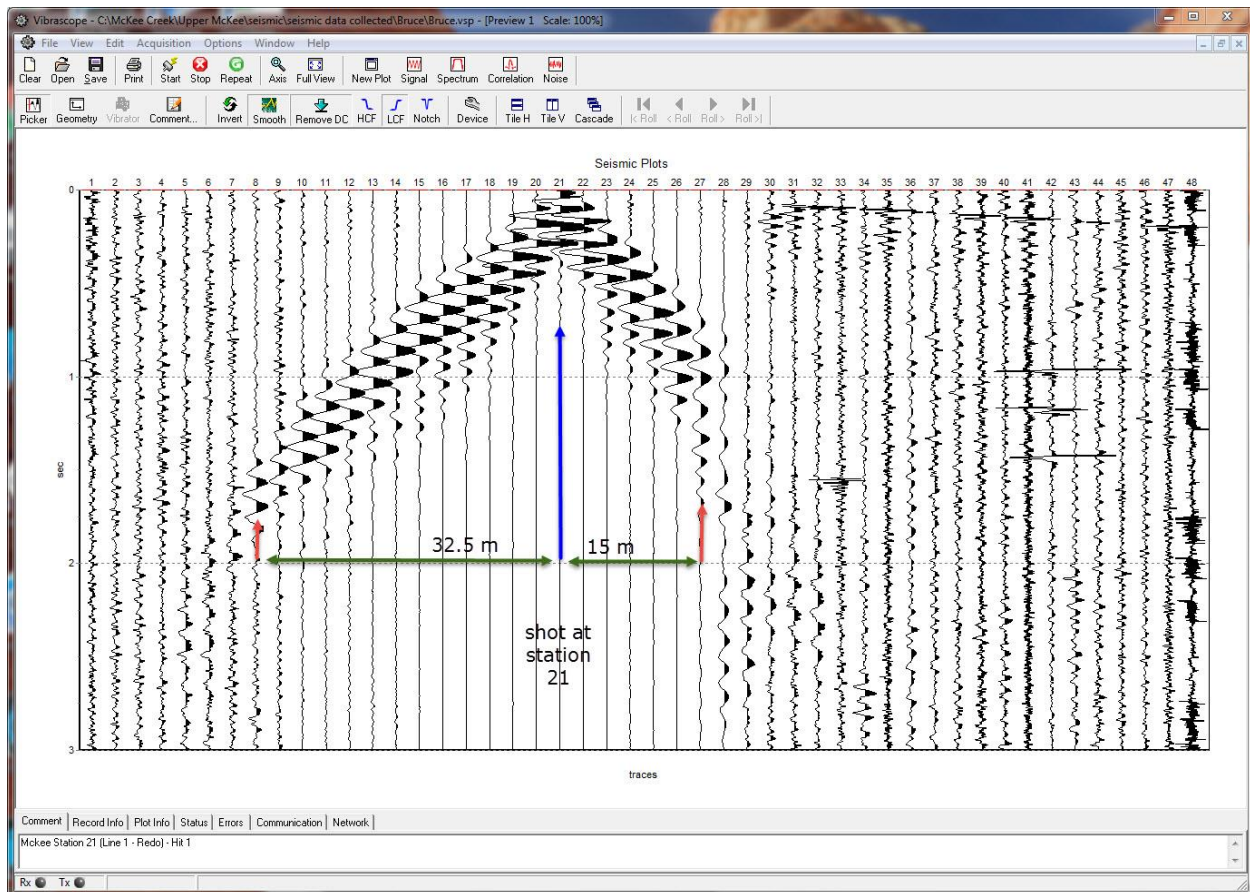


Fig. 11 Seismic record at shot point 21 showing attenuation of the signal at distances of 15 and 32.5 m.

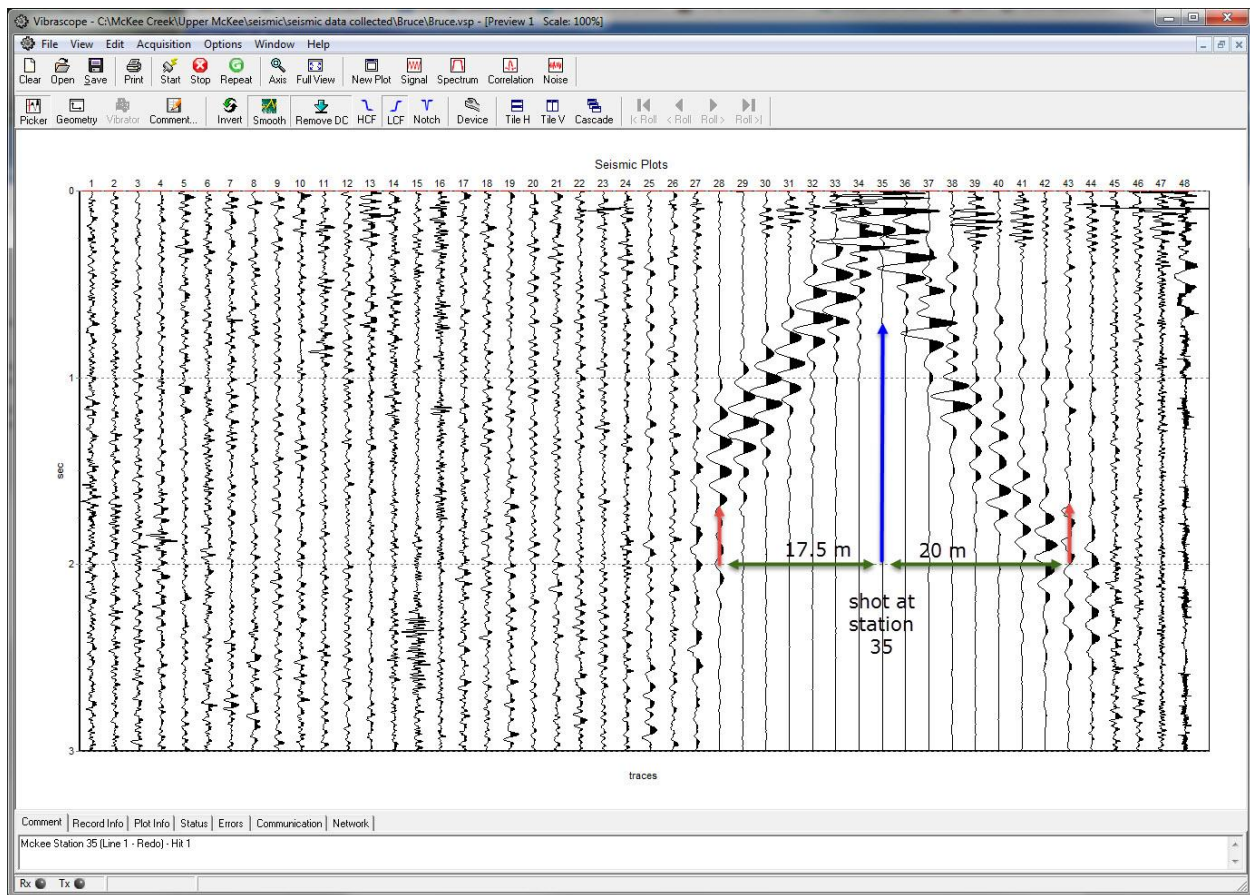


Fig. 12 Seismic record at shot point 35 showing attenuation of the signal at distances of 17.5 and 20 m.

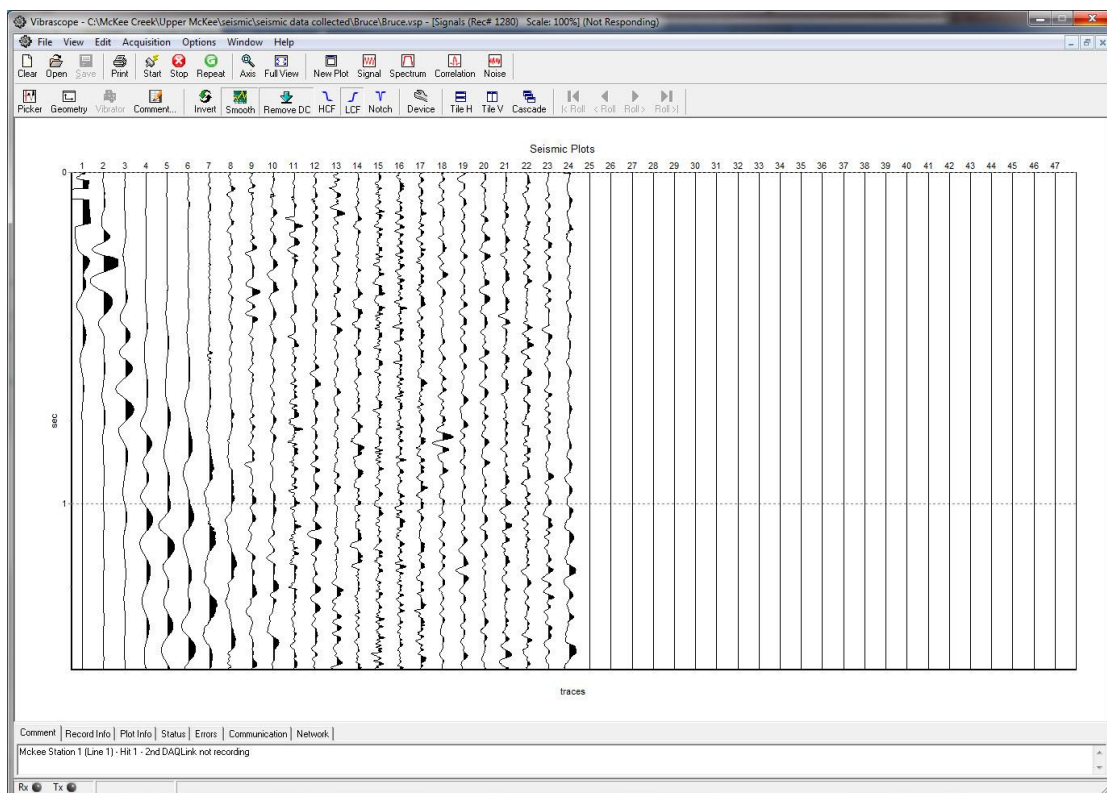
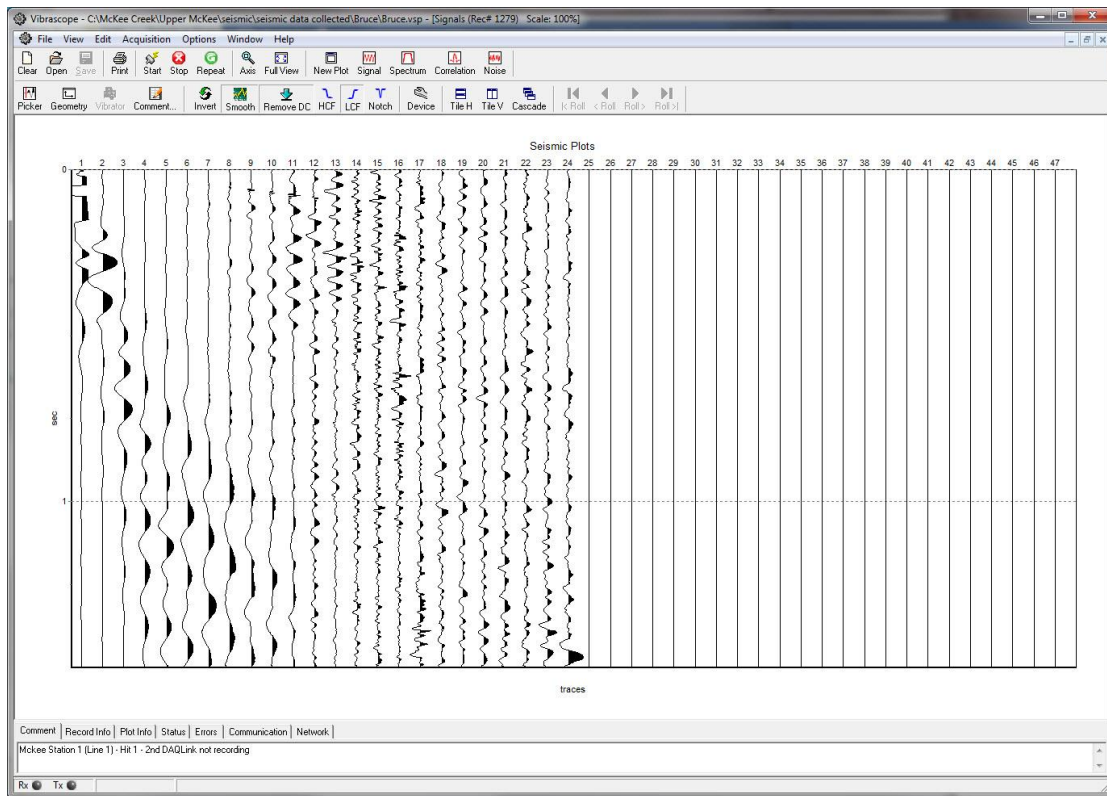
Conclusions

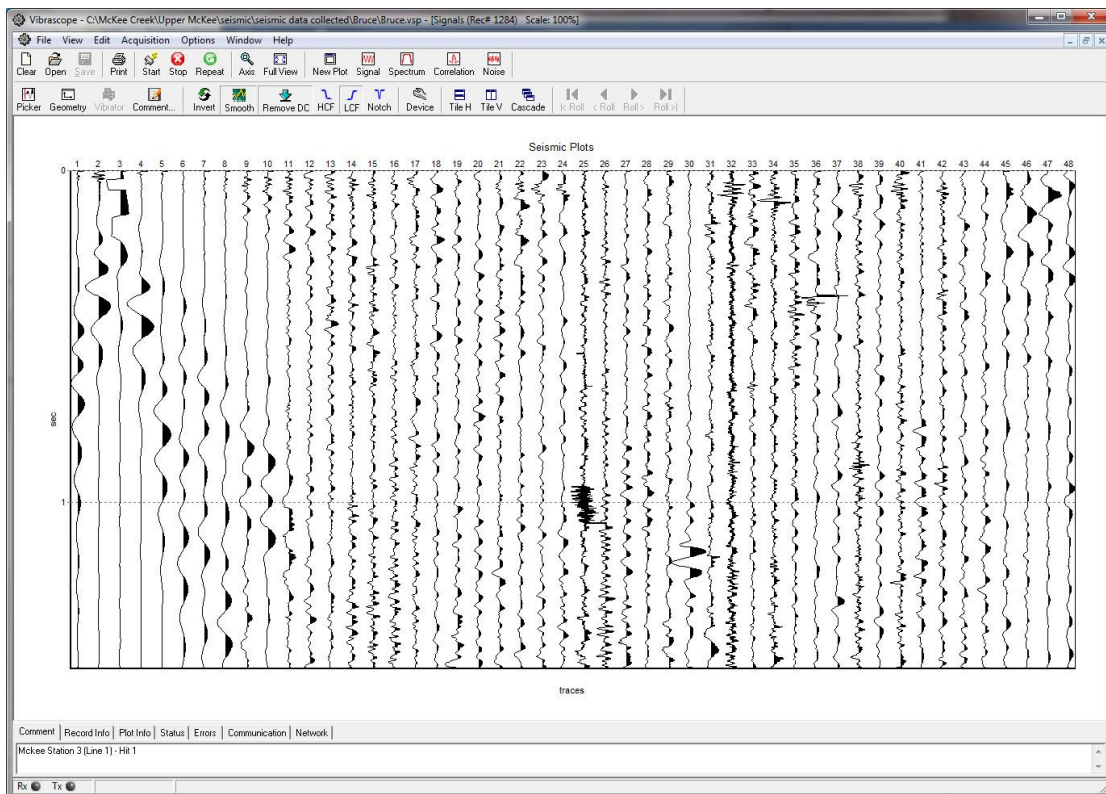
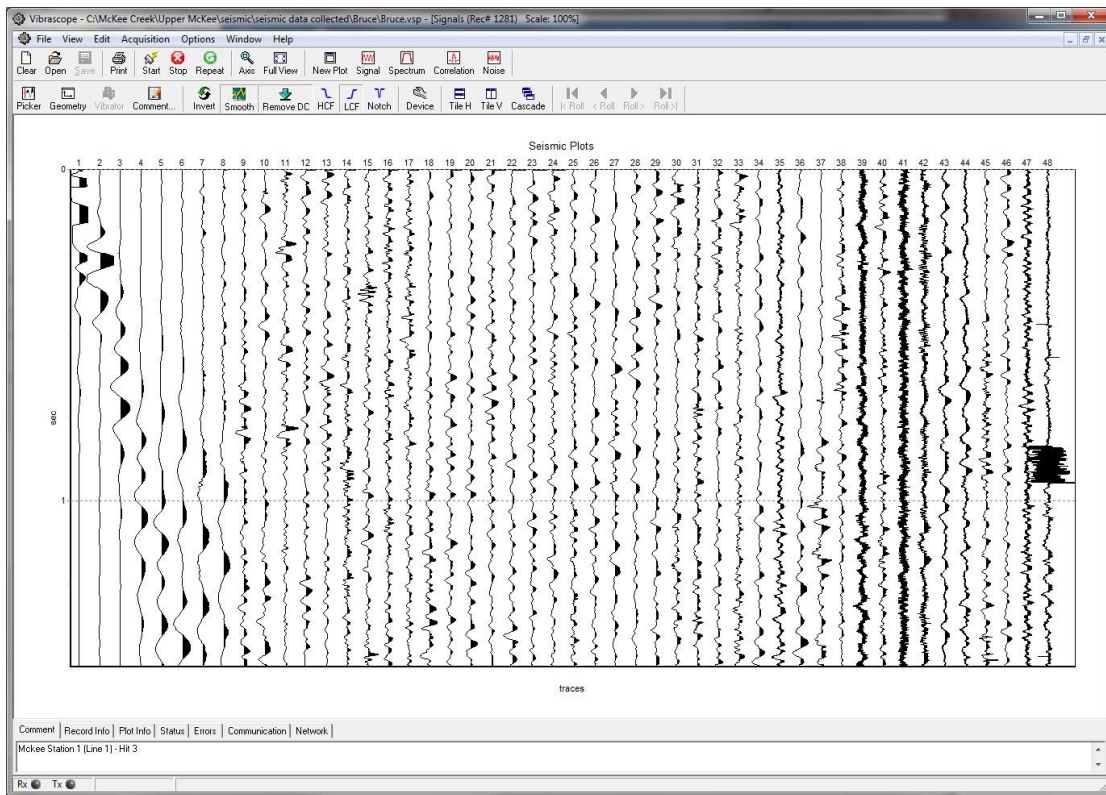
- 1) Geology suggests that placer claim 1066132 is underlain by gold bearing rocks.
- 2) It is likely, but not certain that gold bearing placer gravels overlay bedrock.
- 3) Local topography indicates paleo-channels may be present.
- 4) Limited outcrop data indicates glacial till deposits of unknown thickness cover placer claim 1066132.
- 5) Unfavourable ground conditions impeded collection of refraction seismic data.
- 6) Shear wave reflection seismic may be more suited to investigation of the subsurface on the claim.
- 7) Ground conditions for collecting seismic data may be more favourable down stream from the dam where the McKee Creek gradient is steeper and water drainage is better.
- 8) A follow-up program will be considered.

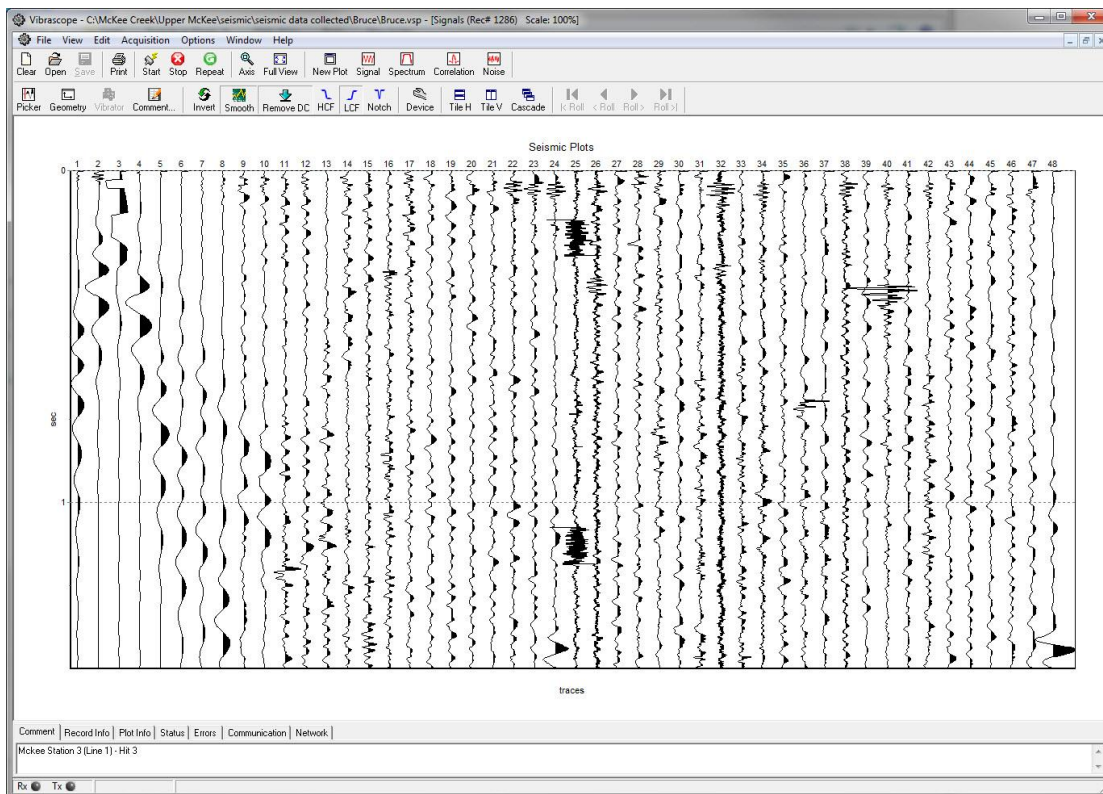
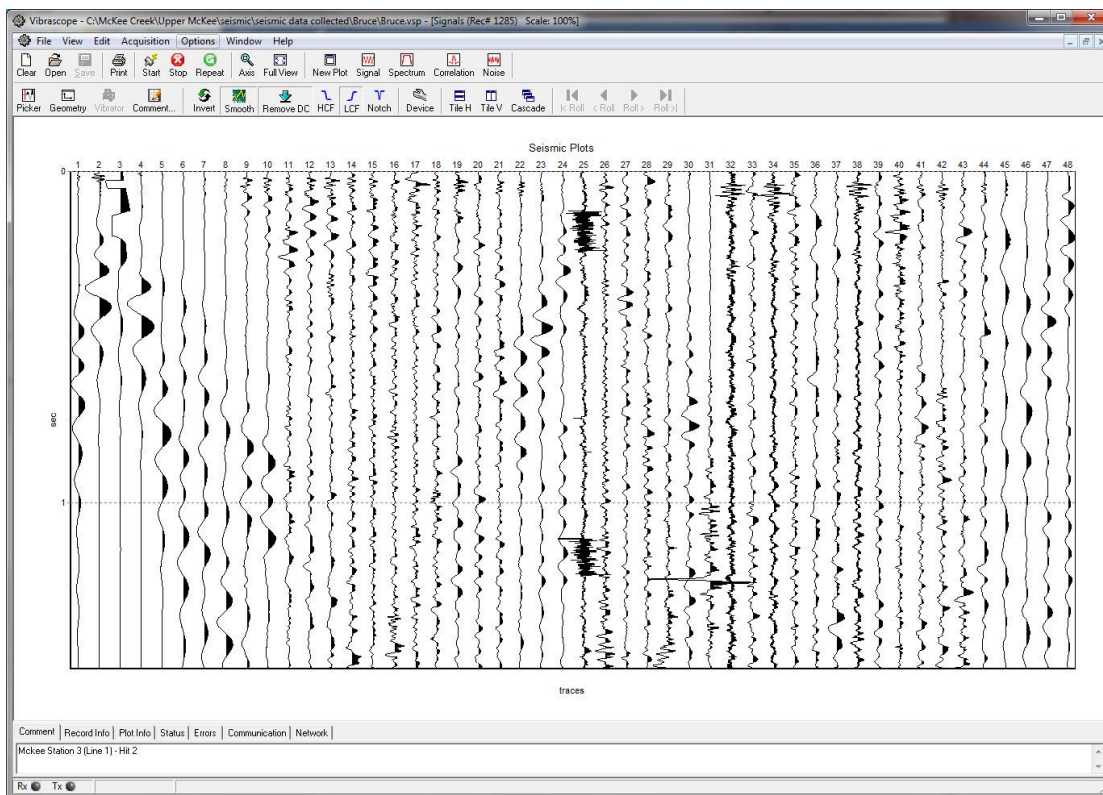
Appendix 1 – Summary of Costs

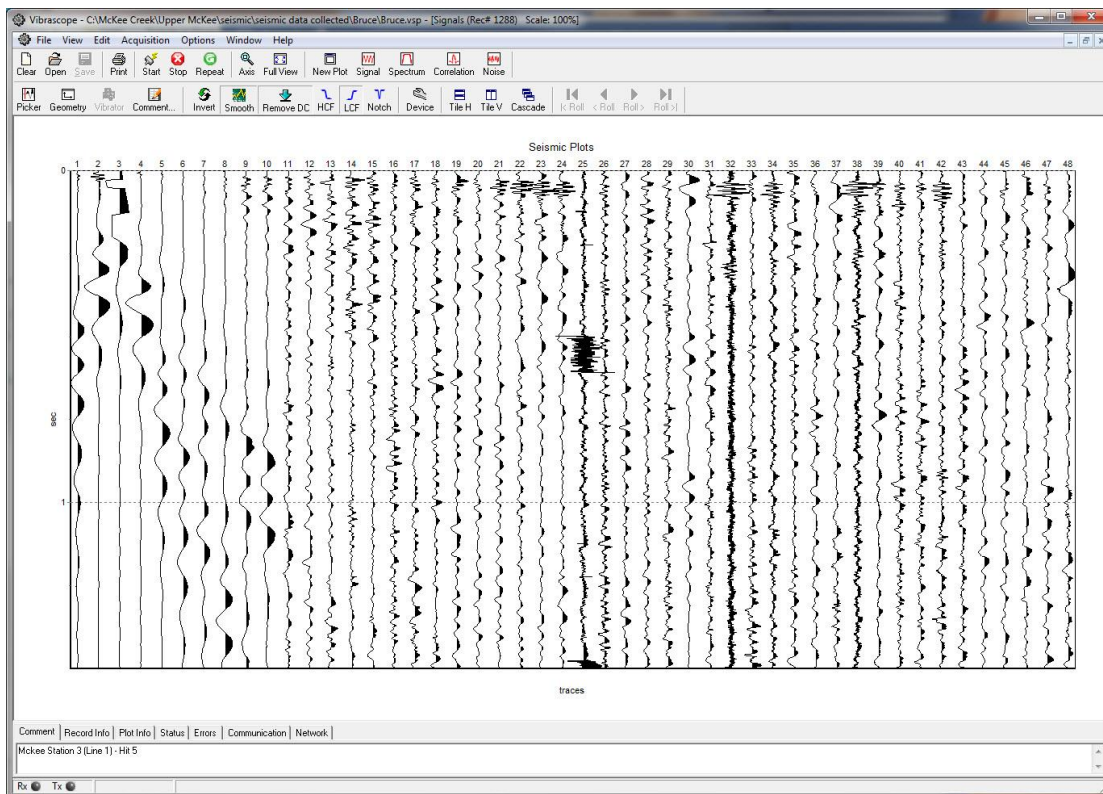
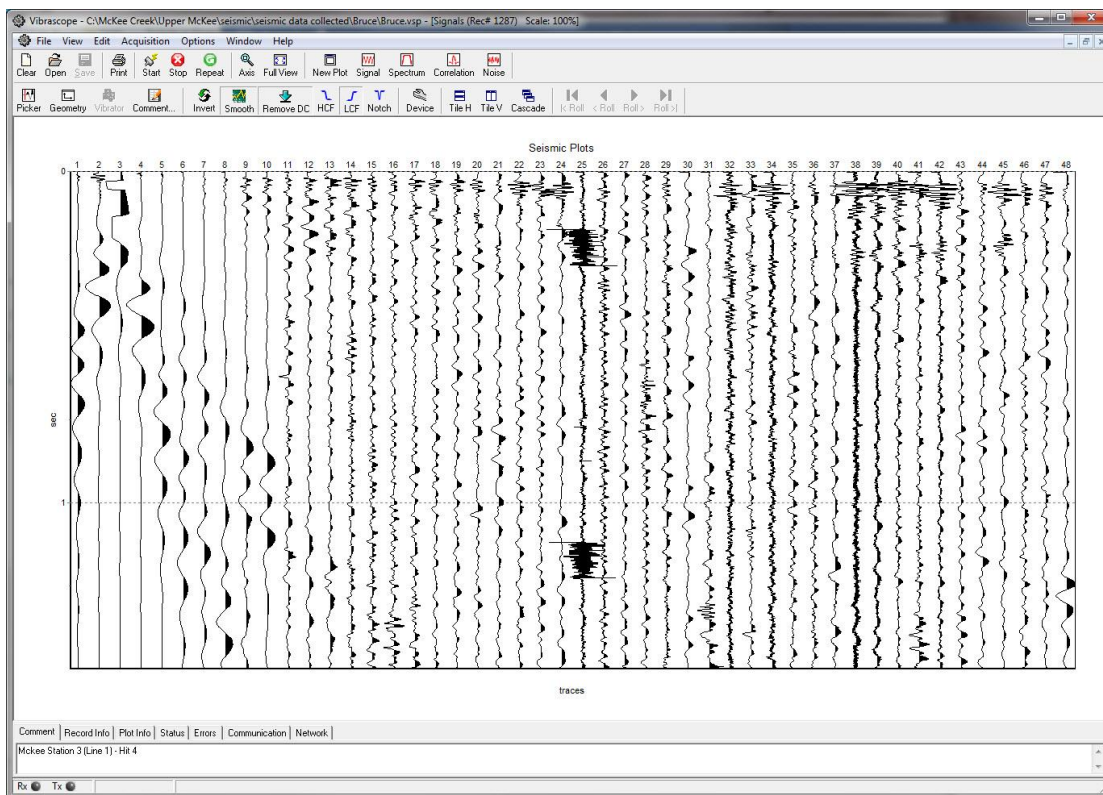
Item		Rate	Cost
Dodge 3500 4x4 with cargo trailer	Calgary to Atlin and return 4524 km	\$ 0.58	\$ 2,623.92
	km in field area 200 km	\$ 0.58	\$ 116.00
Ford F350 4x4 with travel trailer	Calgary to Atlin and return 4524 km	\$ 0.58	\$ 2,623.92
	km in field area 400 km	\$ 0.58	\$ 232.00
2 - DAQlink 3	7 days rental charge	\$ 300.00	\$ 2,100.00
5 - 12x5m take out cables	2 days travel to Atlin		
60 - SM24 geophones	4 field days		
1 - propane hammer	2 days return to Calgary		
1 - encoder	(1 day free equipment rental)		
3 - ICIS batteries and chargers			
Vscope acquisition/processing software			
laptop			
ancillary equipment			
Quad rentals			\$ 500.00
generator		\$ 250.00	\$ 250.00
Fuel for quads and generator		\$ 200.00	\$ 200.00
rotating laser level		\$ 400.00	\$ 400.00
Garmin GPS		\$ 300.00	\$ 300.00
Field supplies		\$ 300.00	\$ 300.00
Geologist	7 days	\$ 800.00	\$ 5,600.00
Assistant	7 days	\$ 200.00	\$ 1,400.00
reporting	1 day	\$ 800.00	\$ 800.00
	Total		\$ 17,445.84

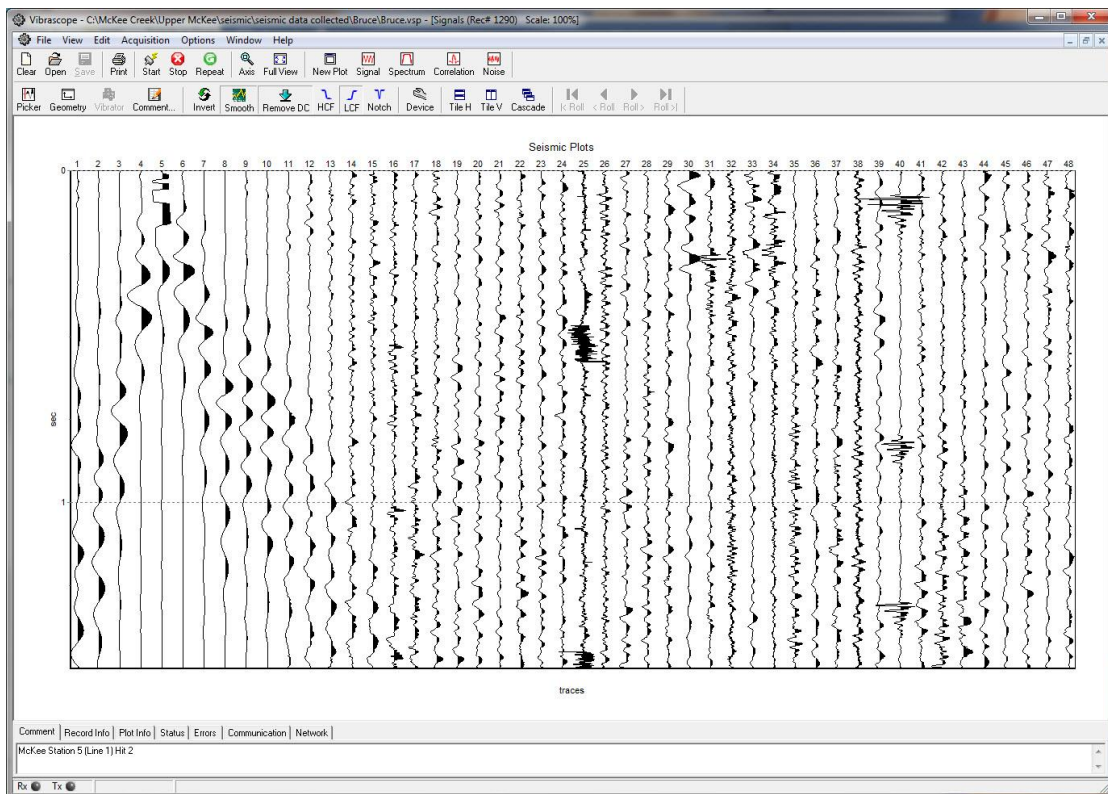
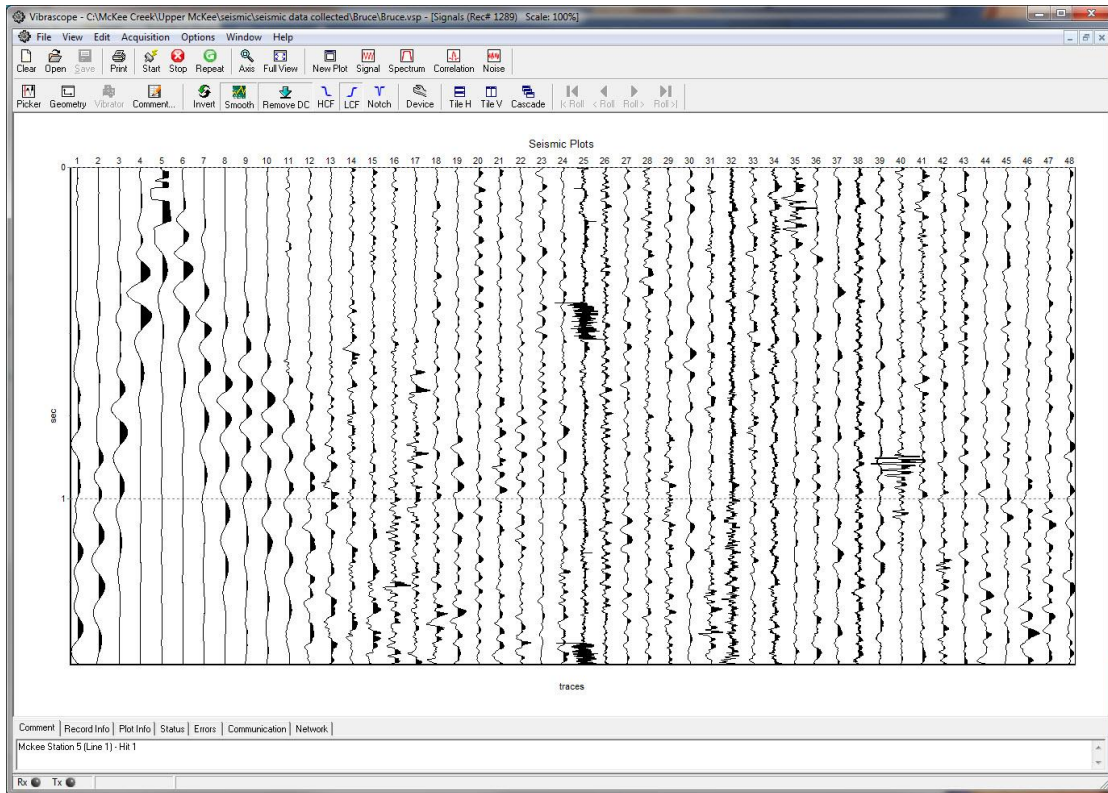
Appendix 2 –Traces with 1.5 sec records – Stations 1-11

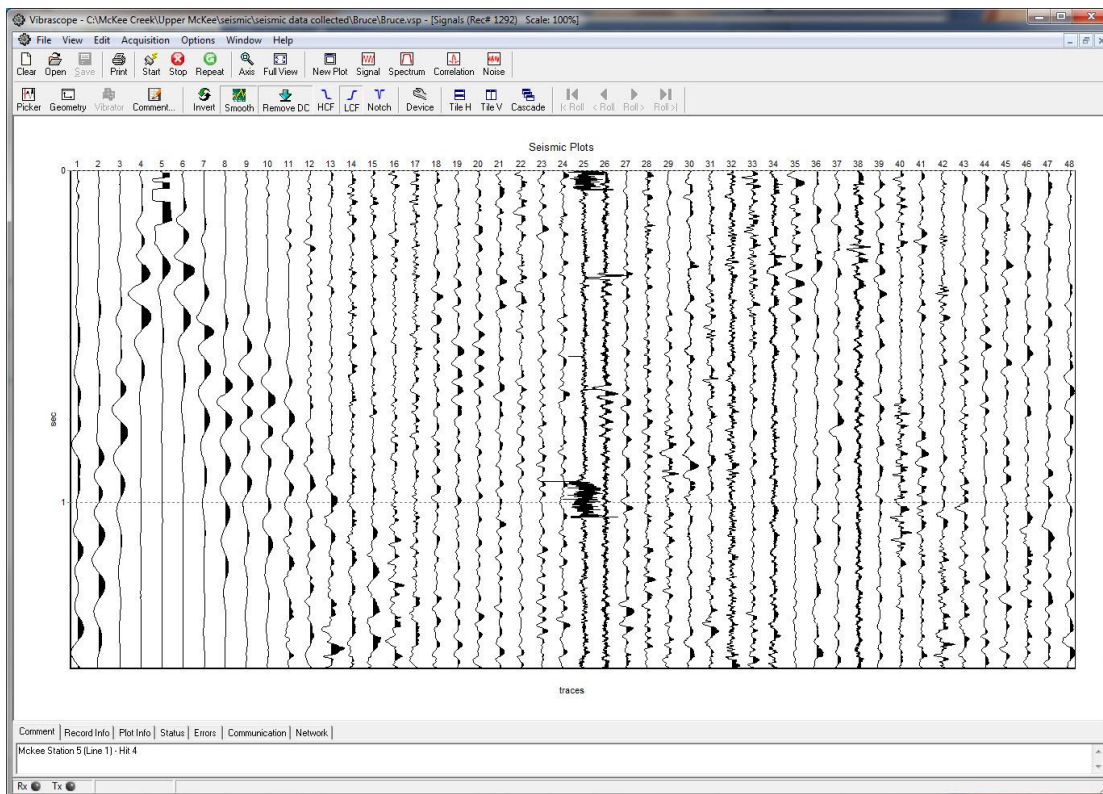
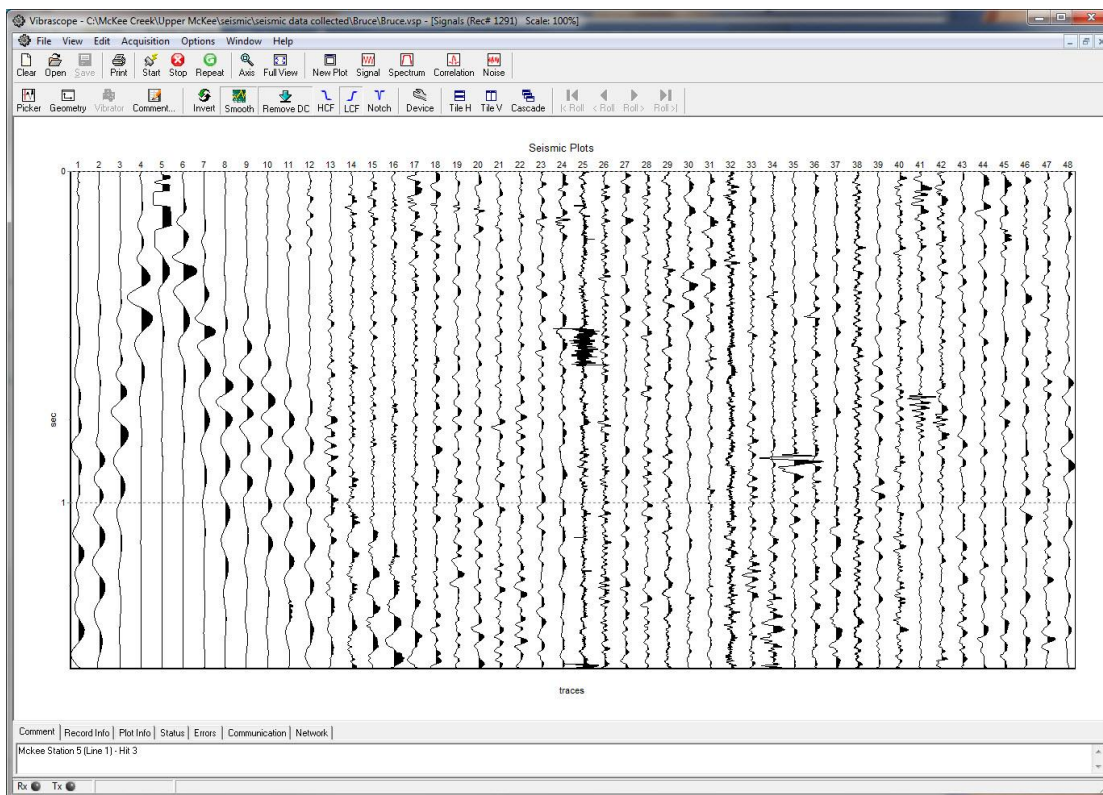


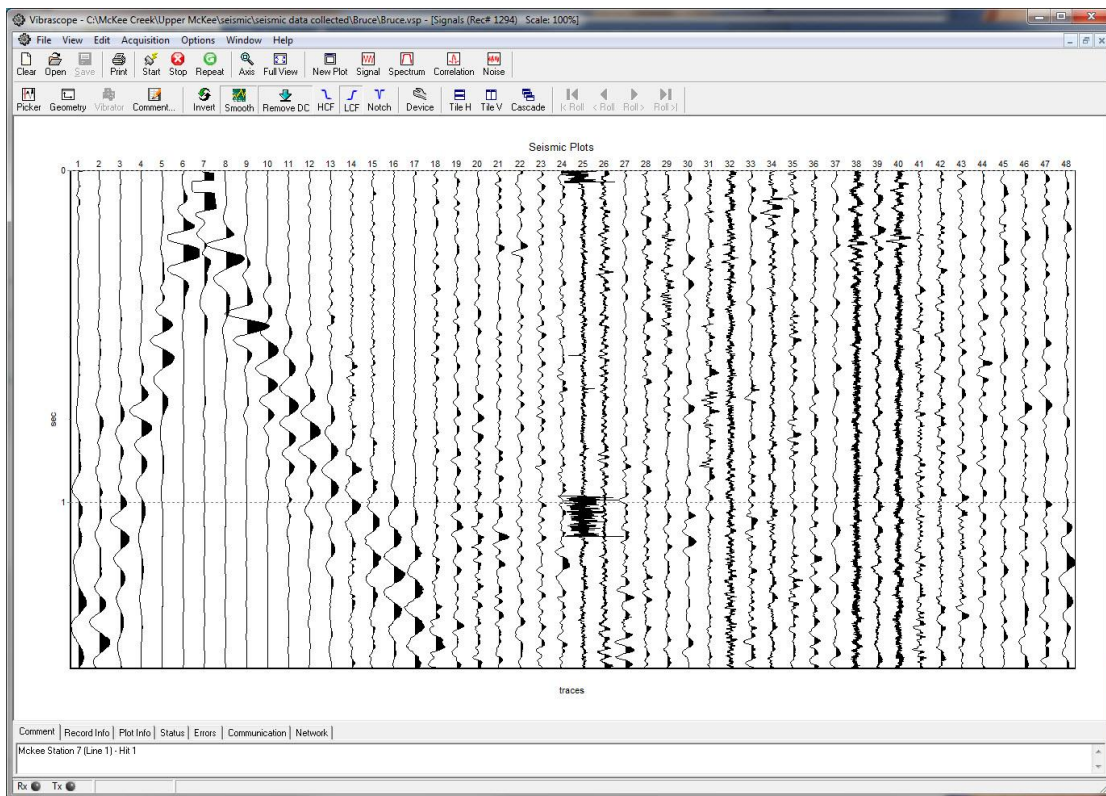
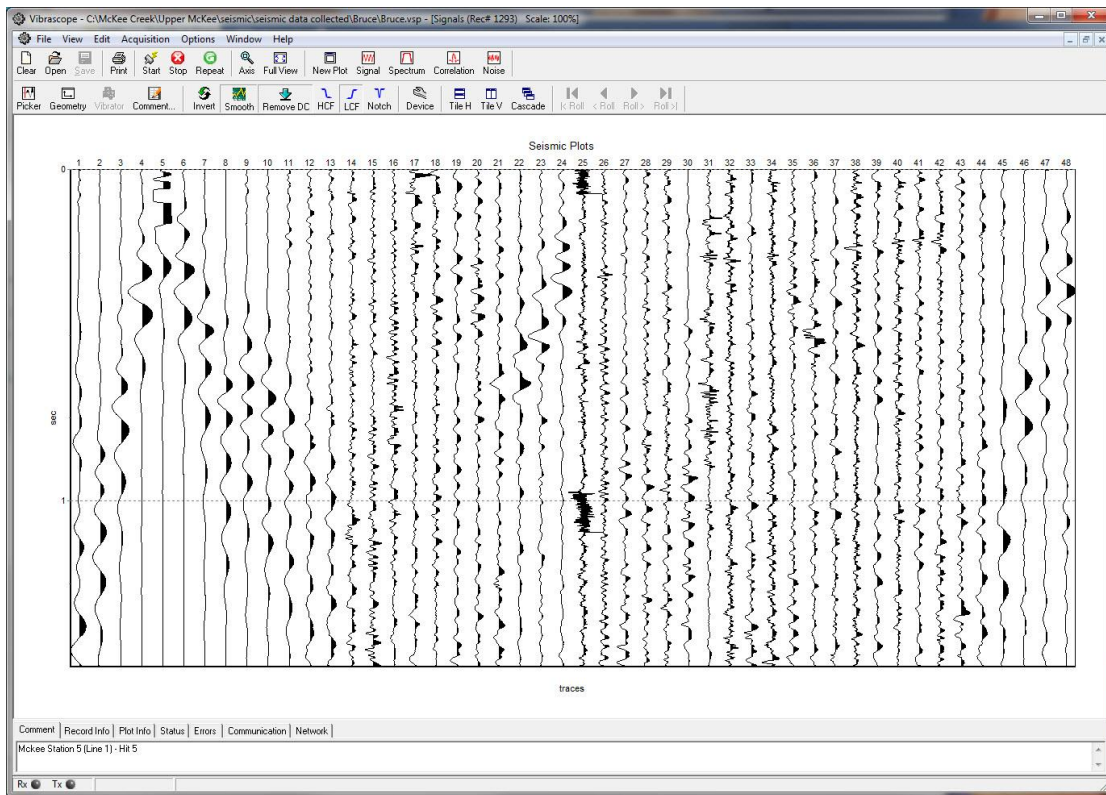


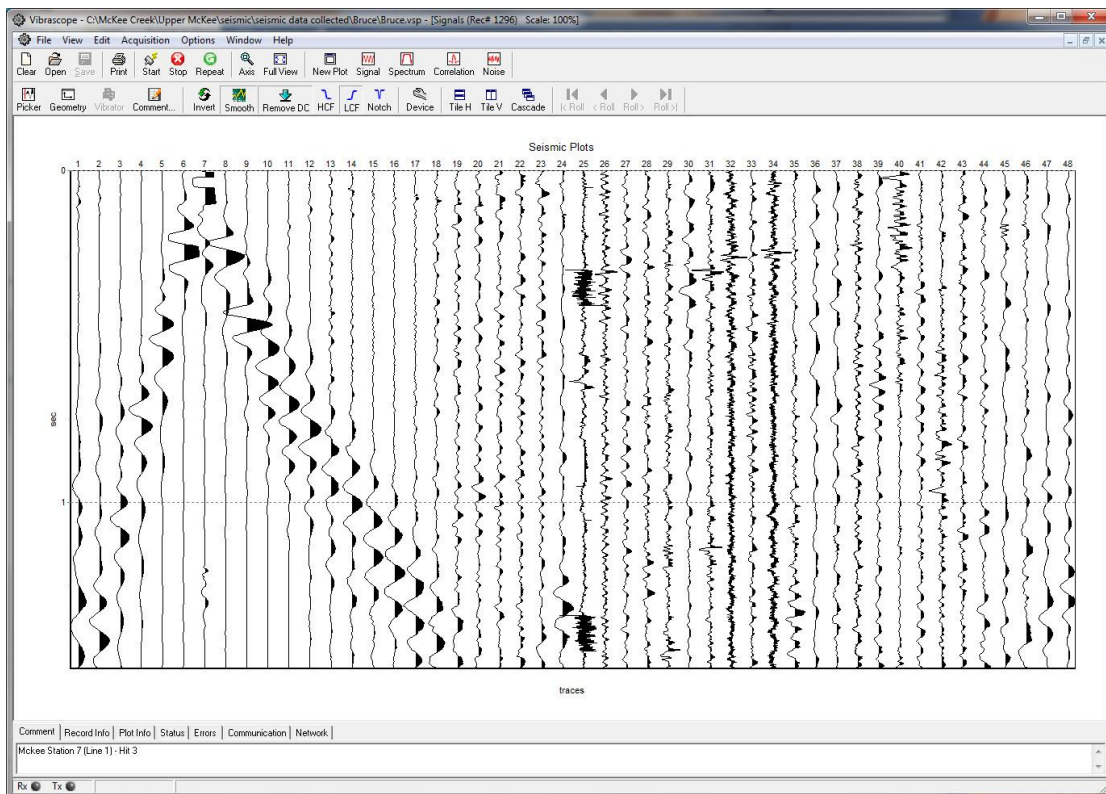
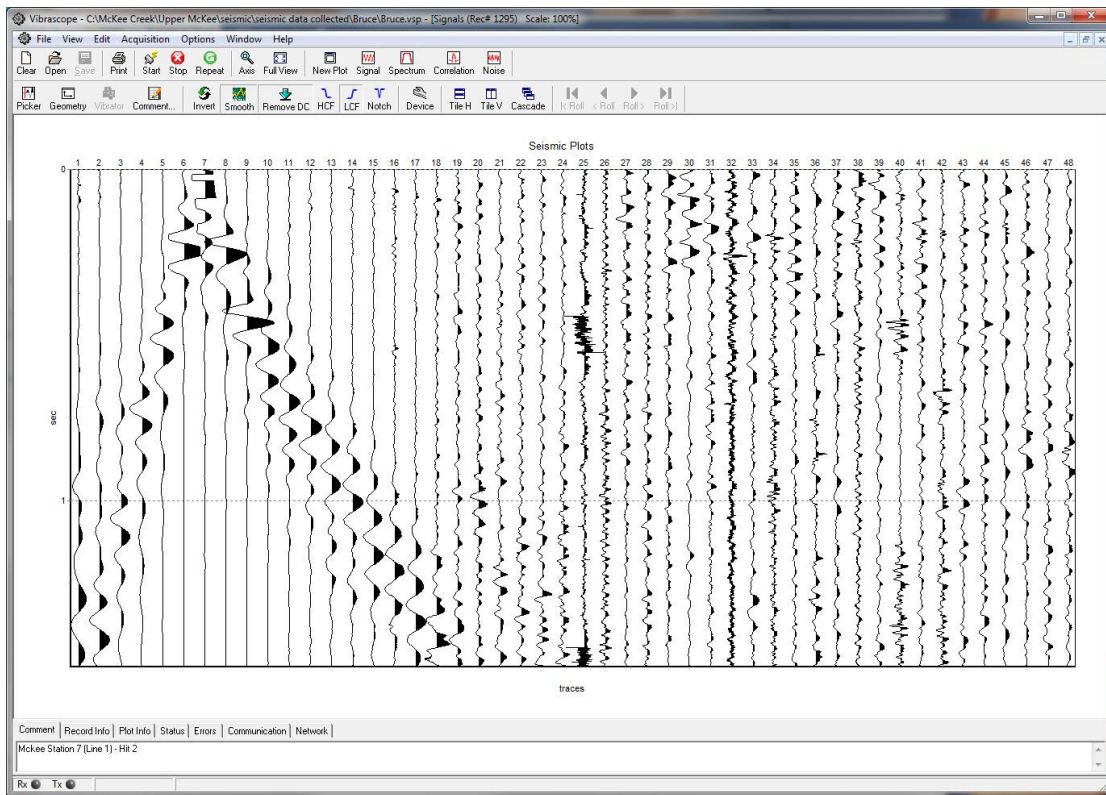


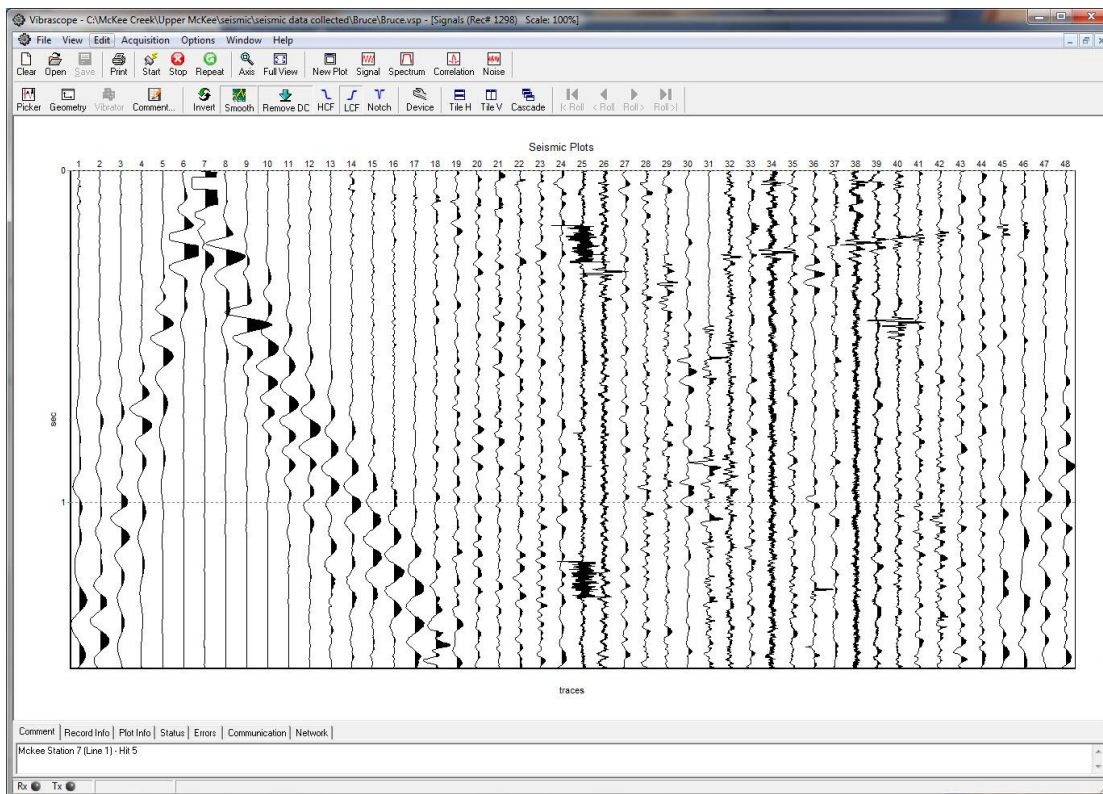
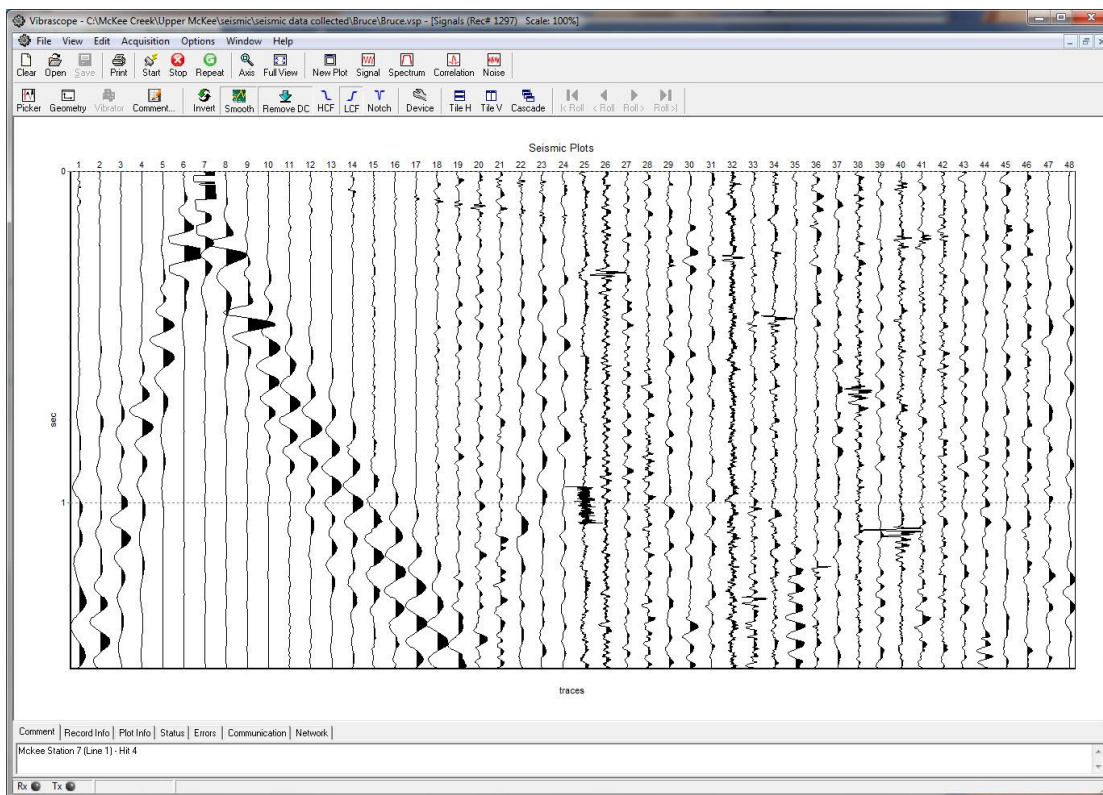


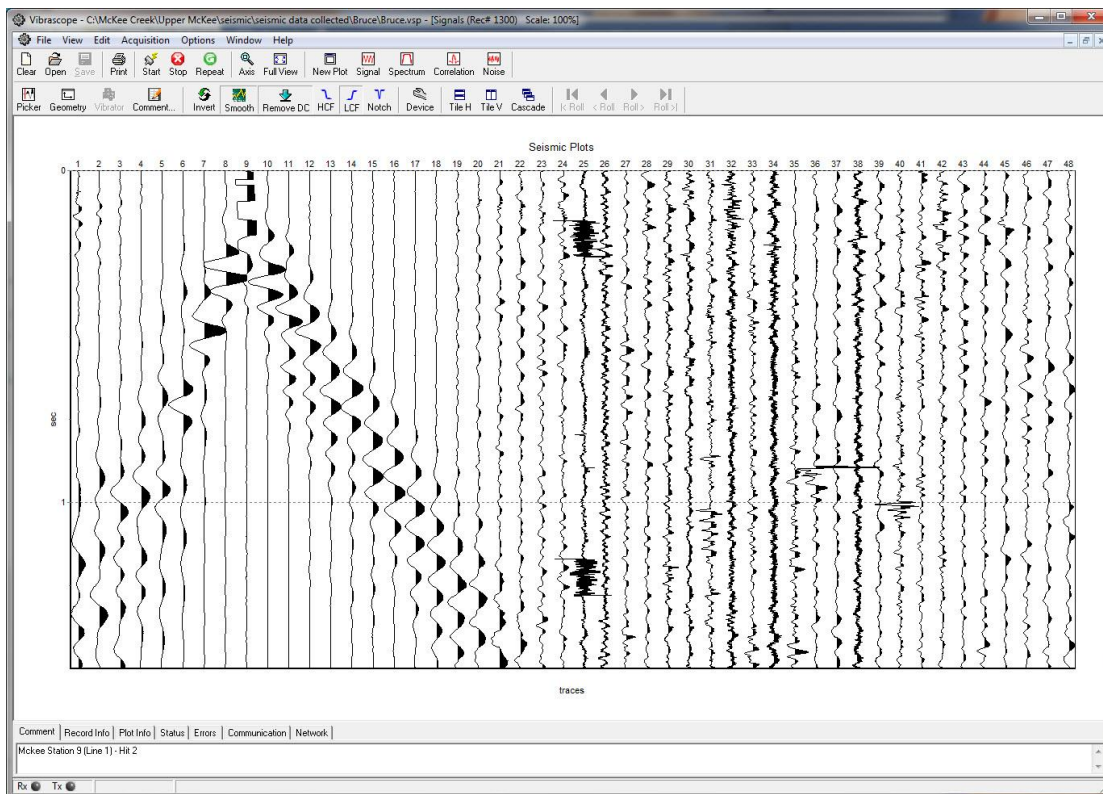
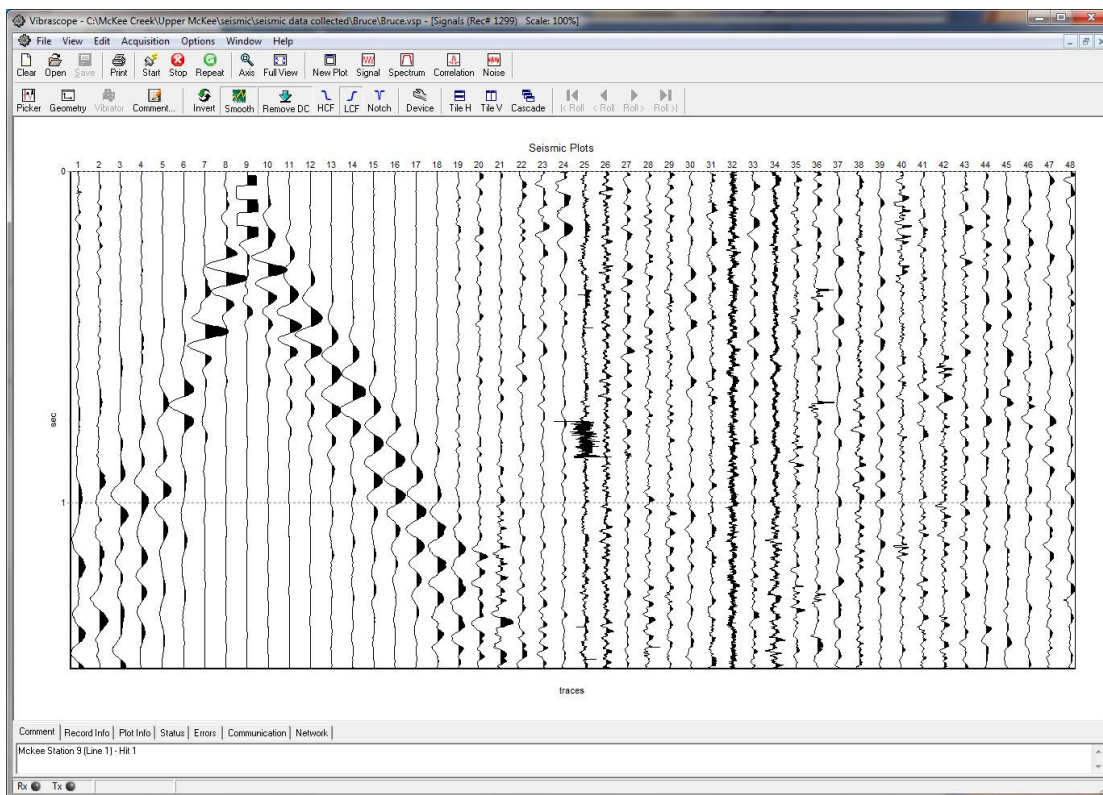


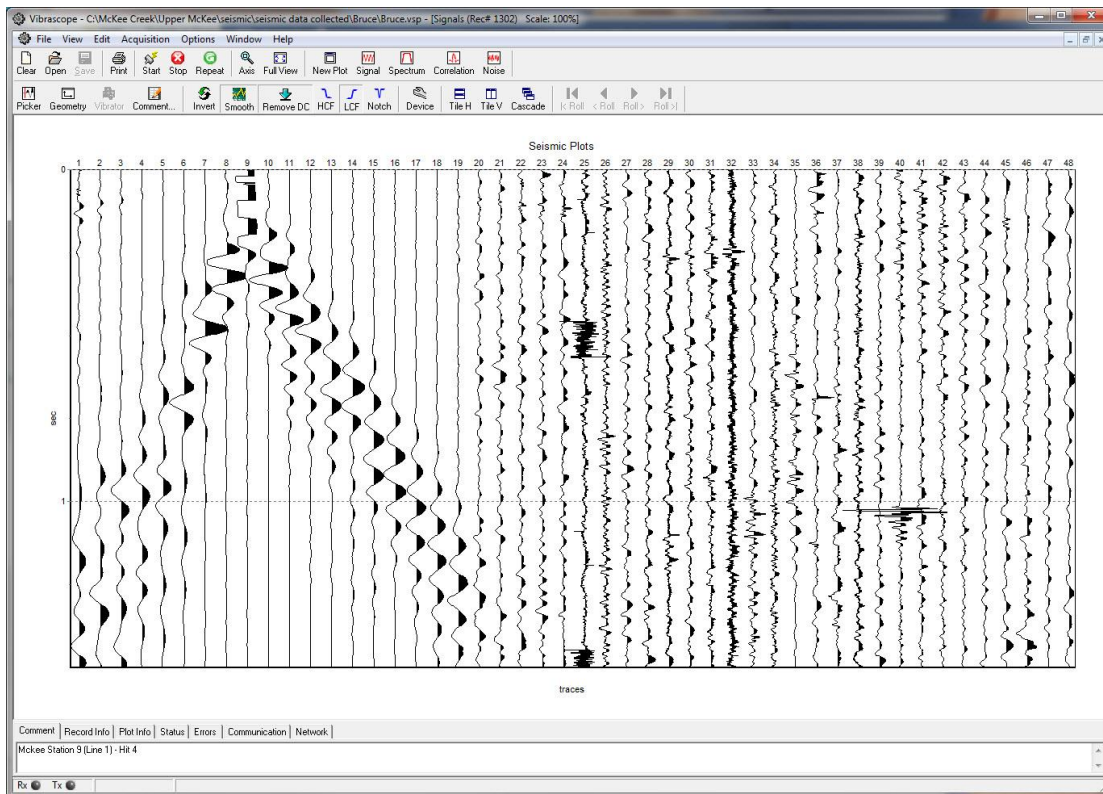
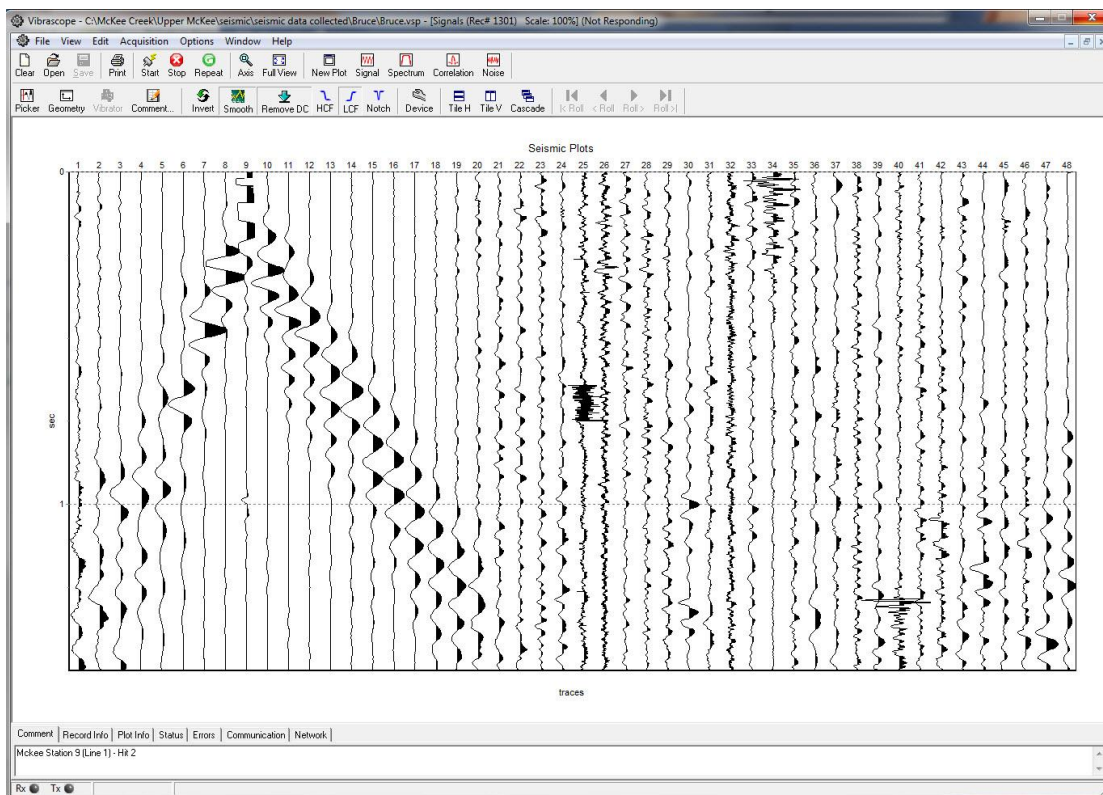


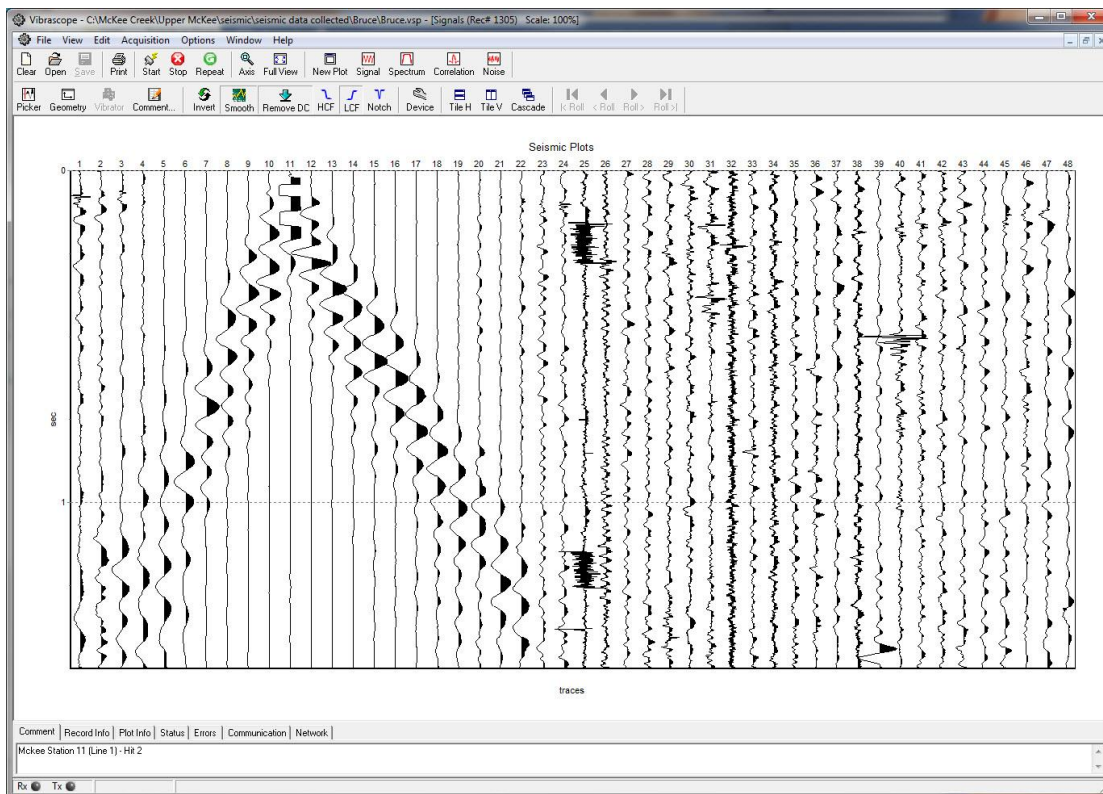
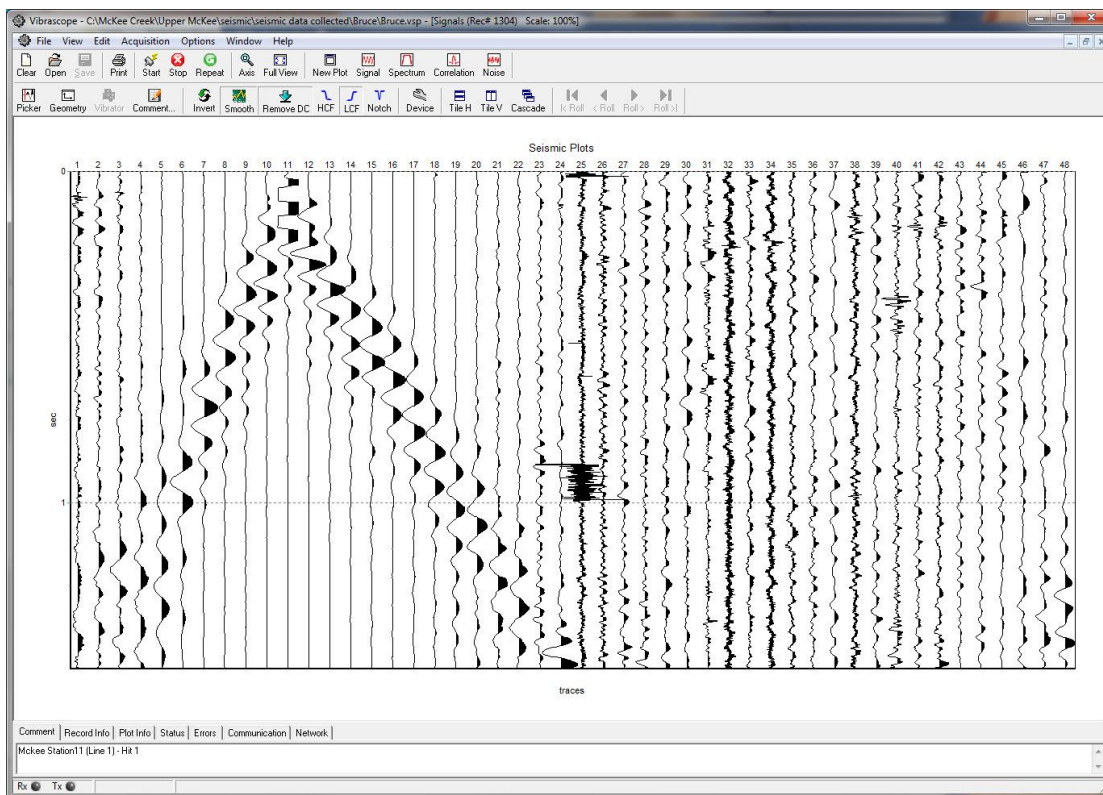


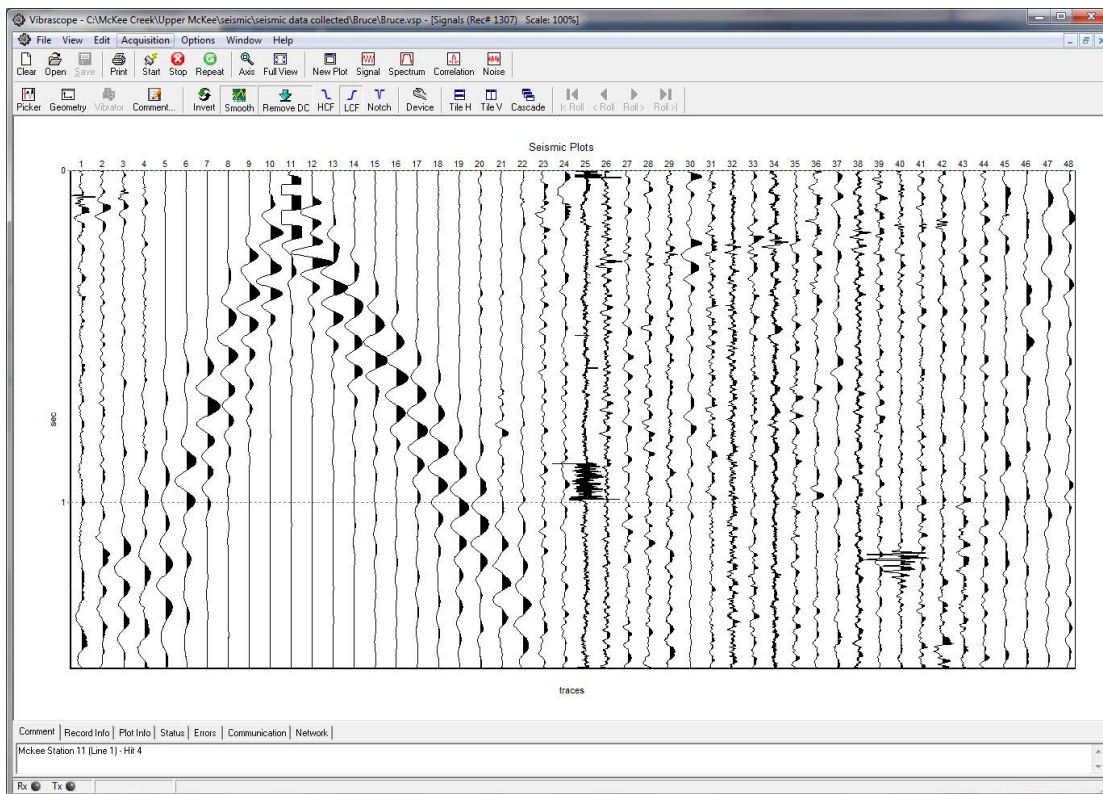
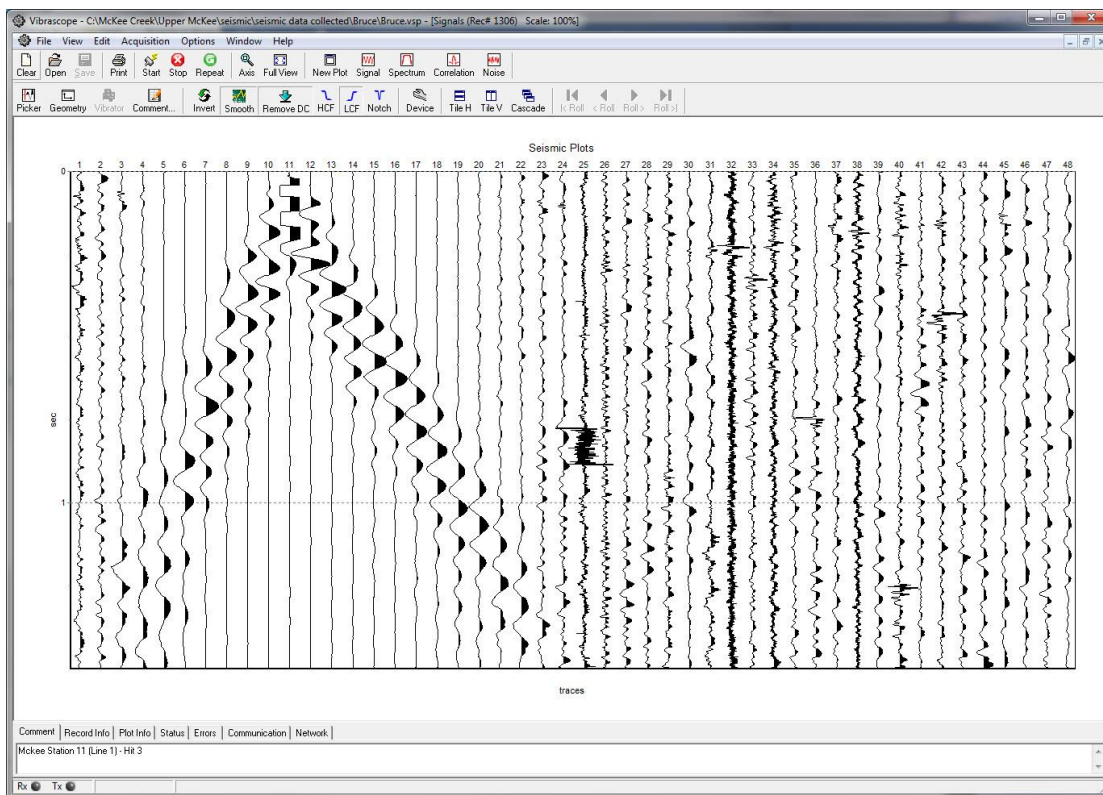


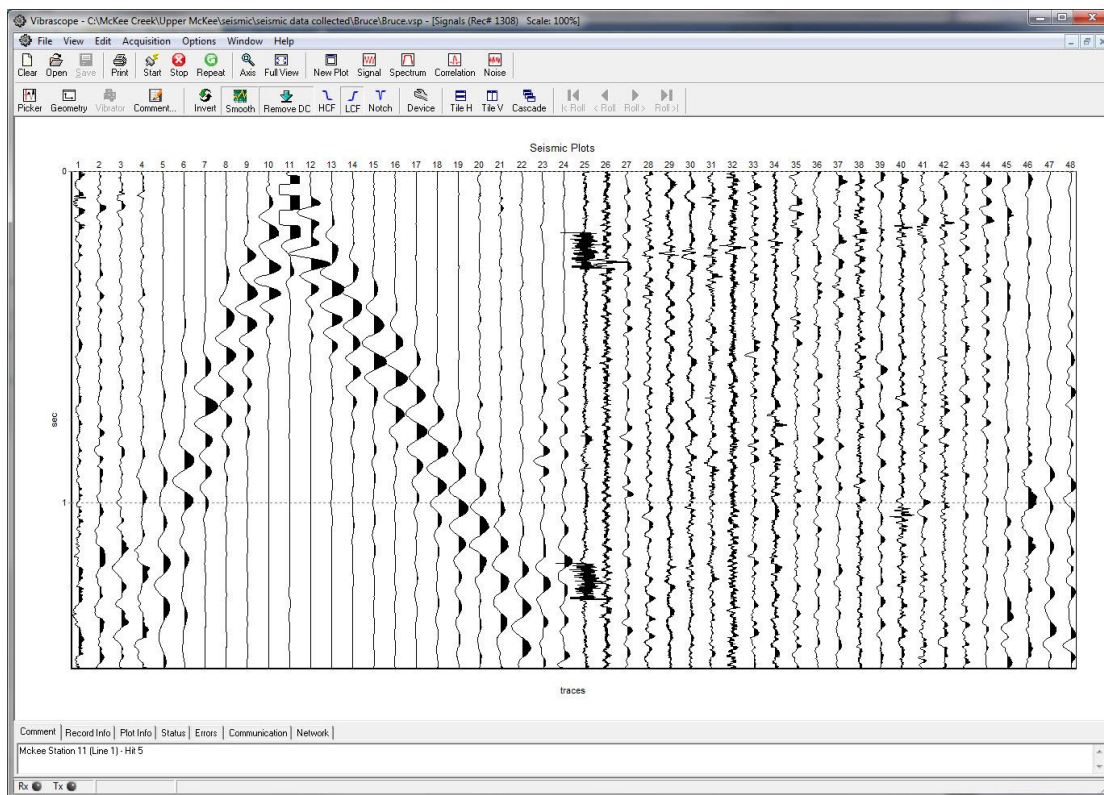






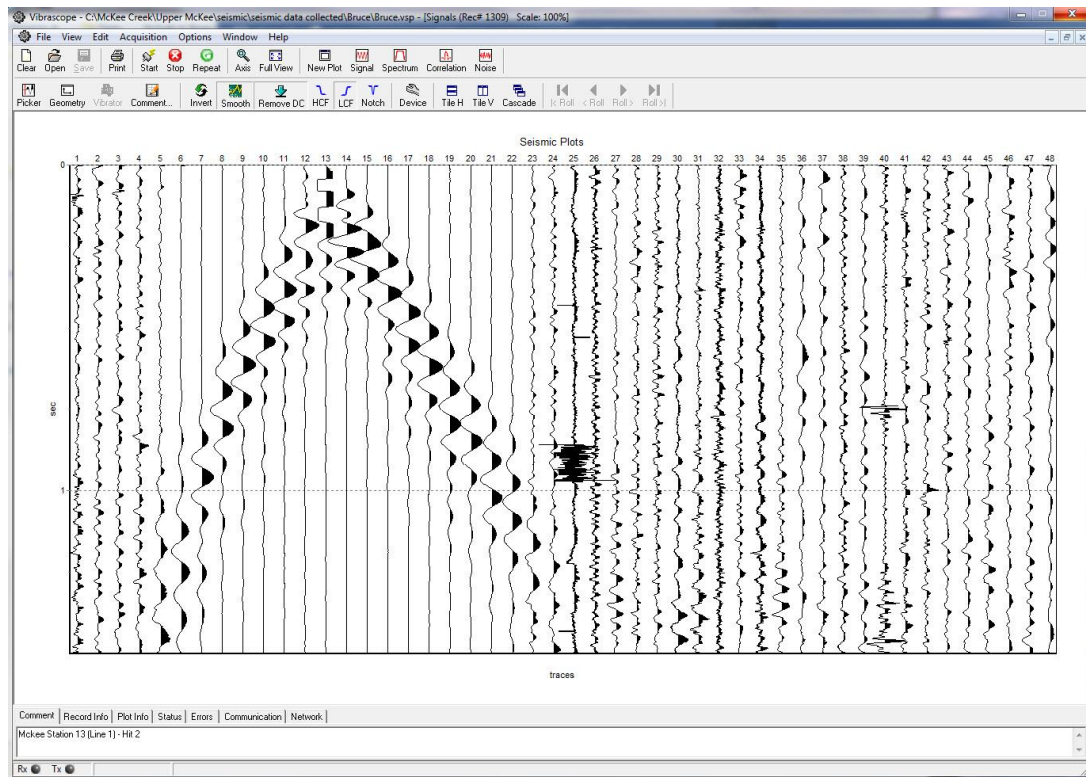


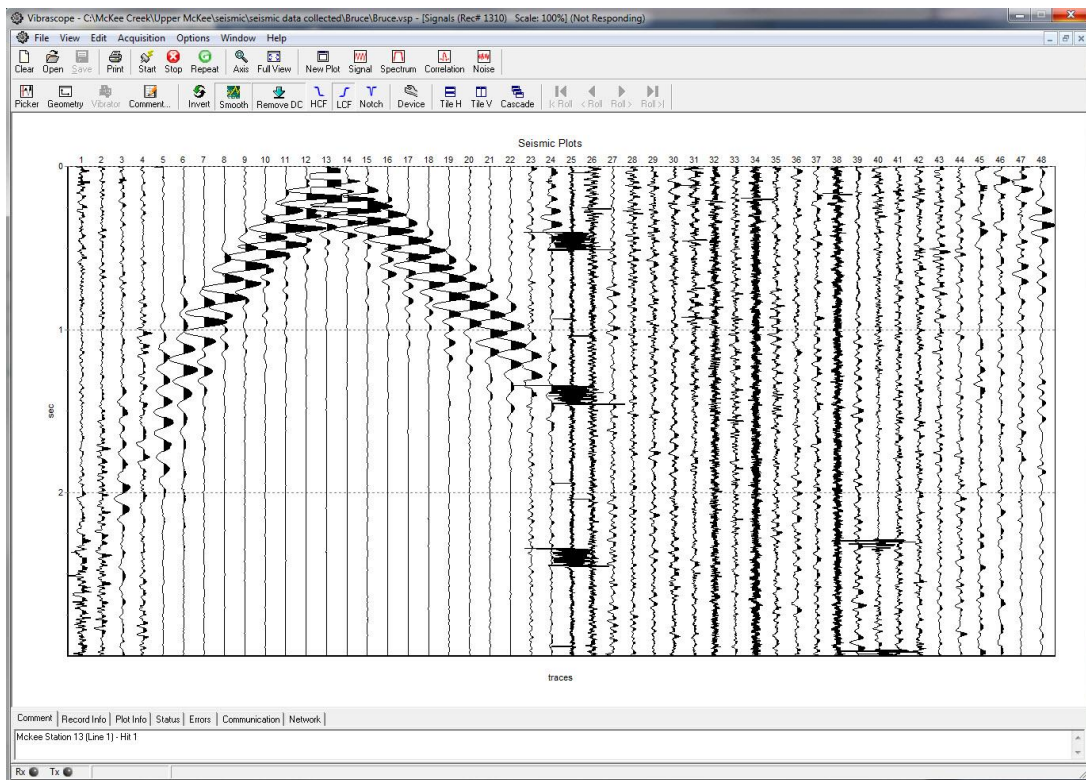




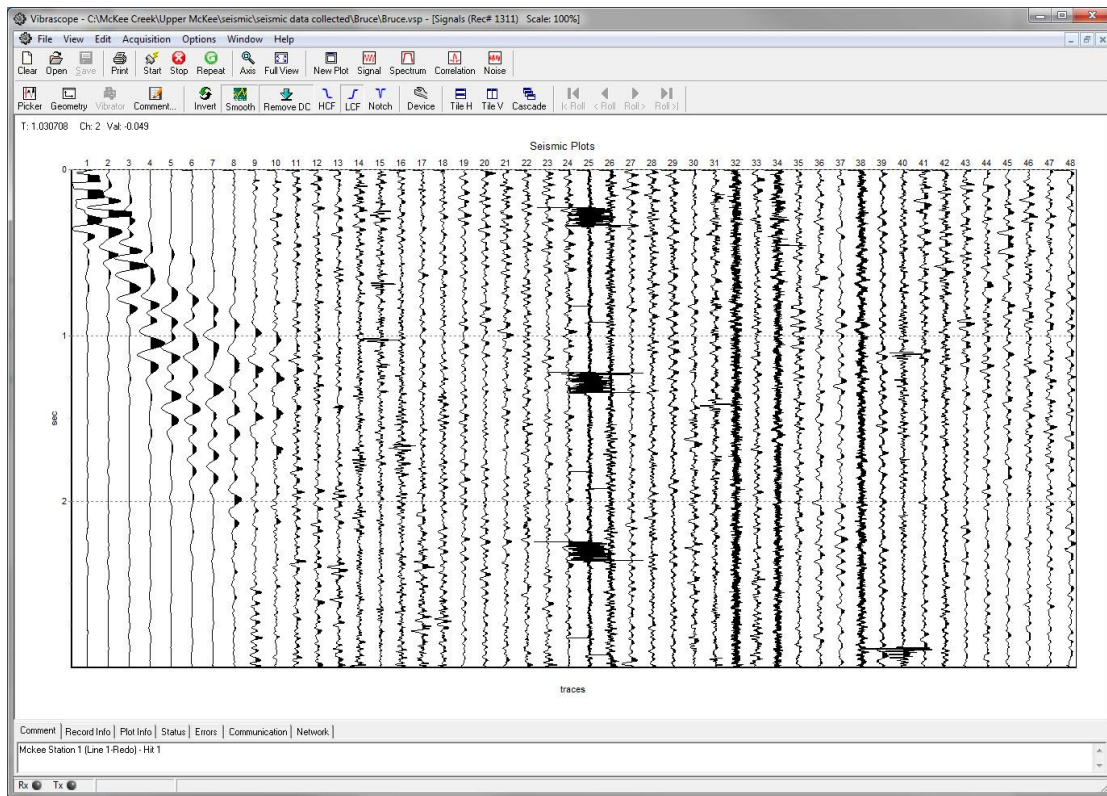
Appendix 3 –Comparison of 1.5 sec vs 3.0 sec records

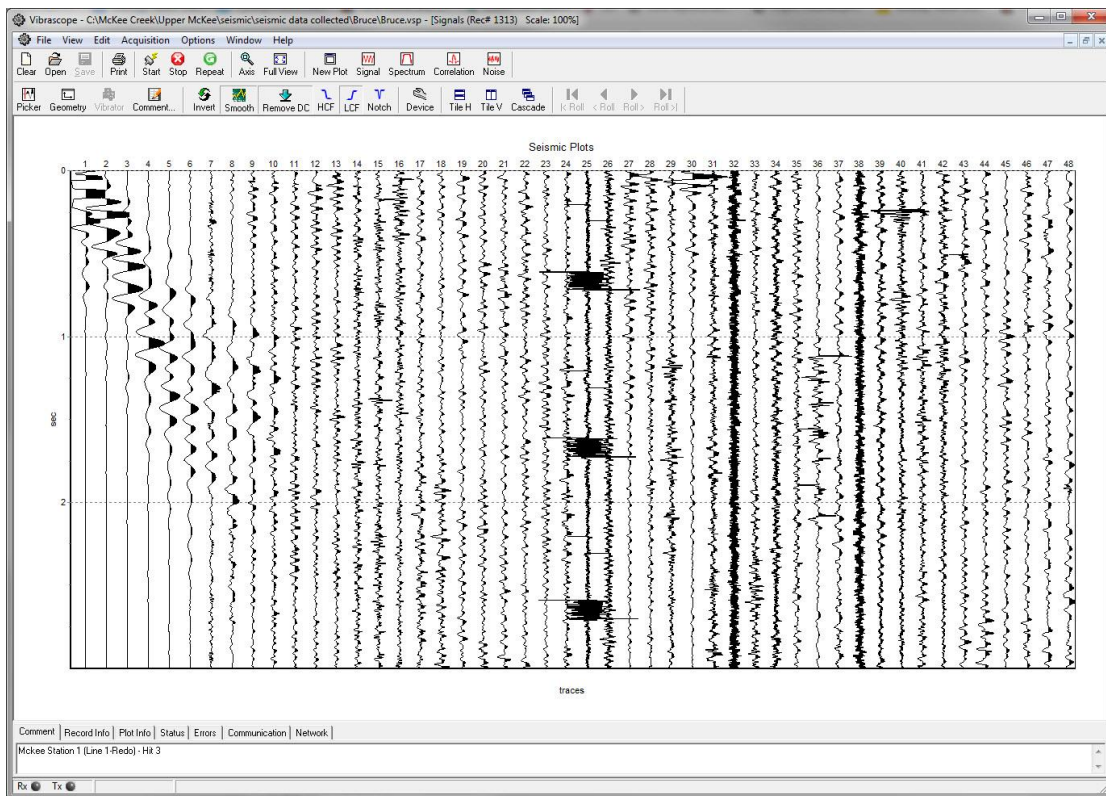
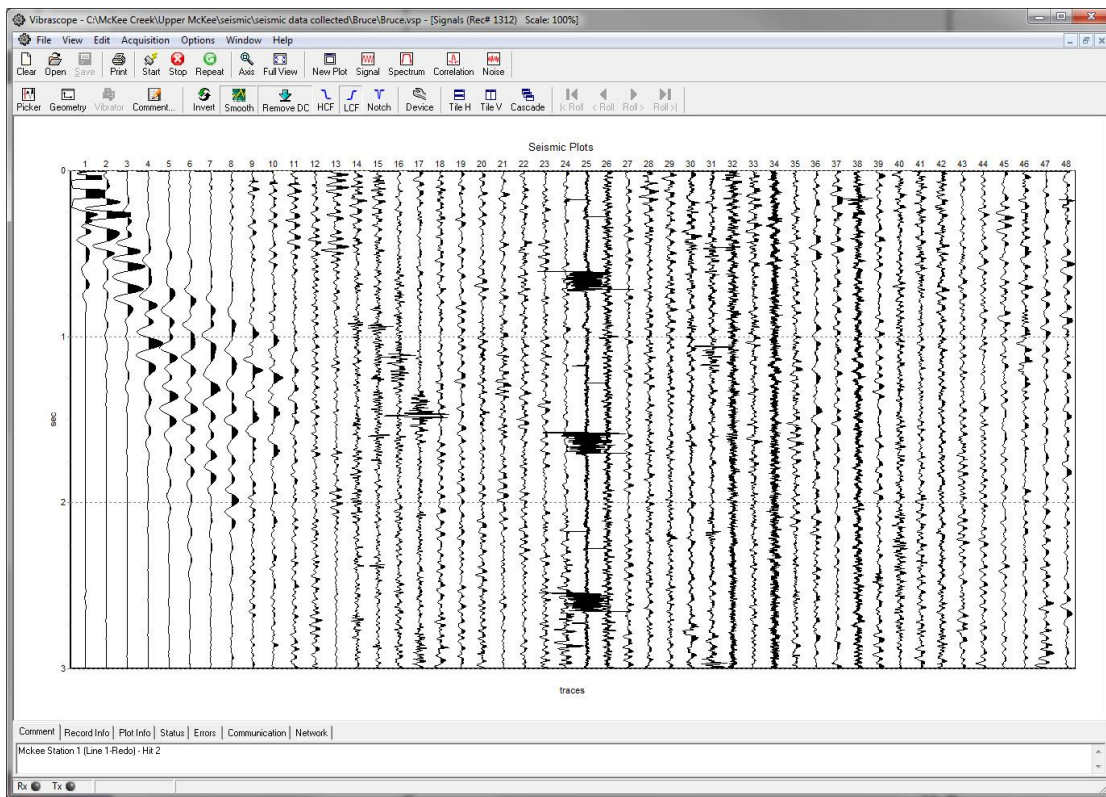
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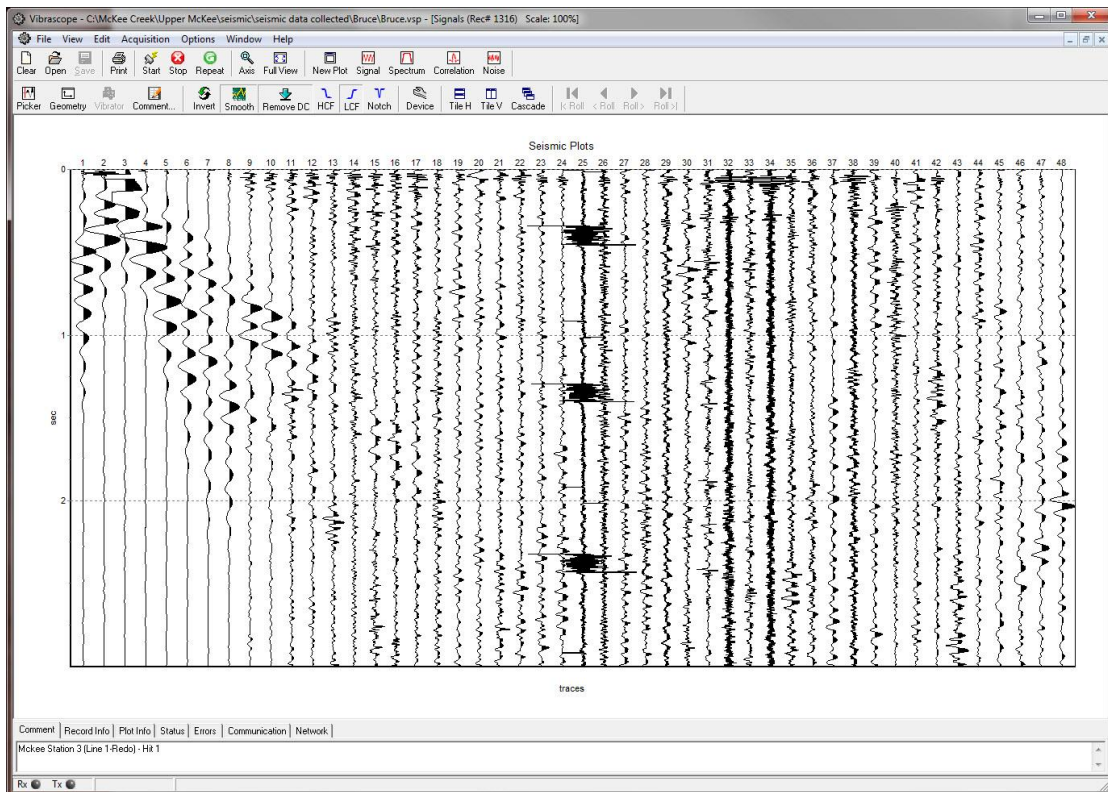
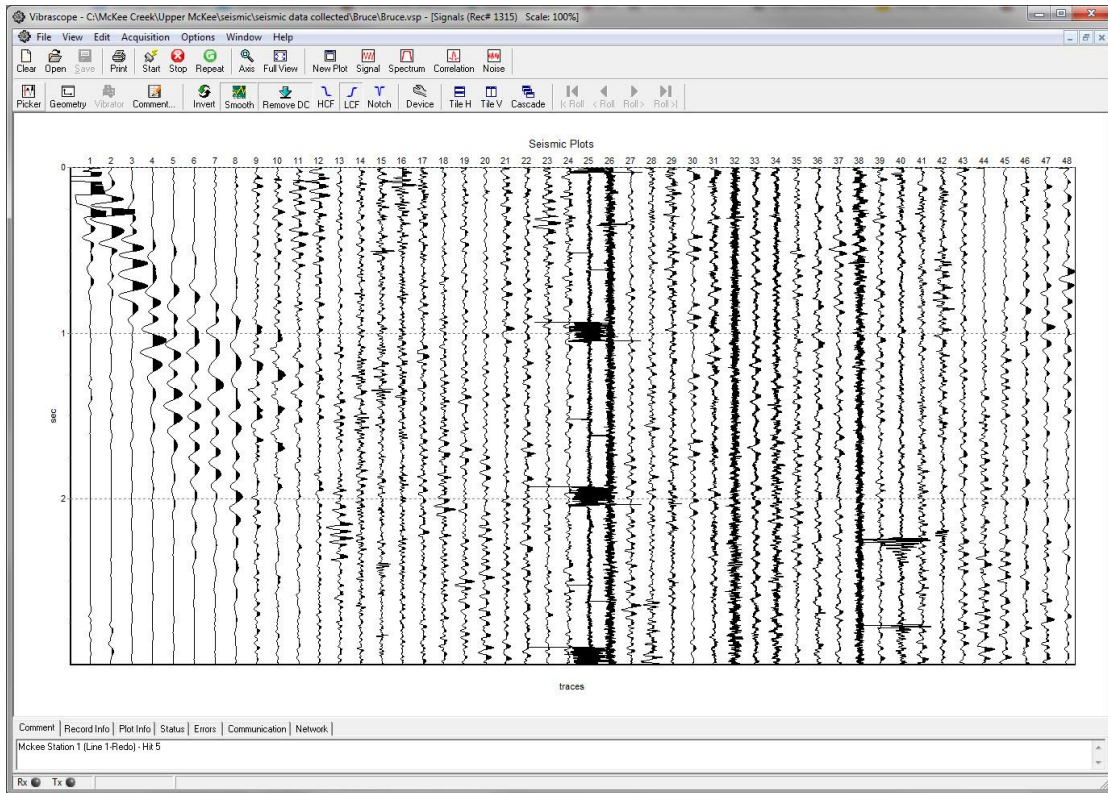


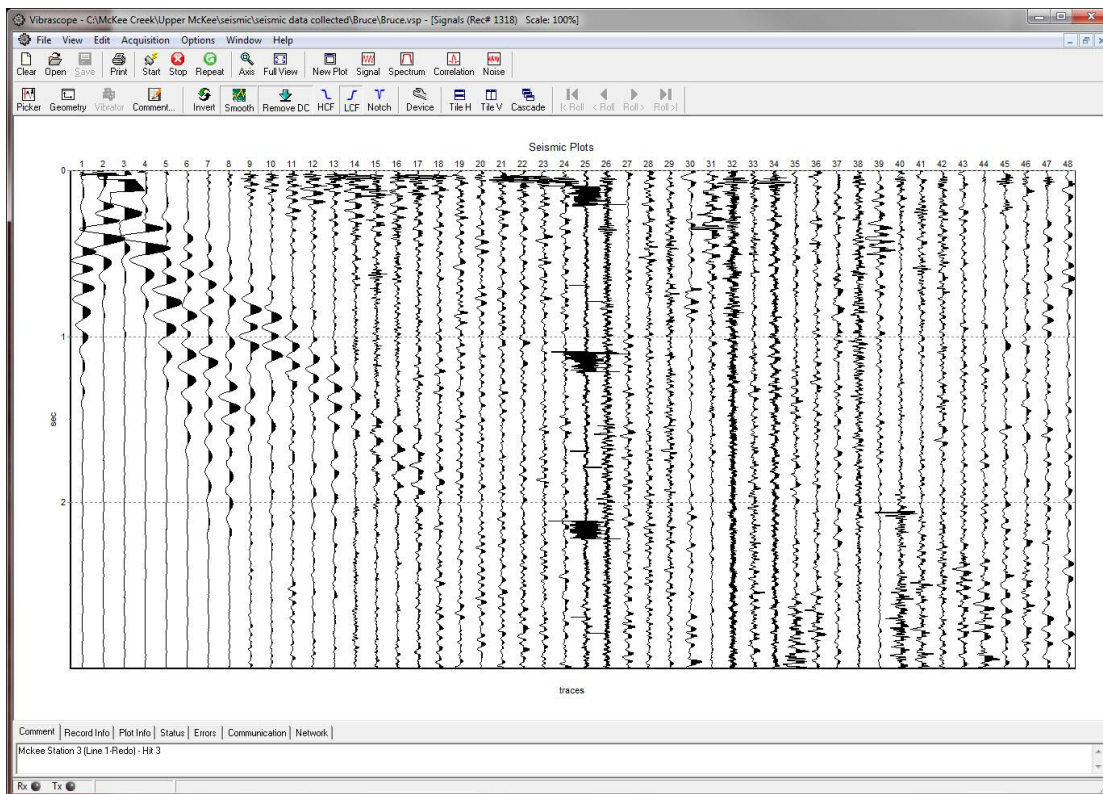
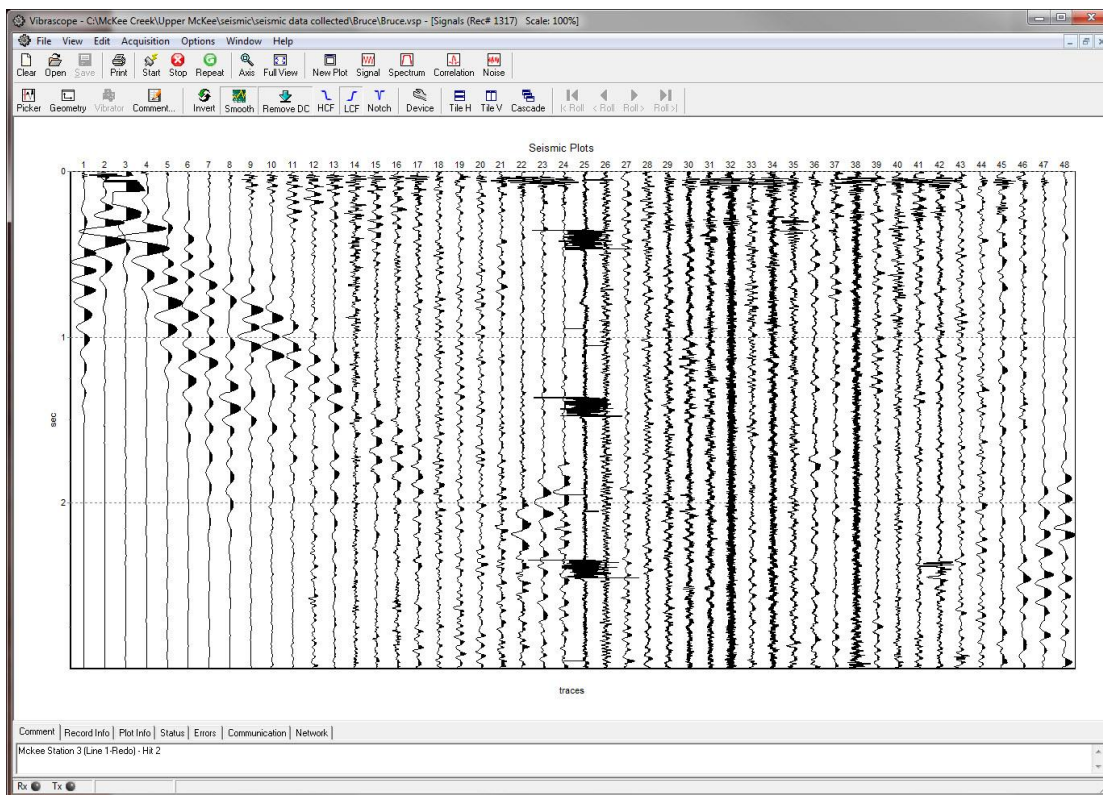


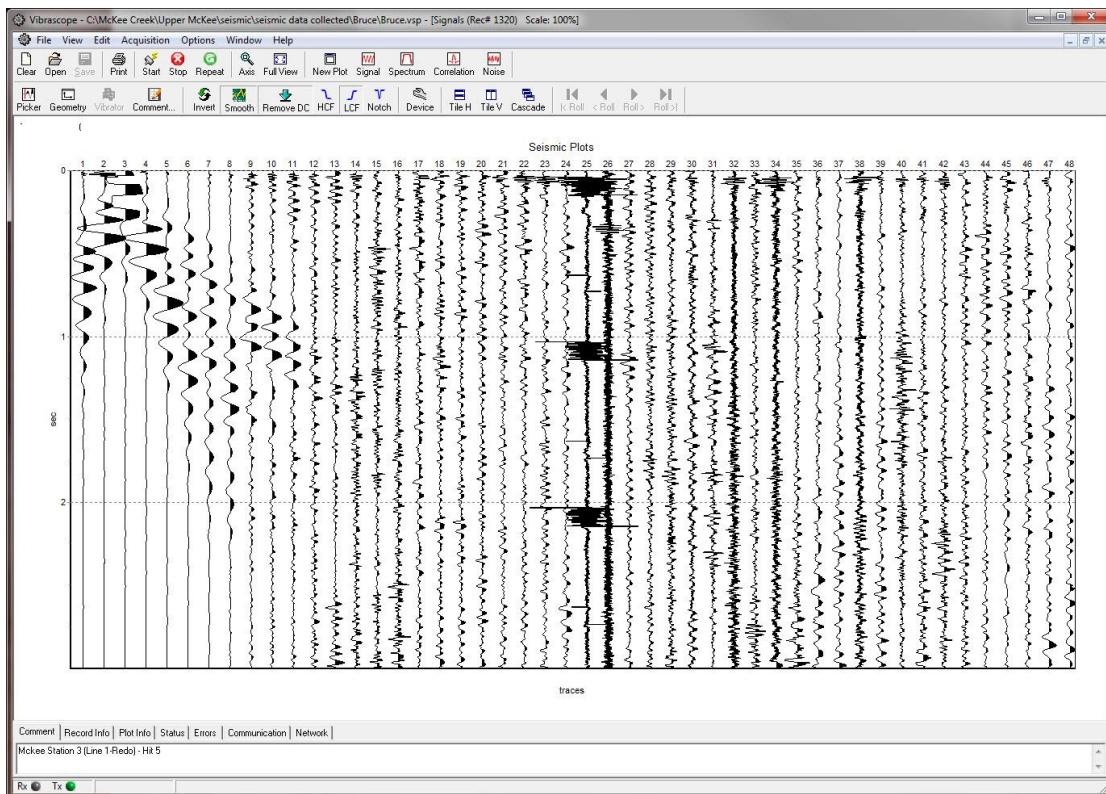
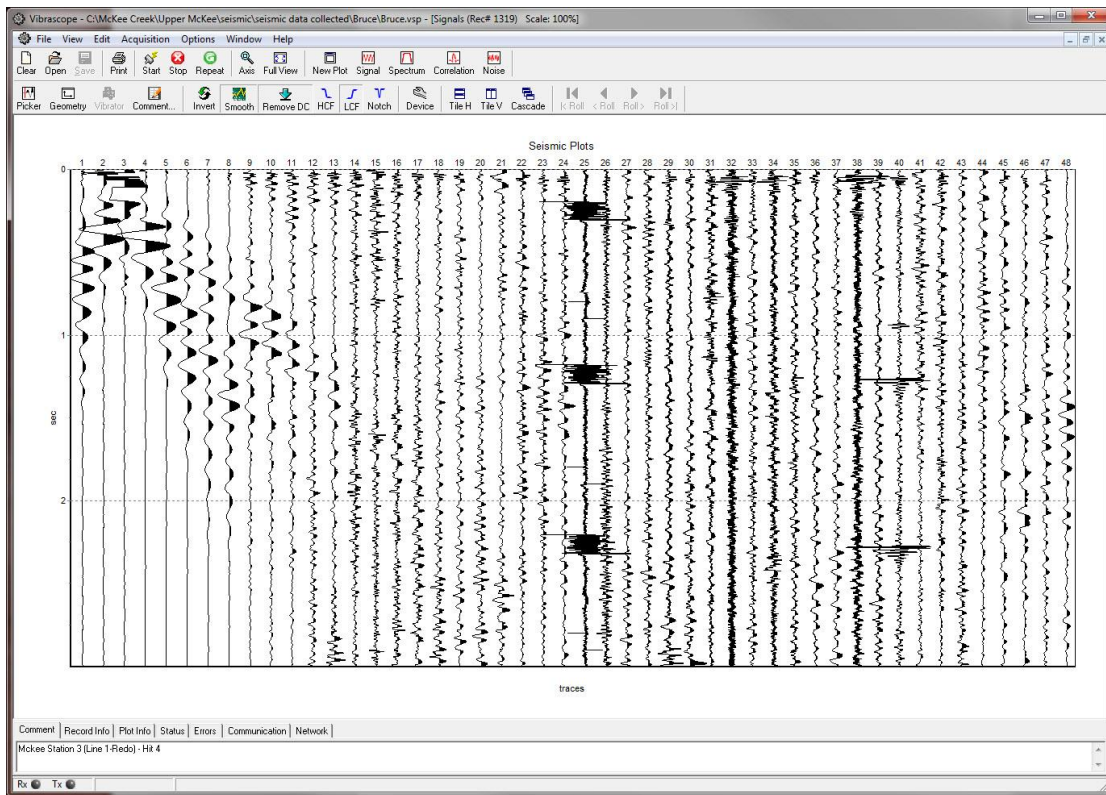
Appendix 4 –Traces with 3.0 sec records – Stations 1-59

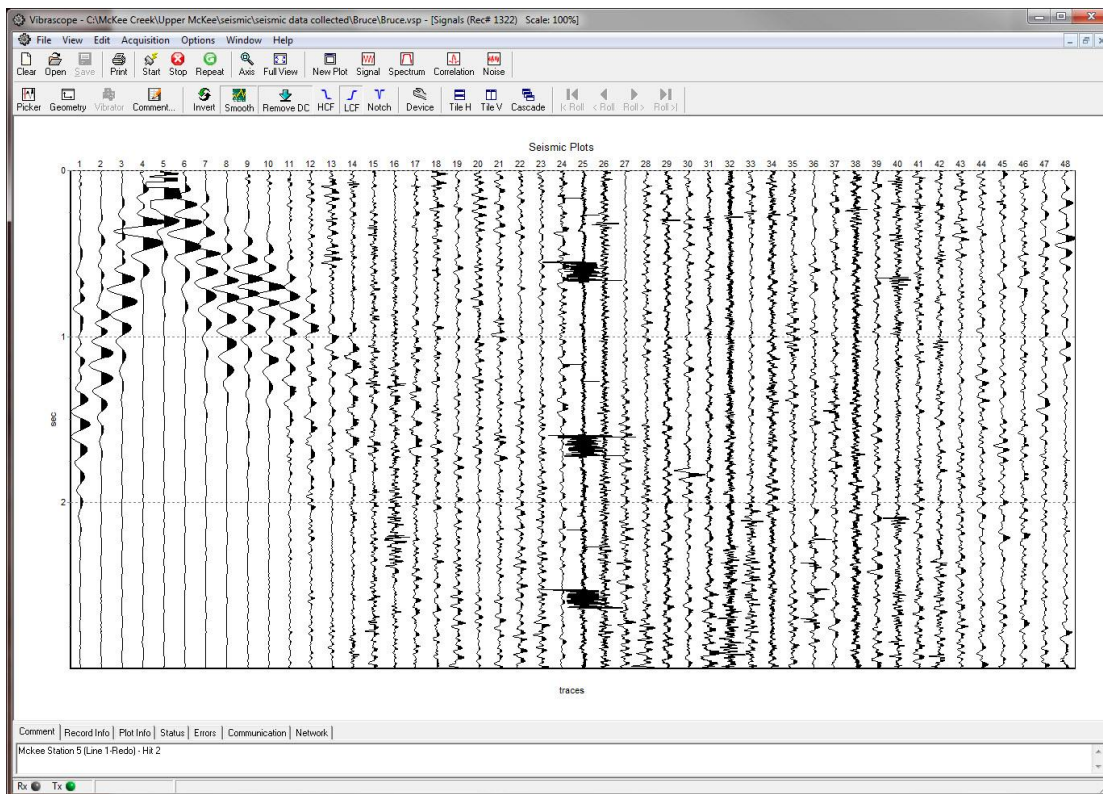
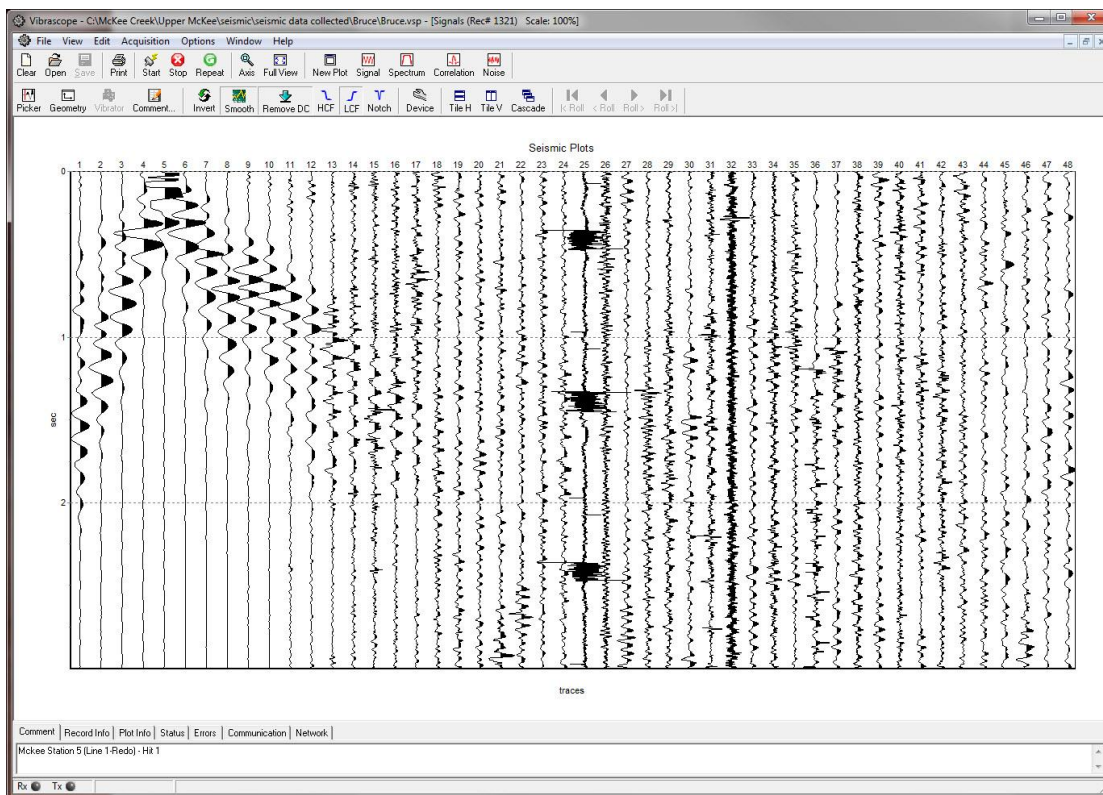


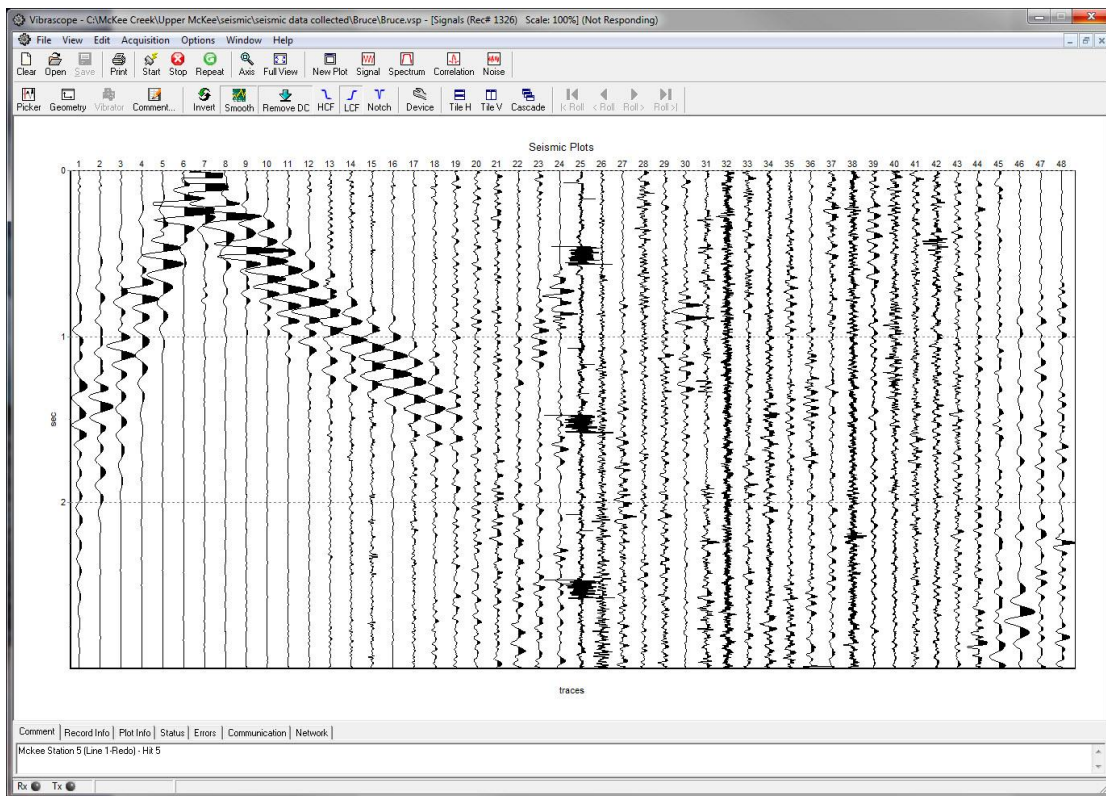
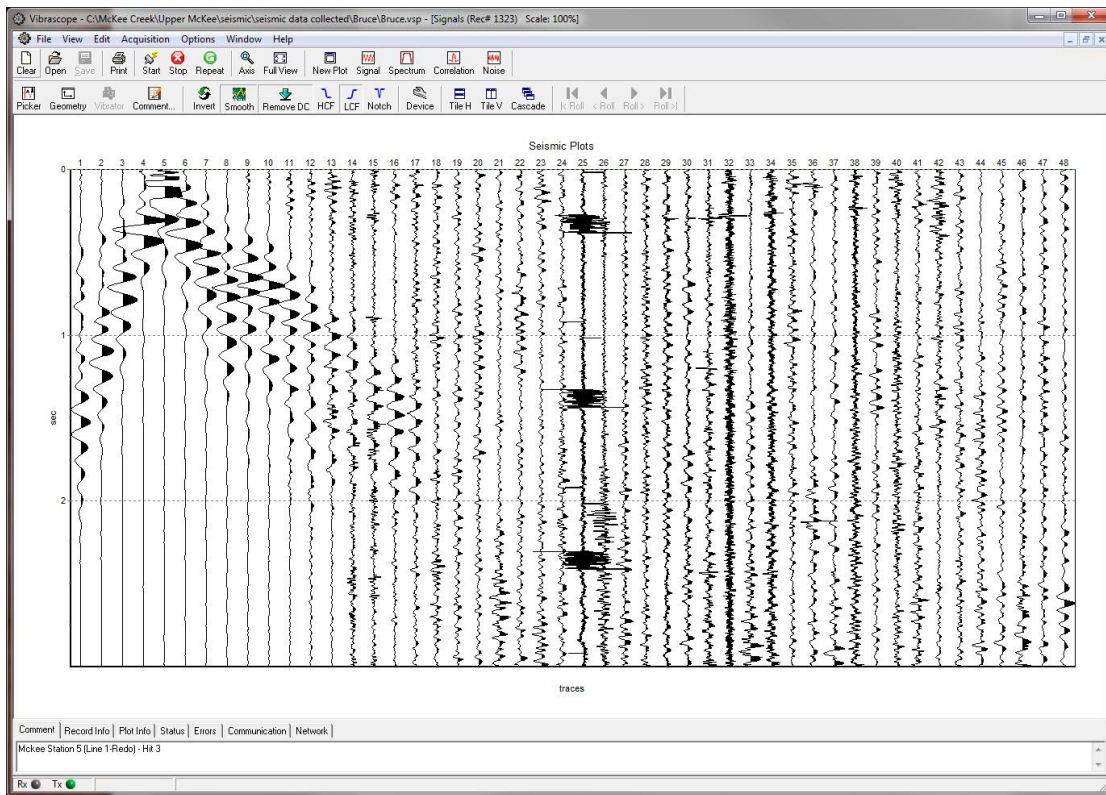


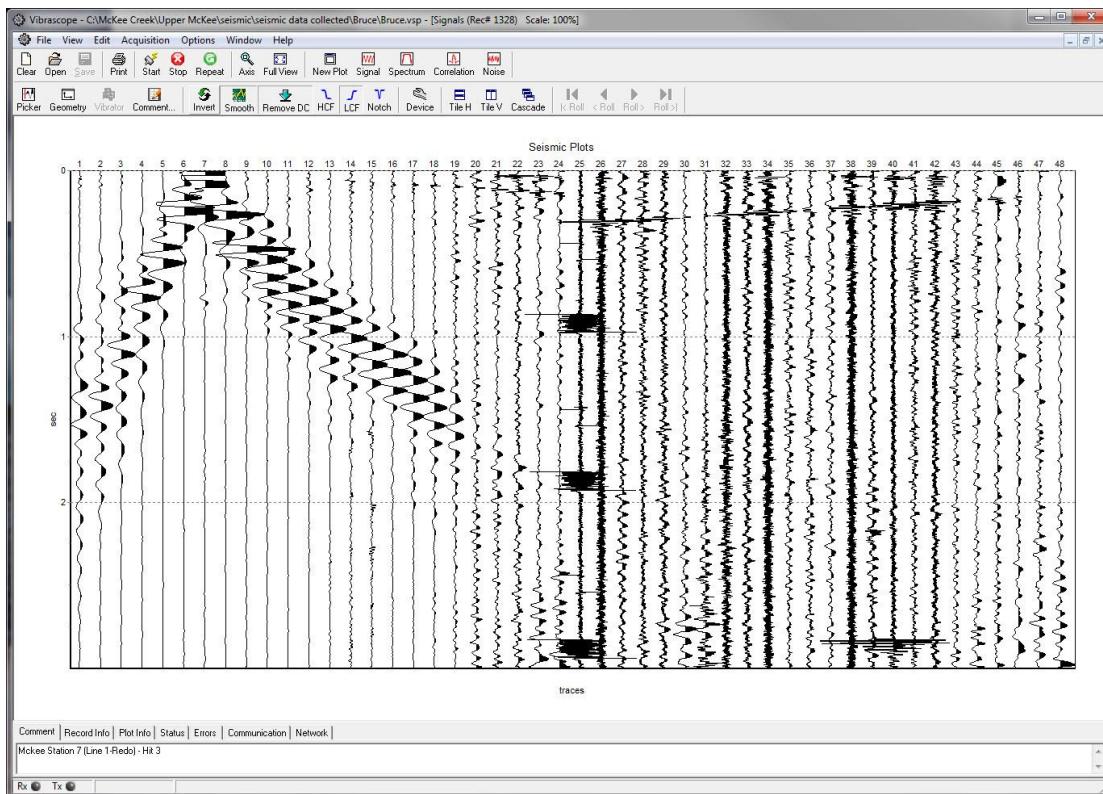
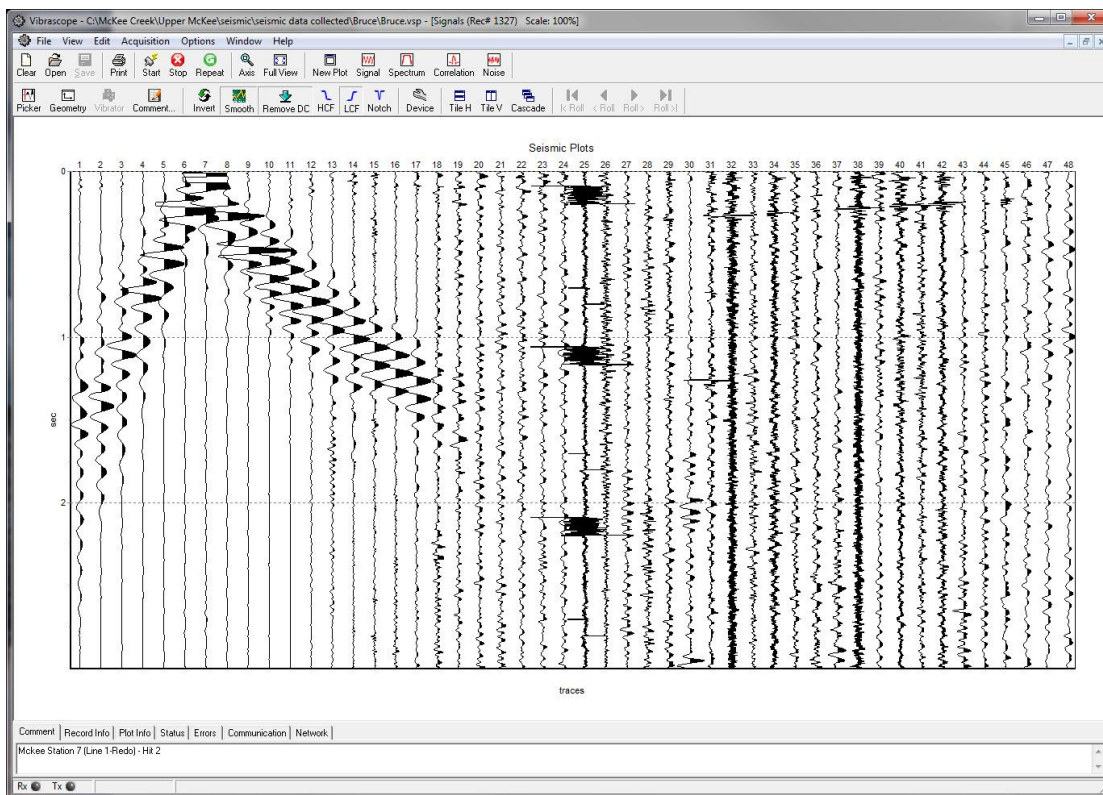


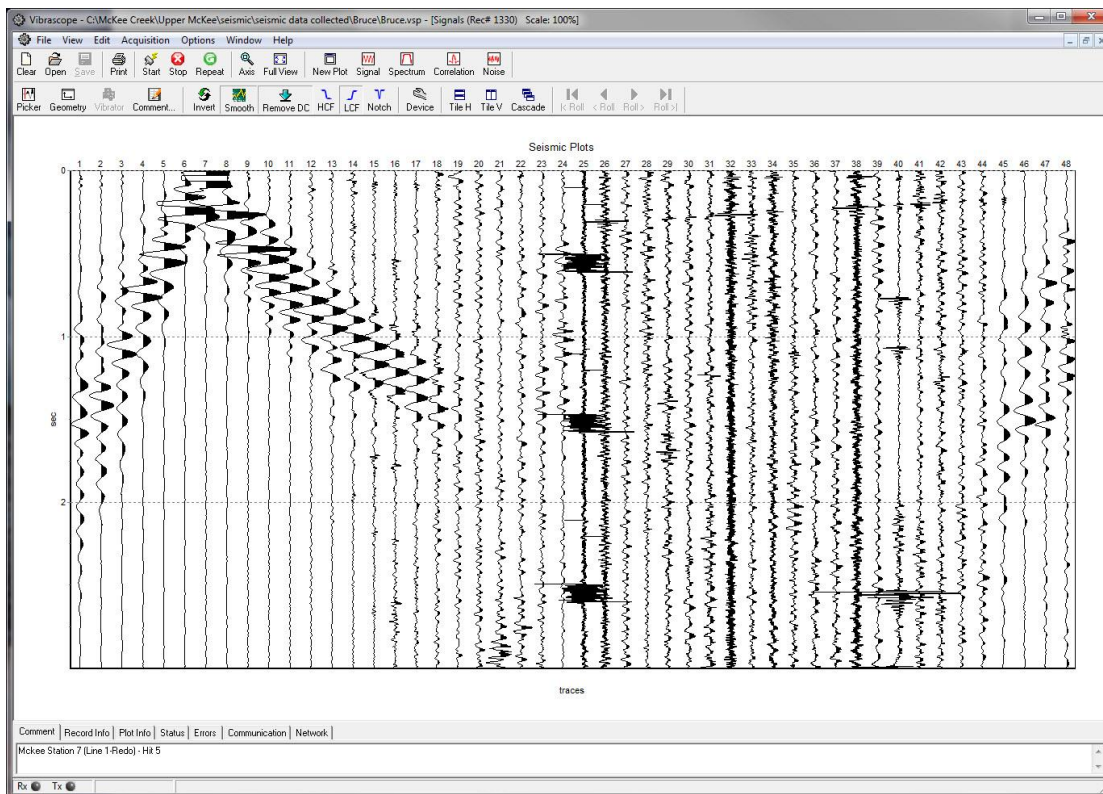
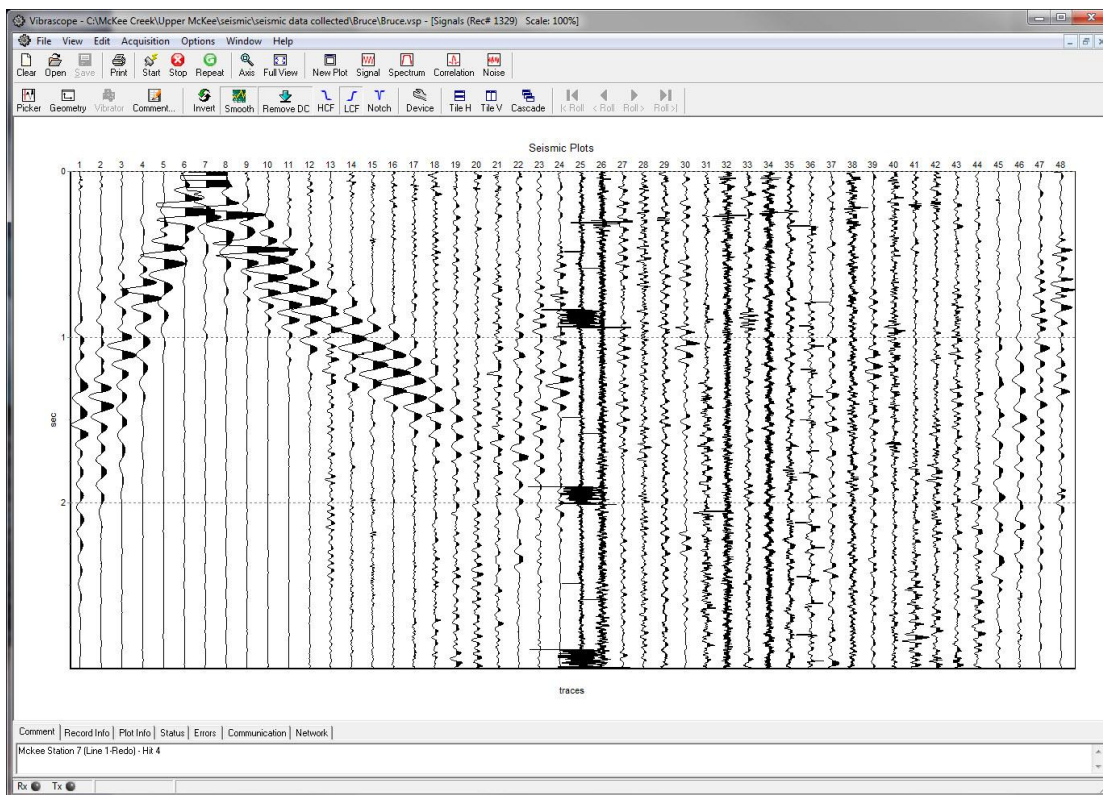


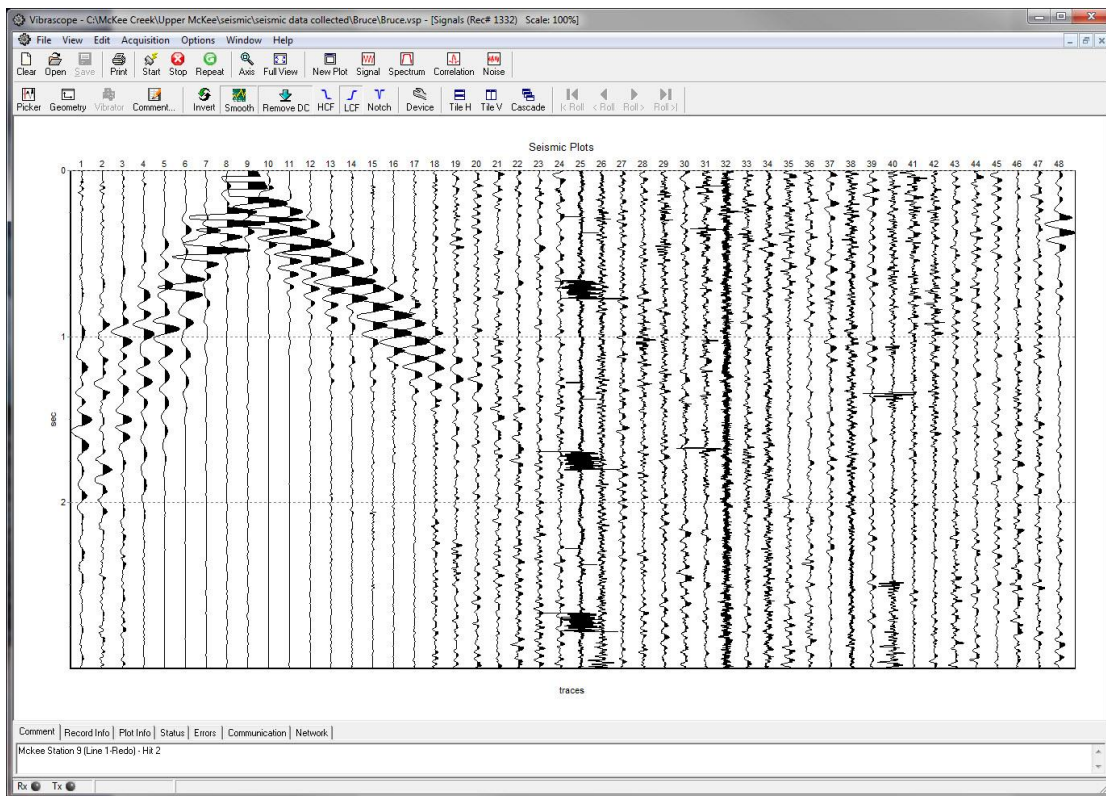
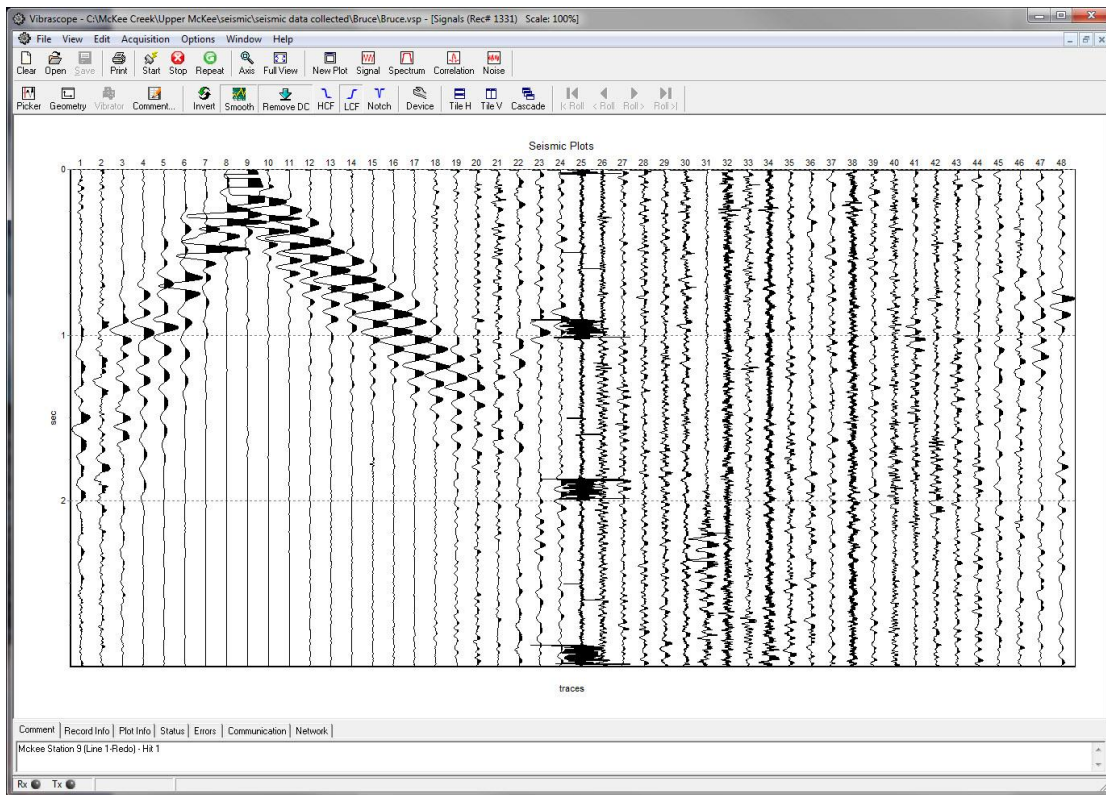


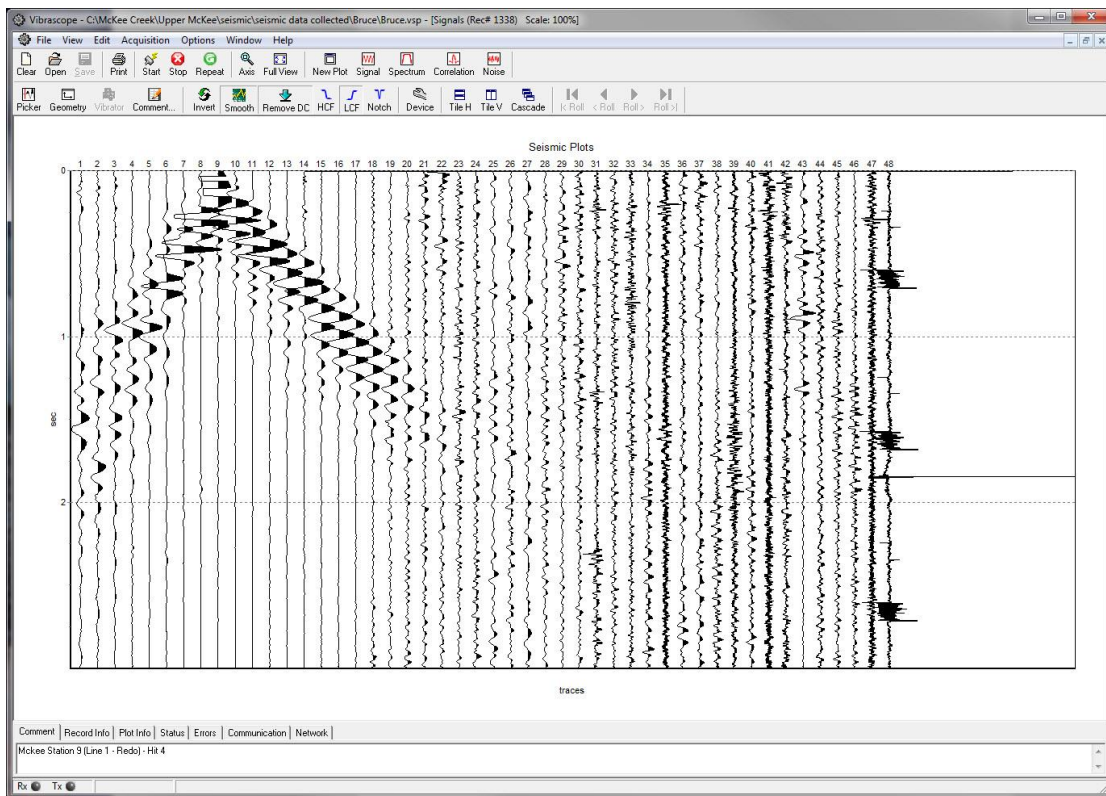
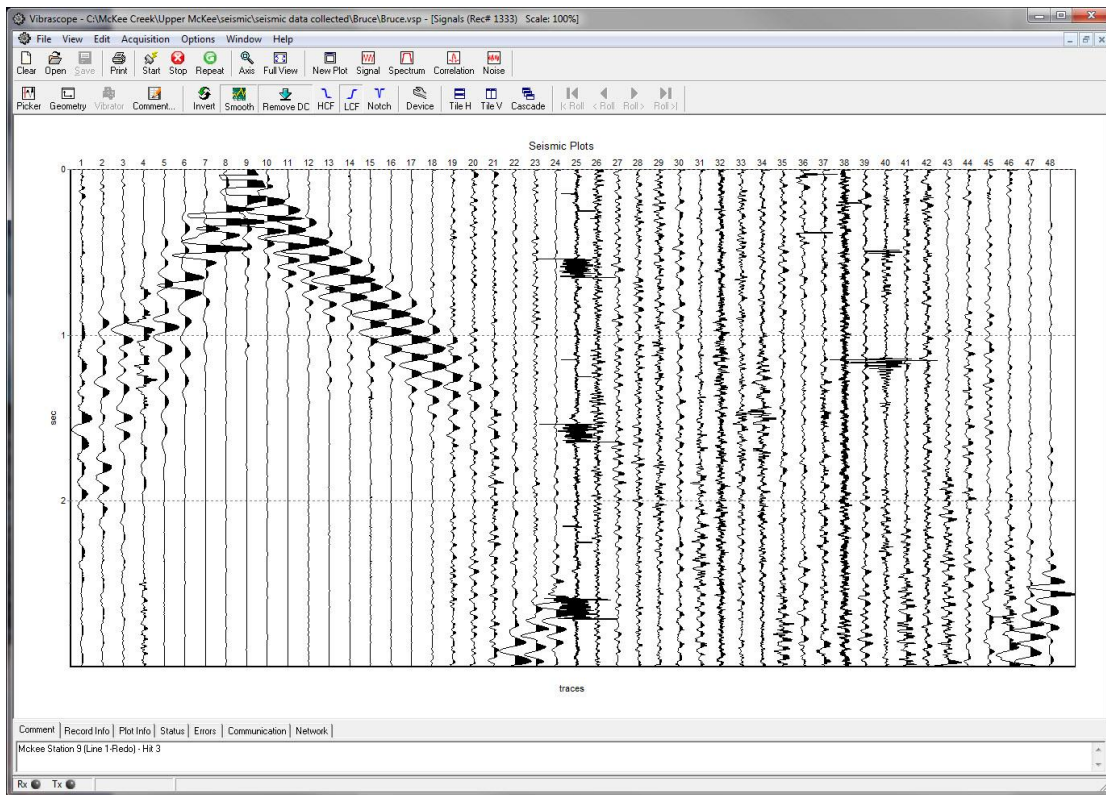


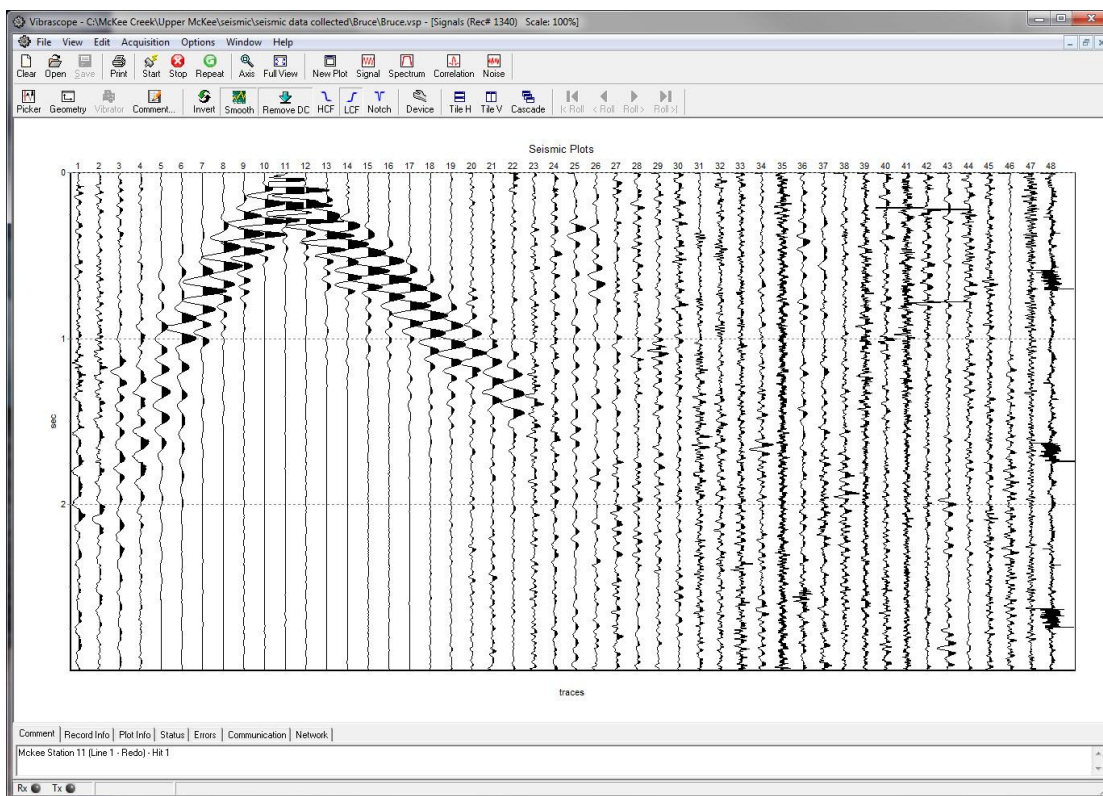
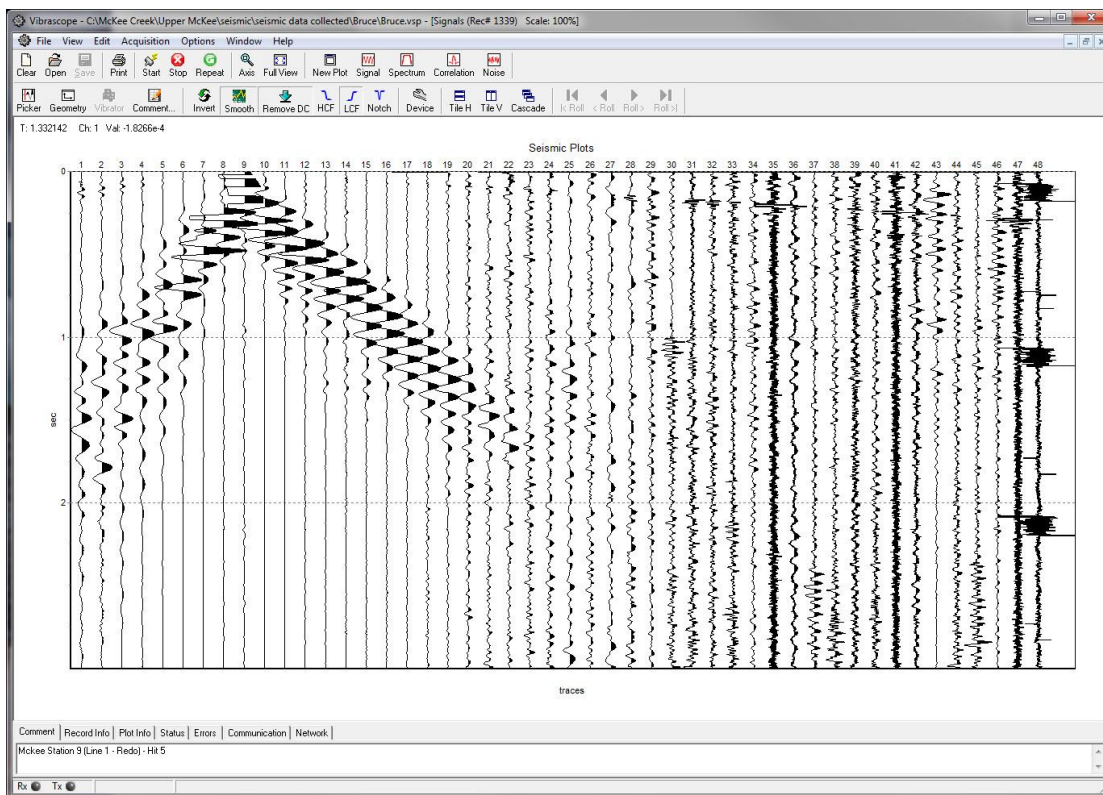


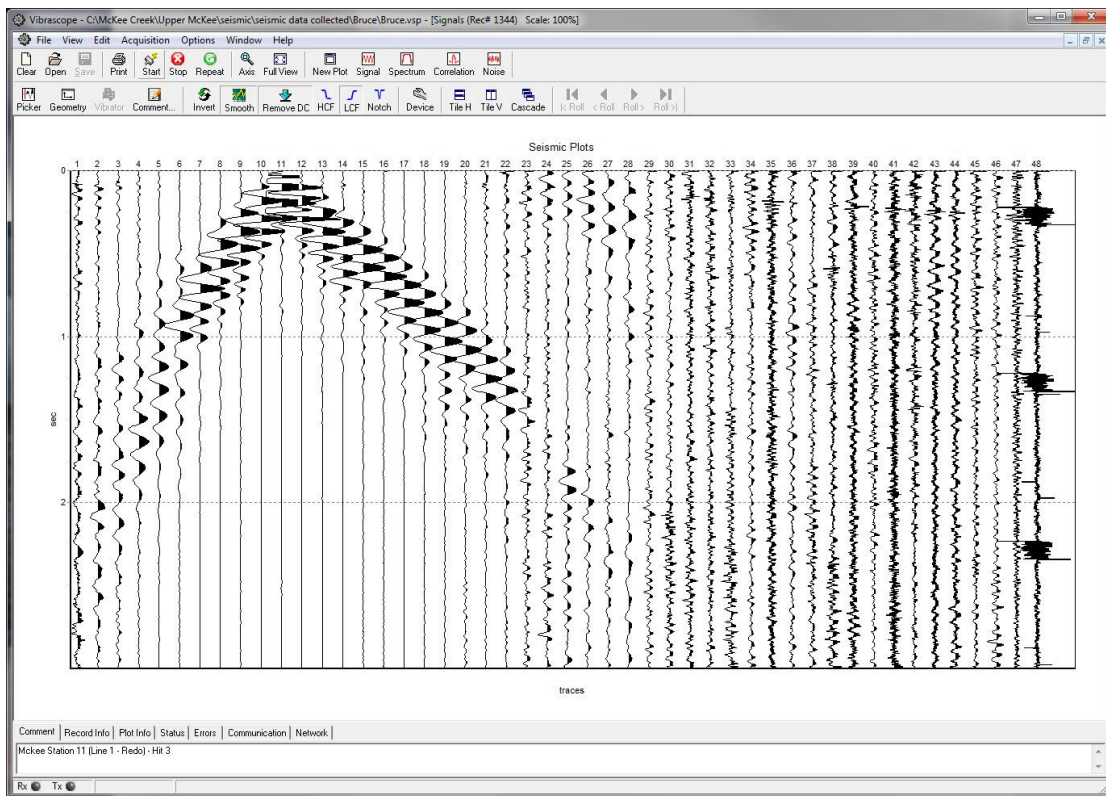
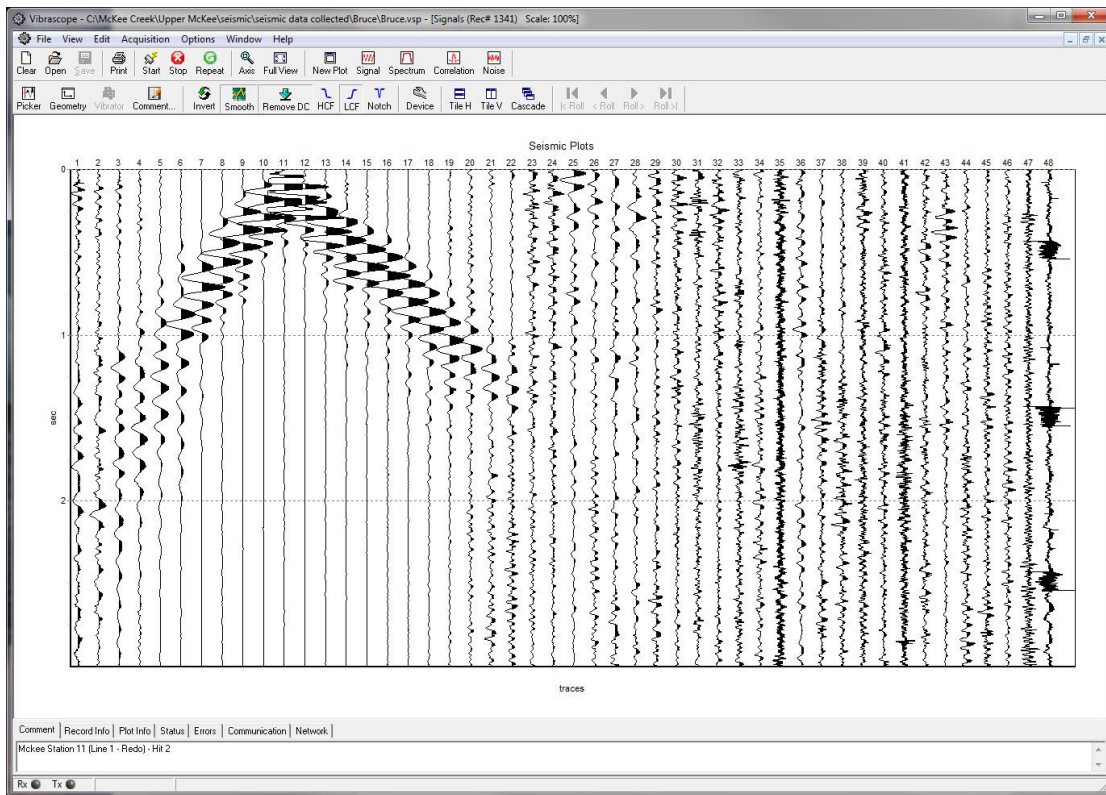


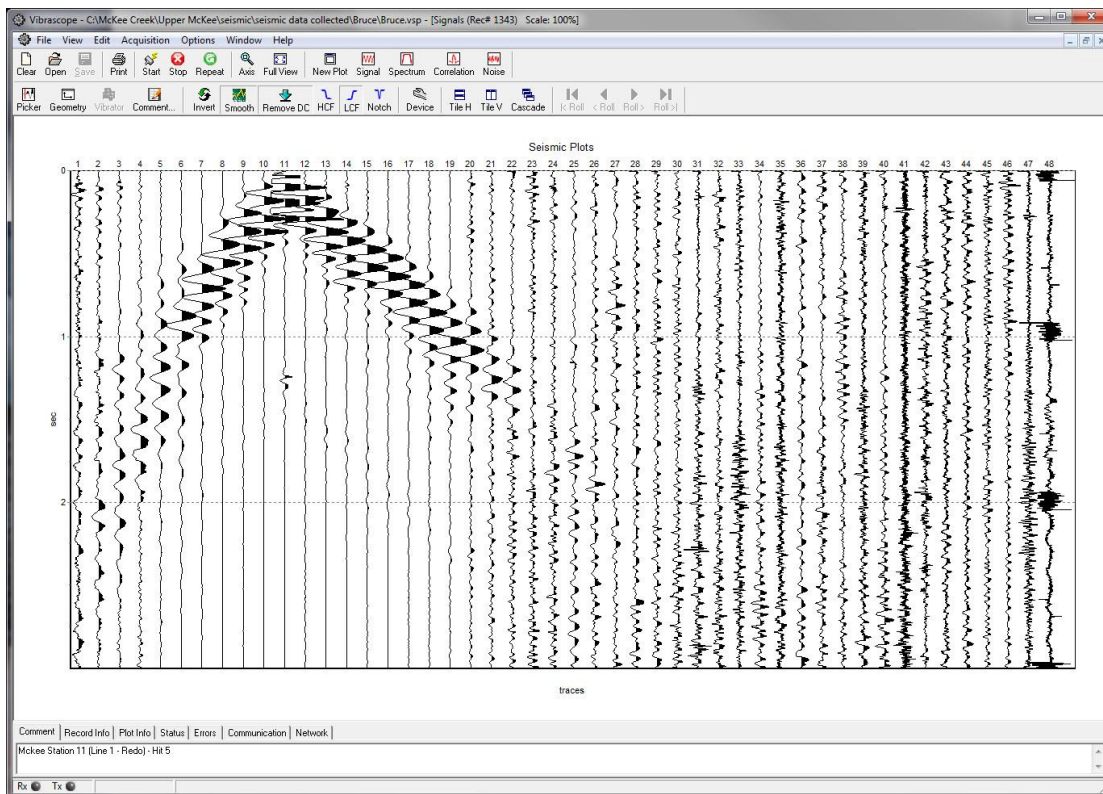
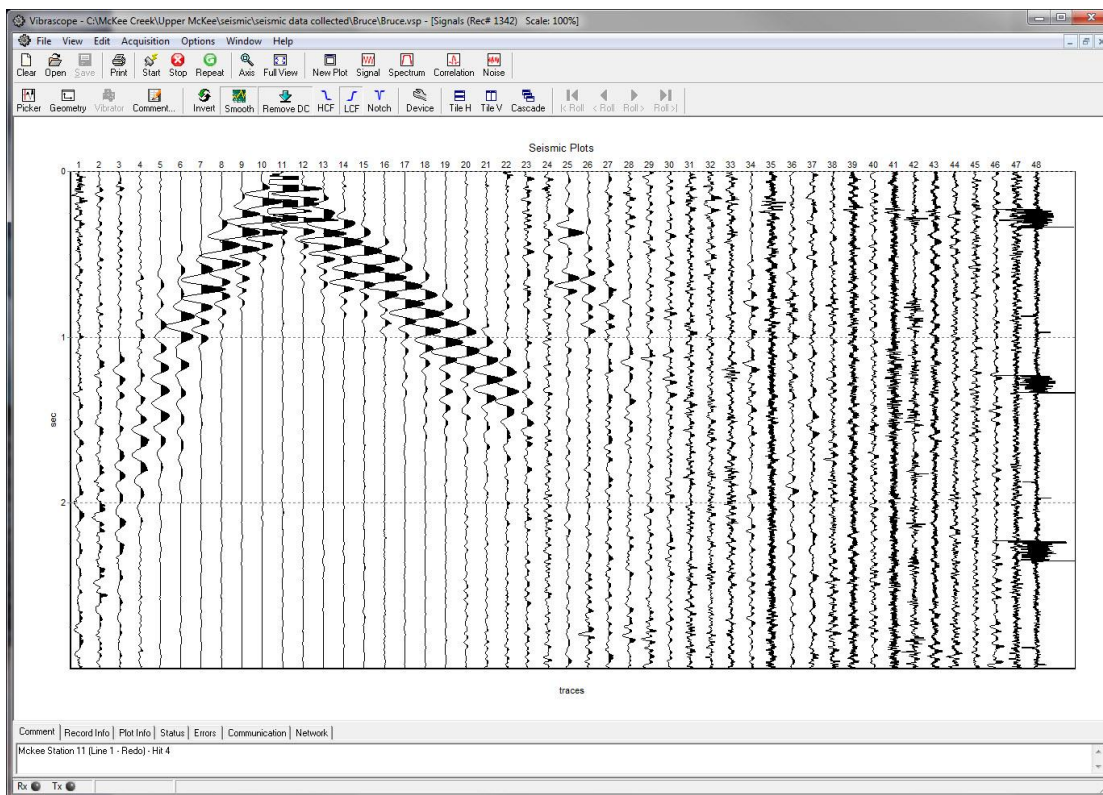


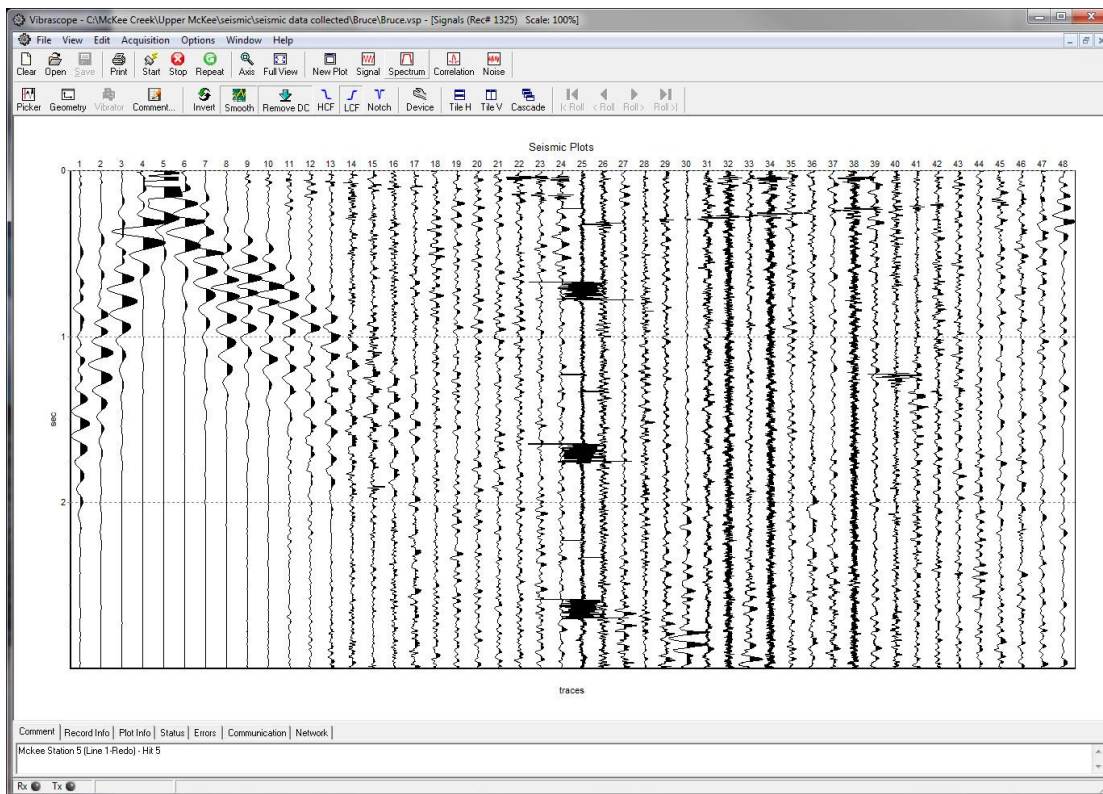
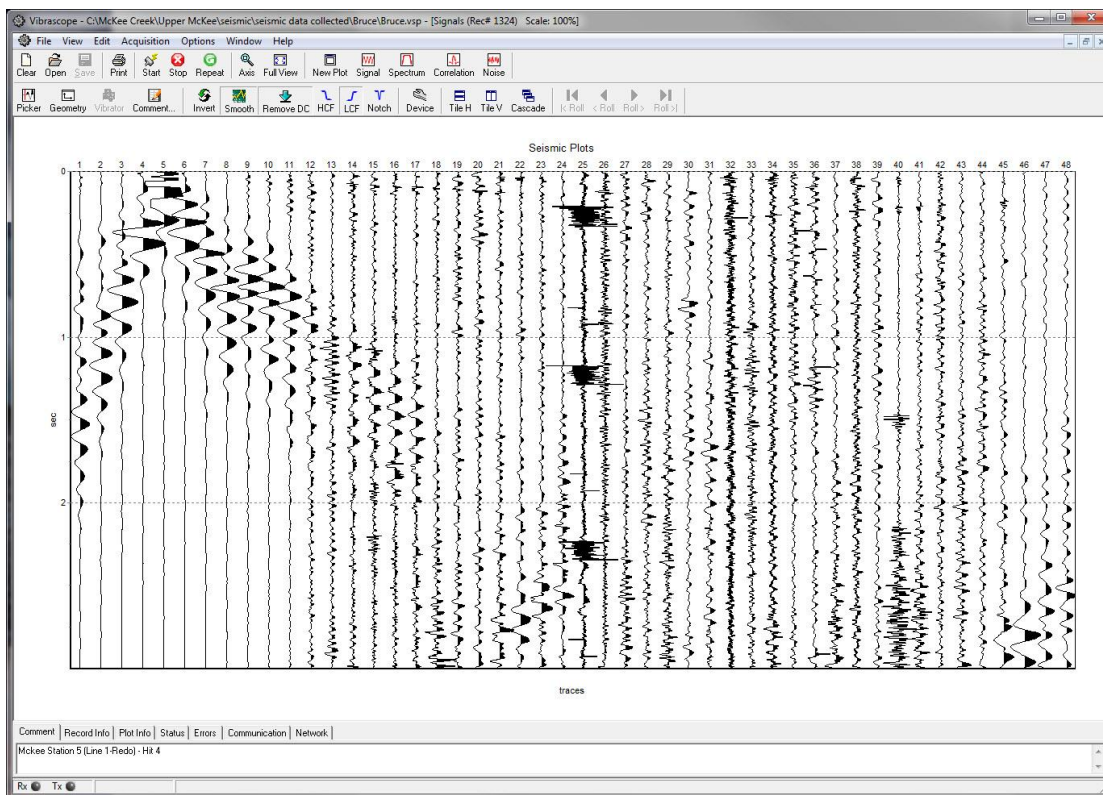


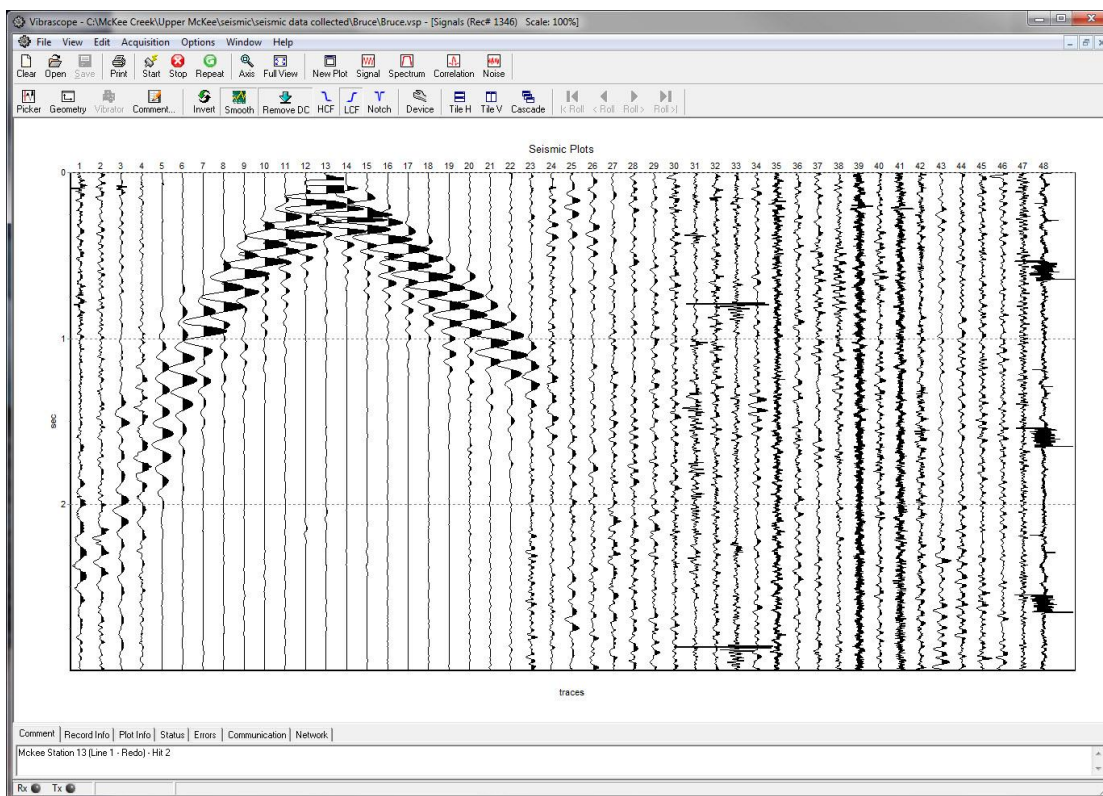
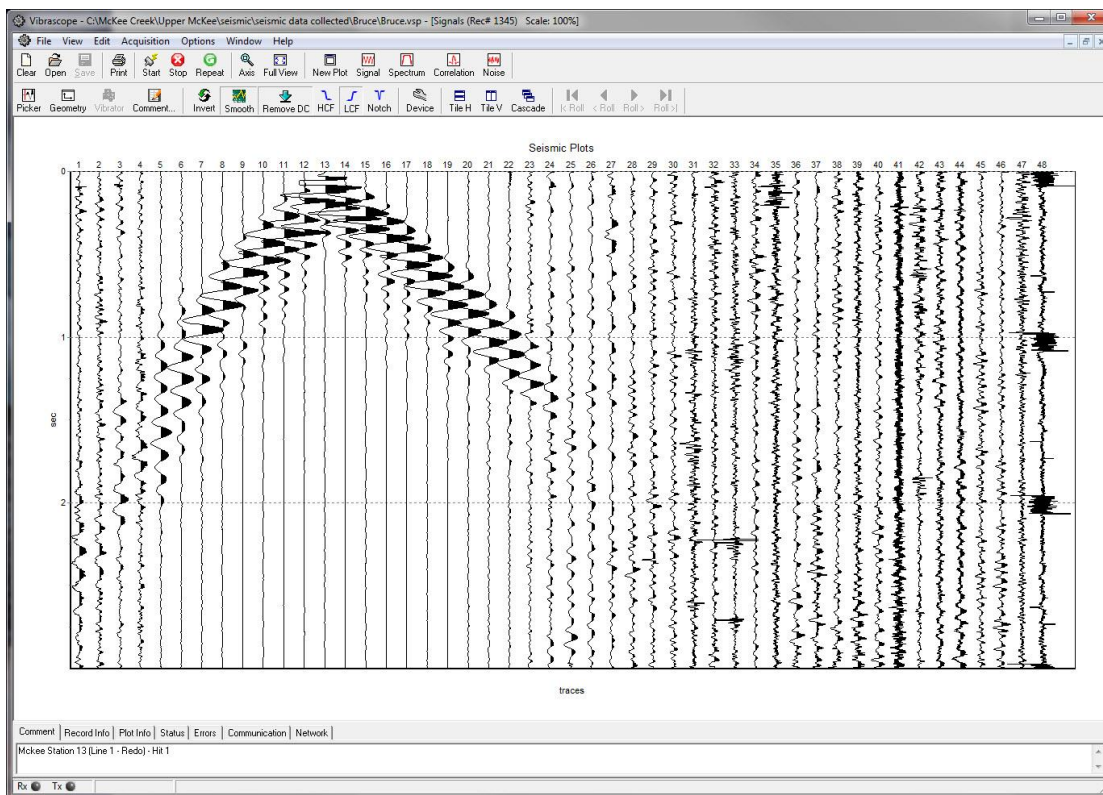


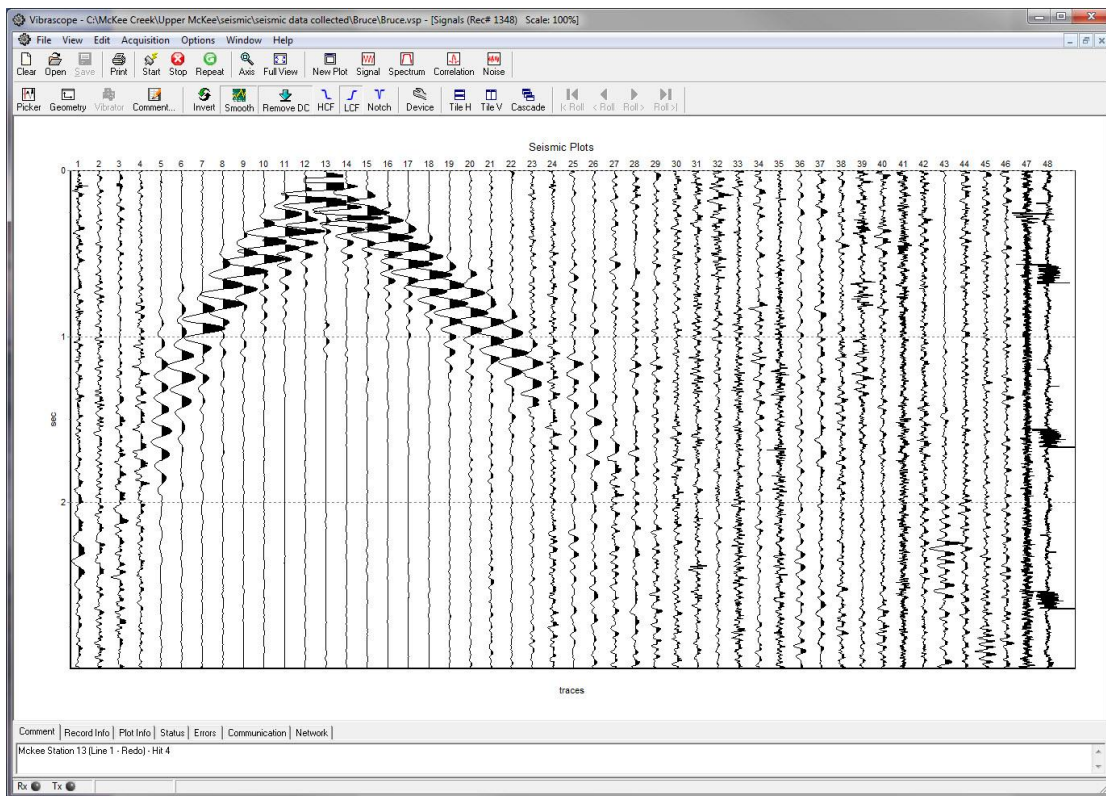
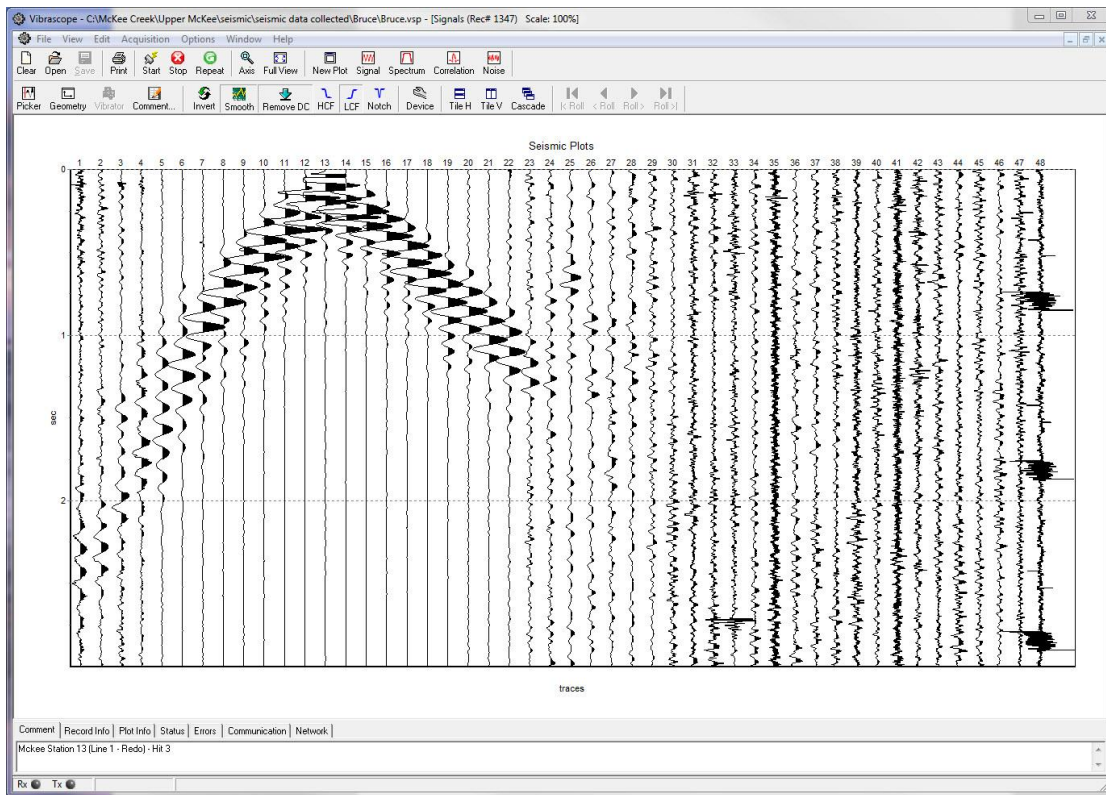


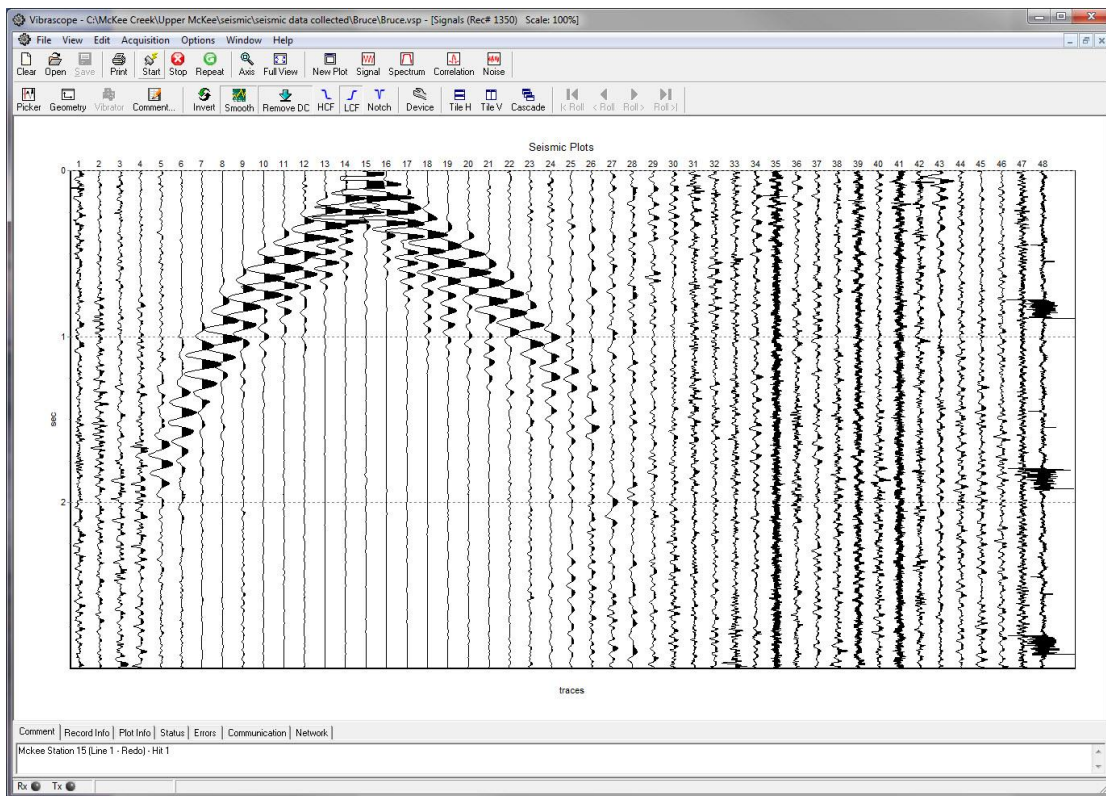
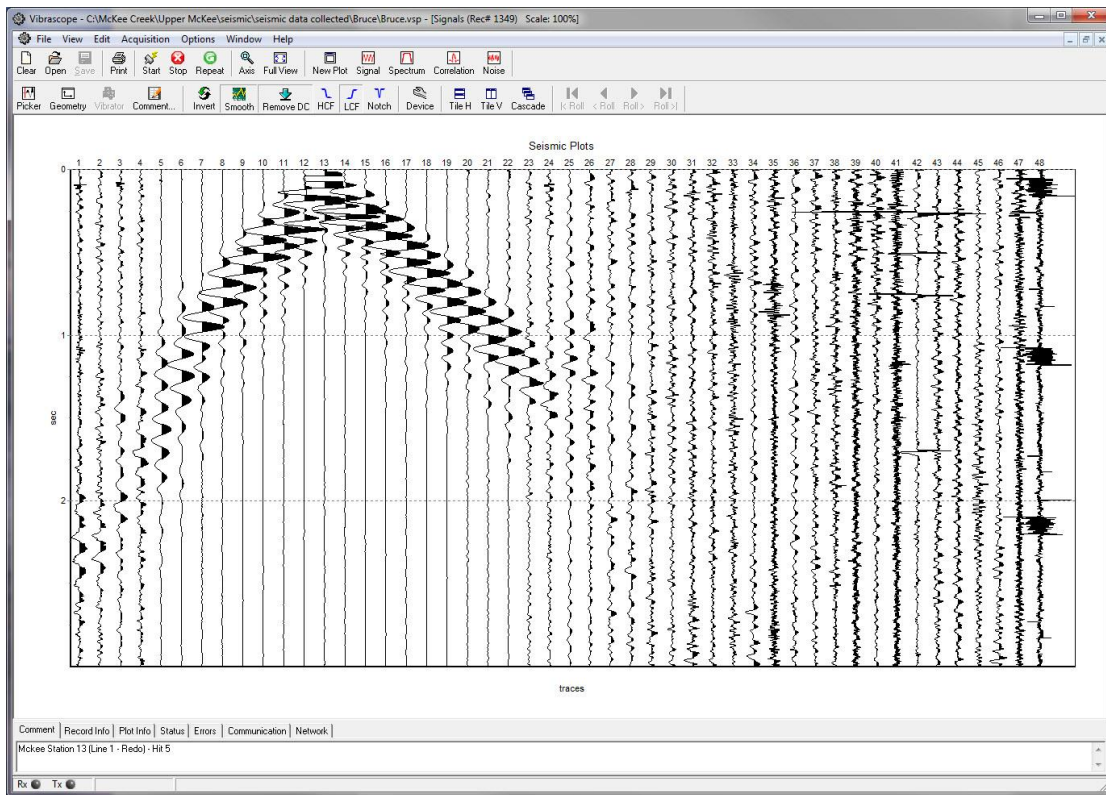


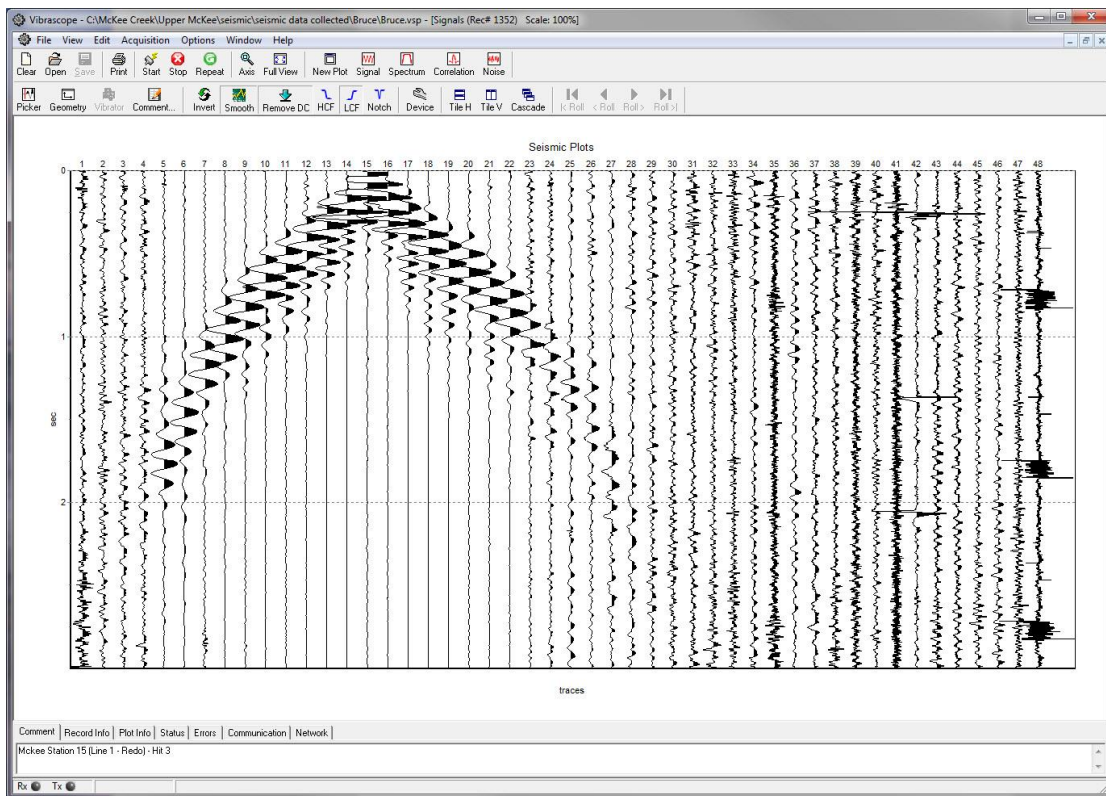
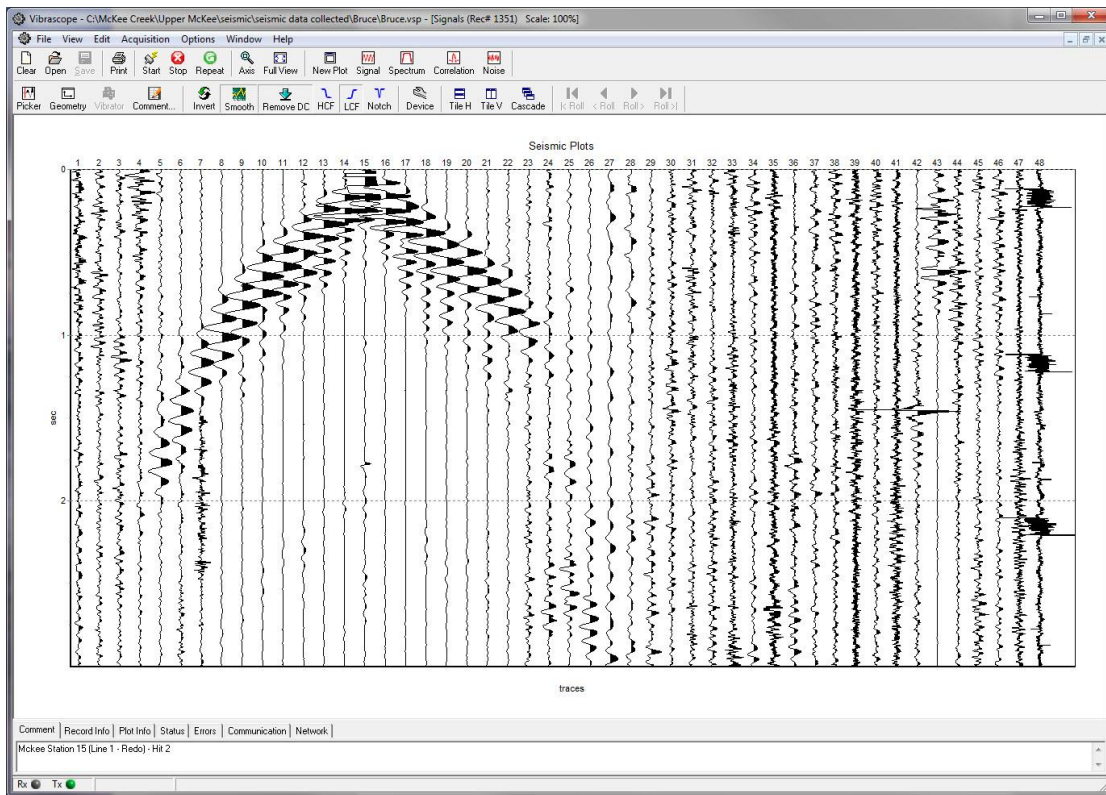


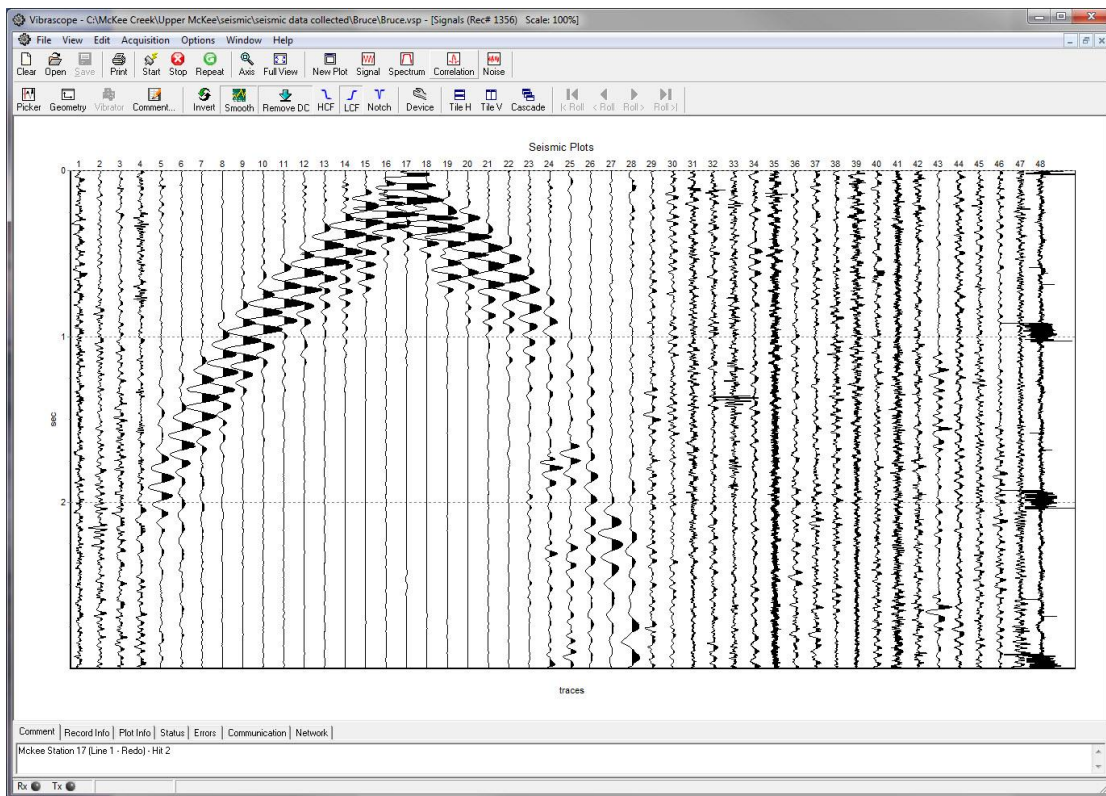
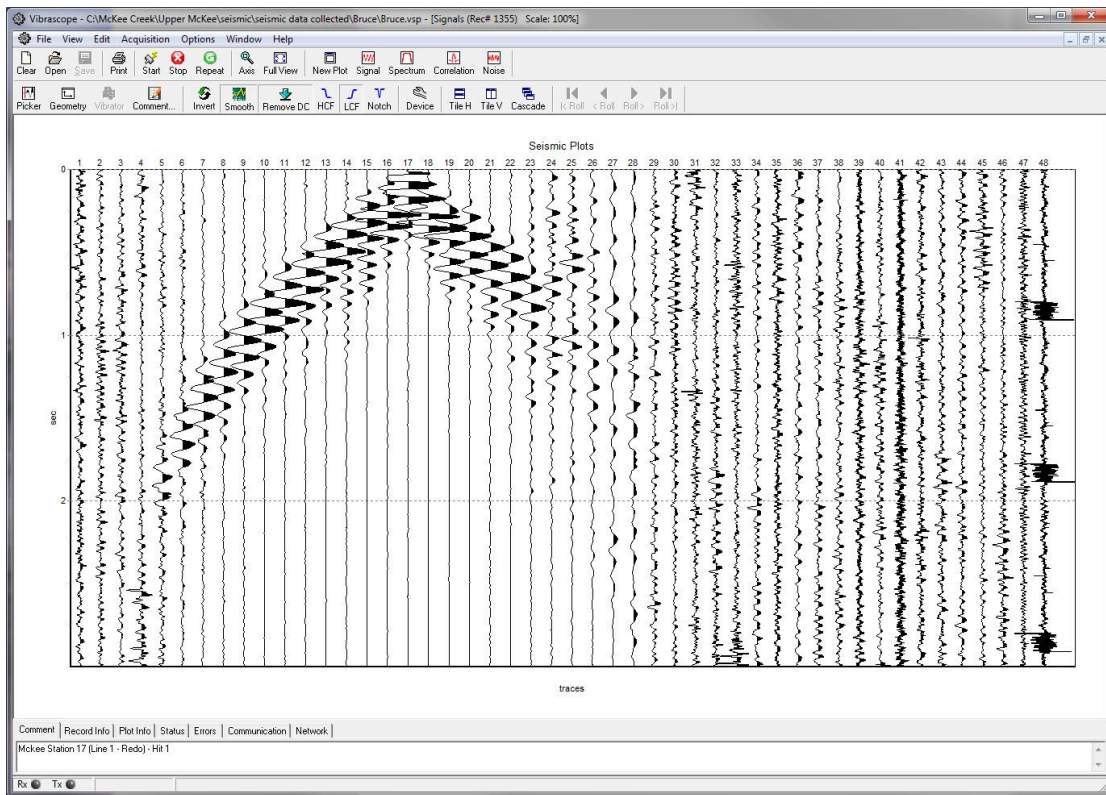


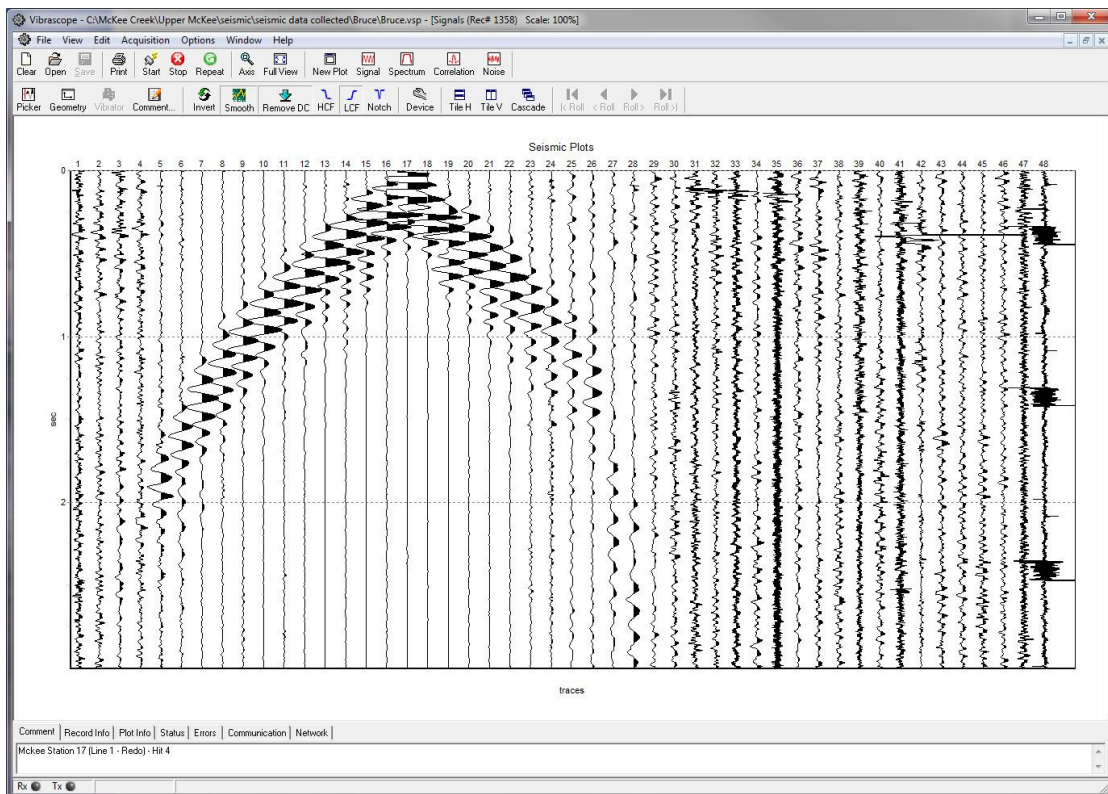
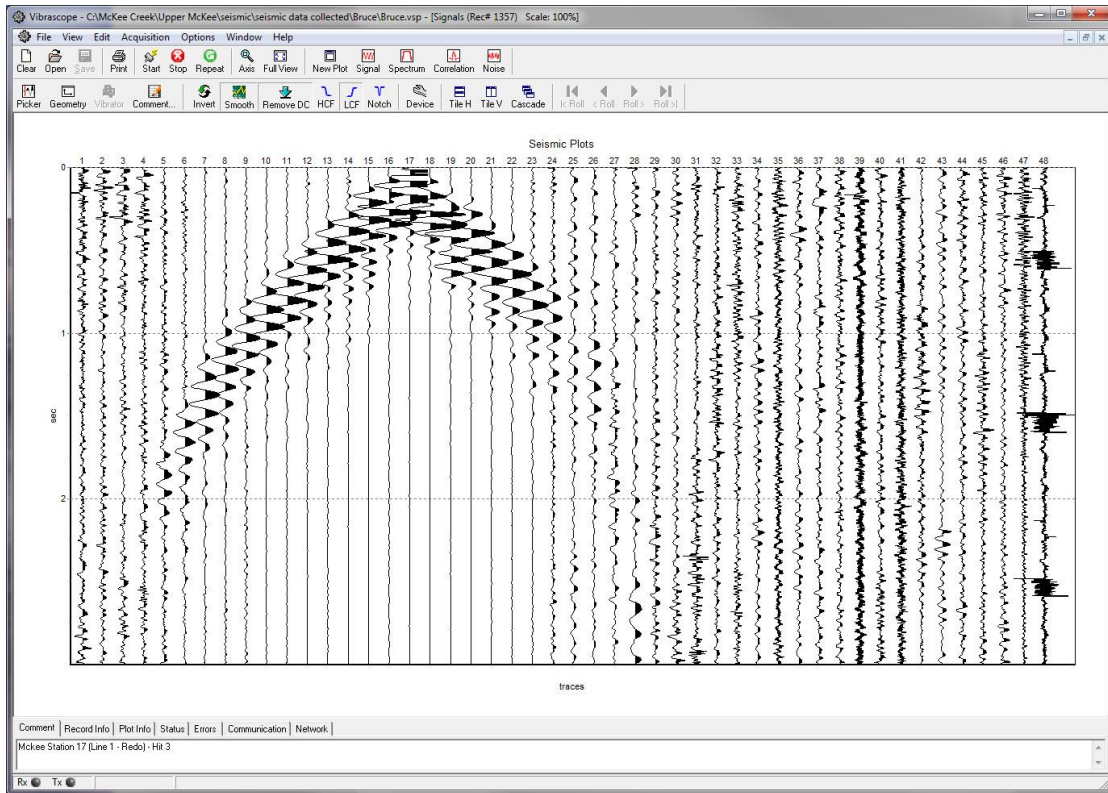


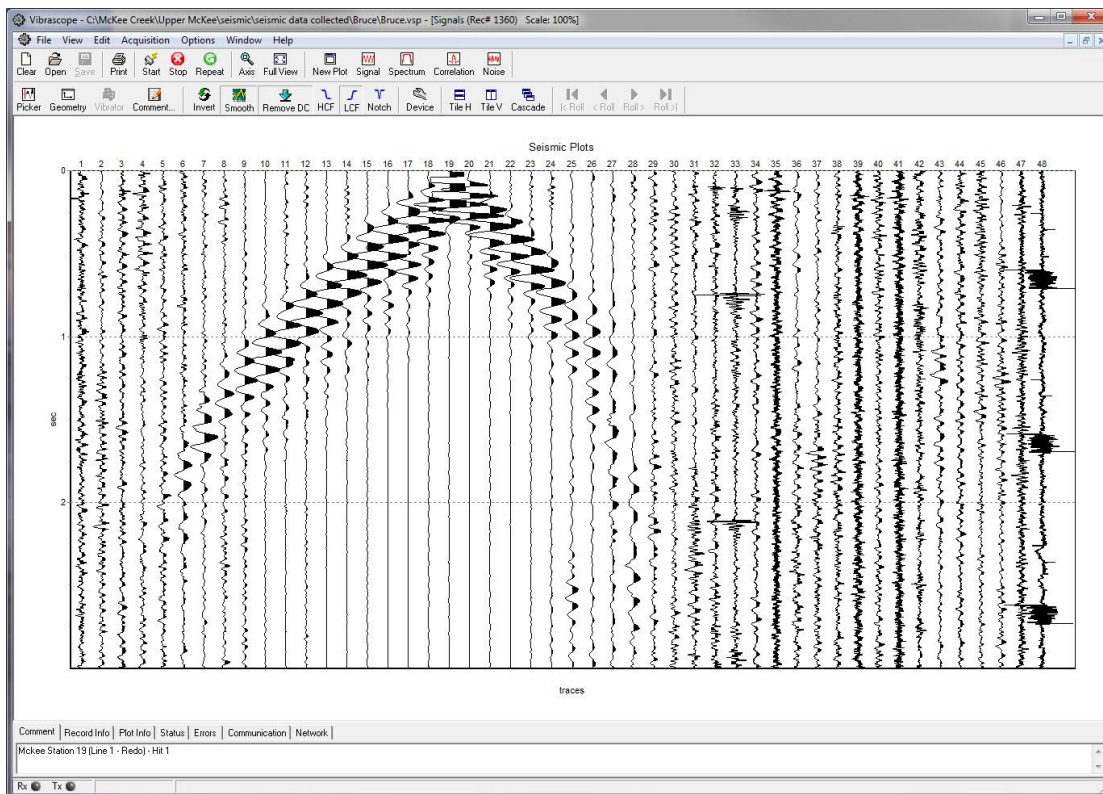
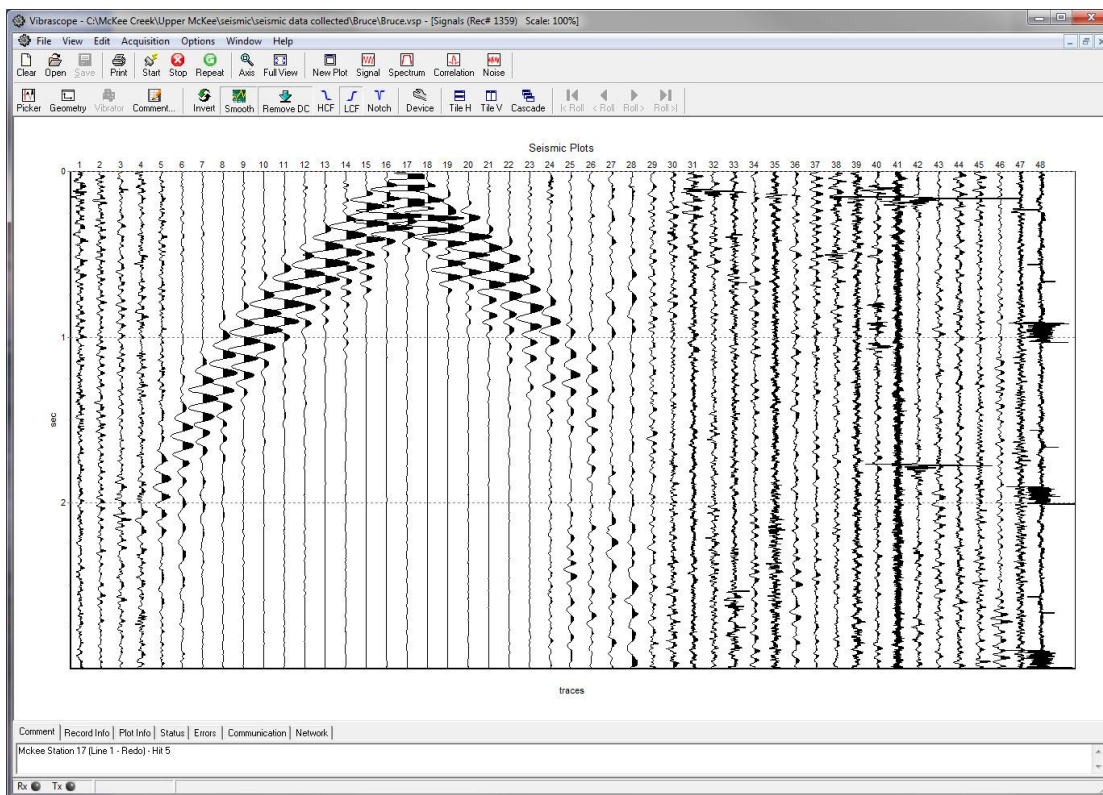


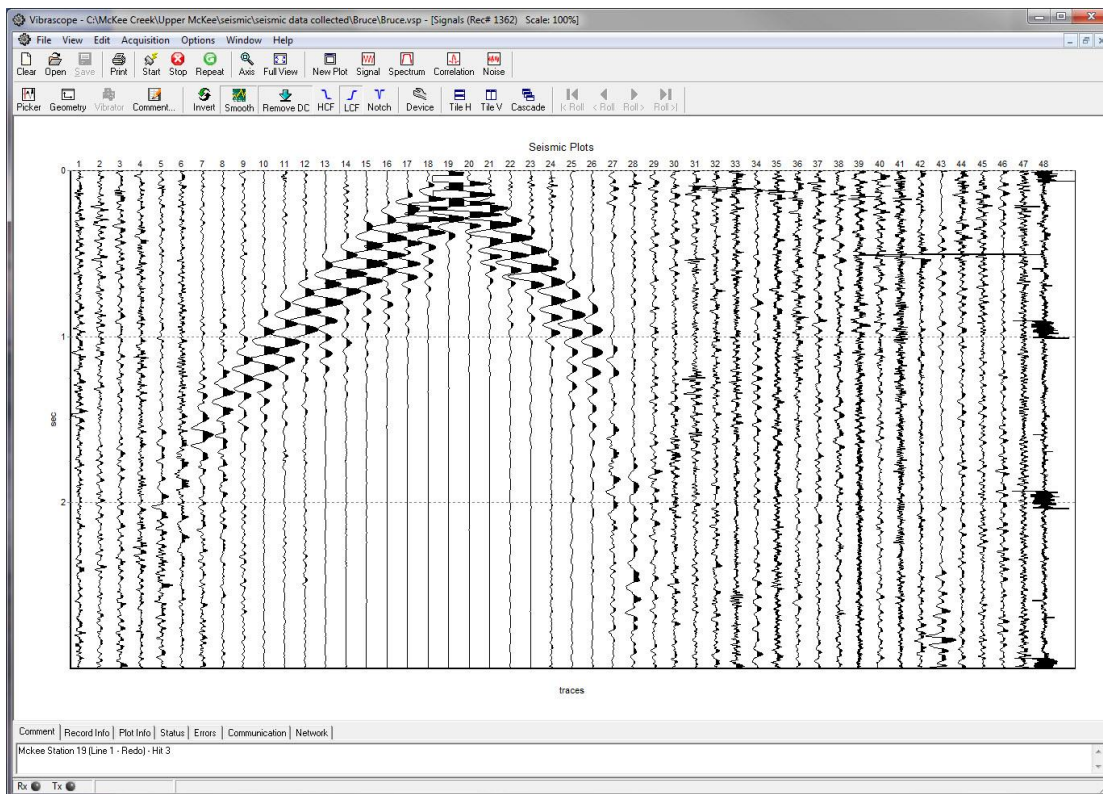
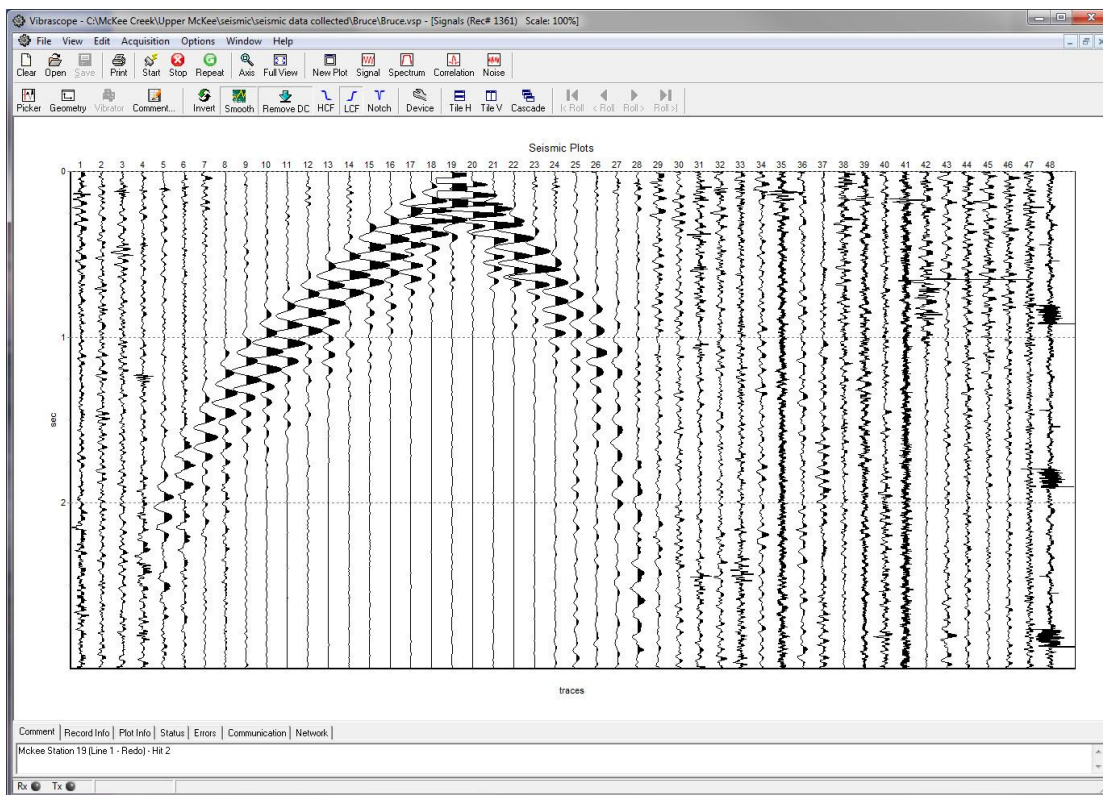


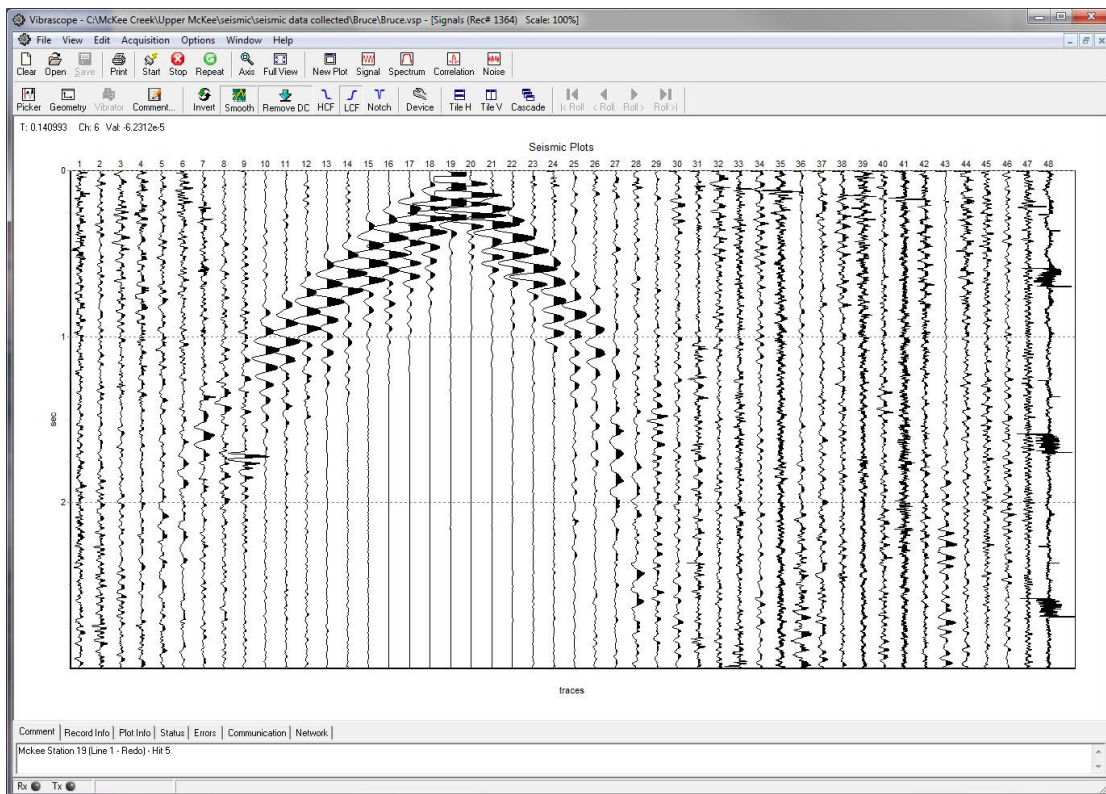
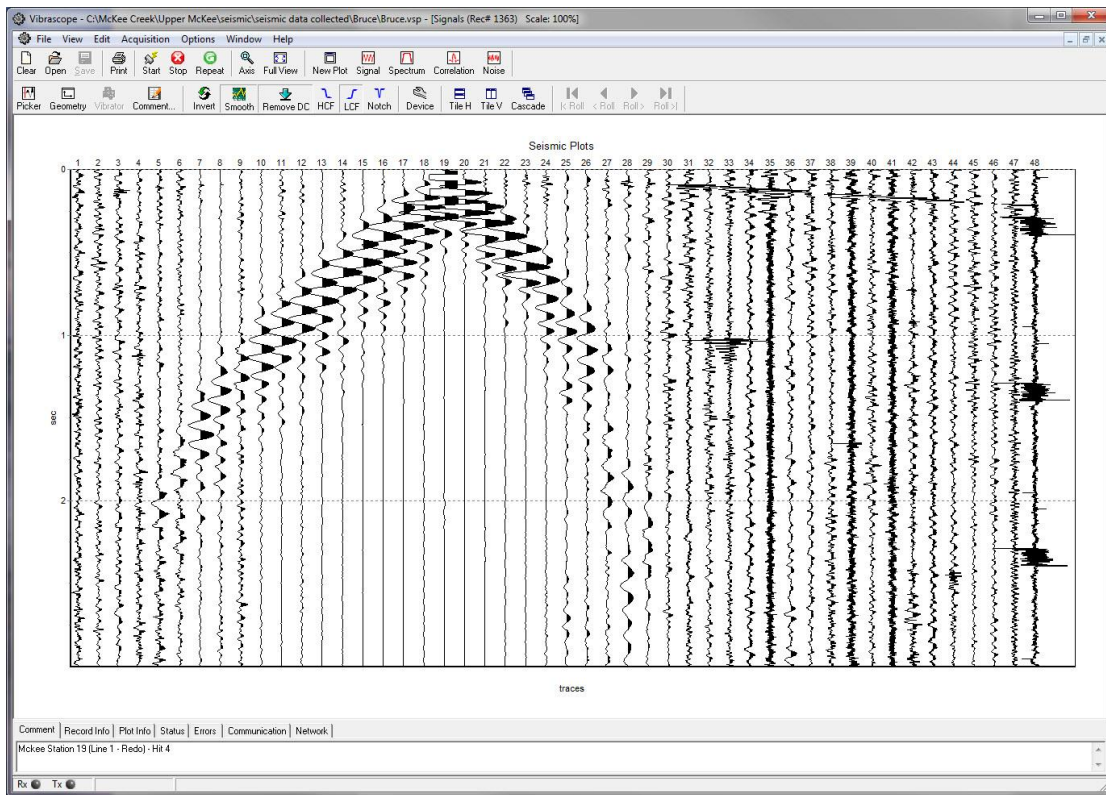


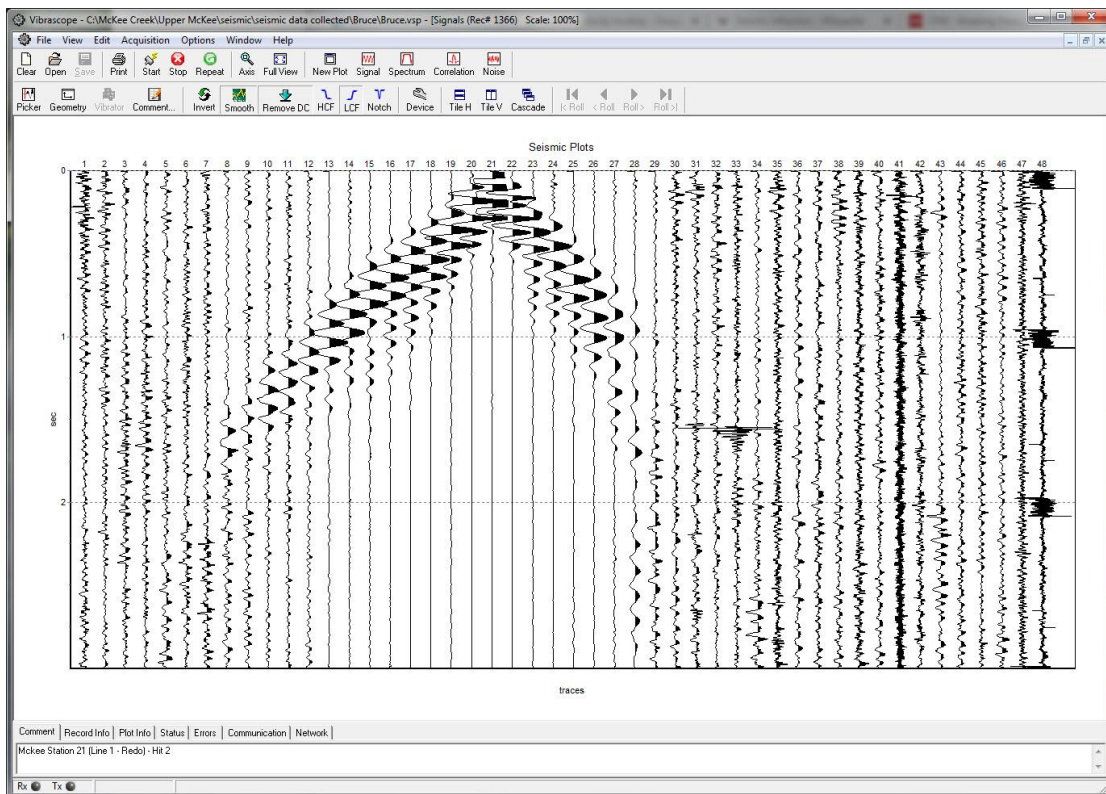
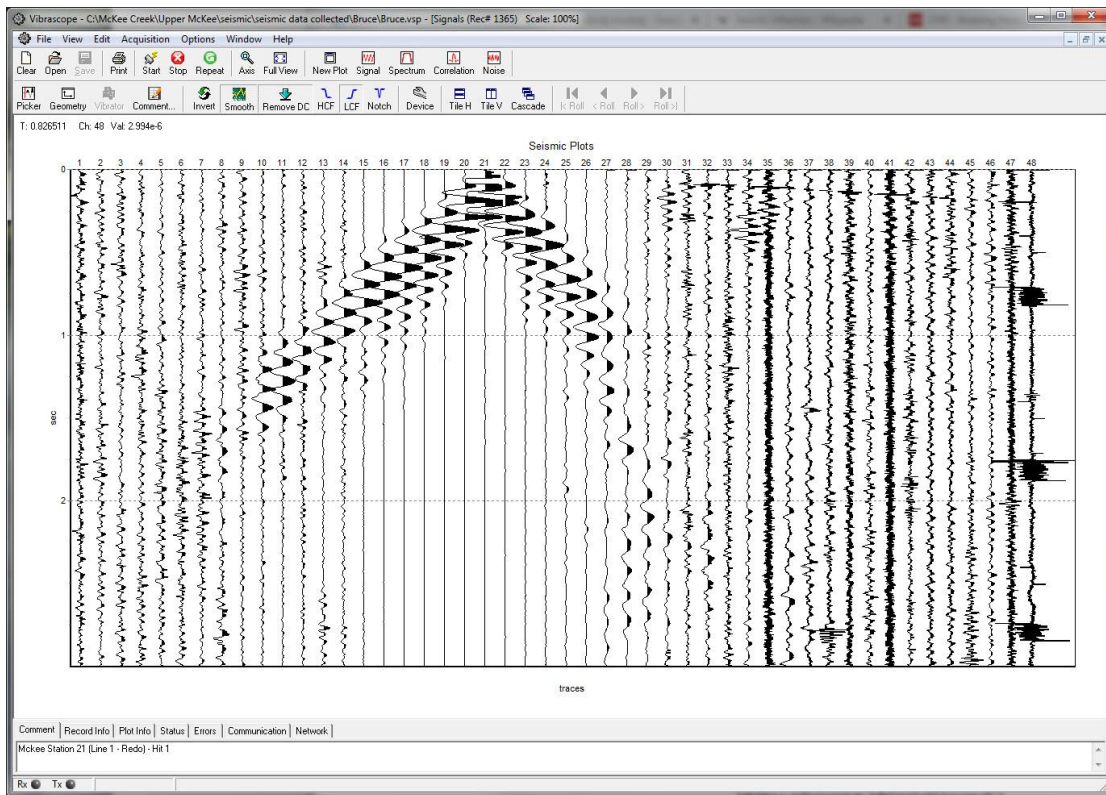


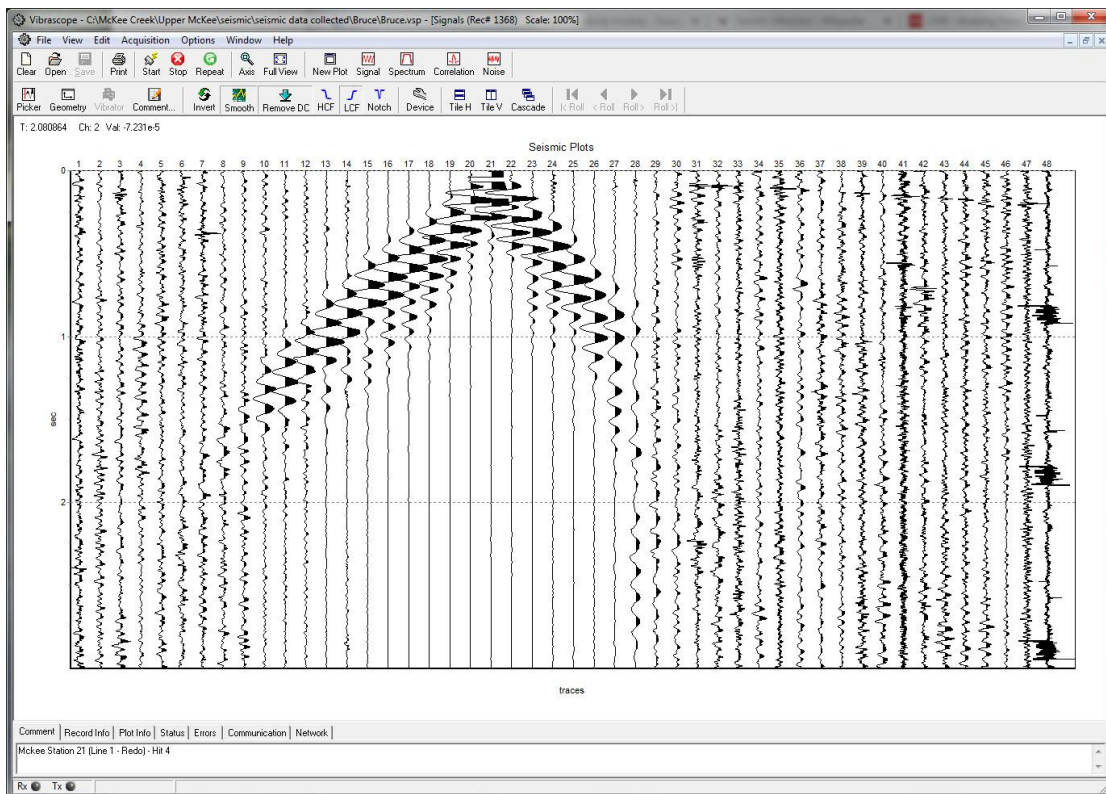
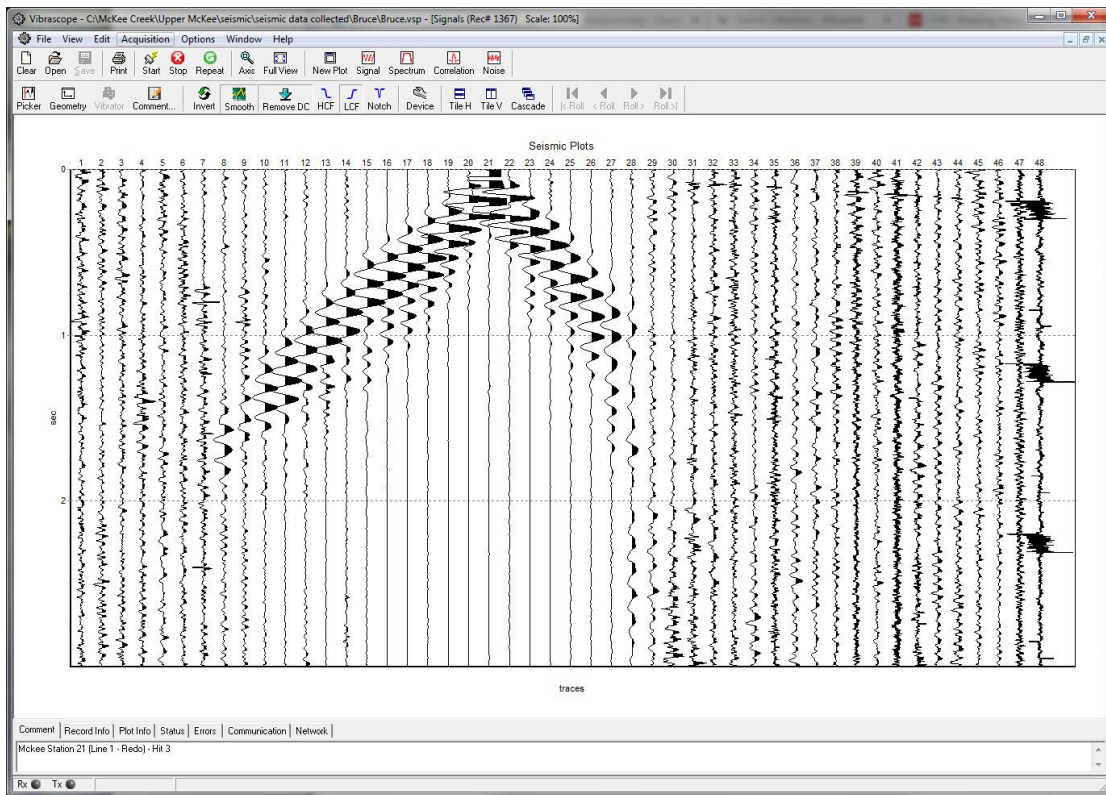


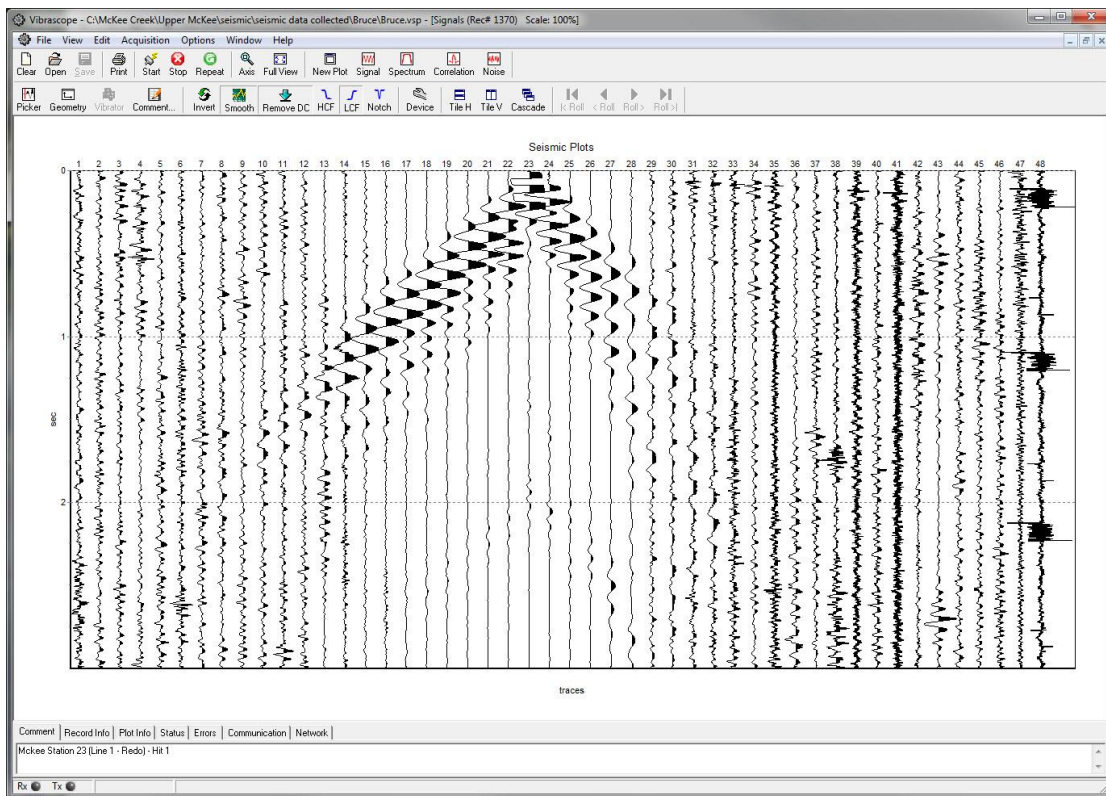
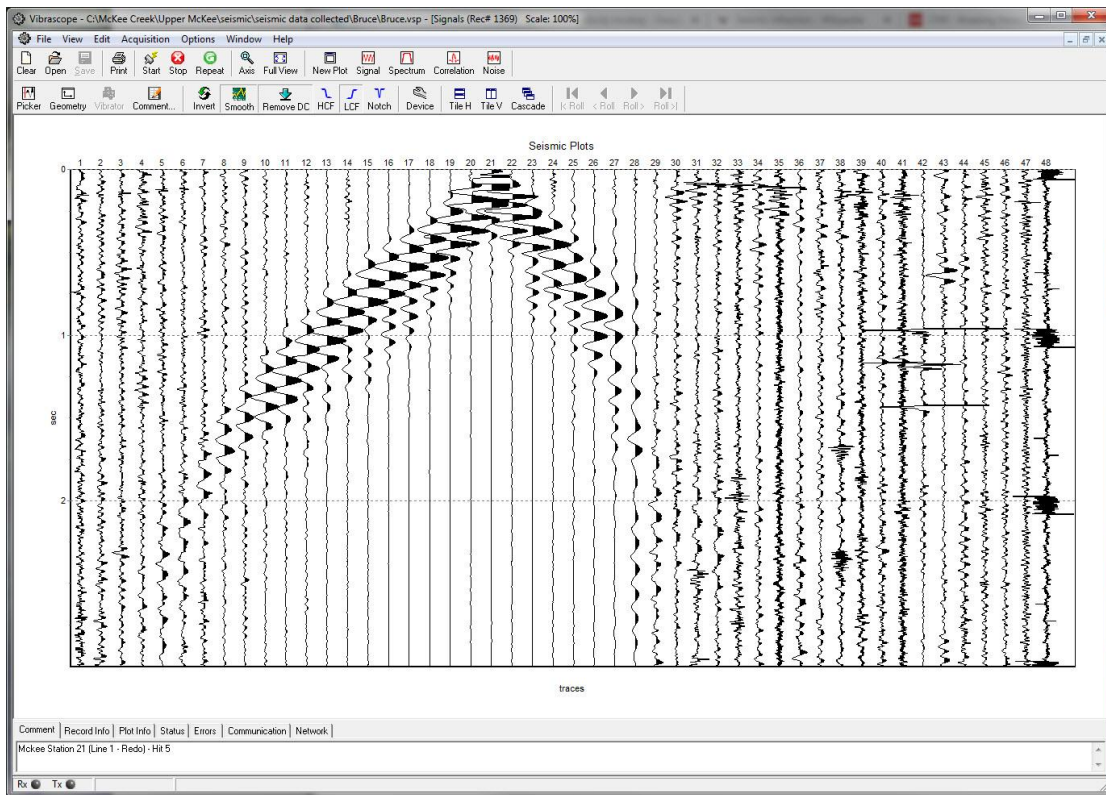


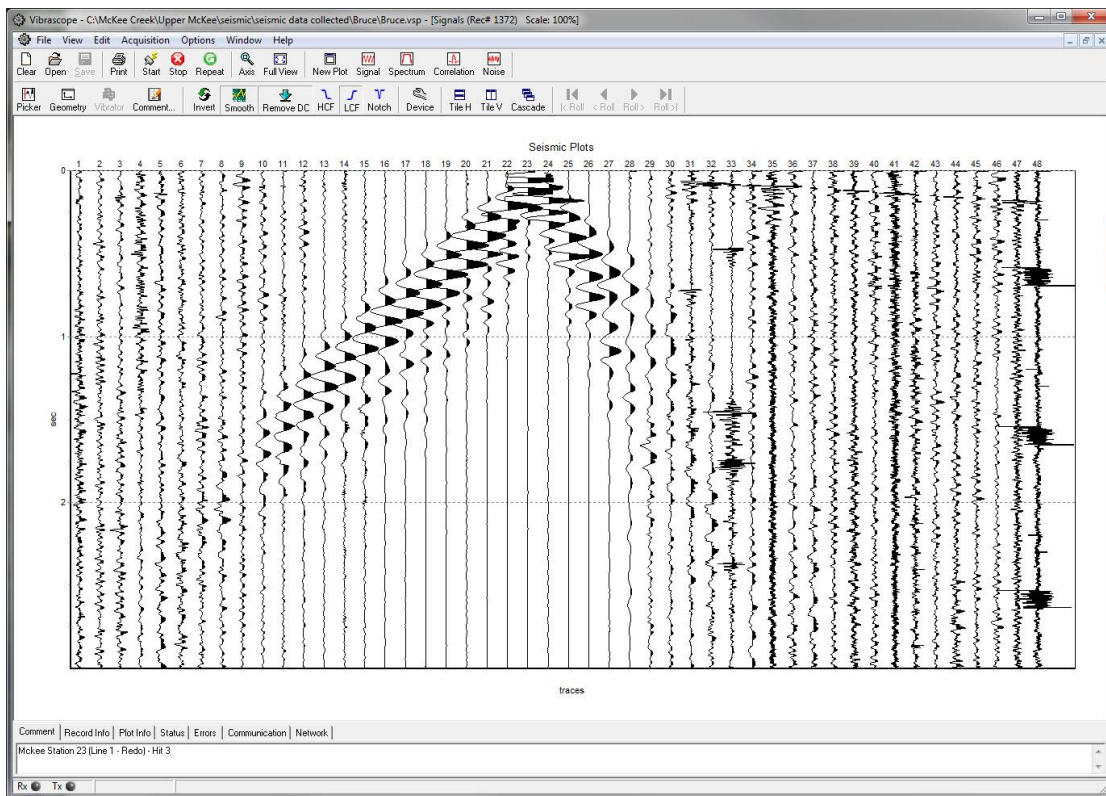
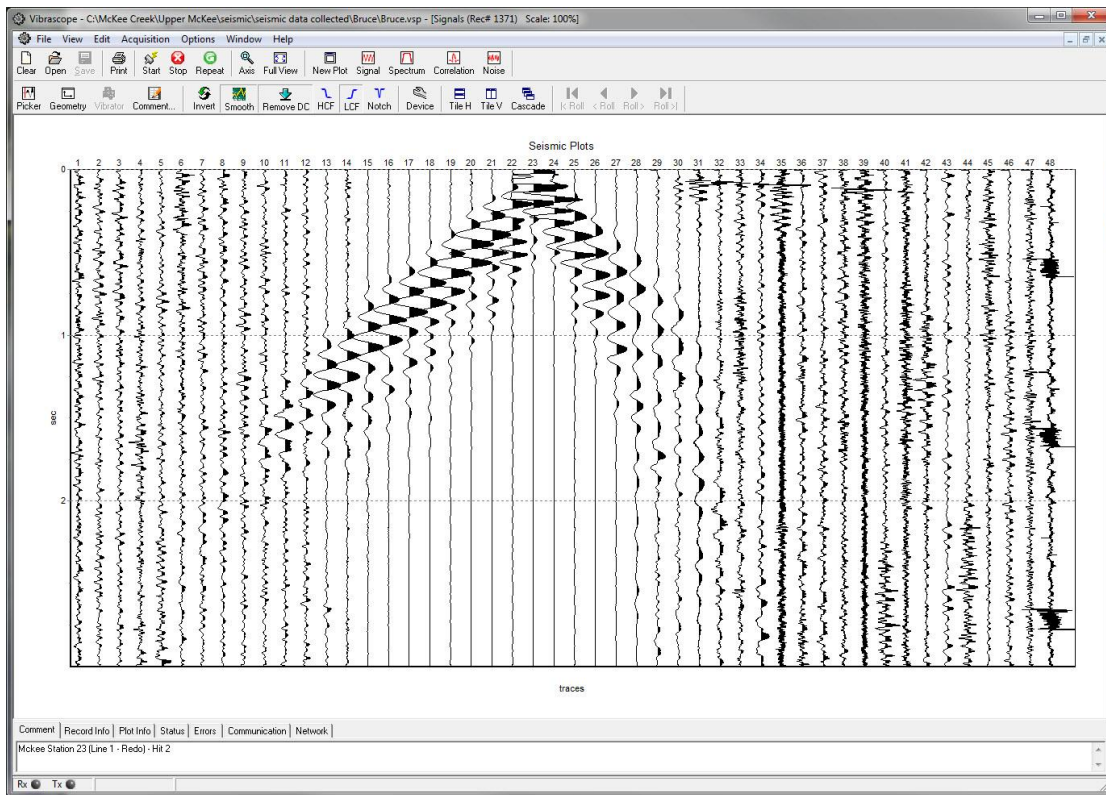


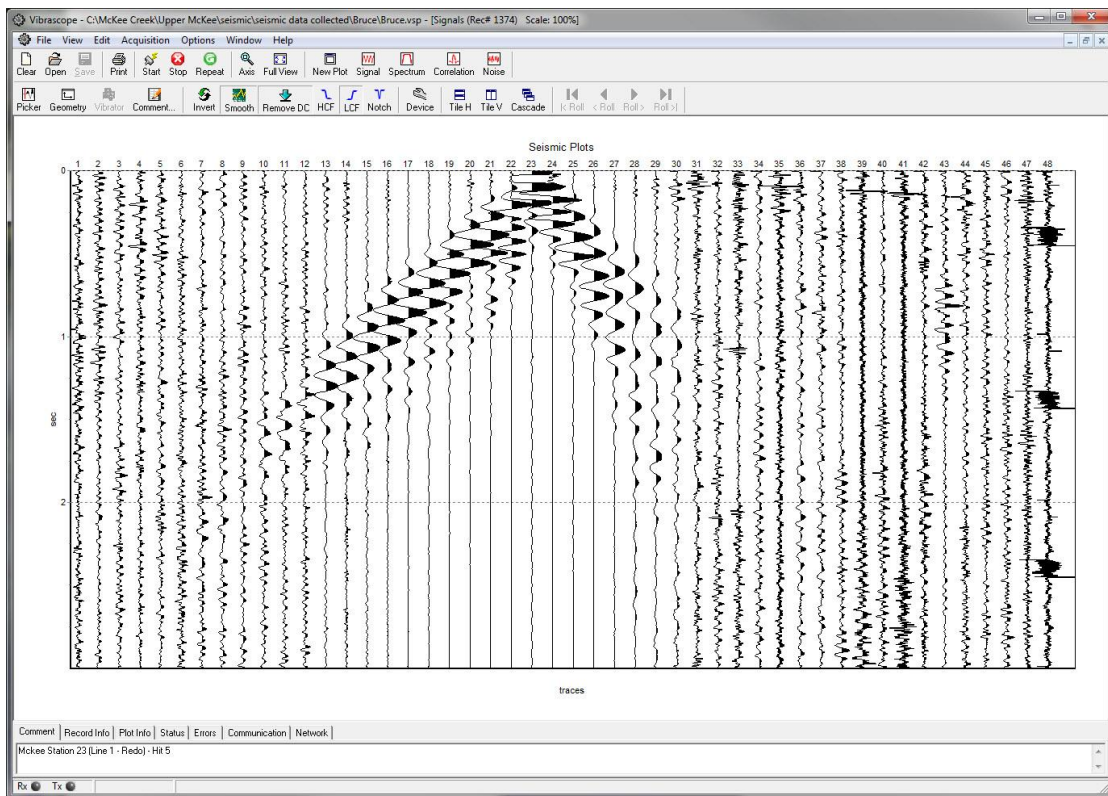
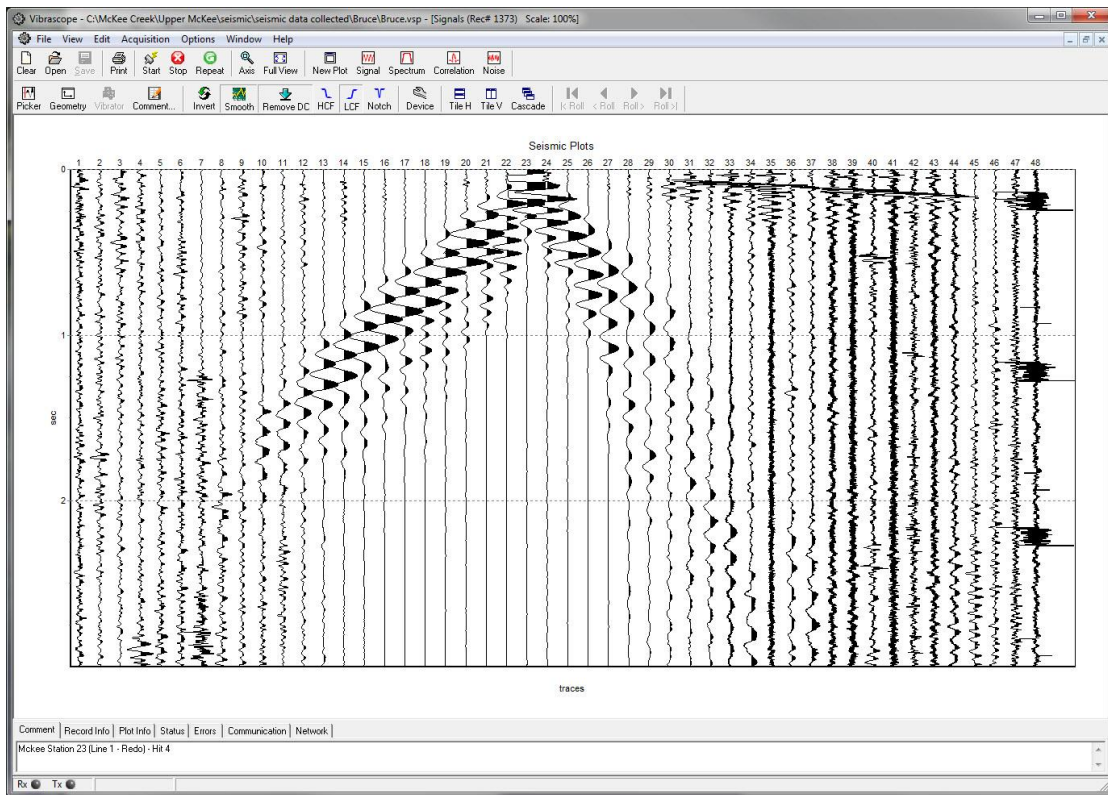


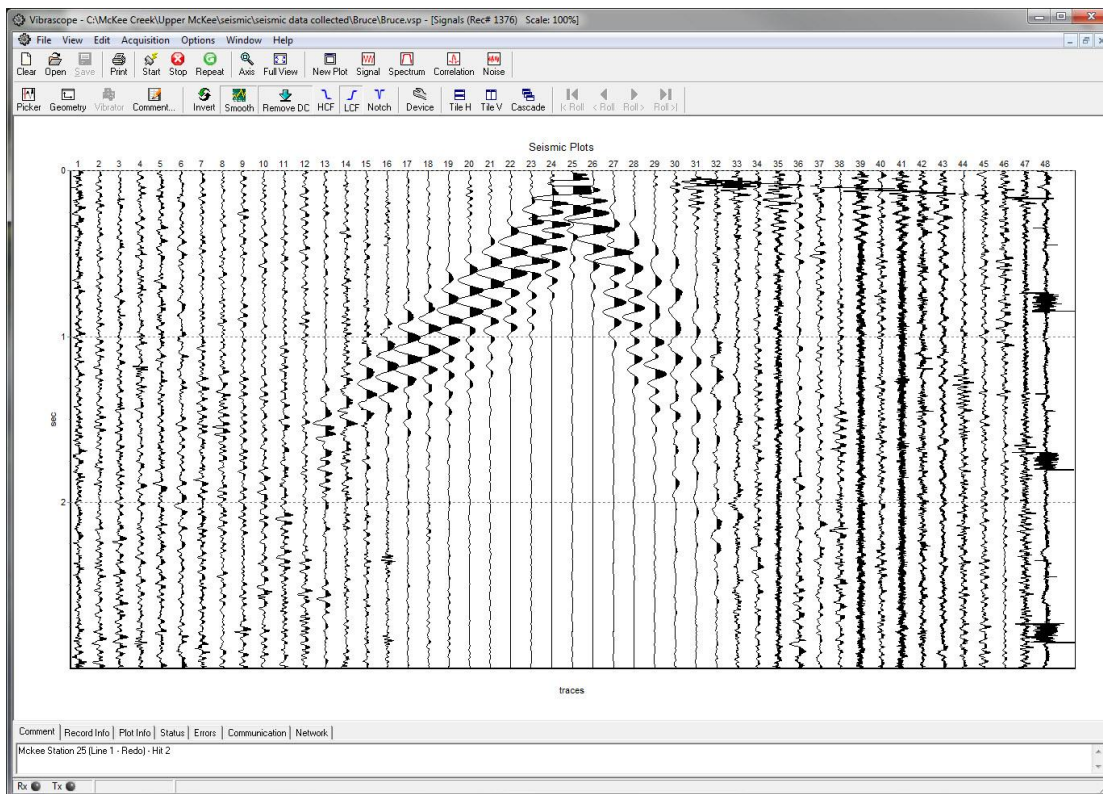
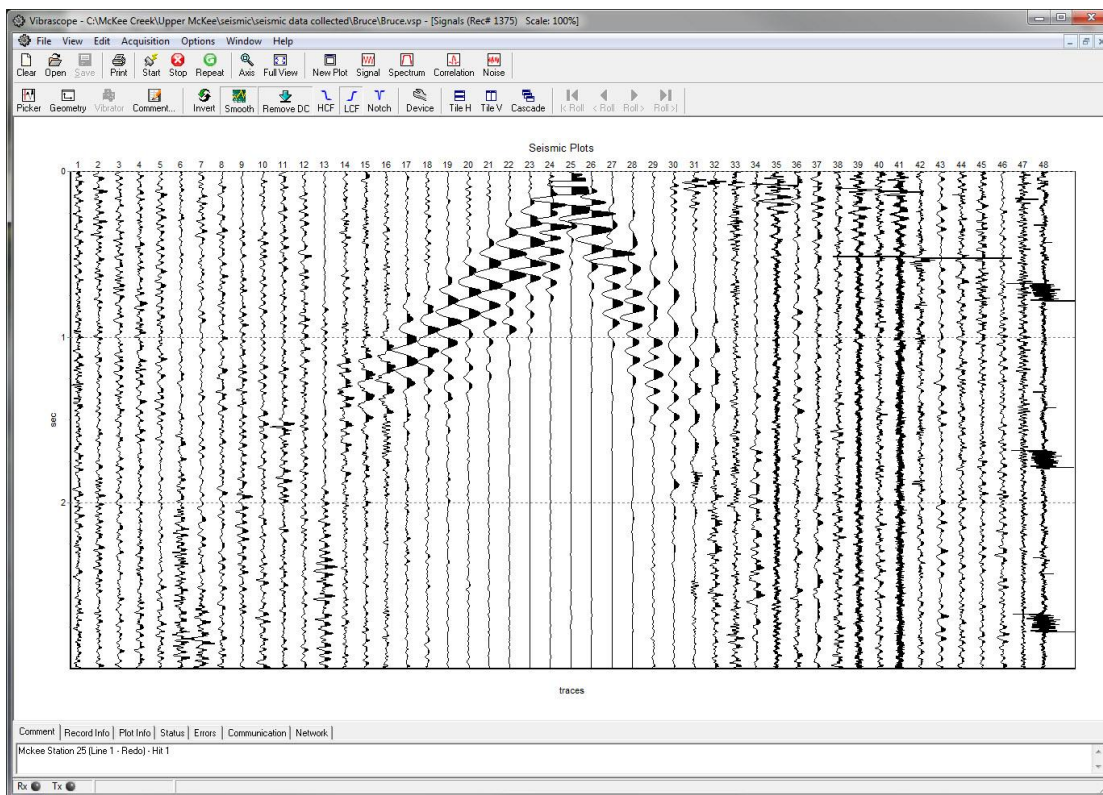


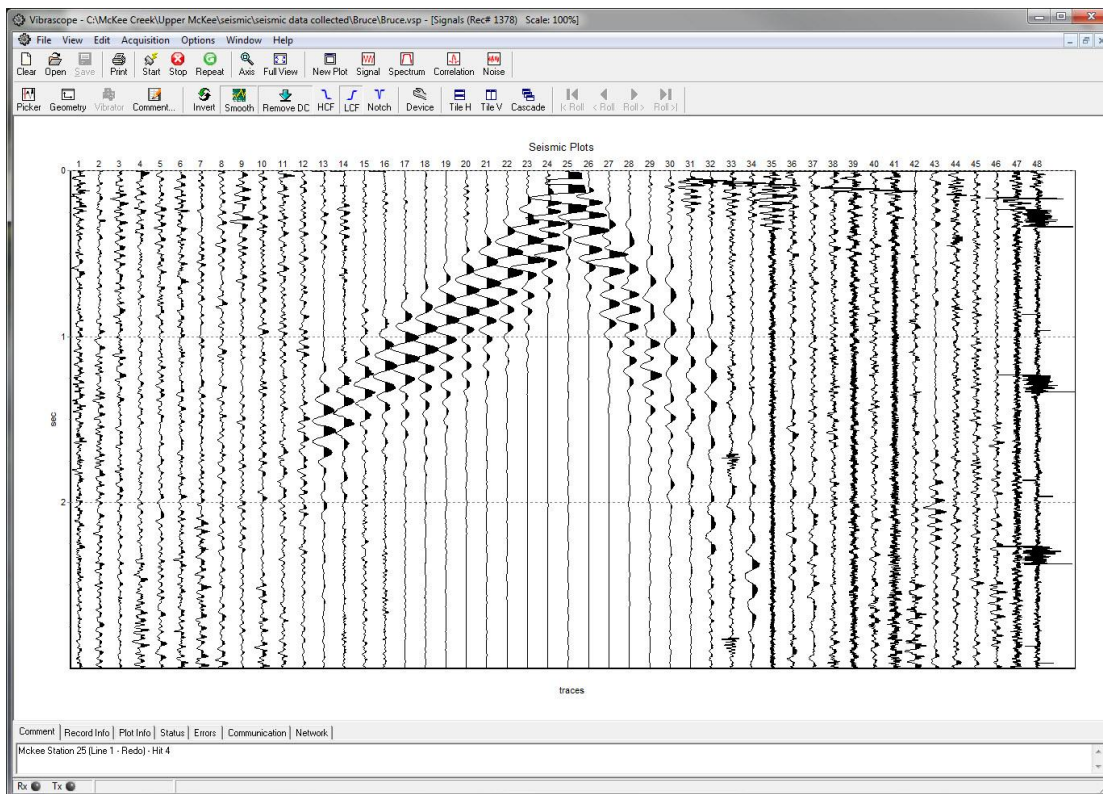
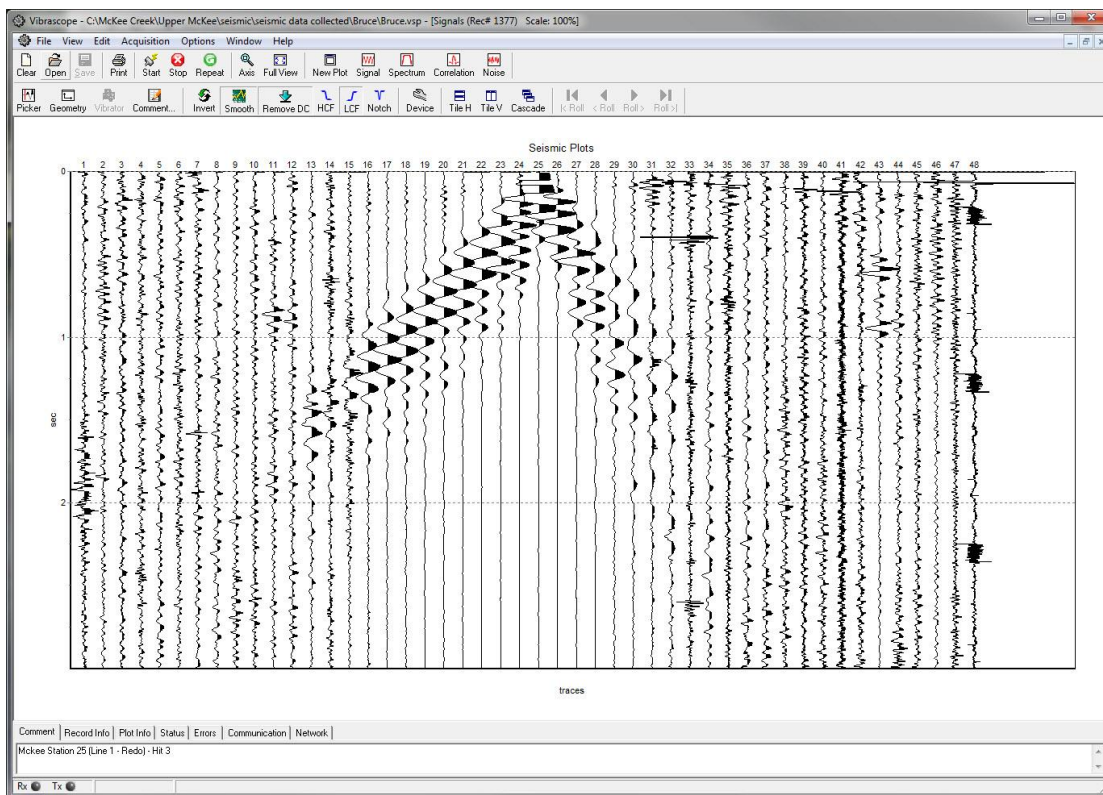


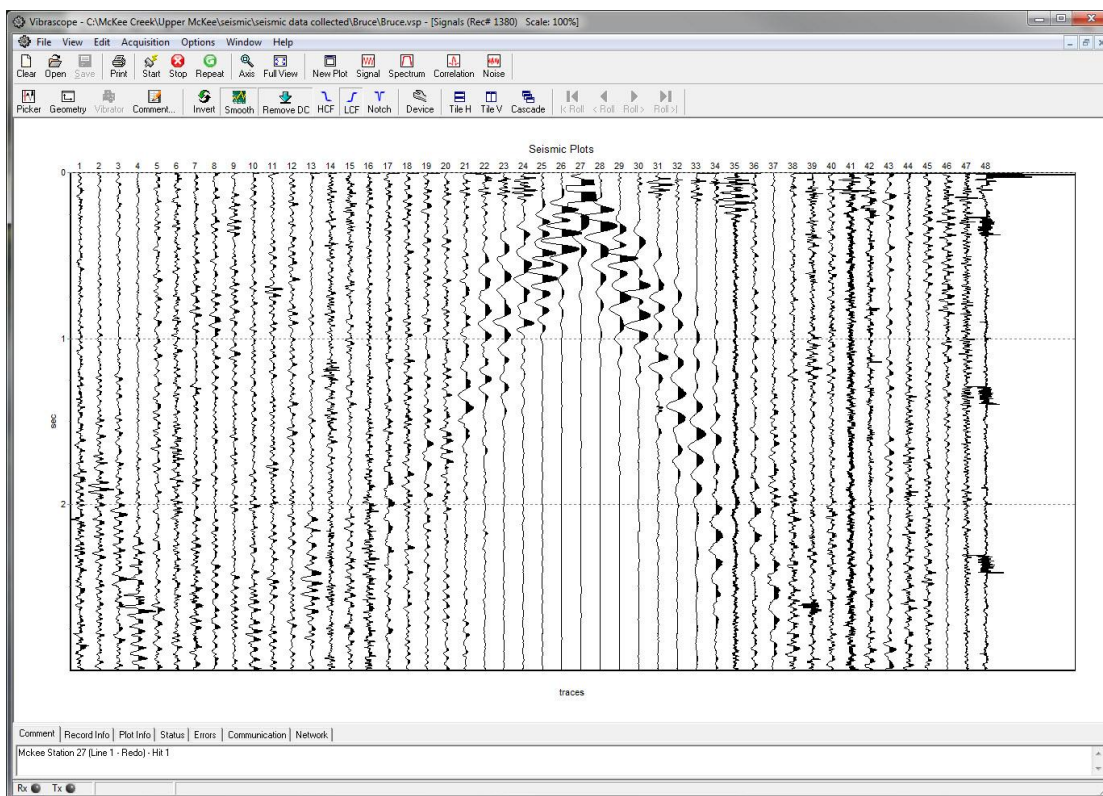
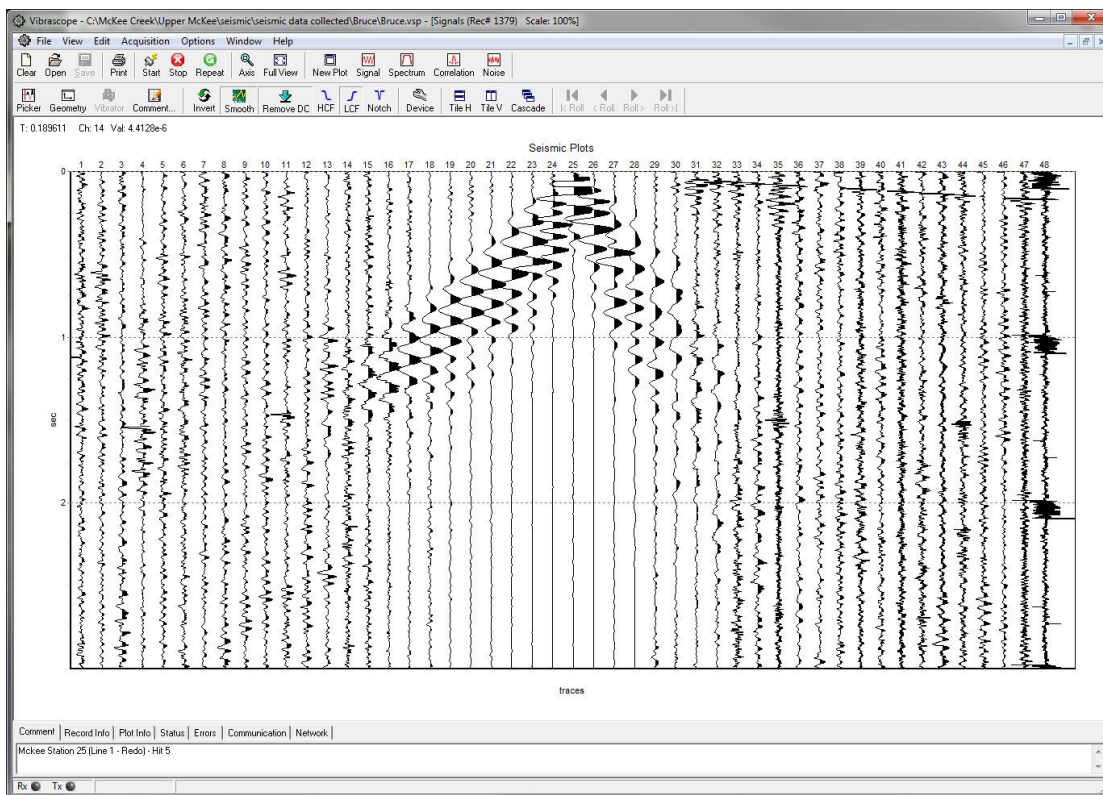


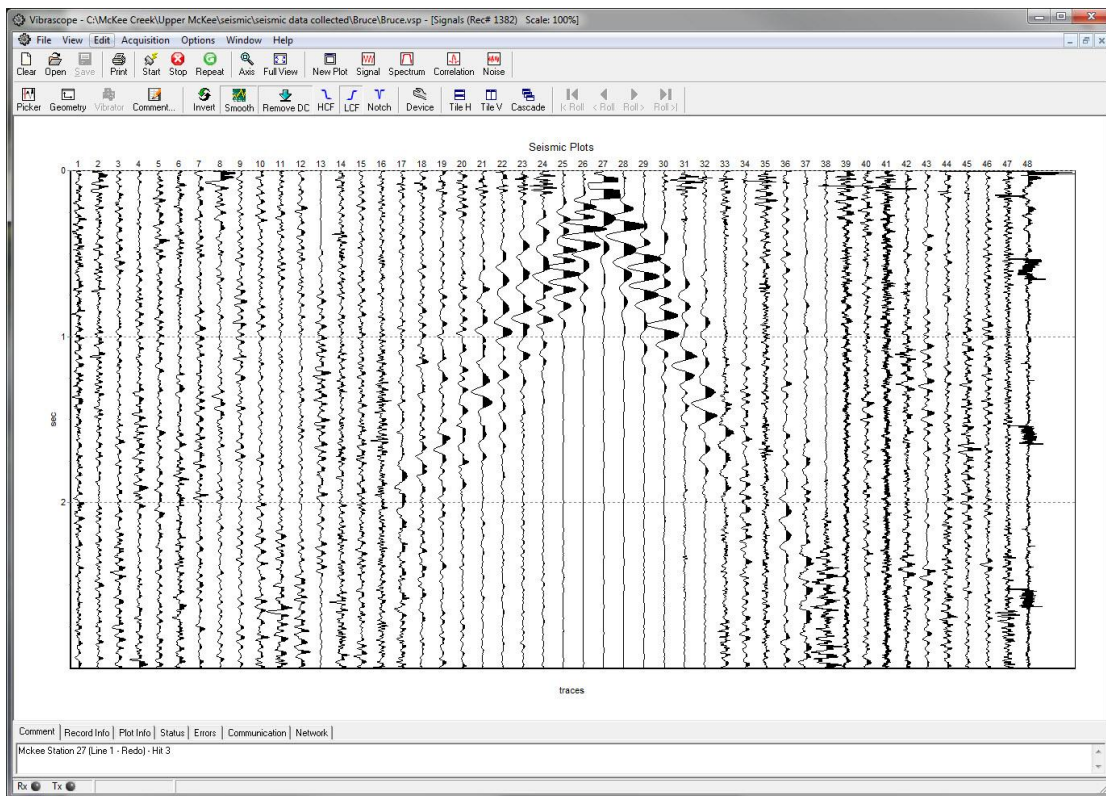
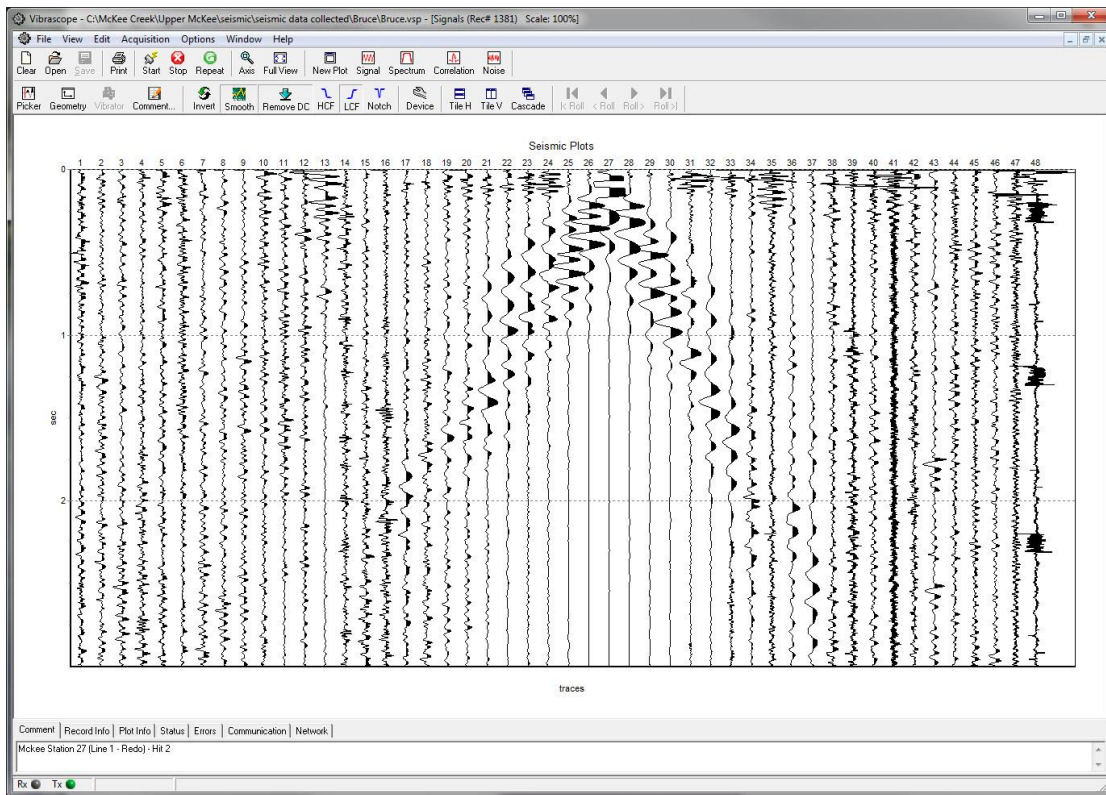


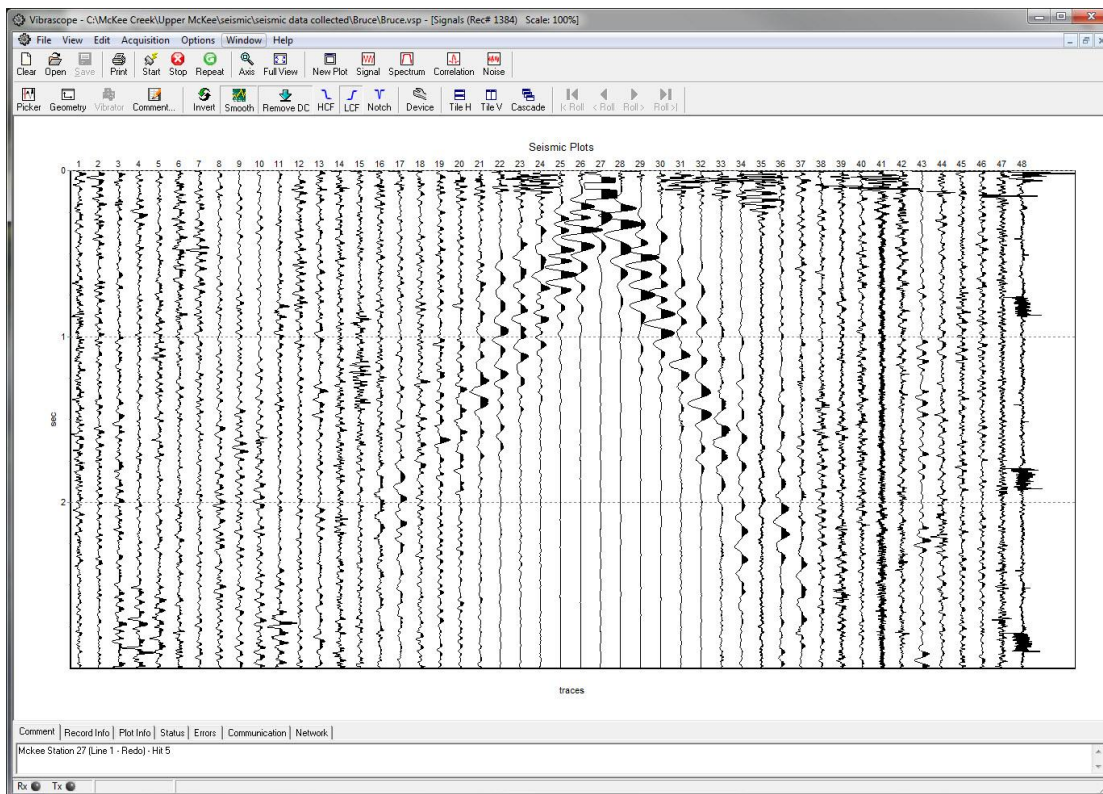
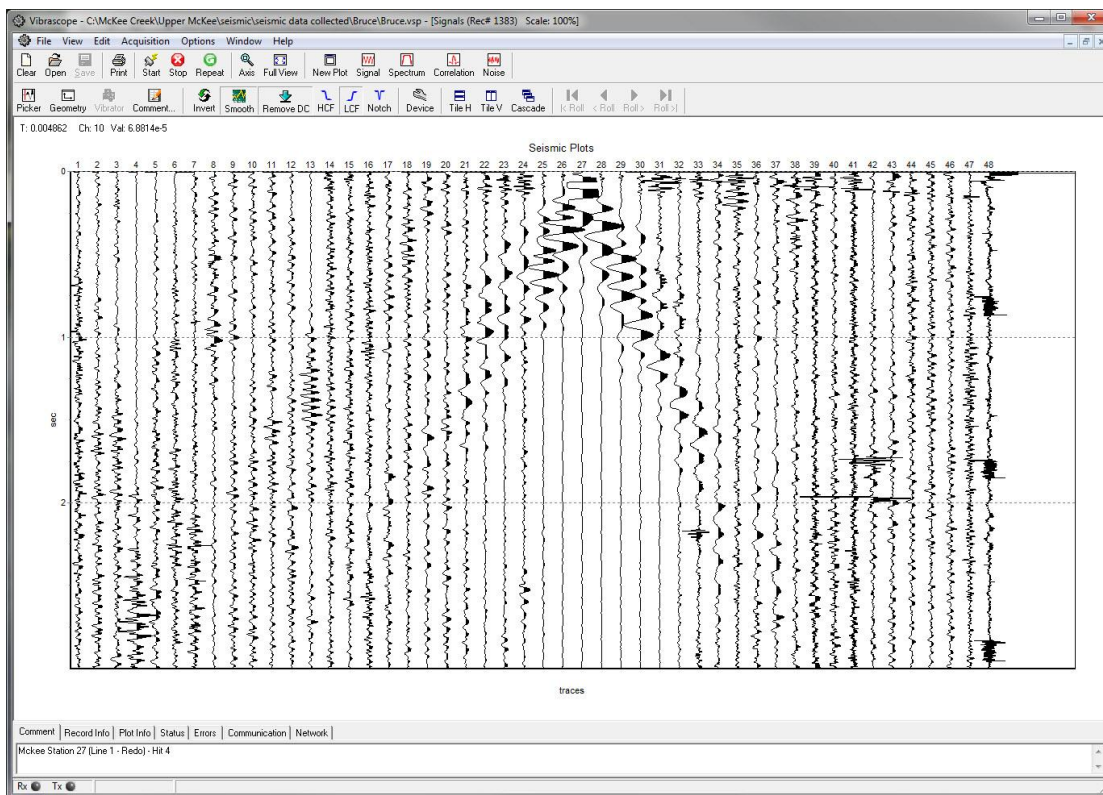


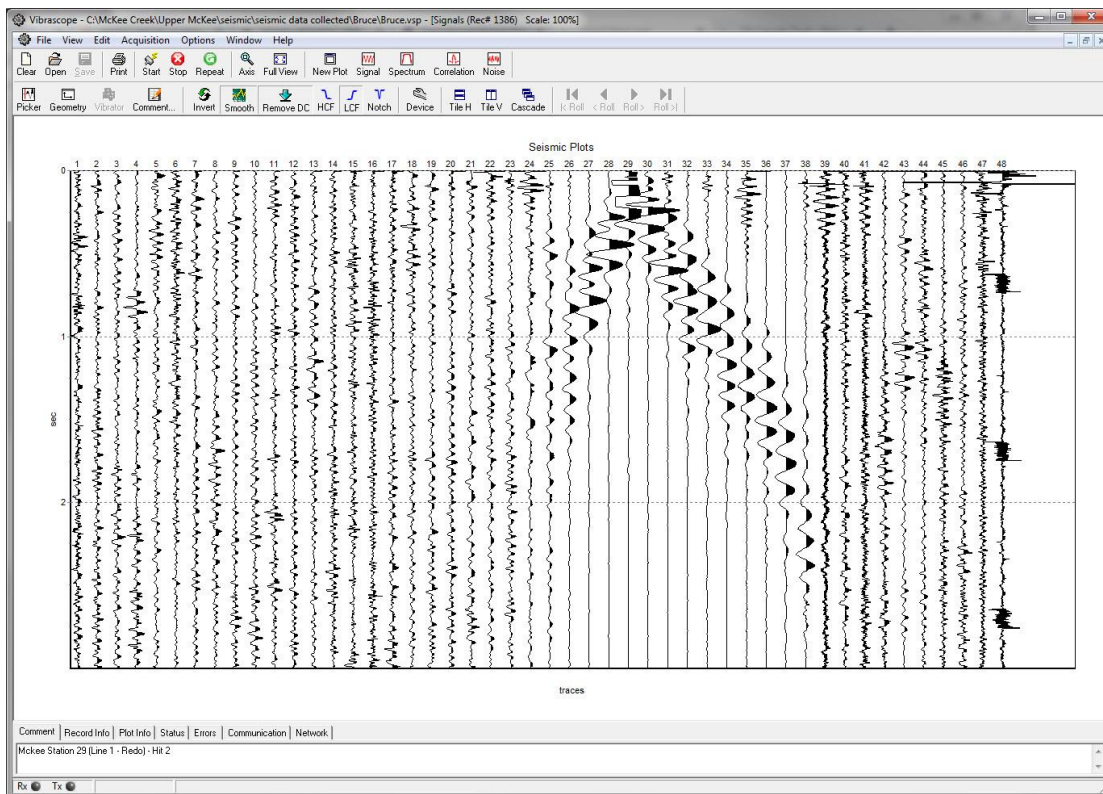
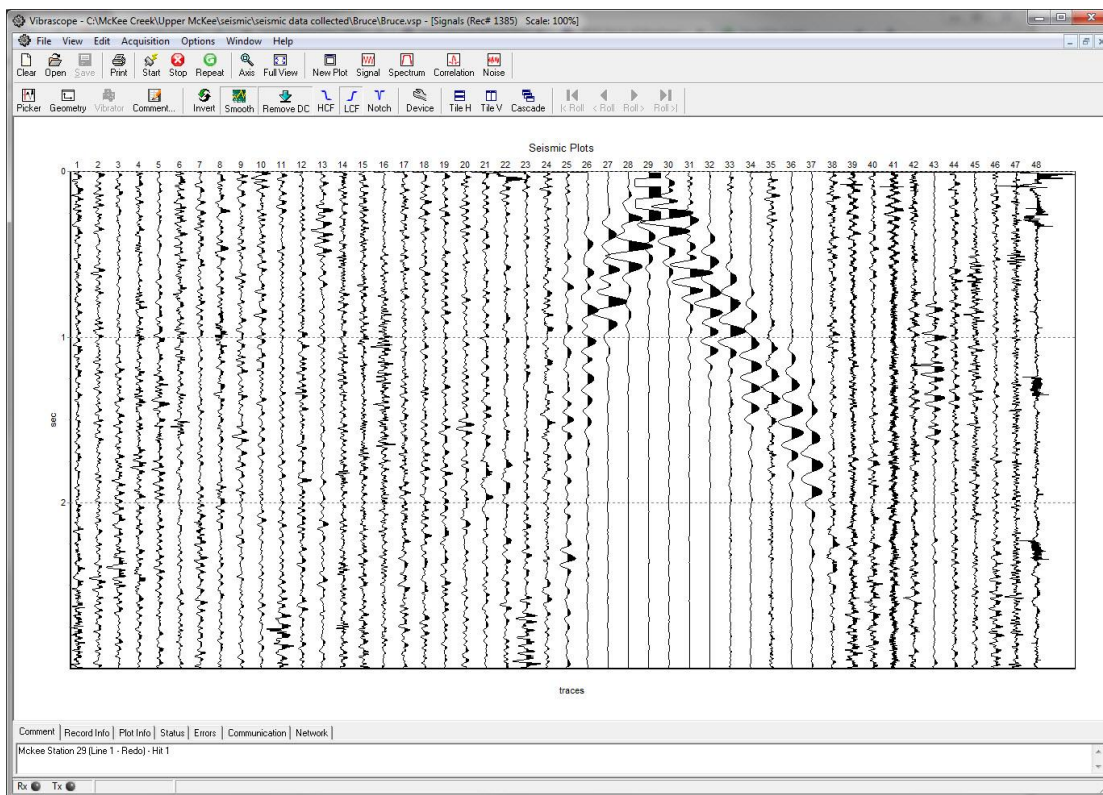


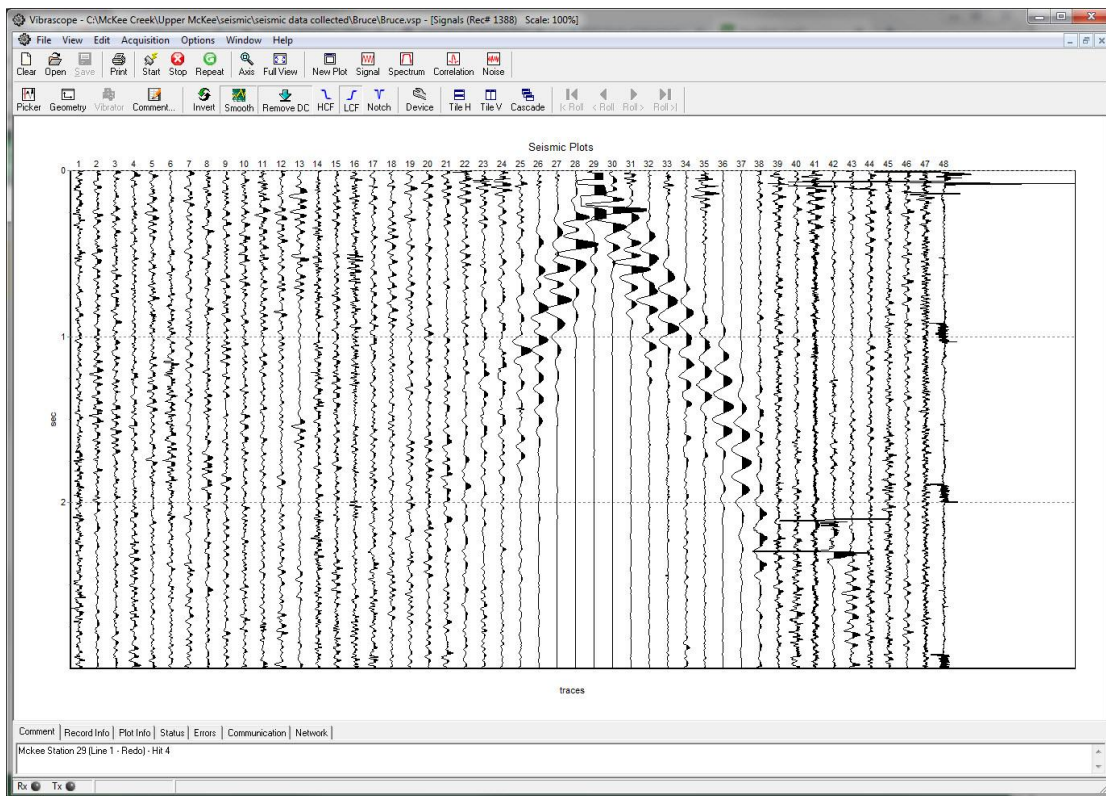
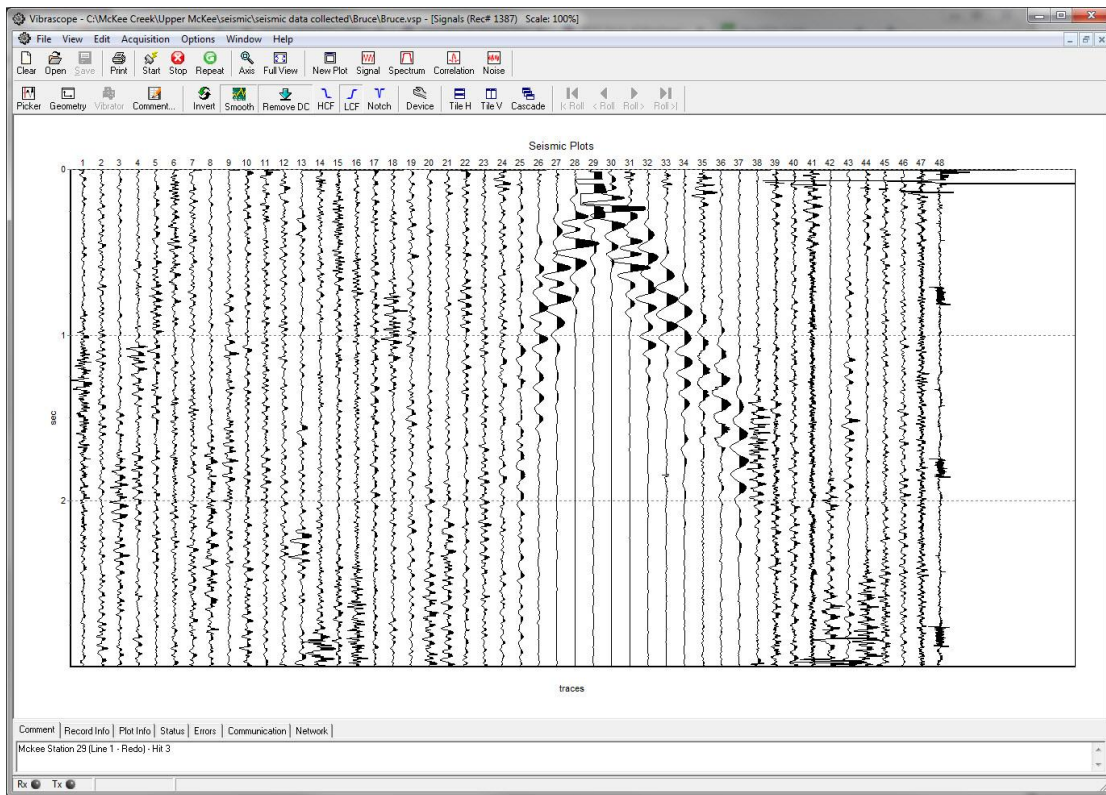


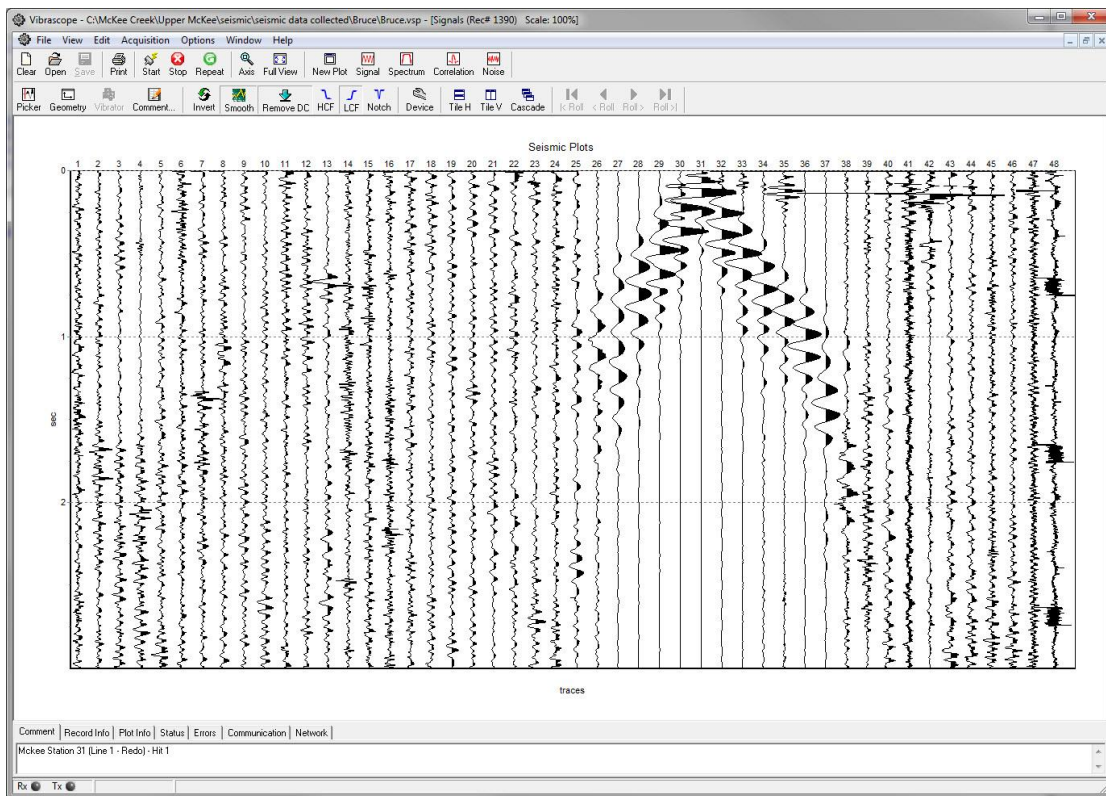
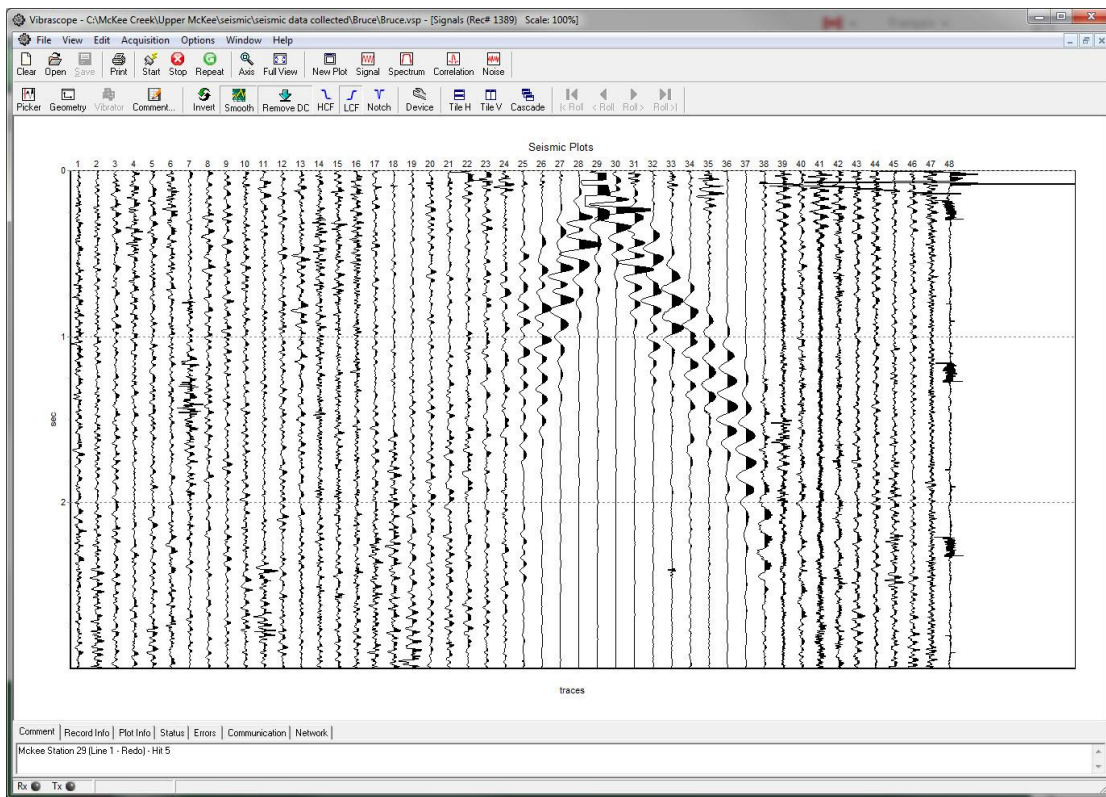


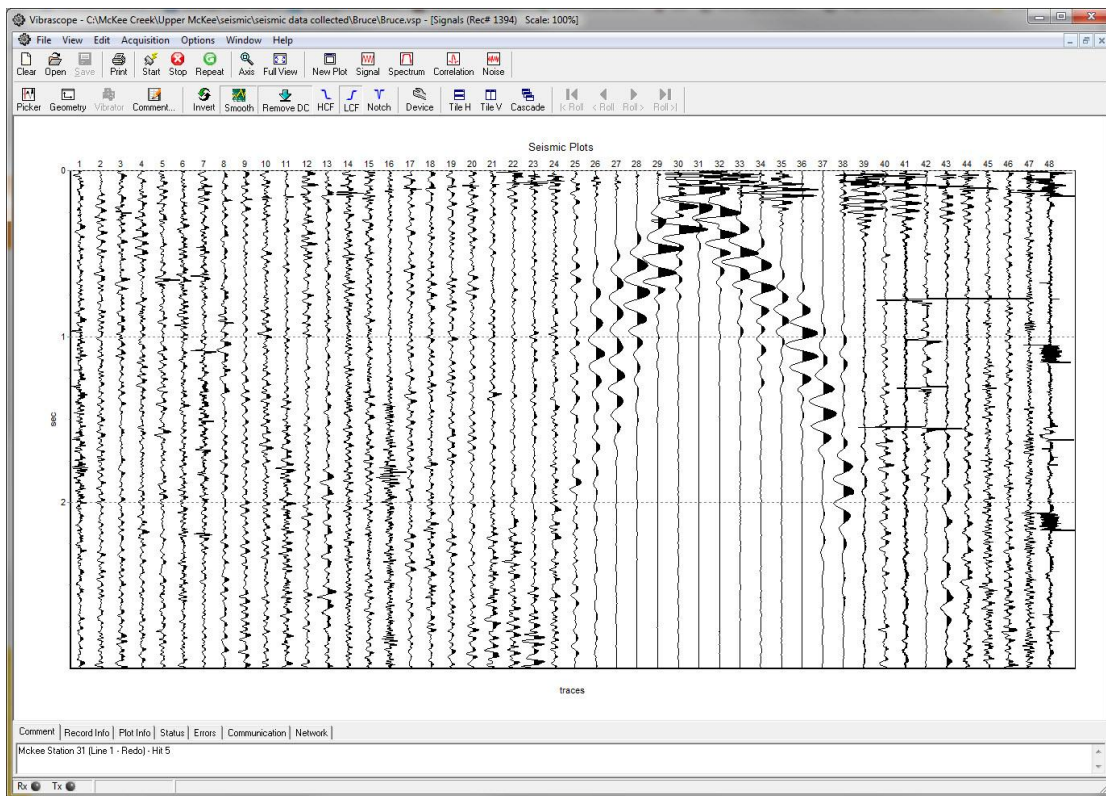
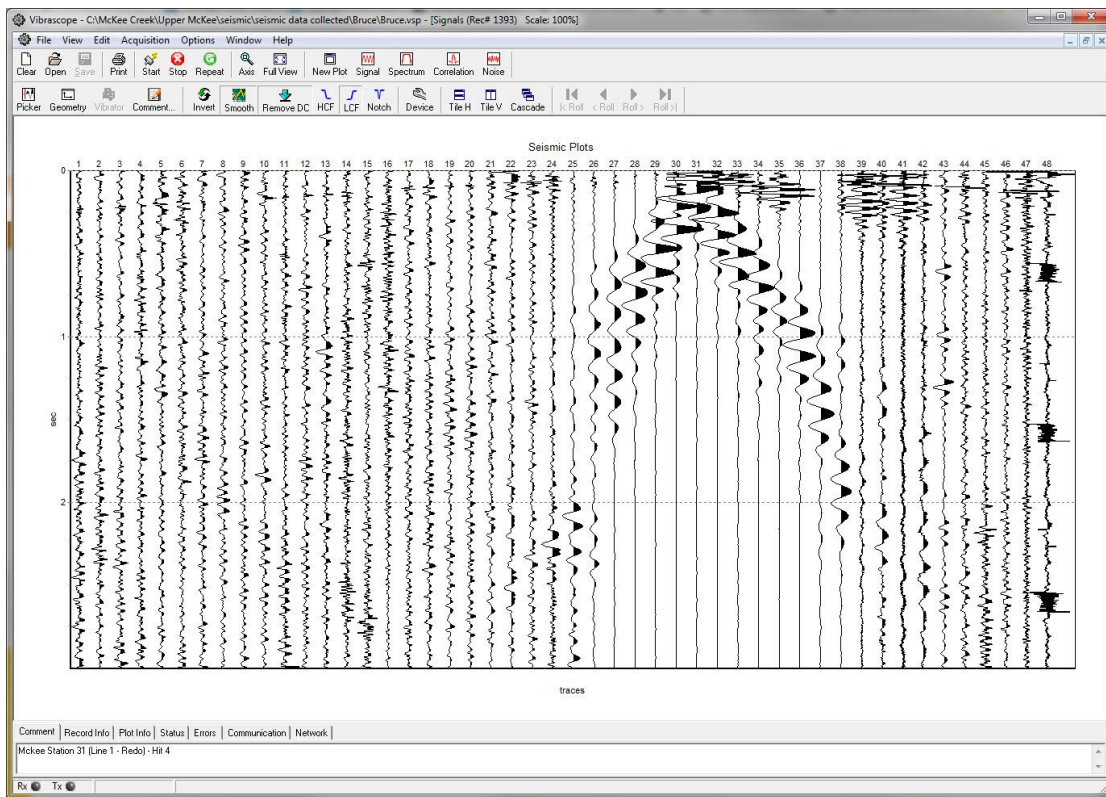


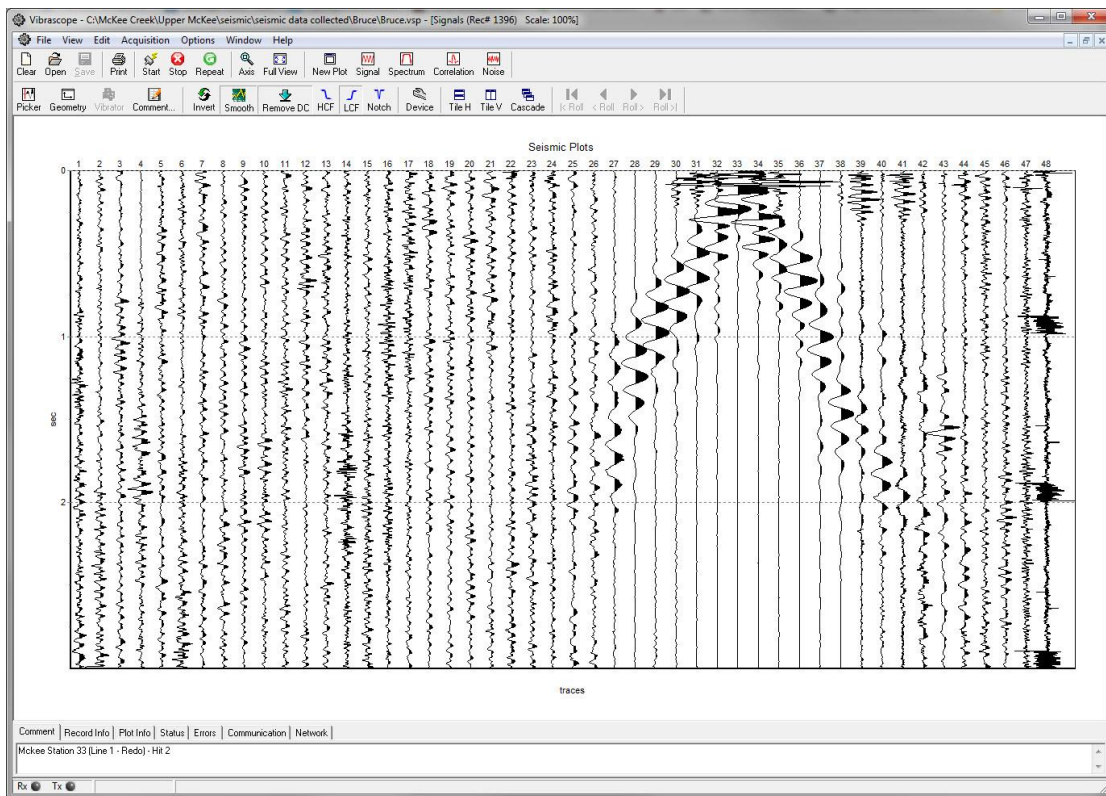
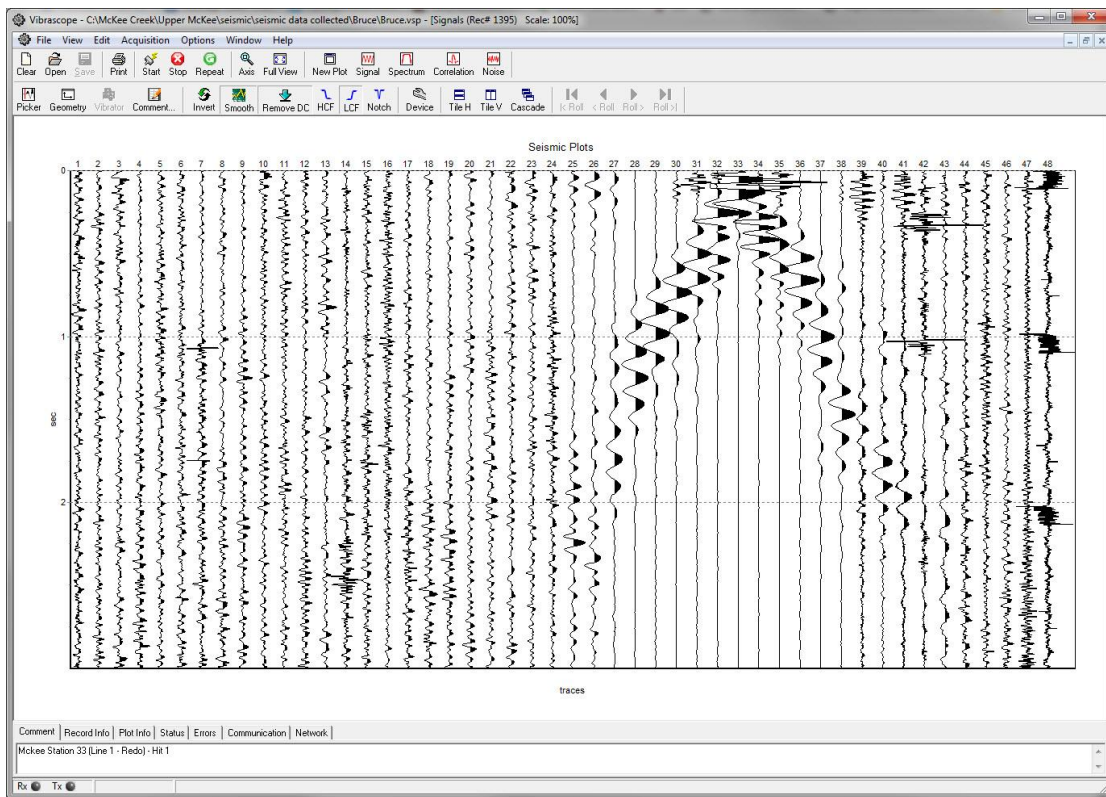


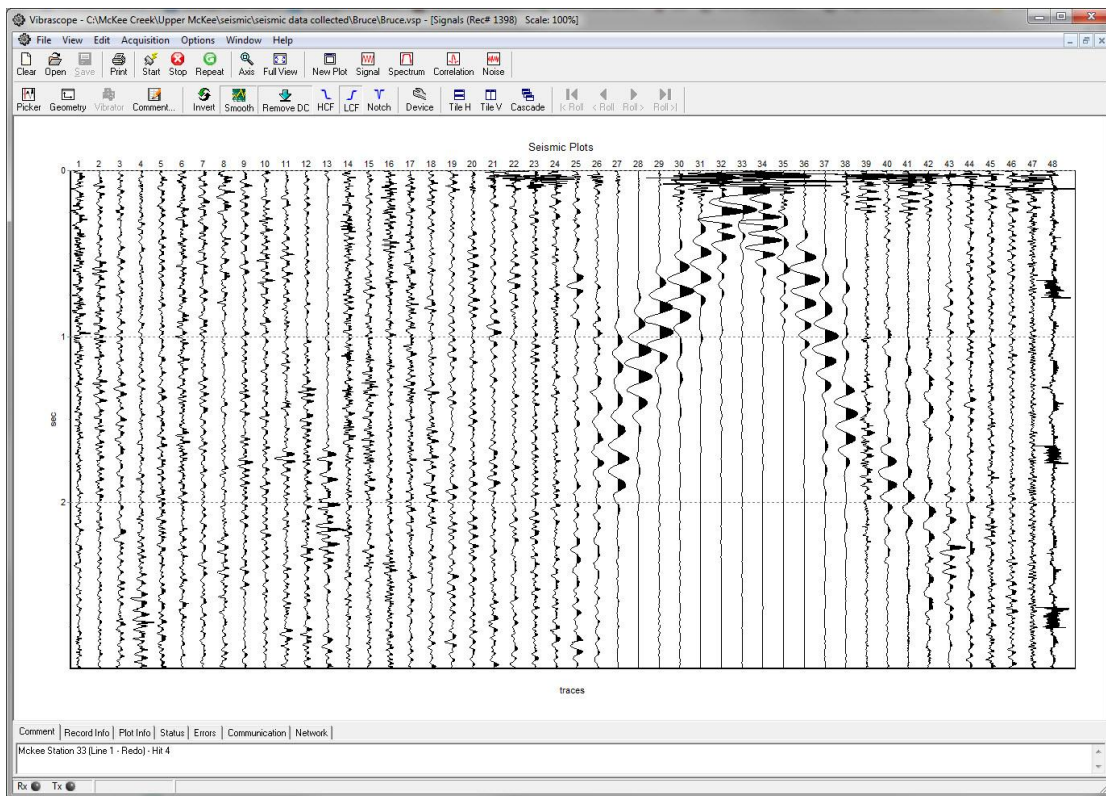
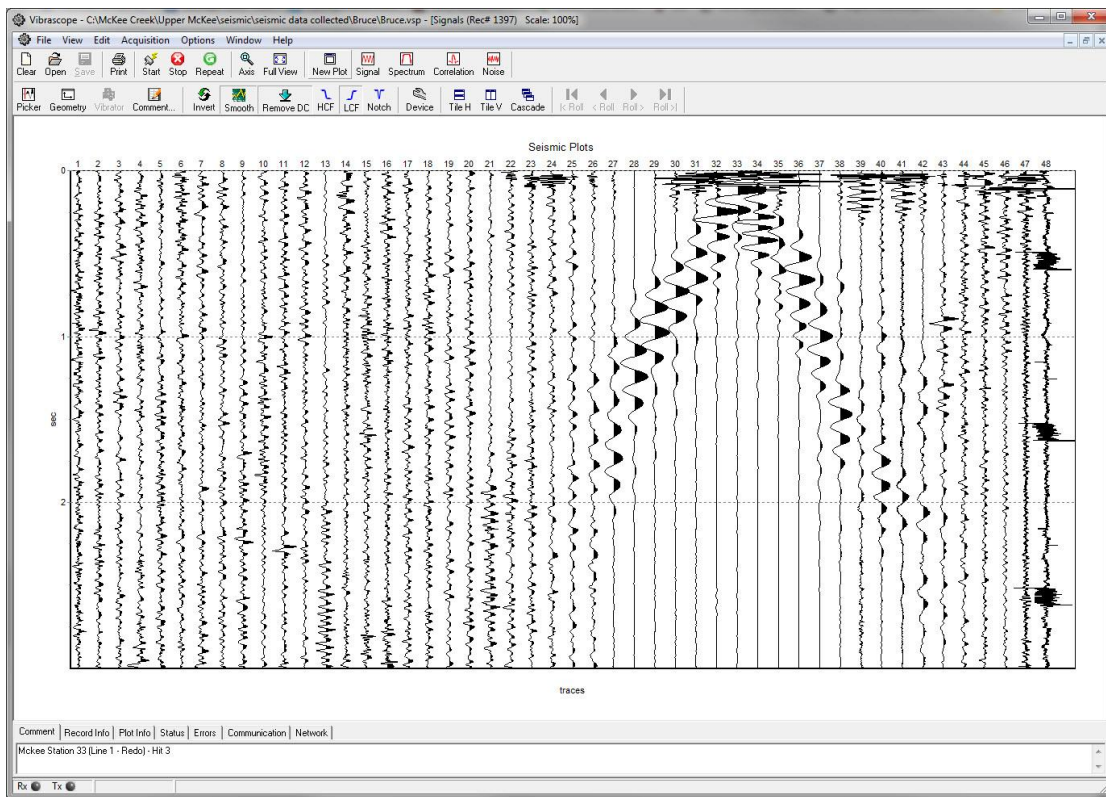


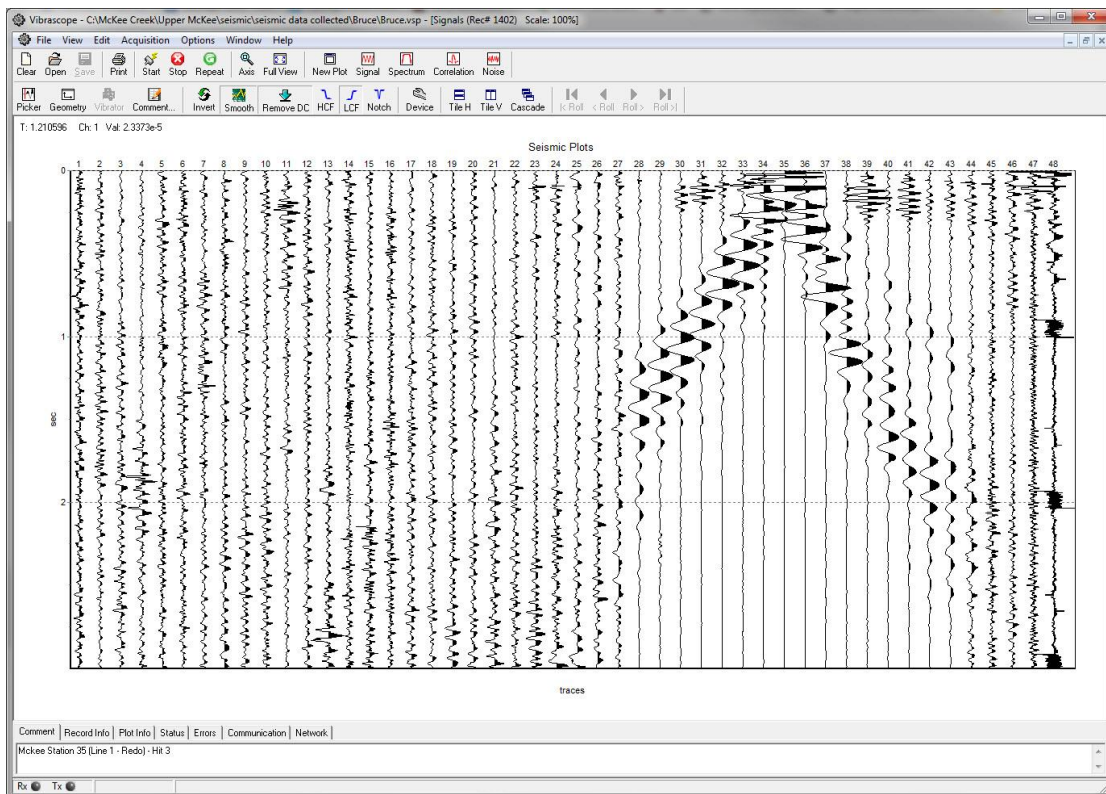
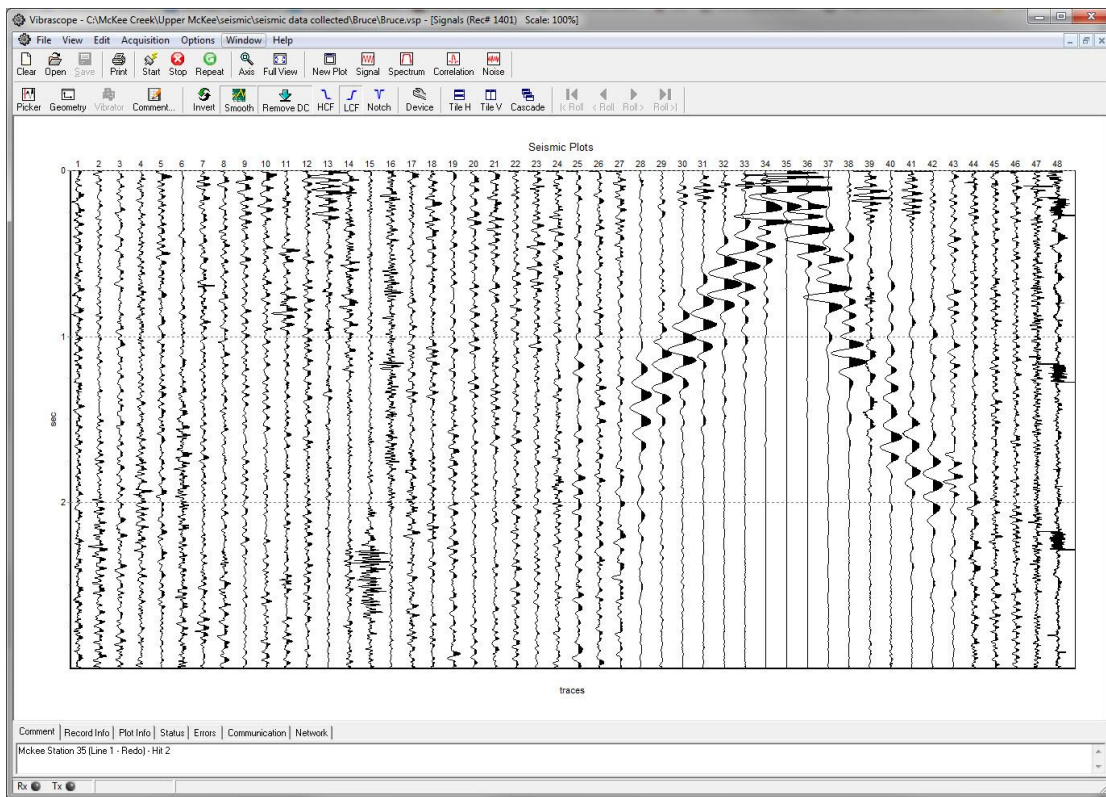


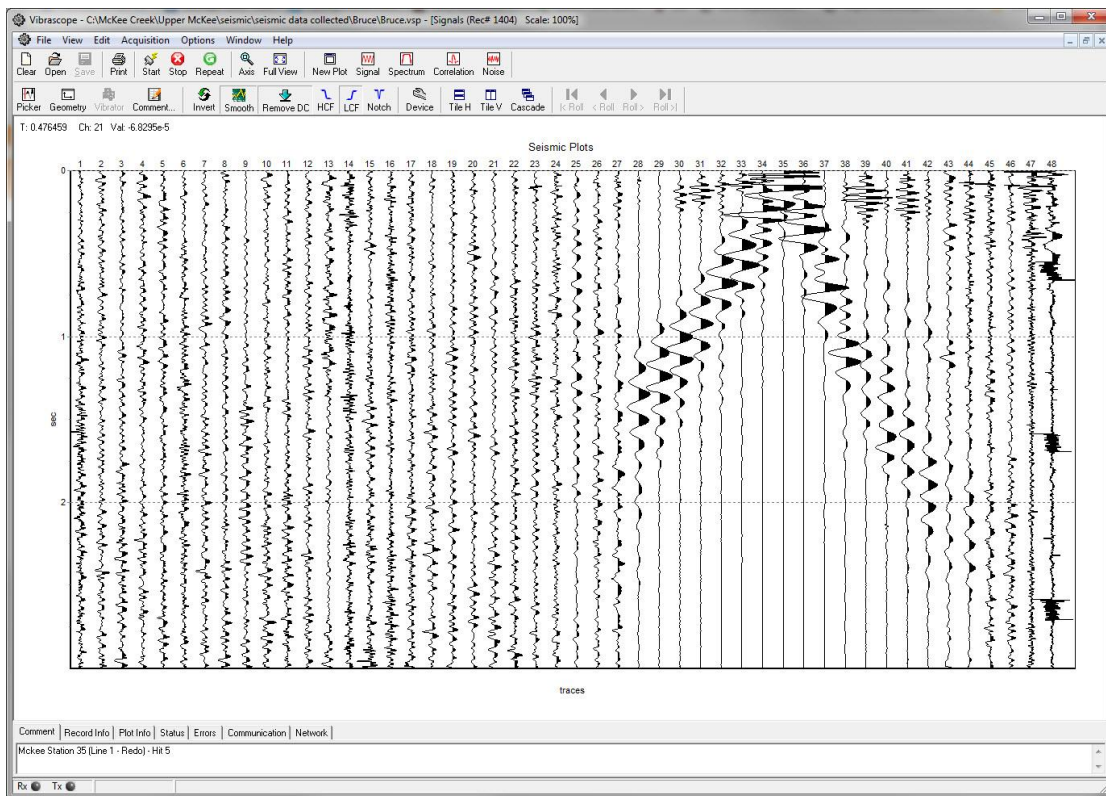
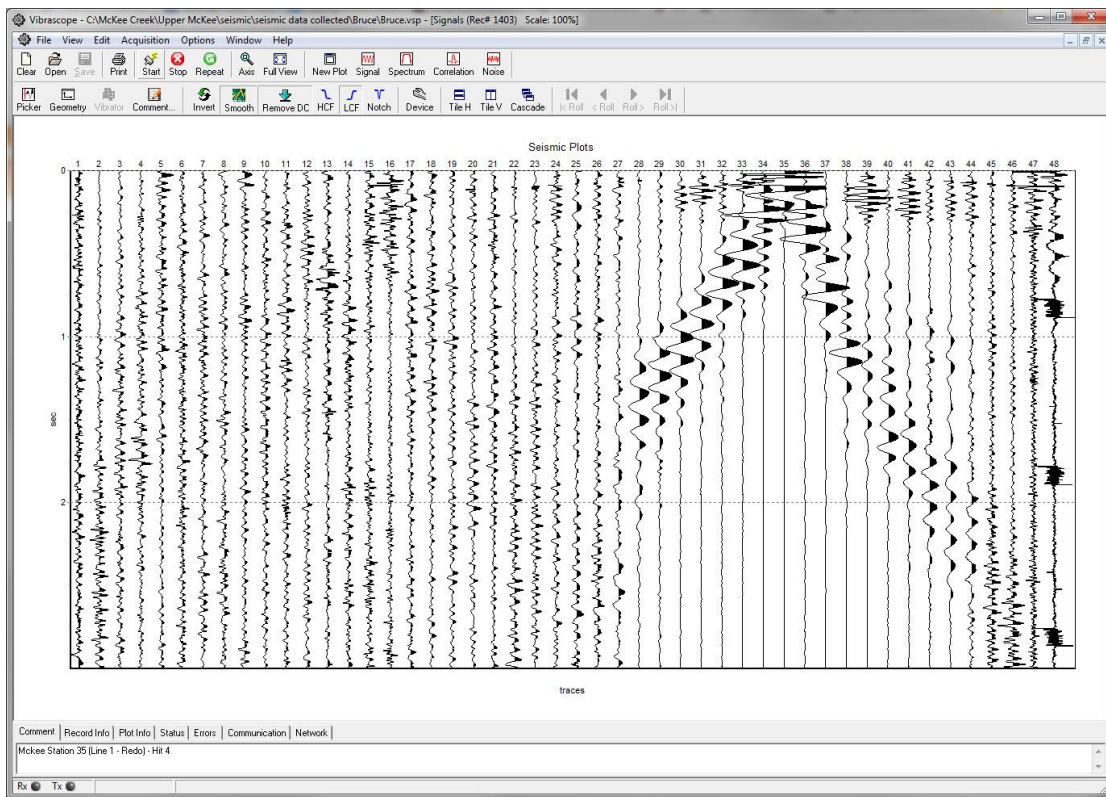


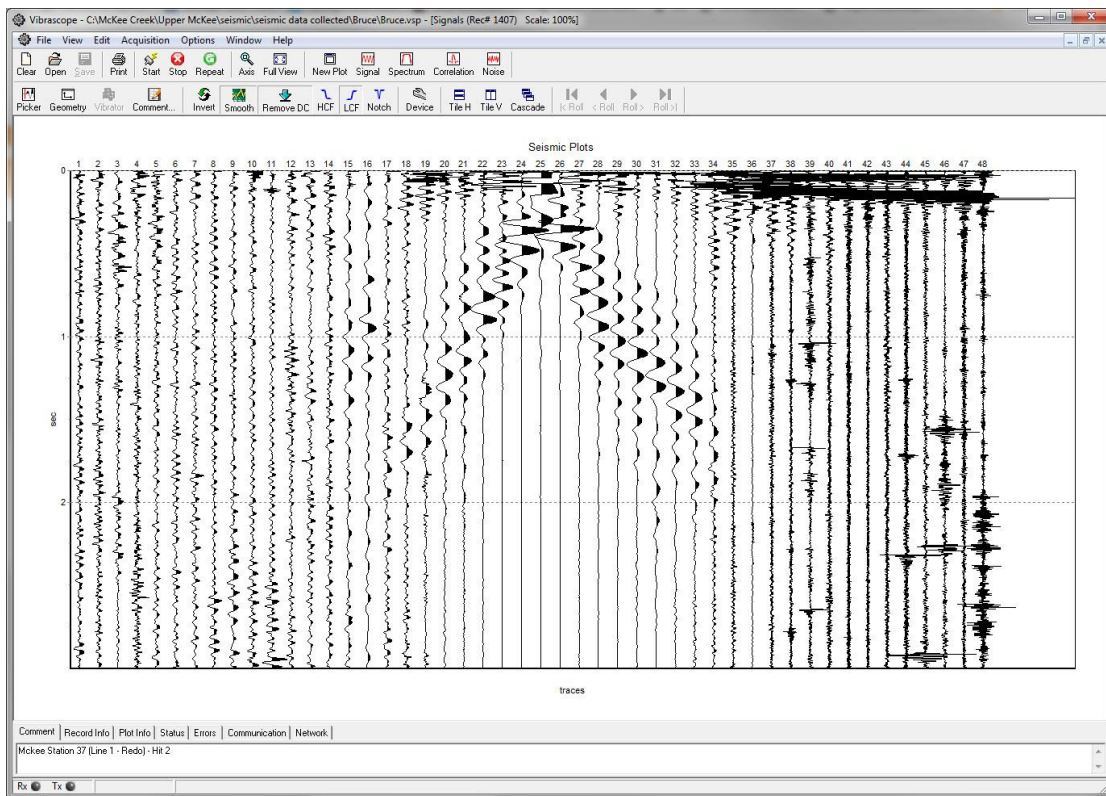
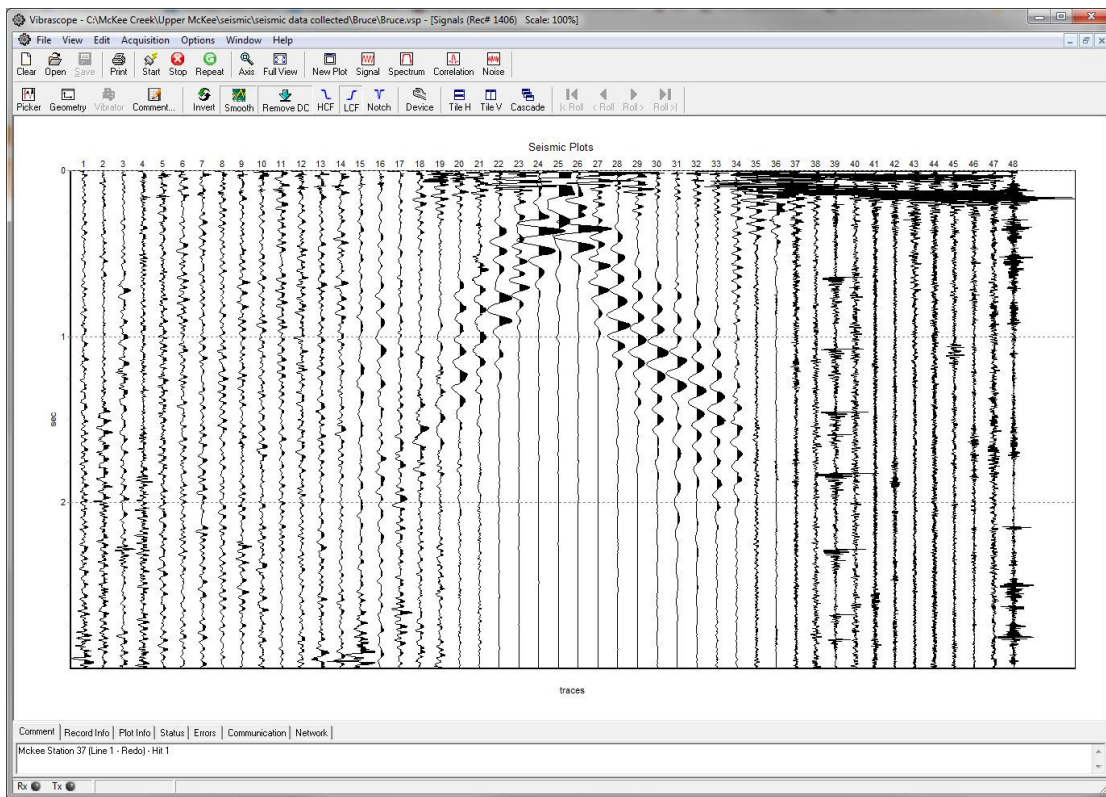


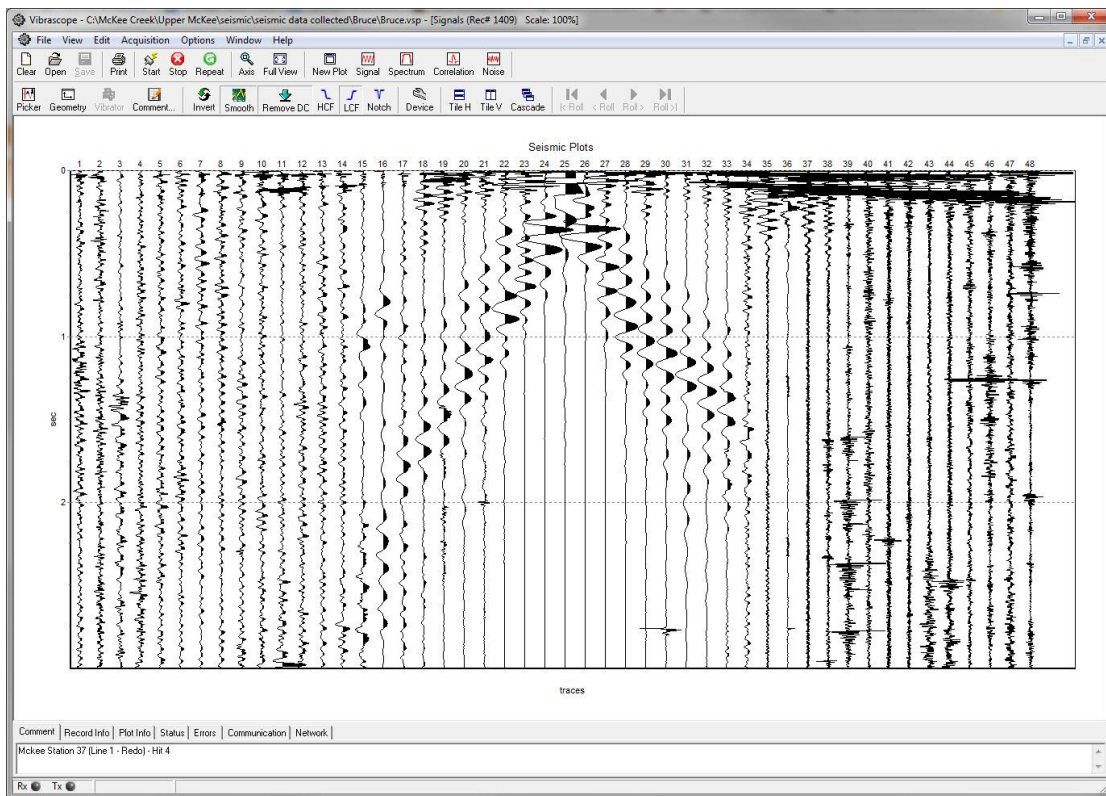
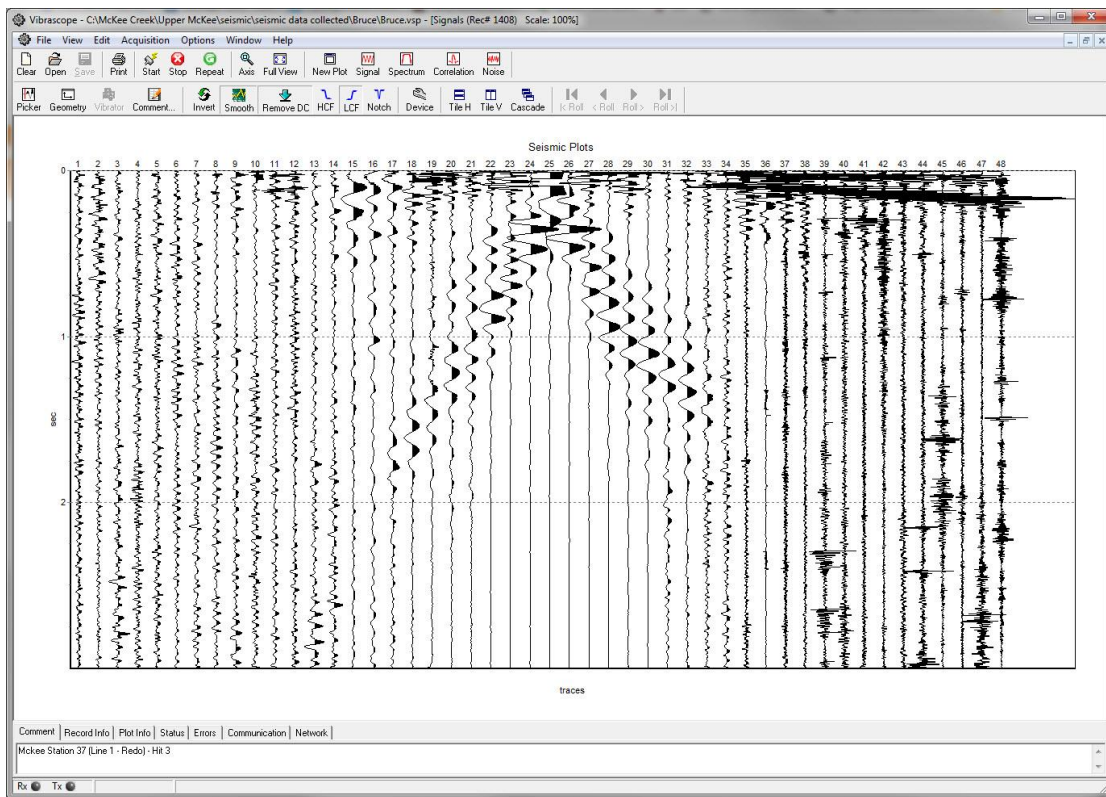


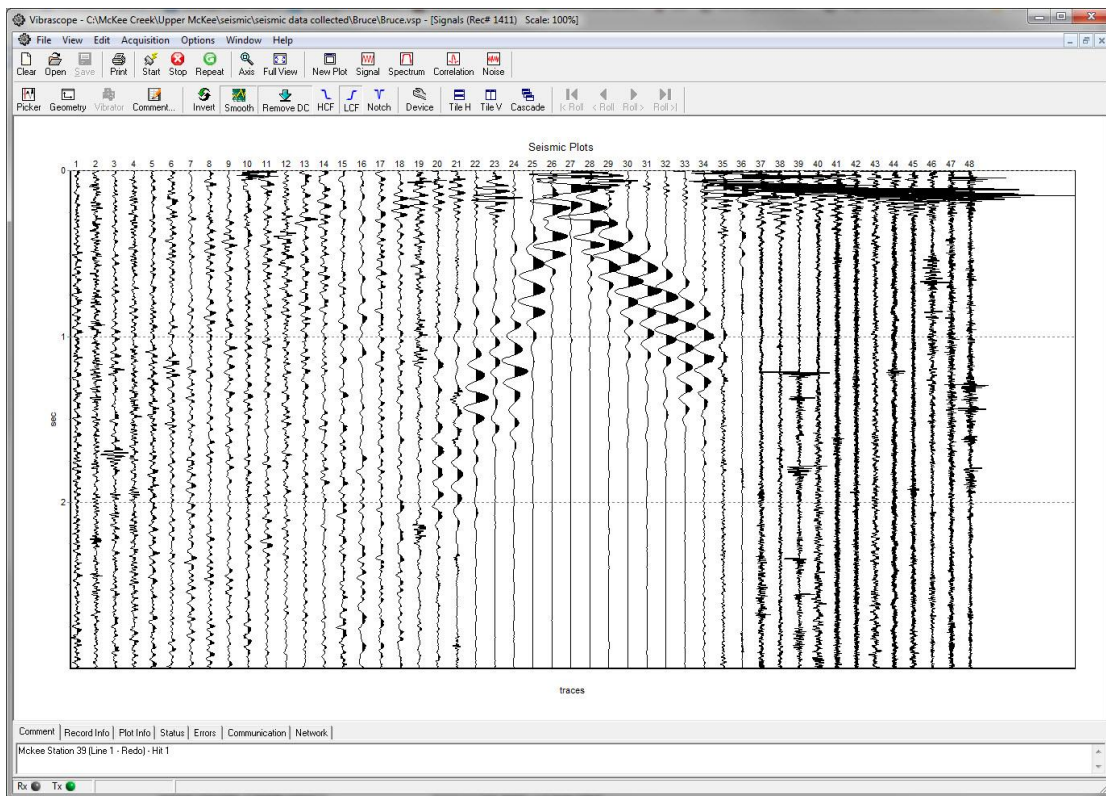
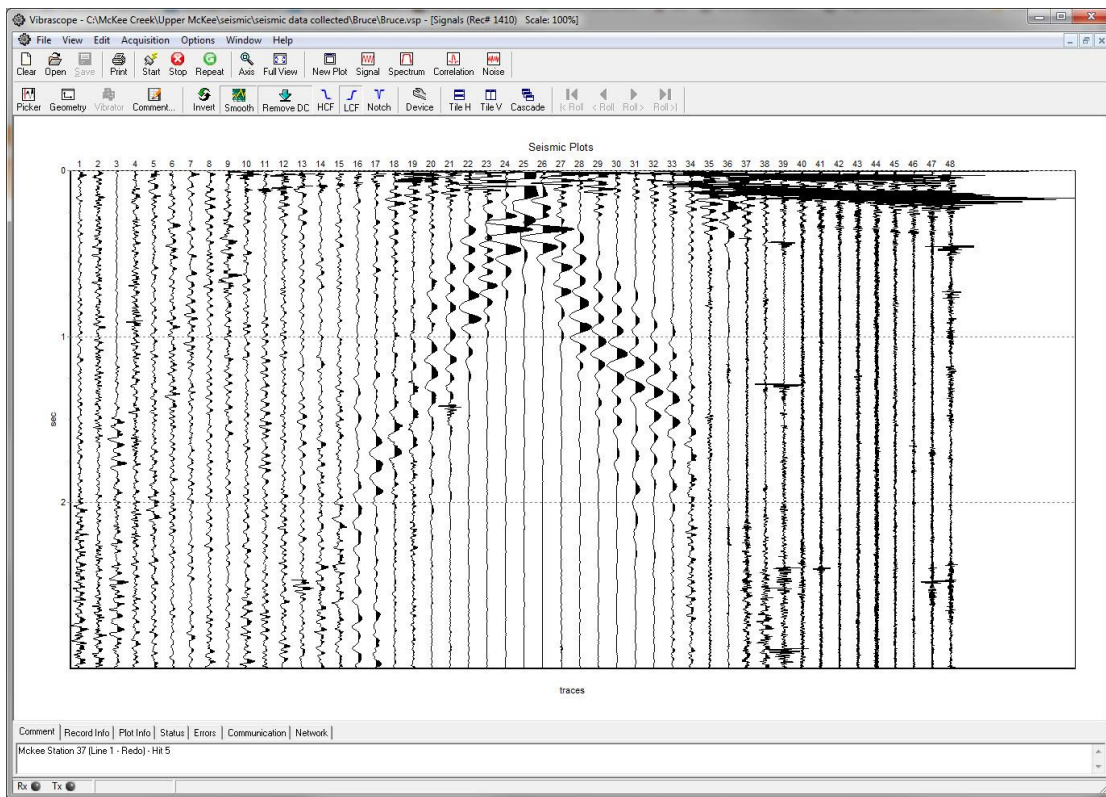


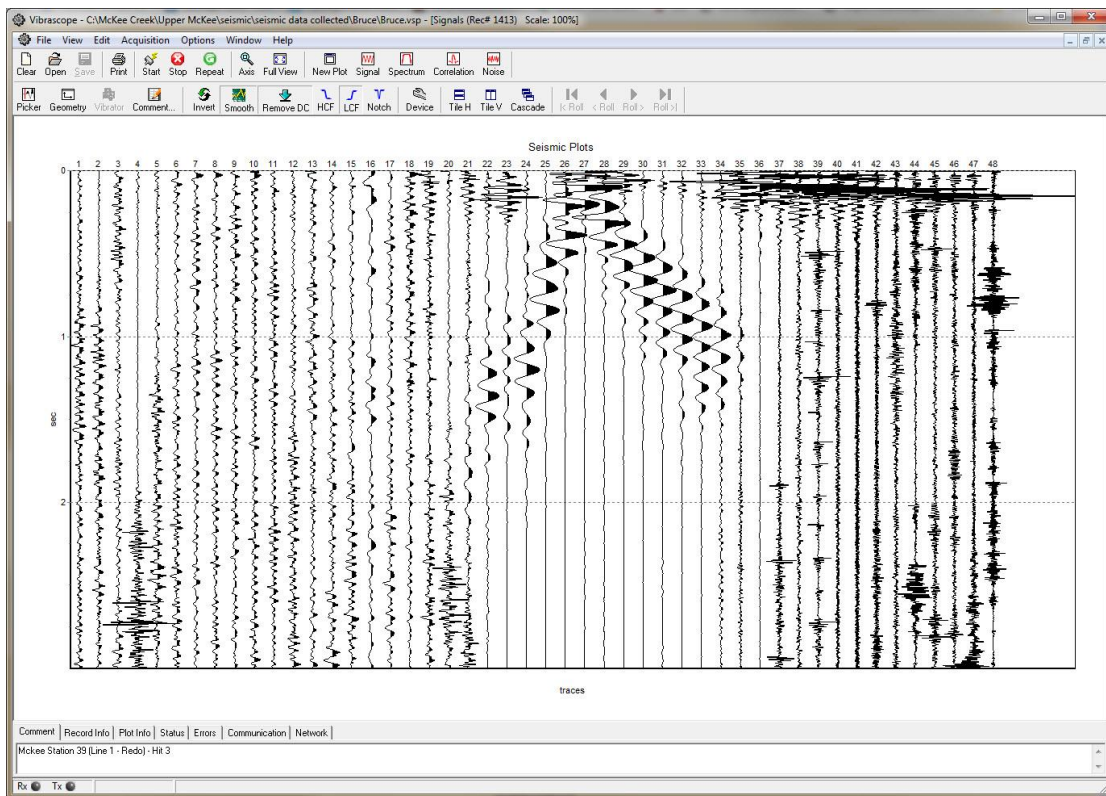
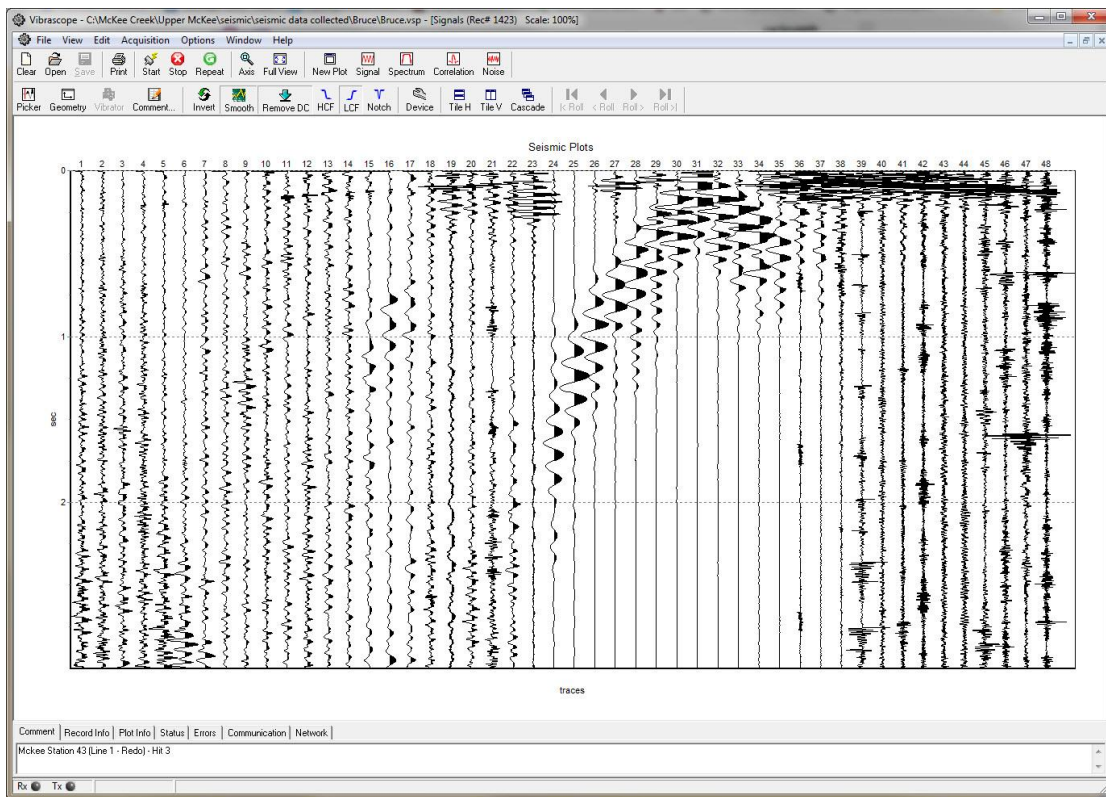


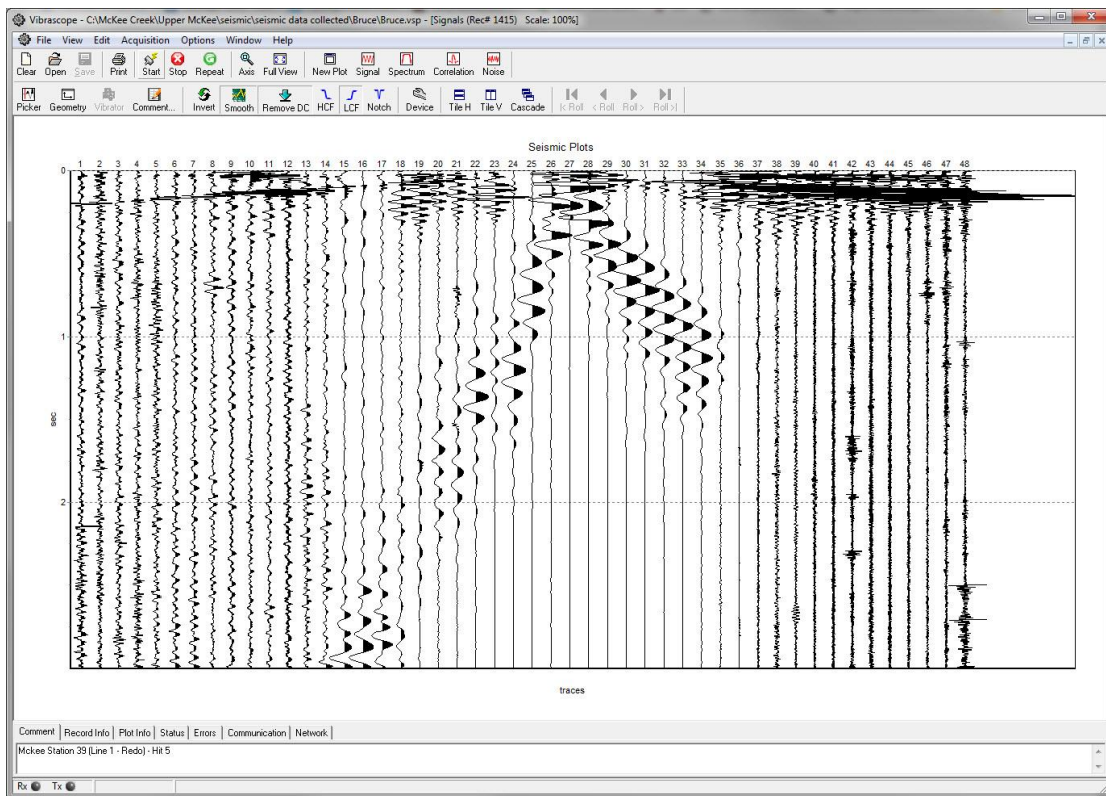
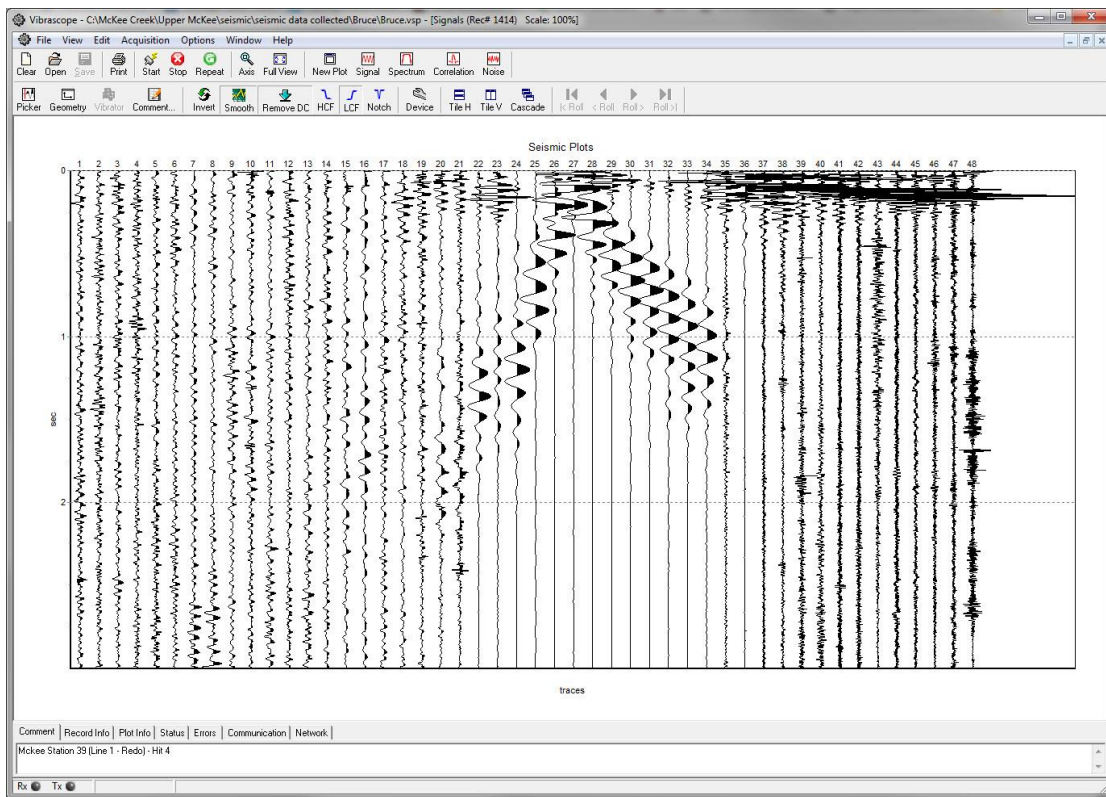


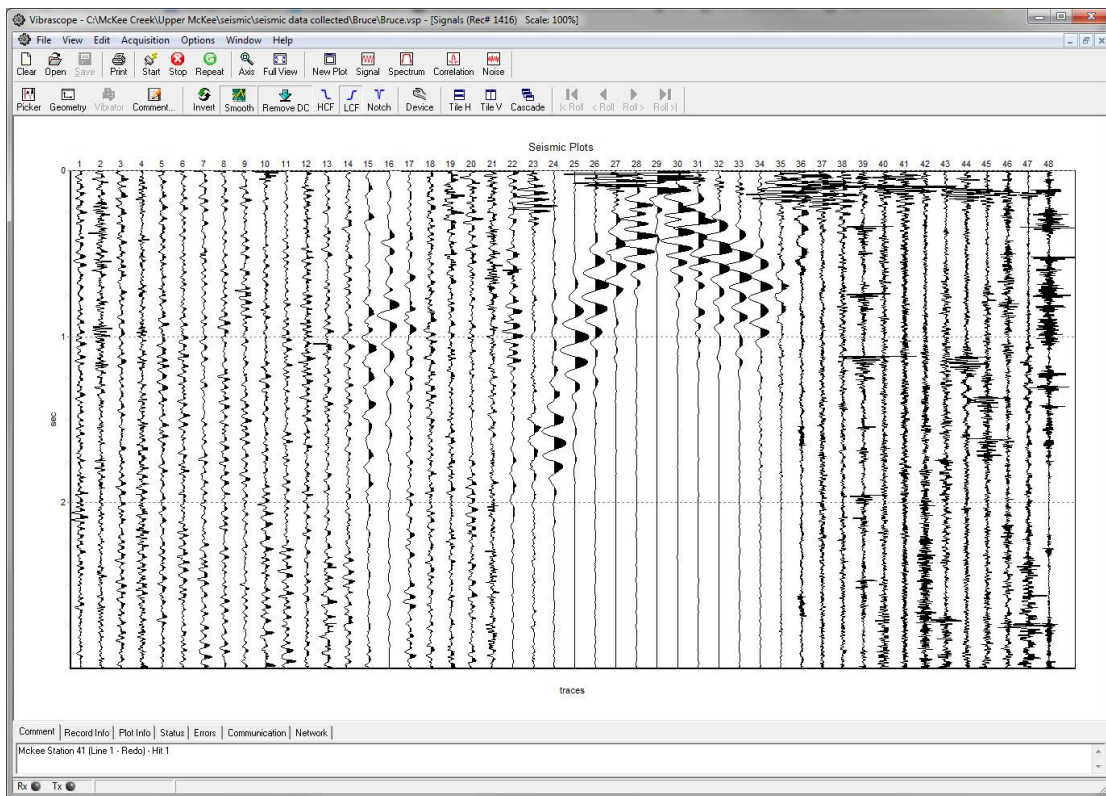
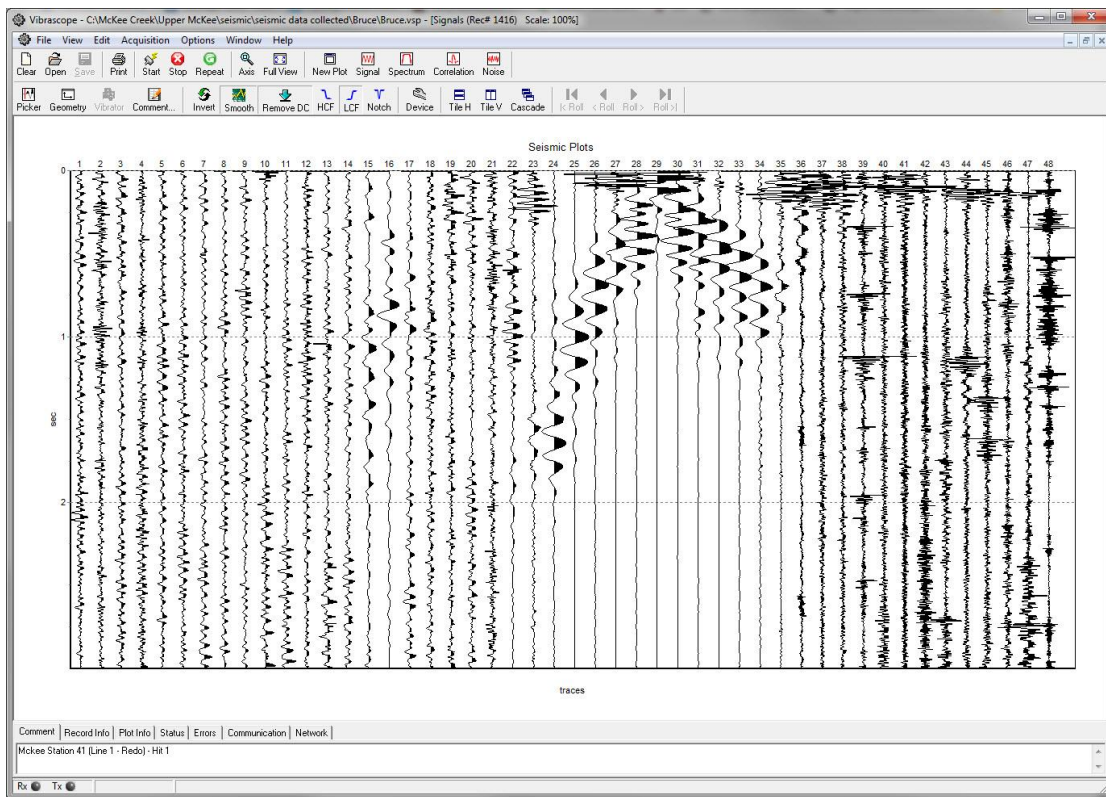


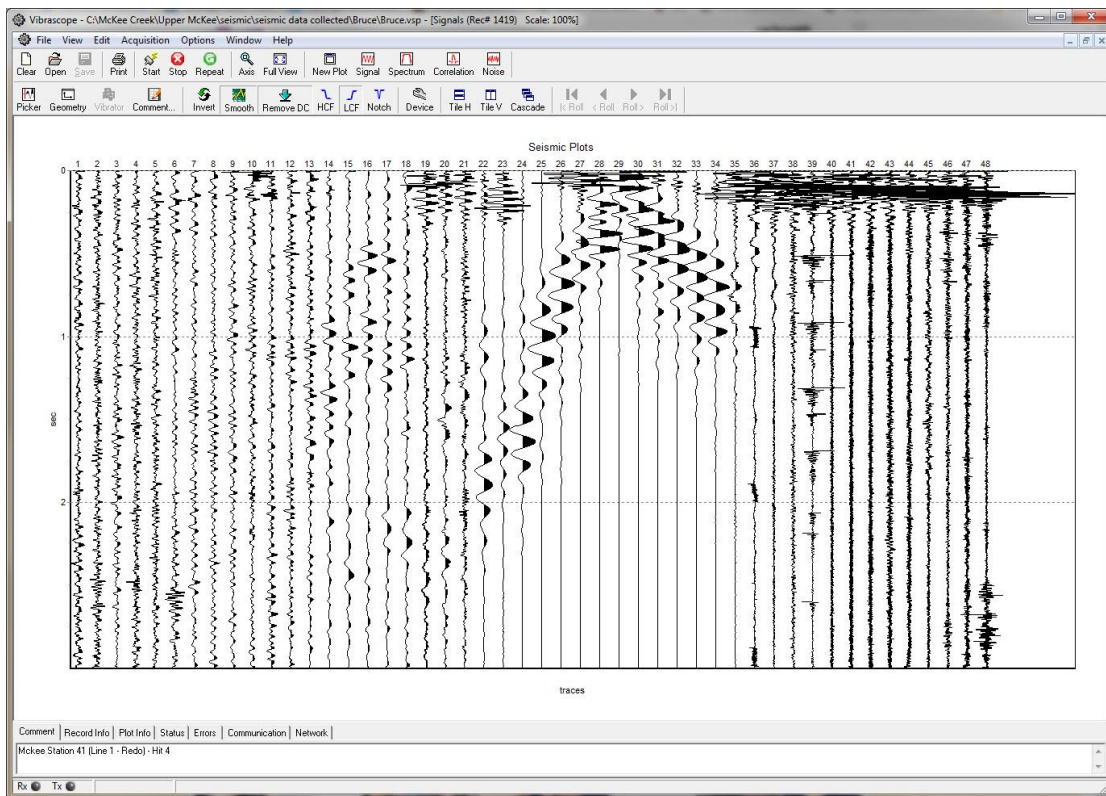
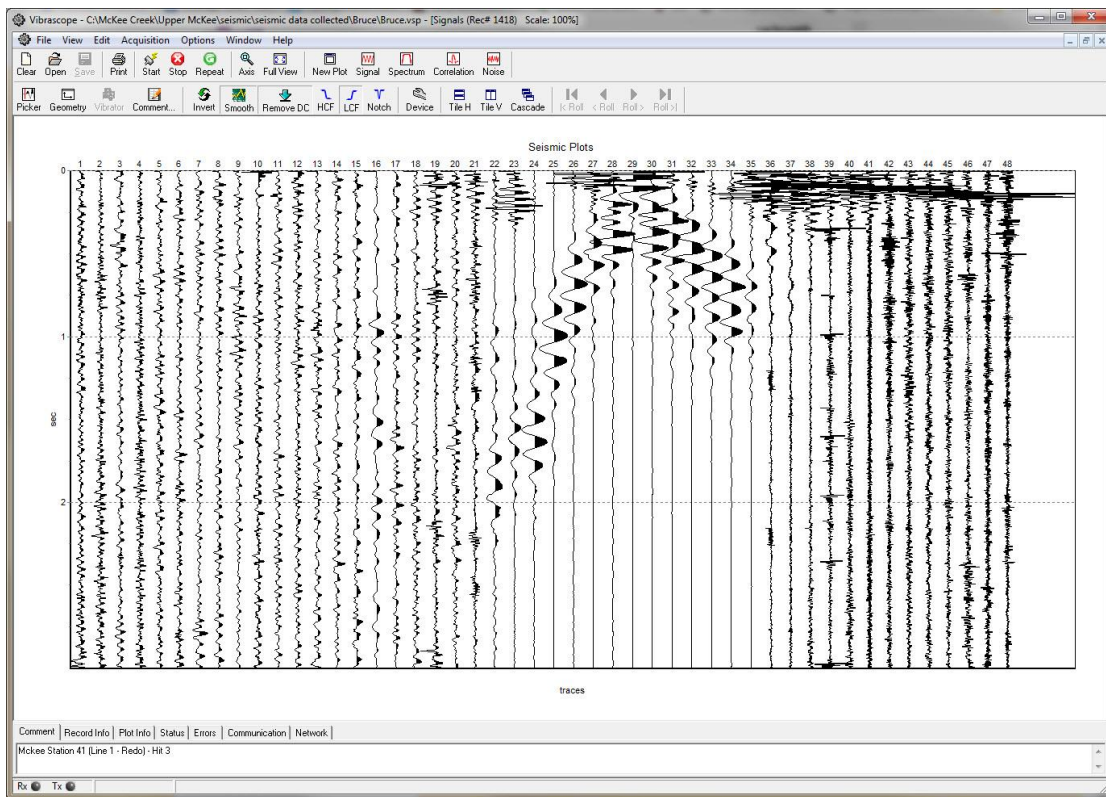


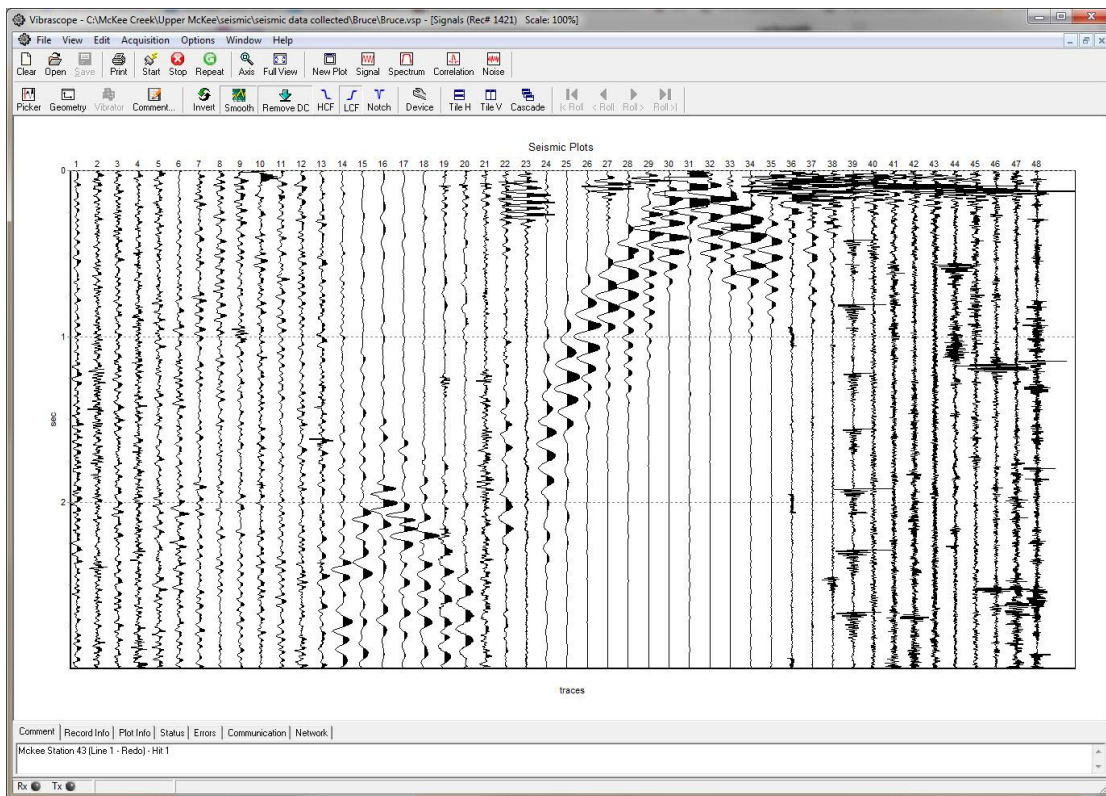
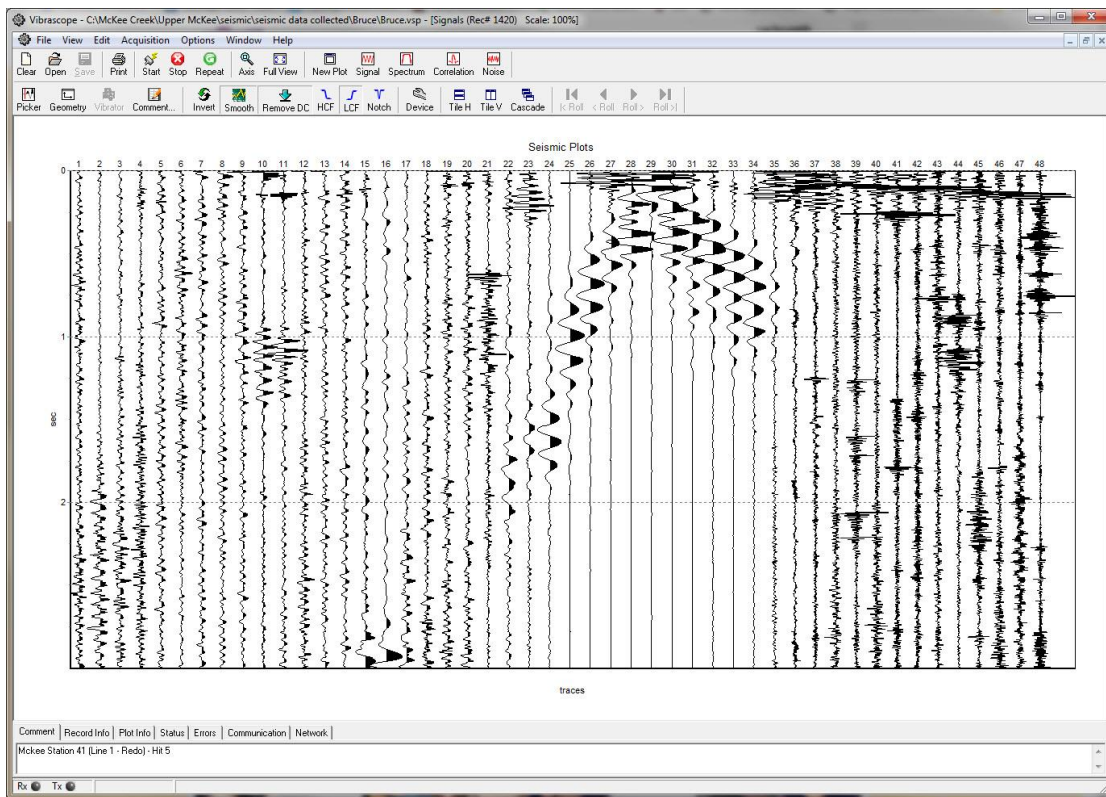


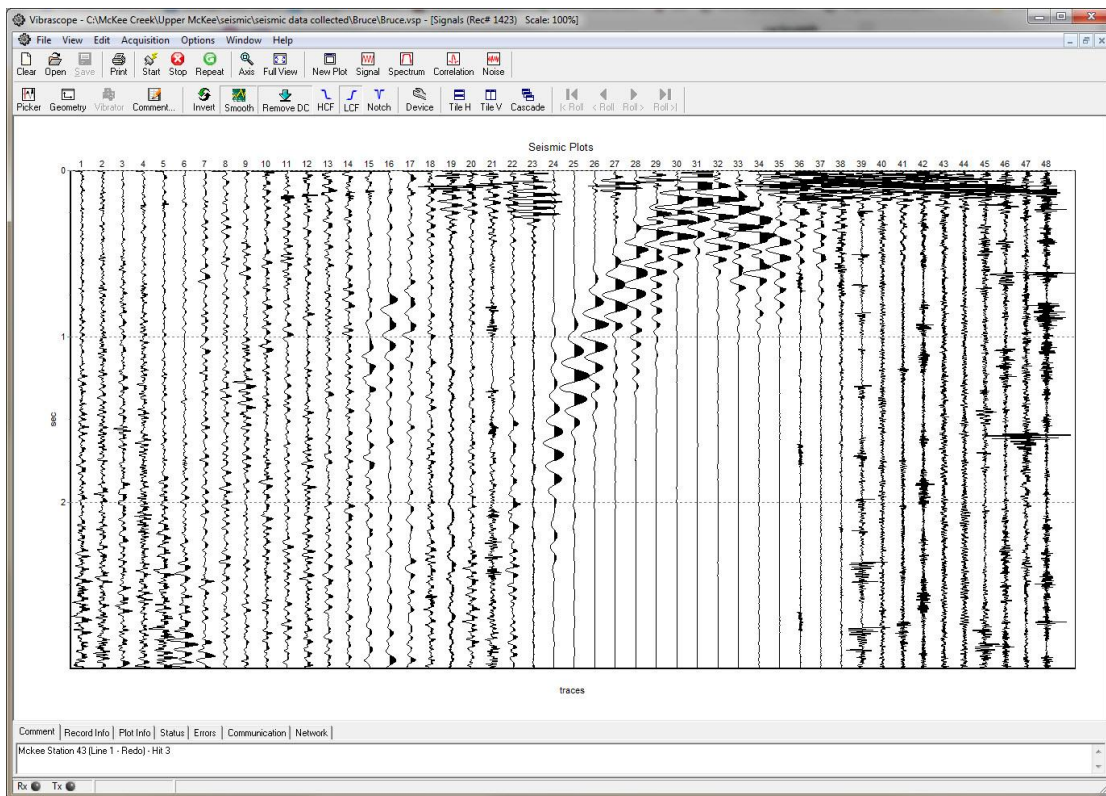
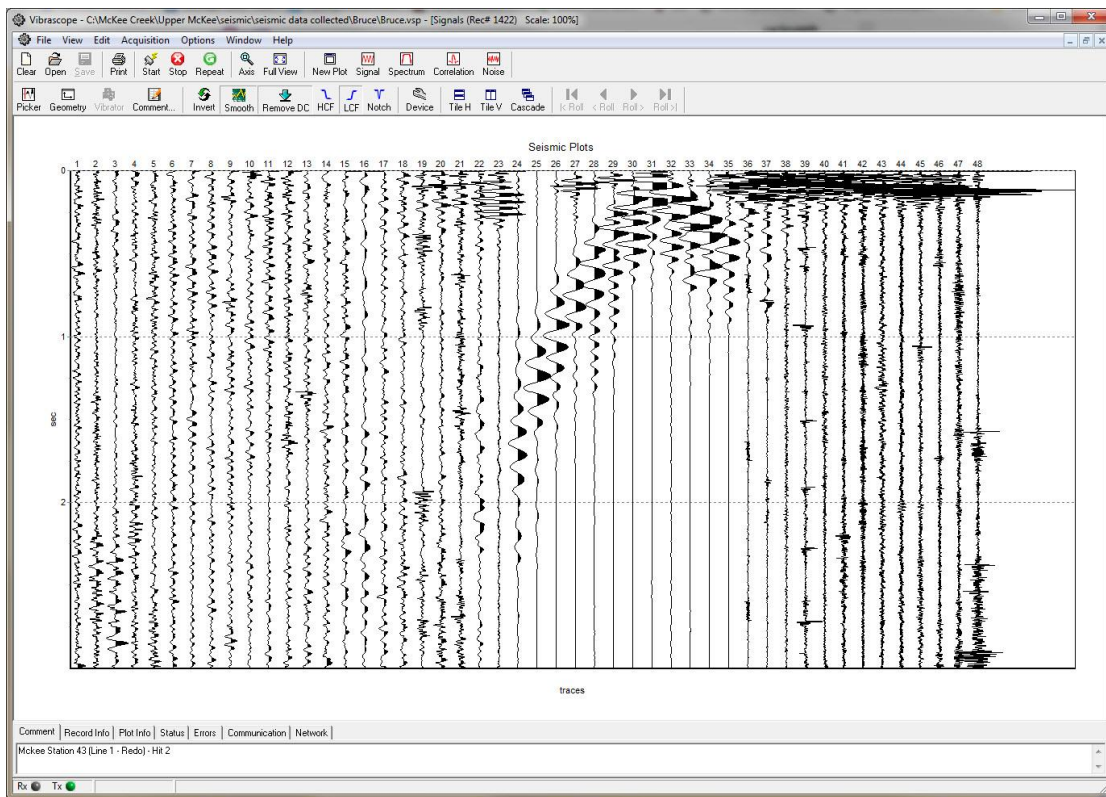


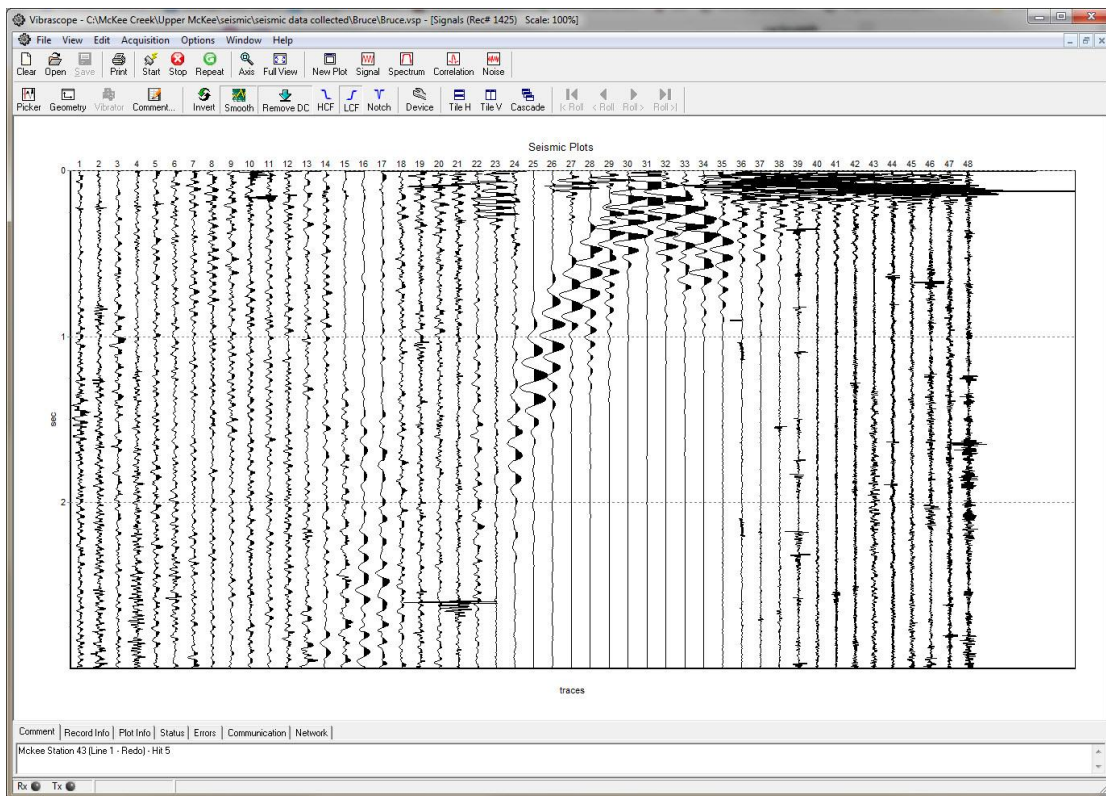
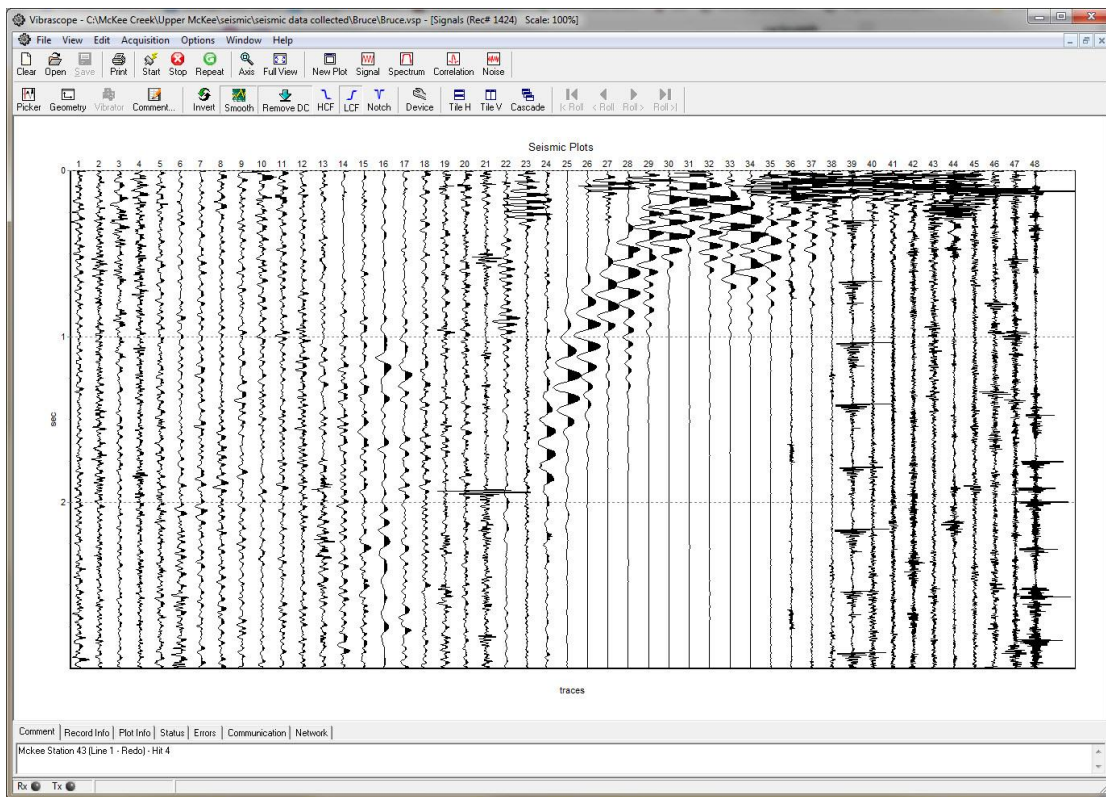


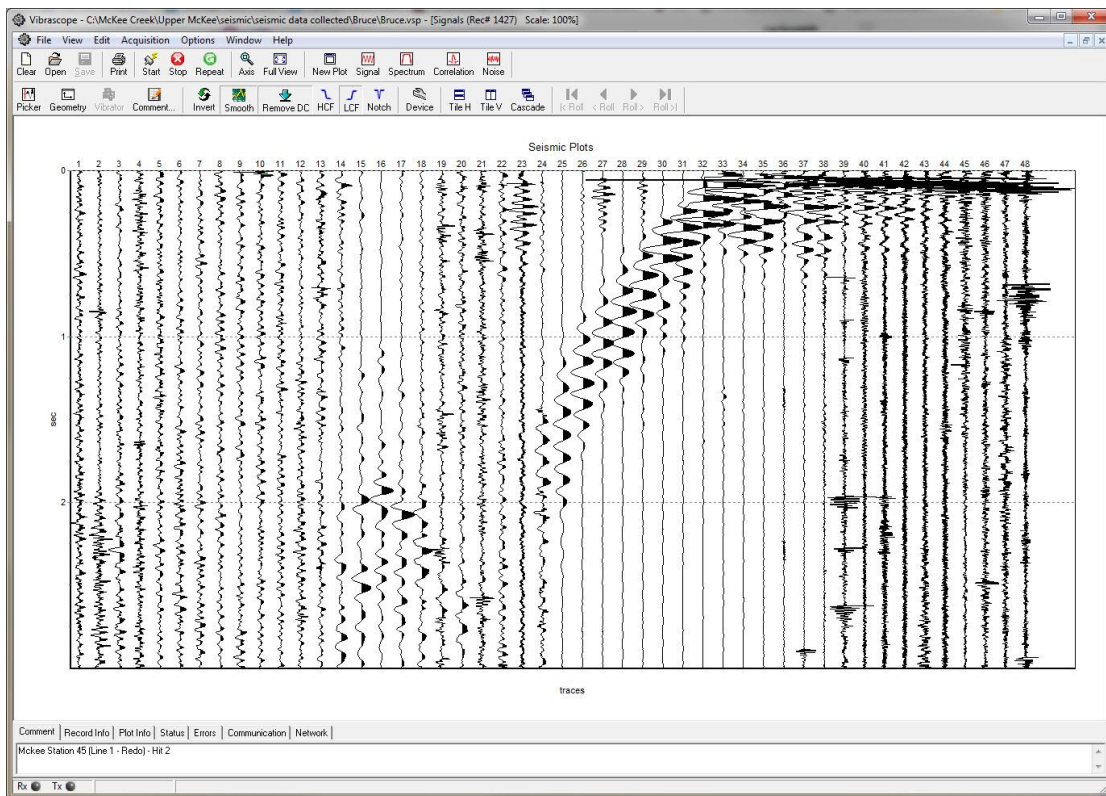
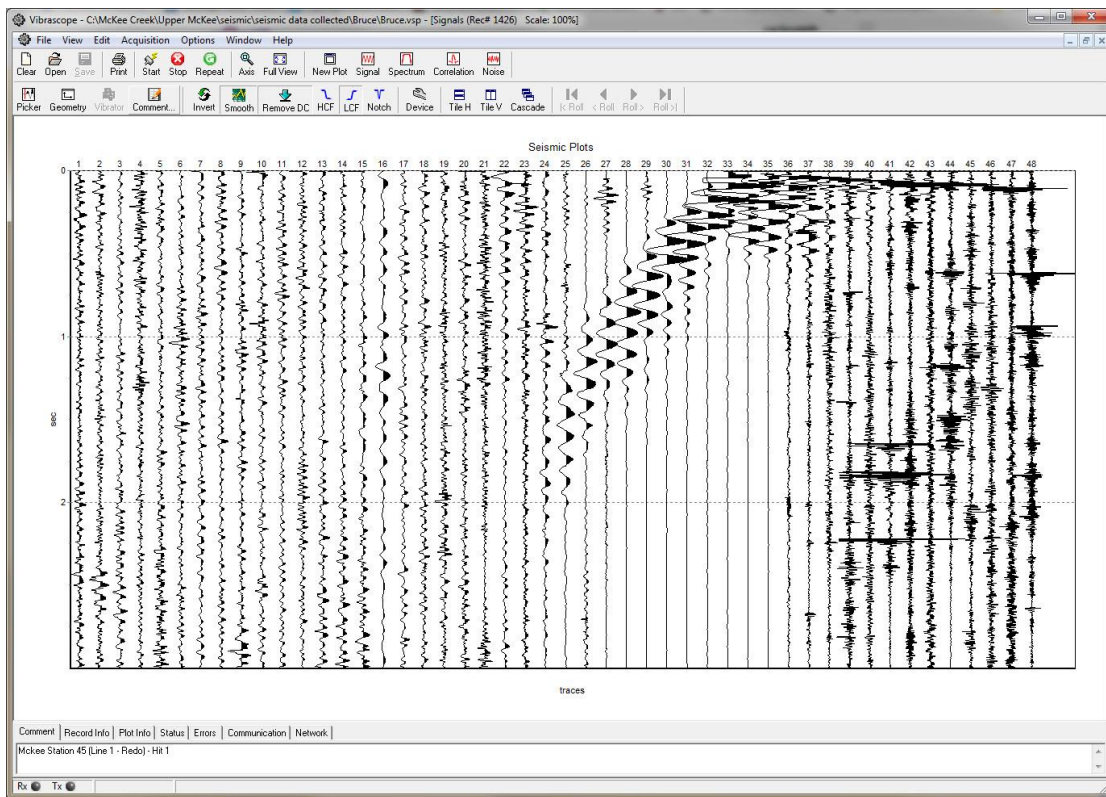


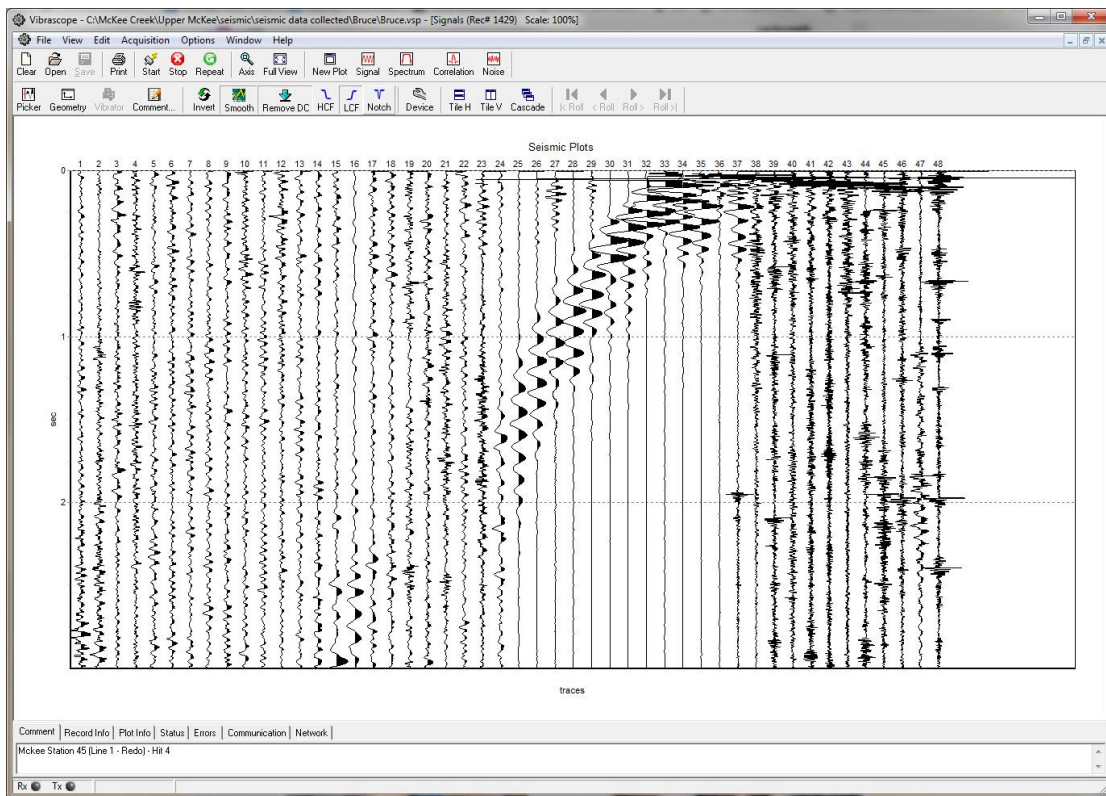
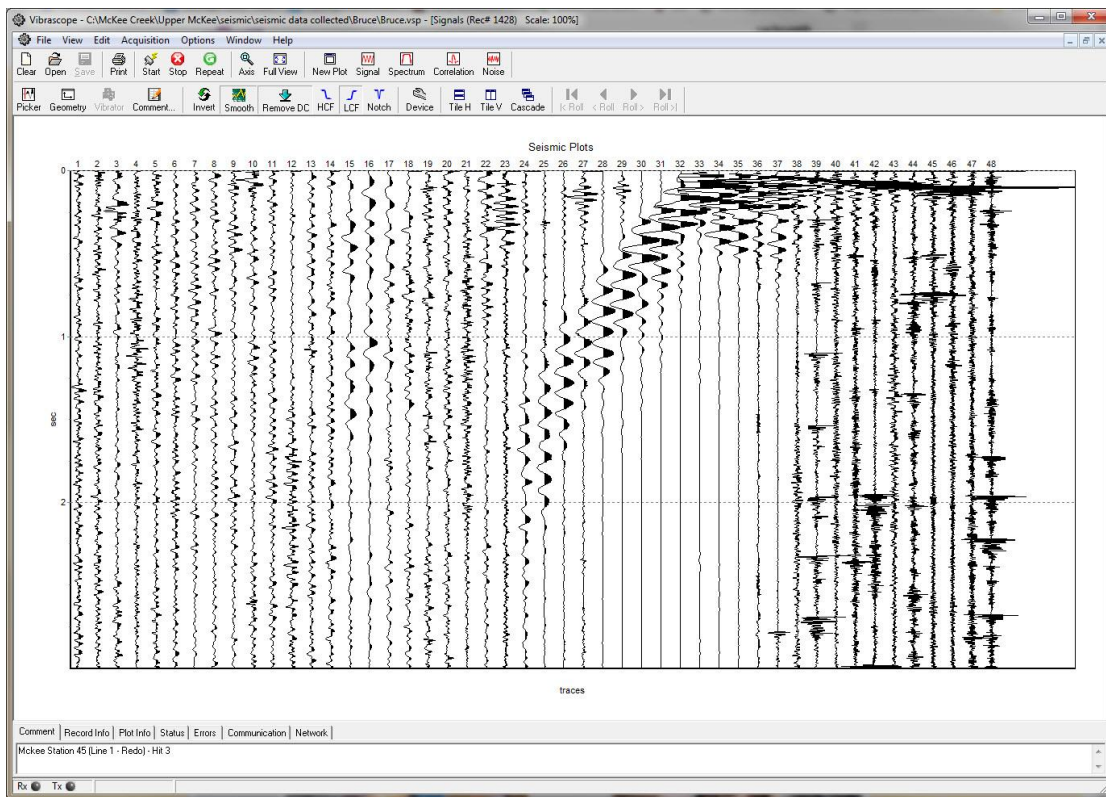


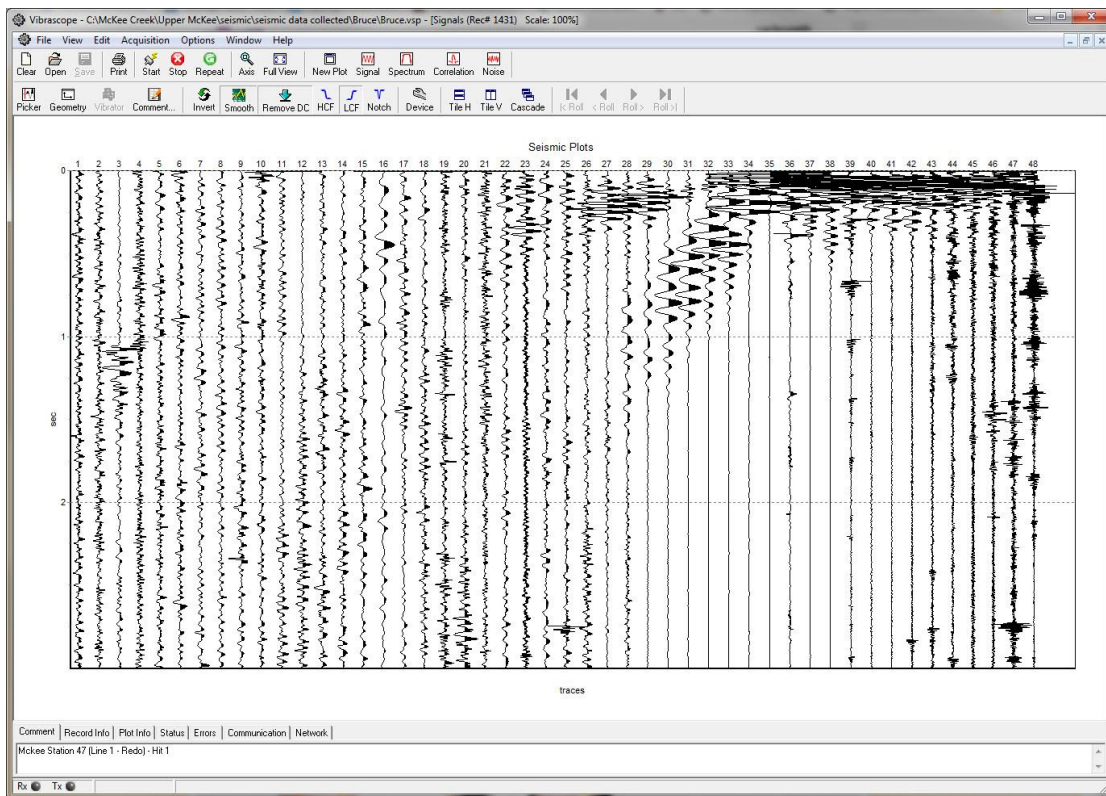
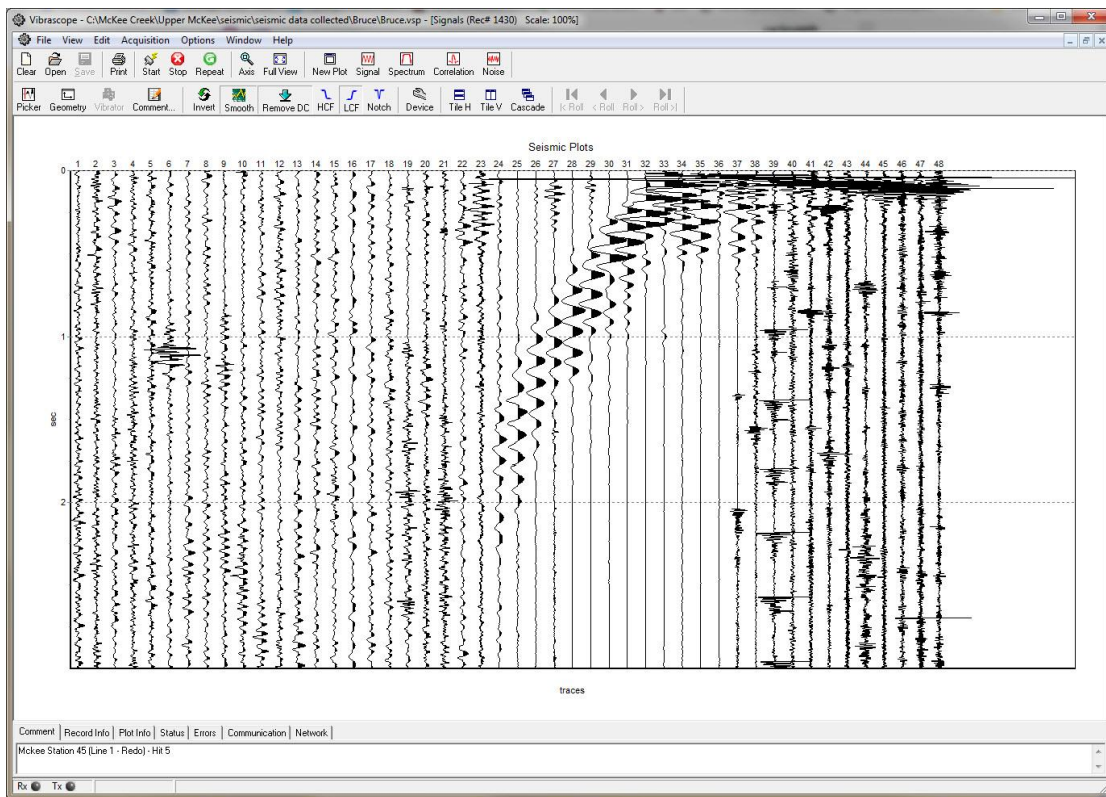


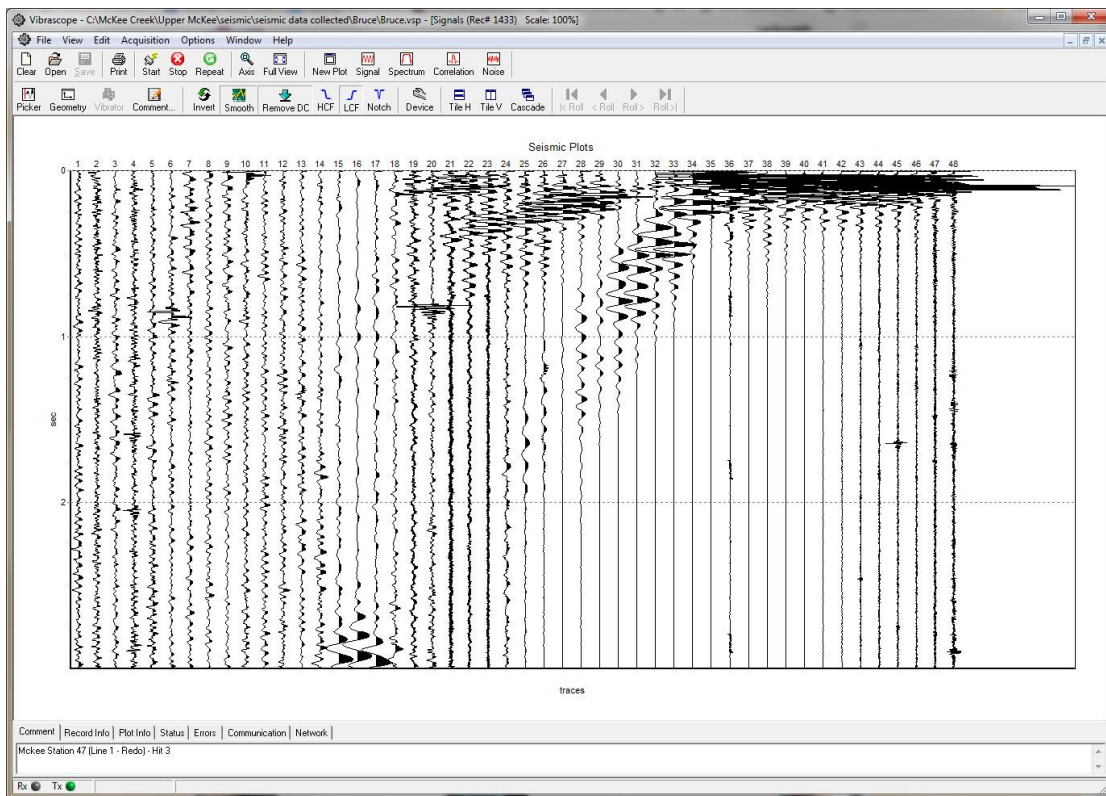
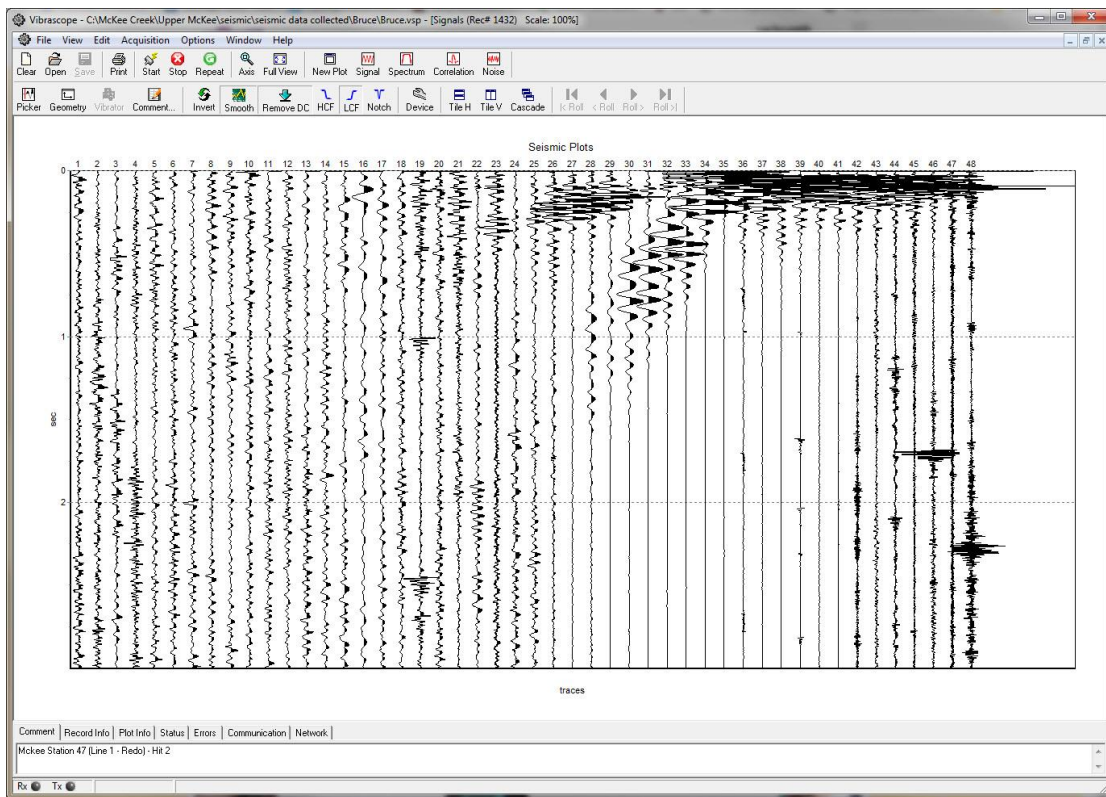


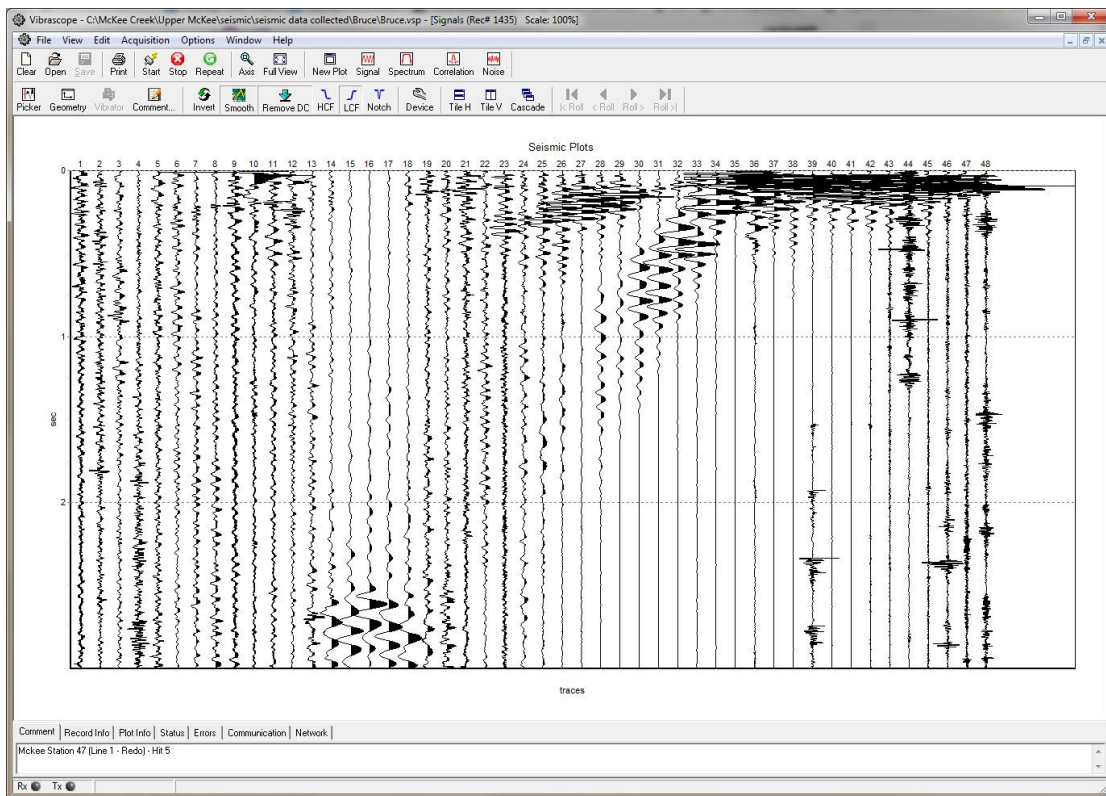
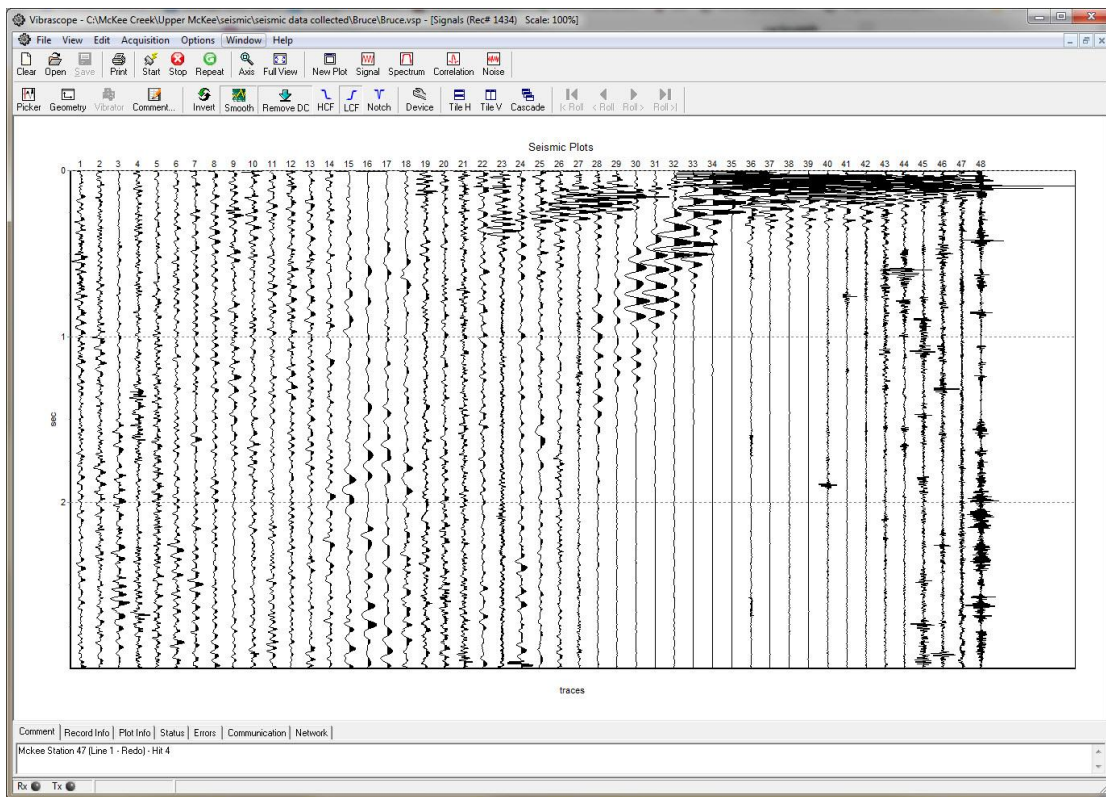


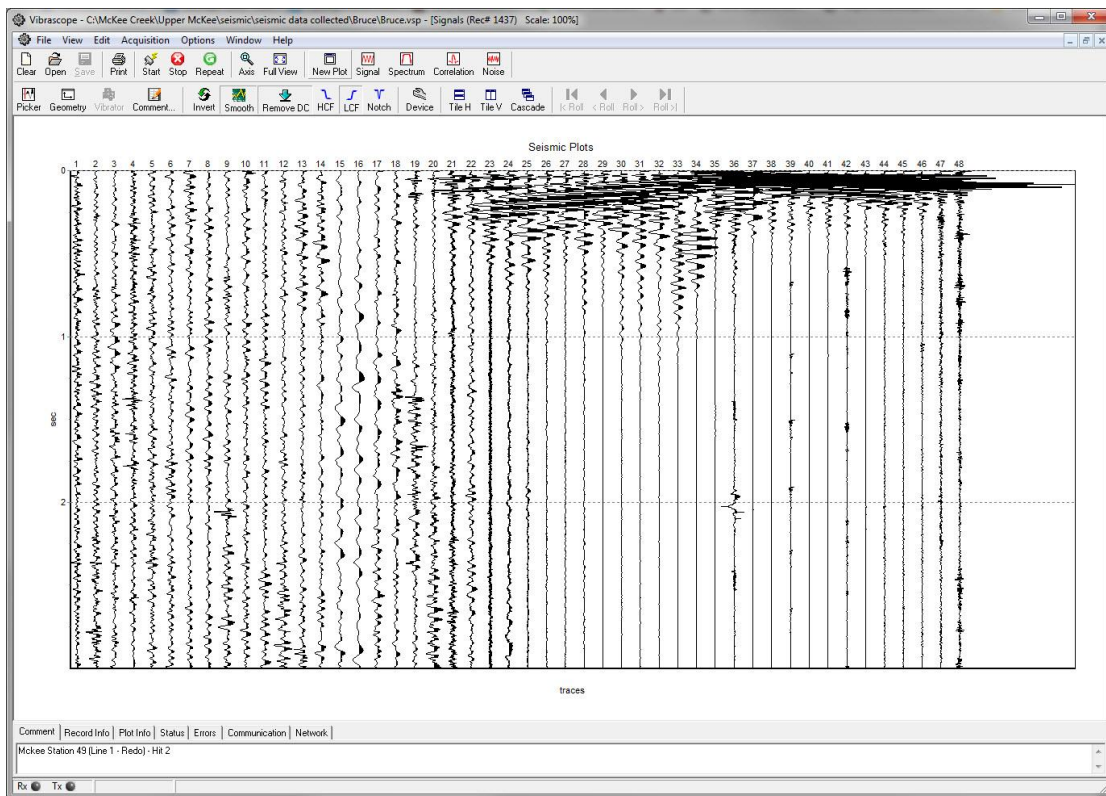
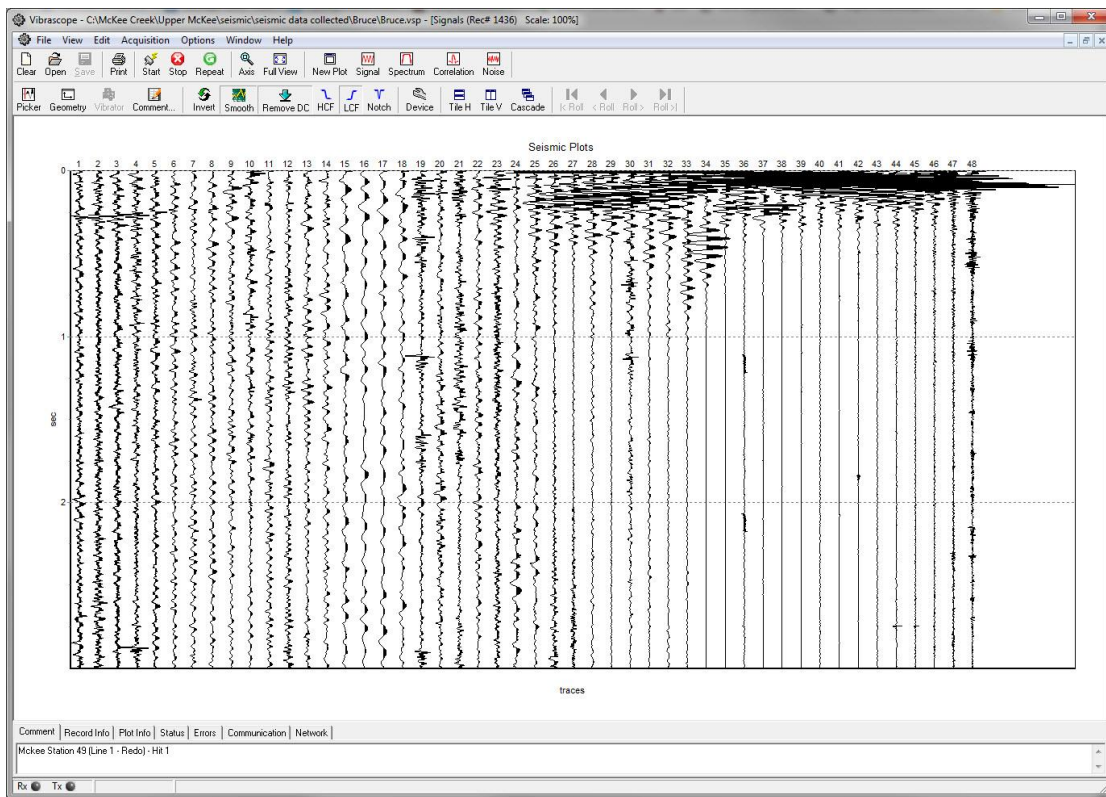


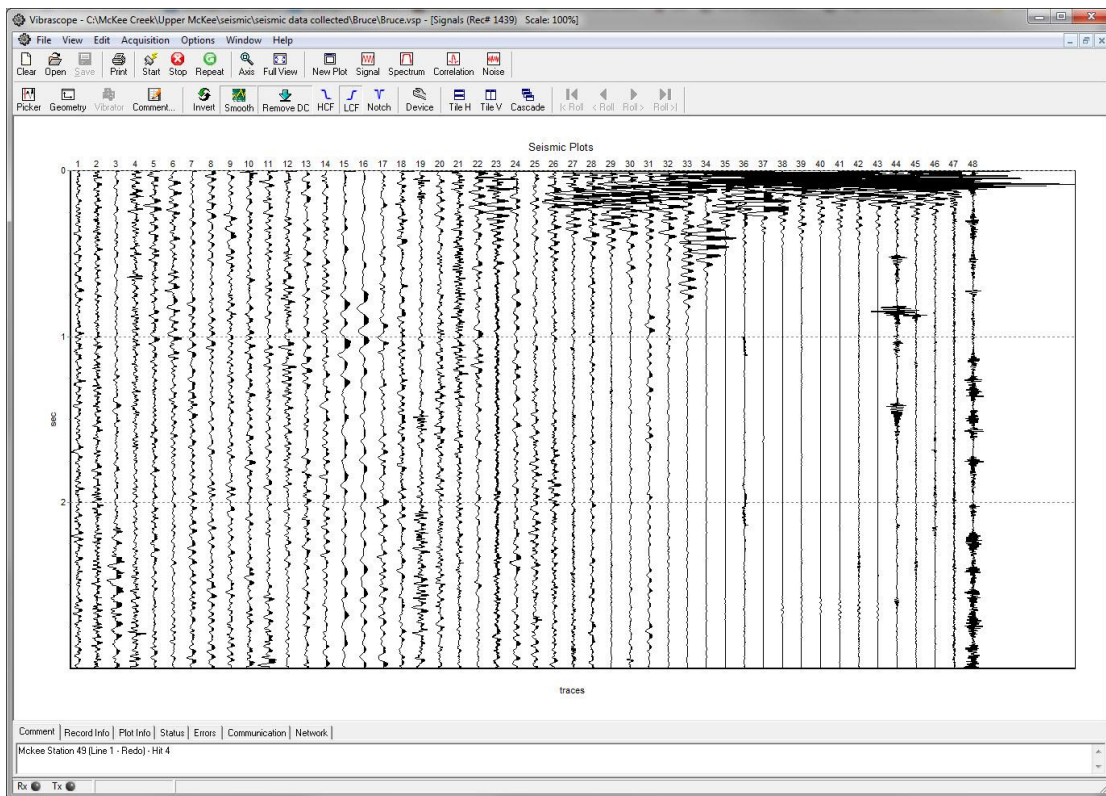
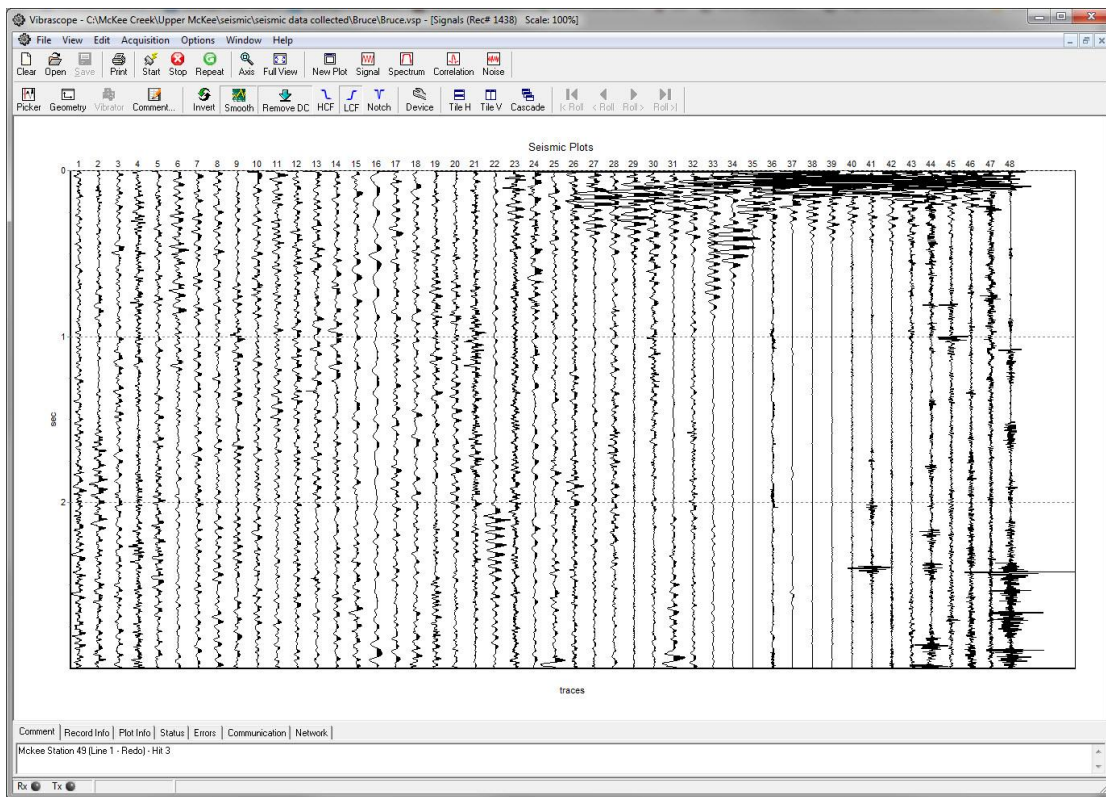


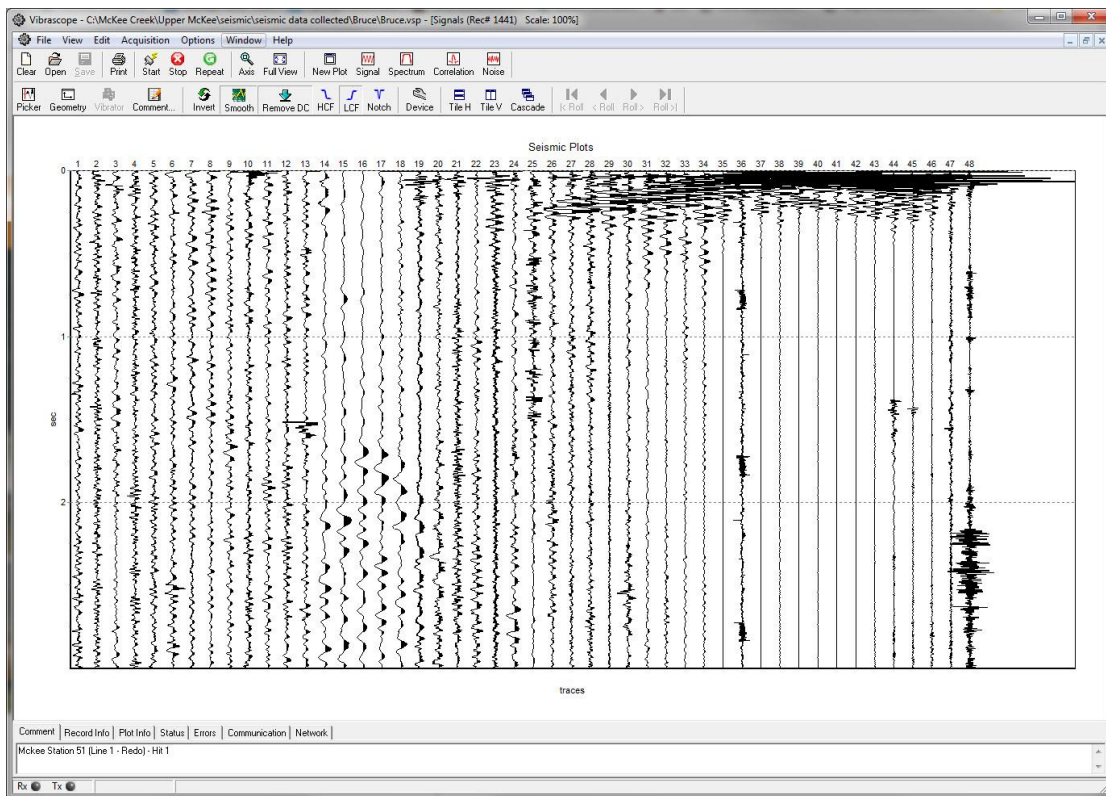
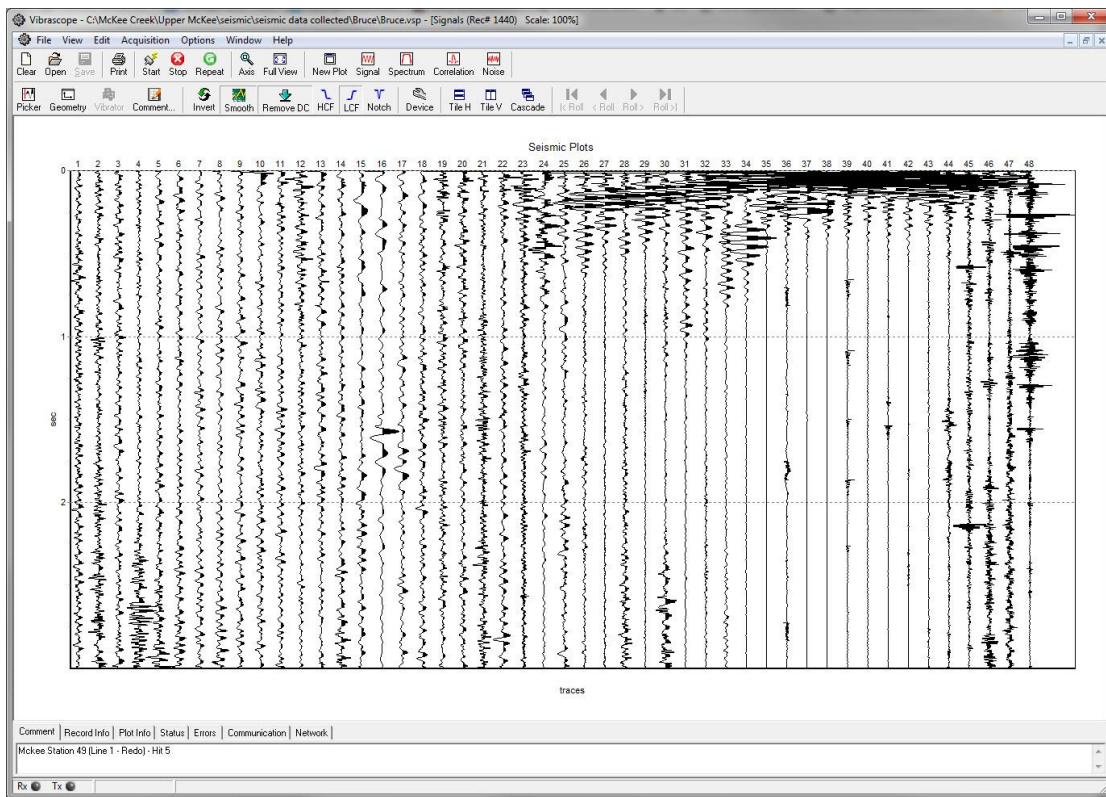


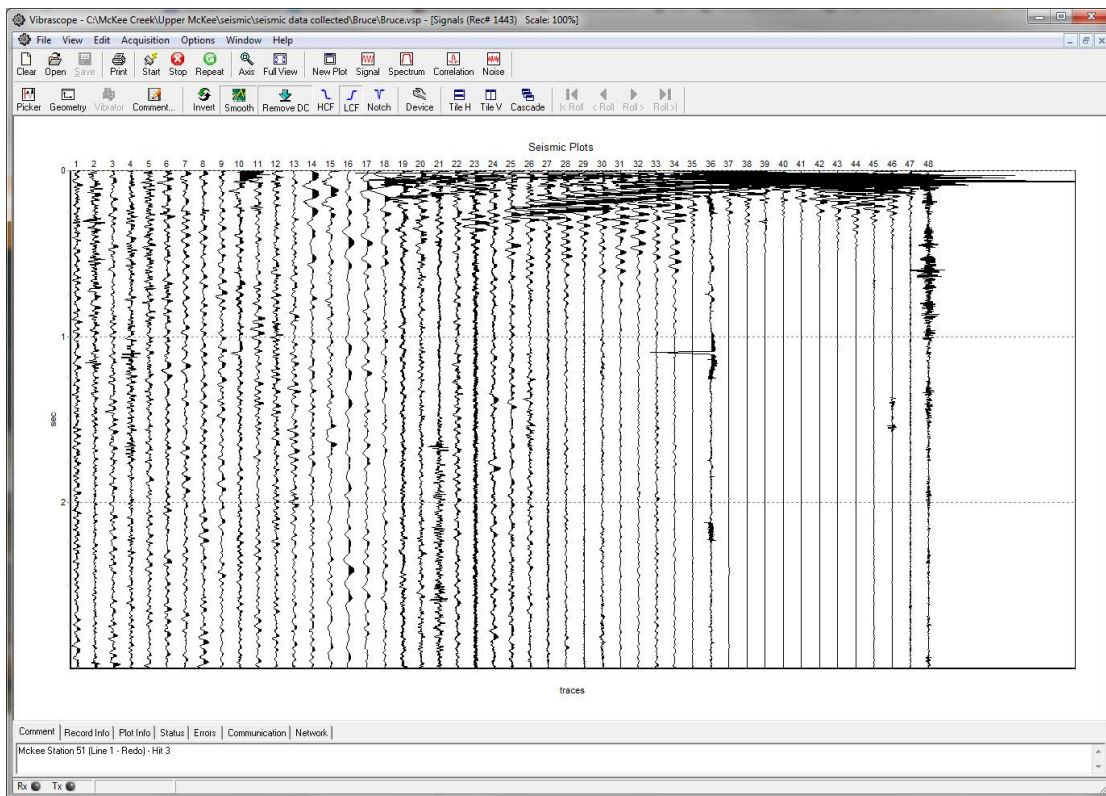
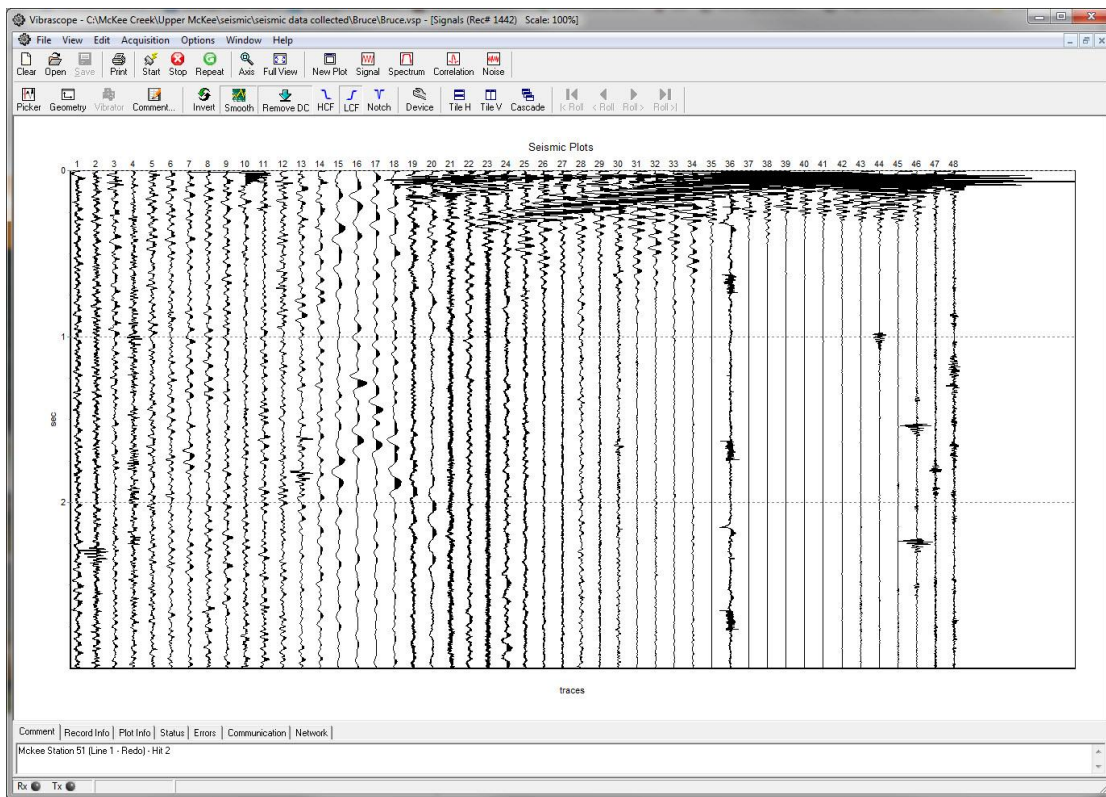


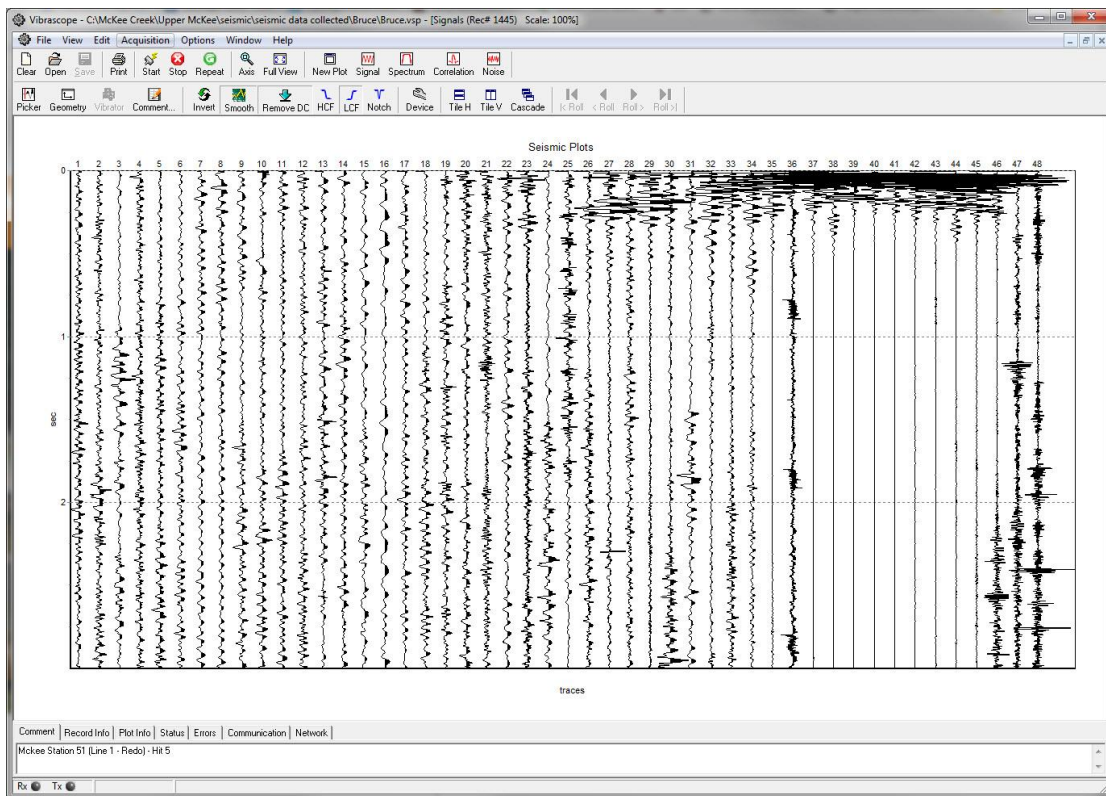
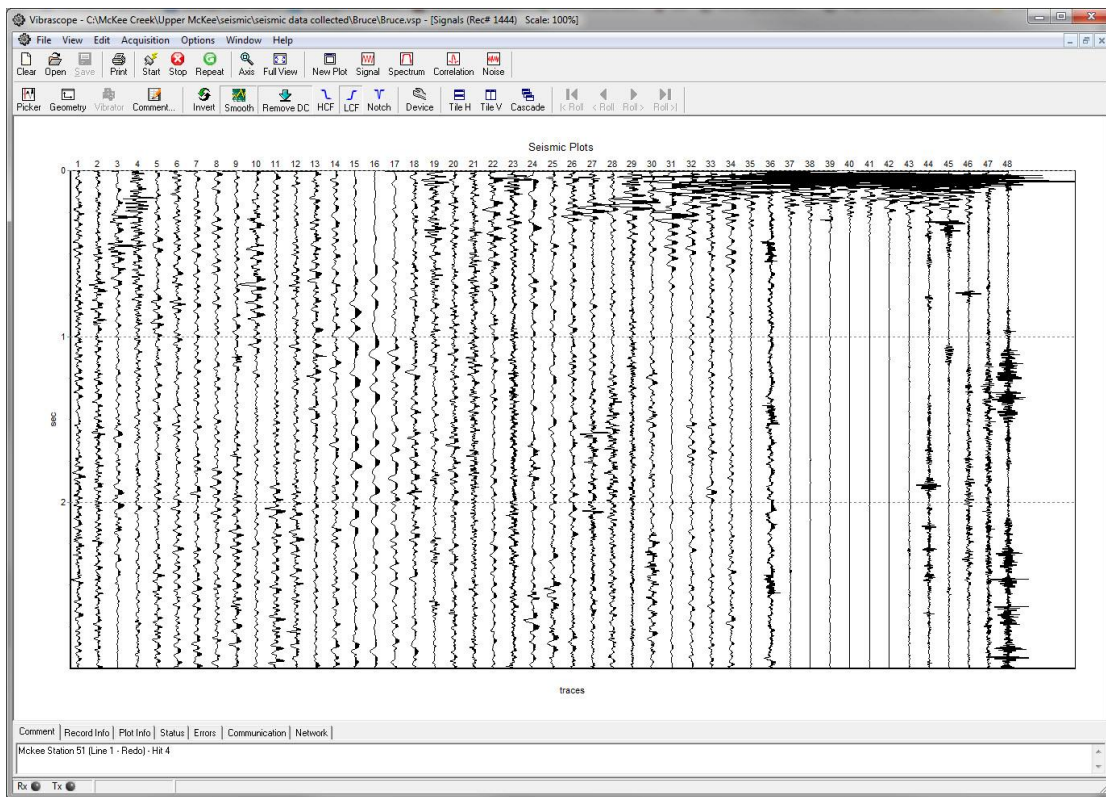


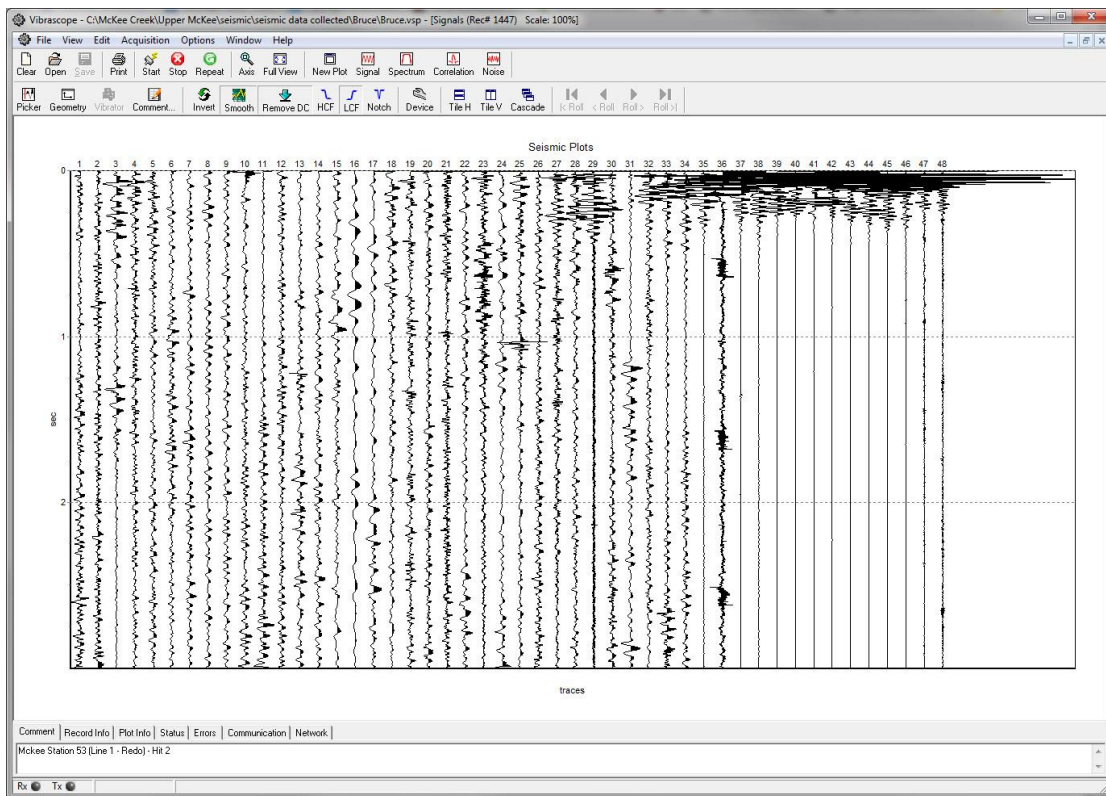
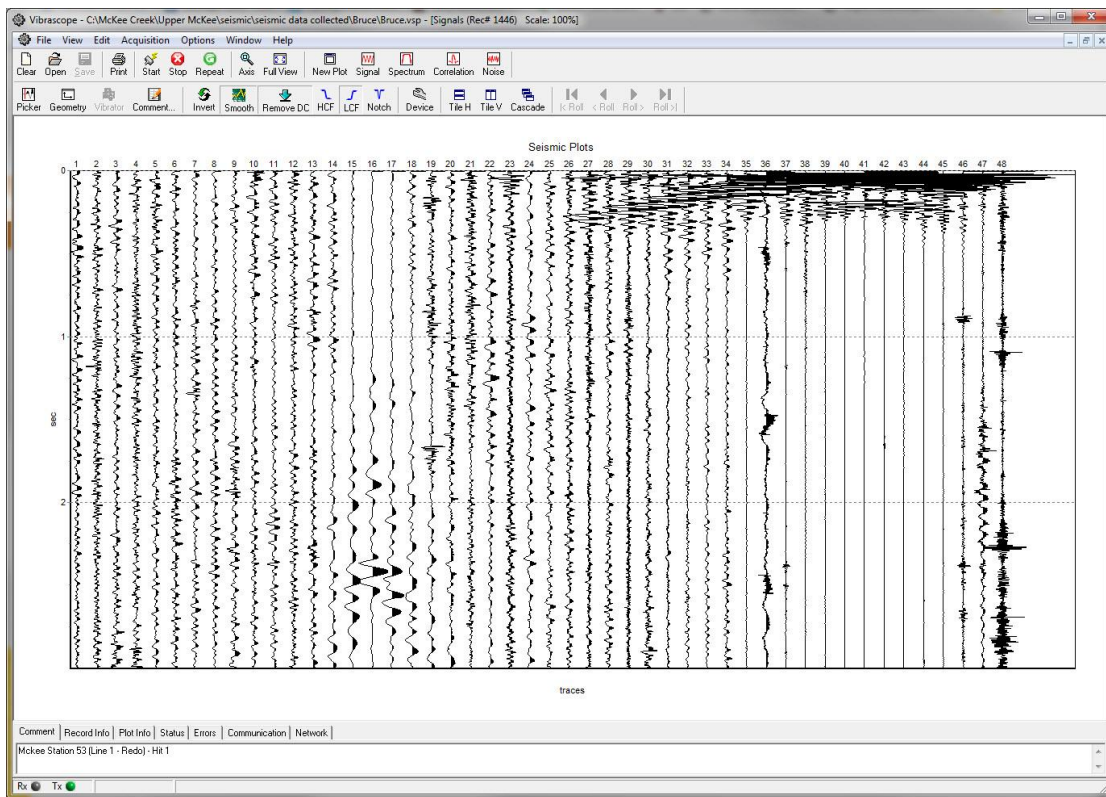


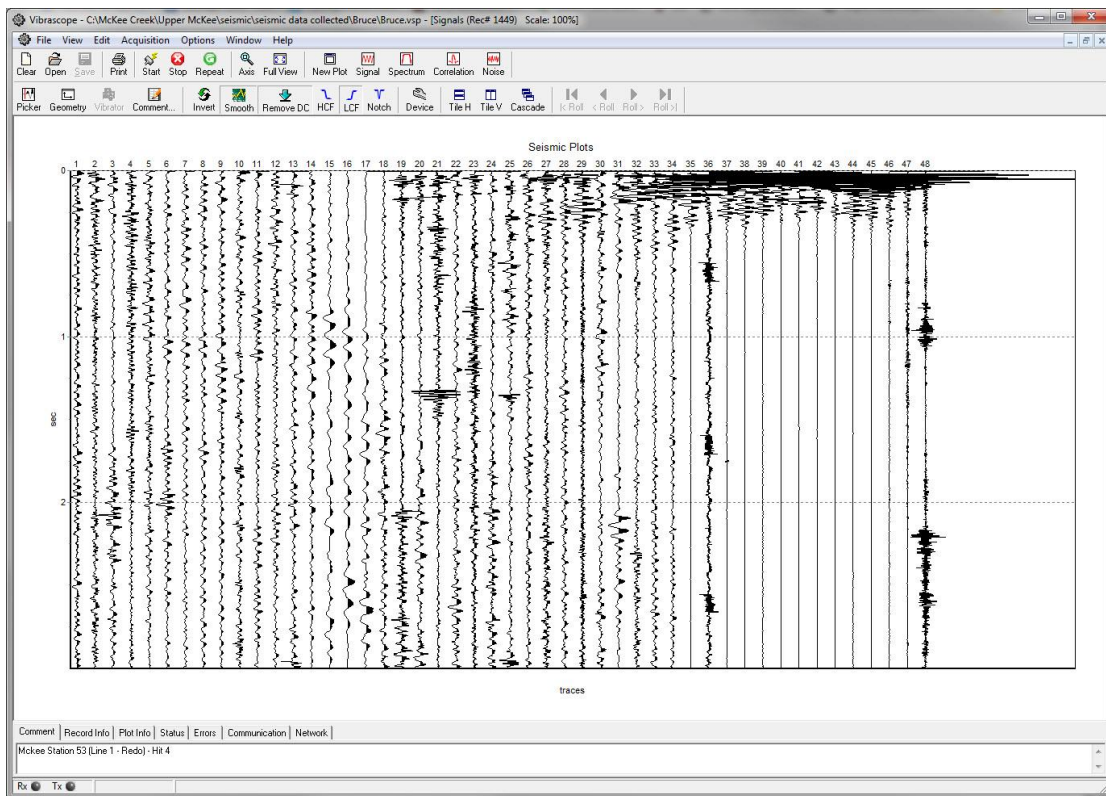
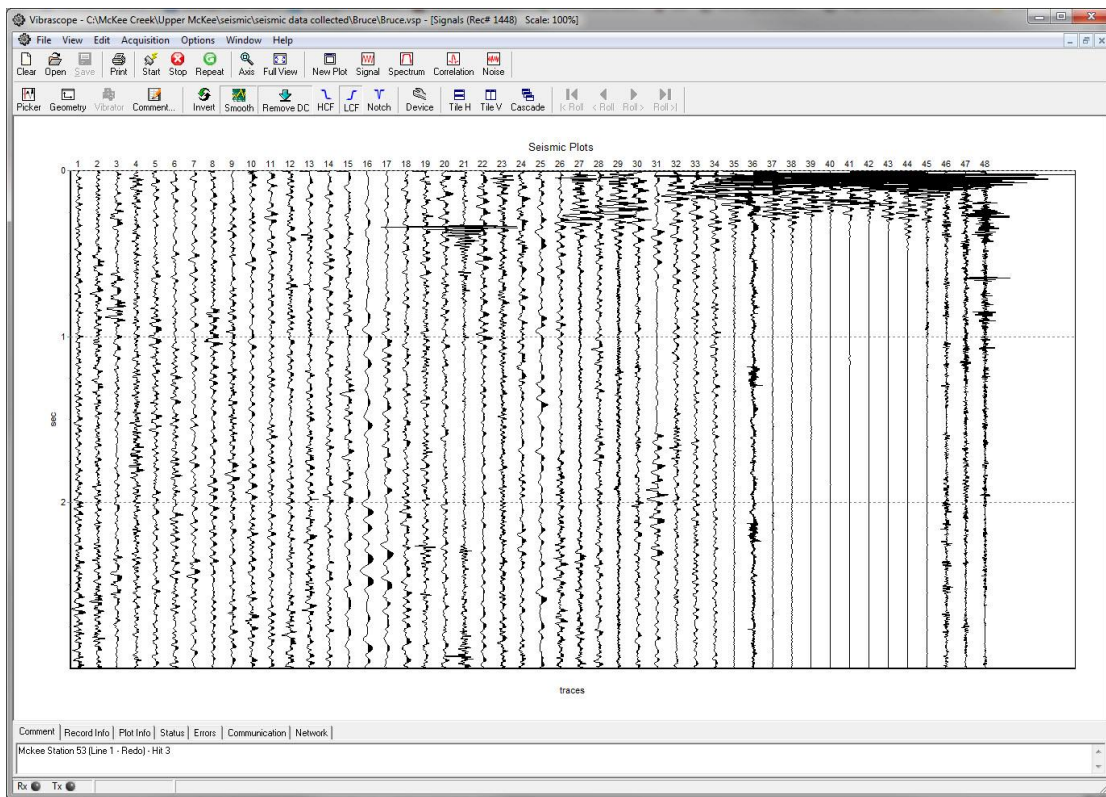


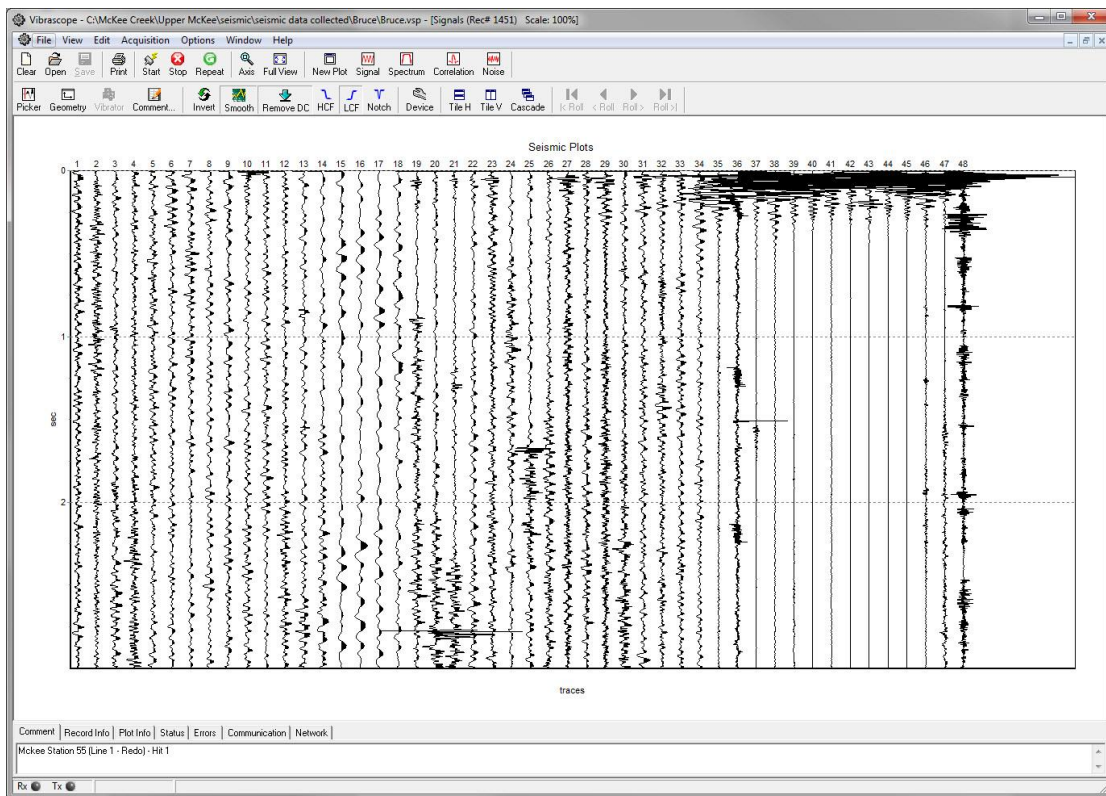
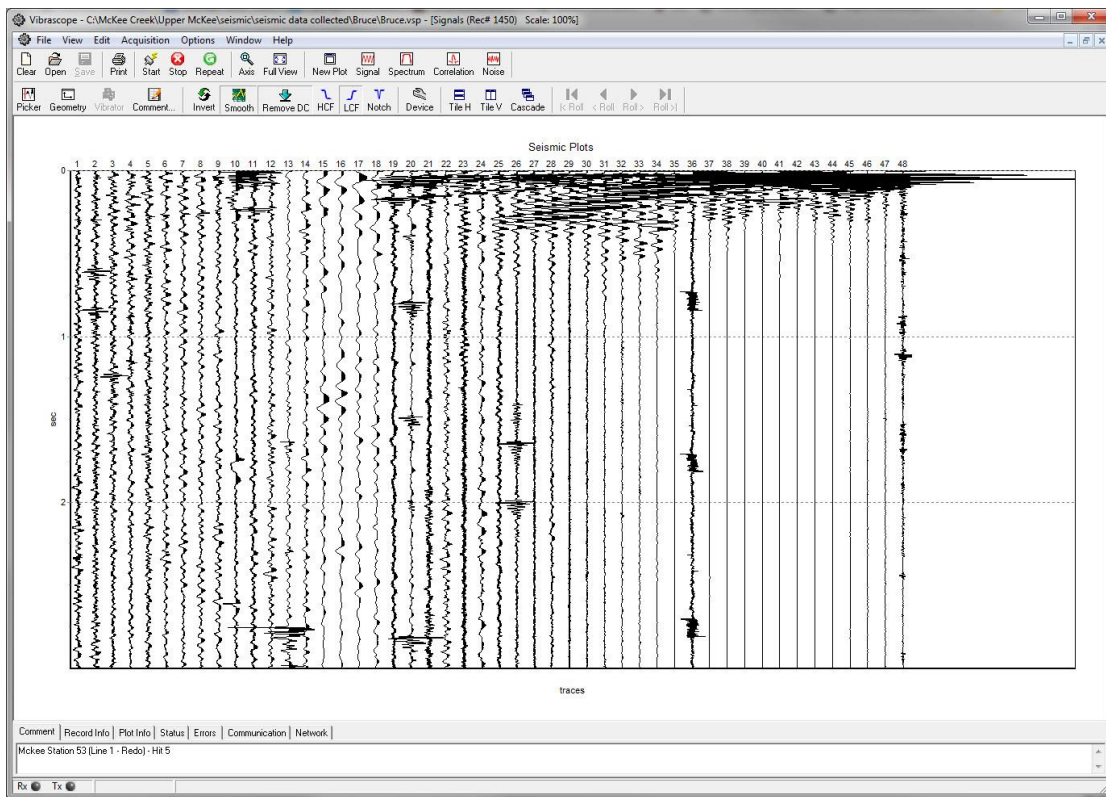


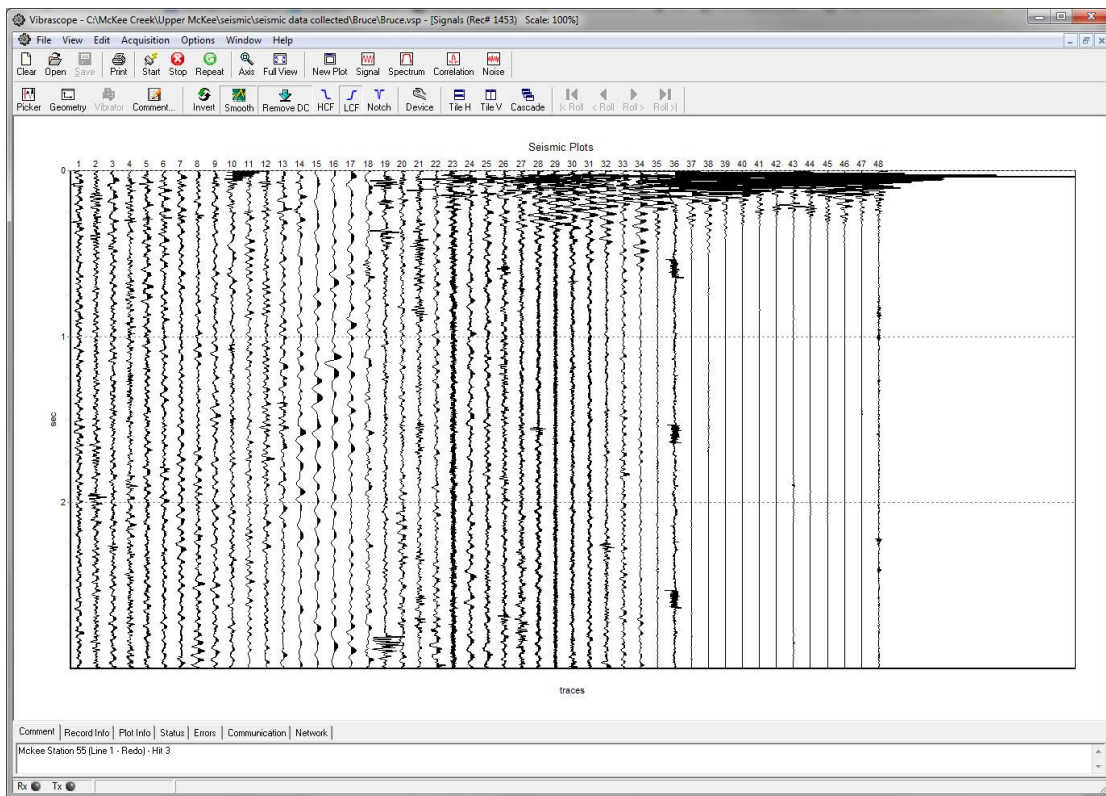
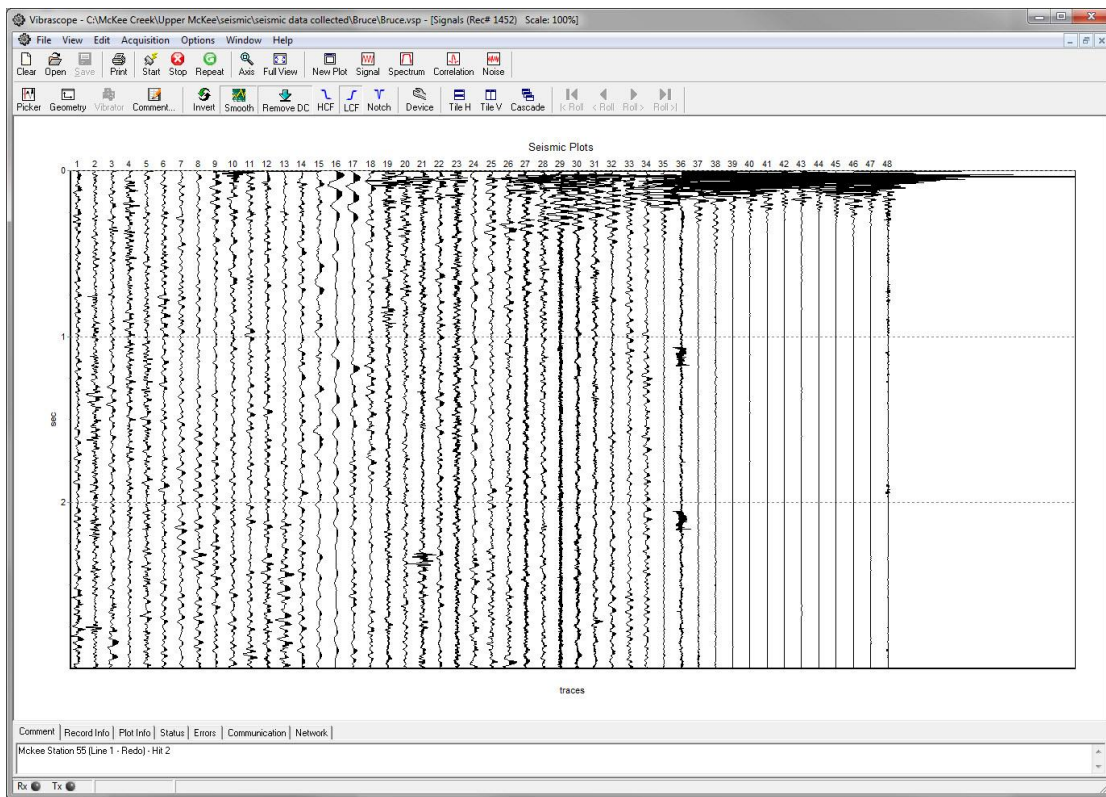


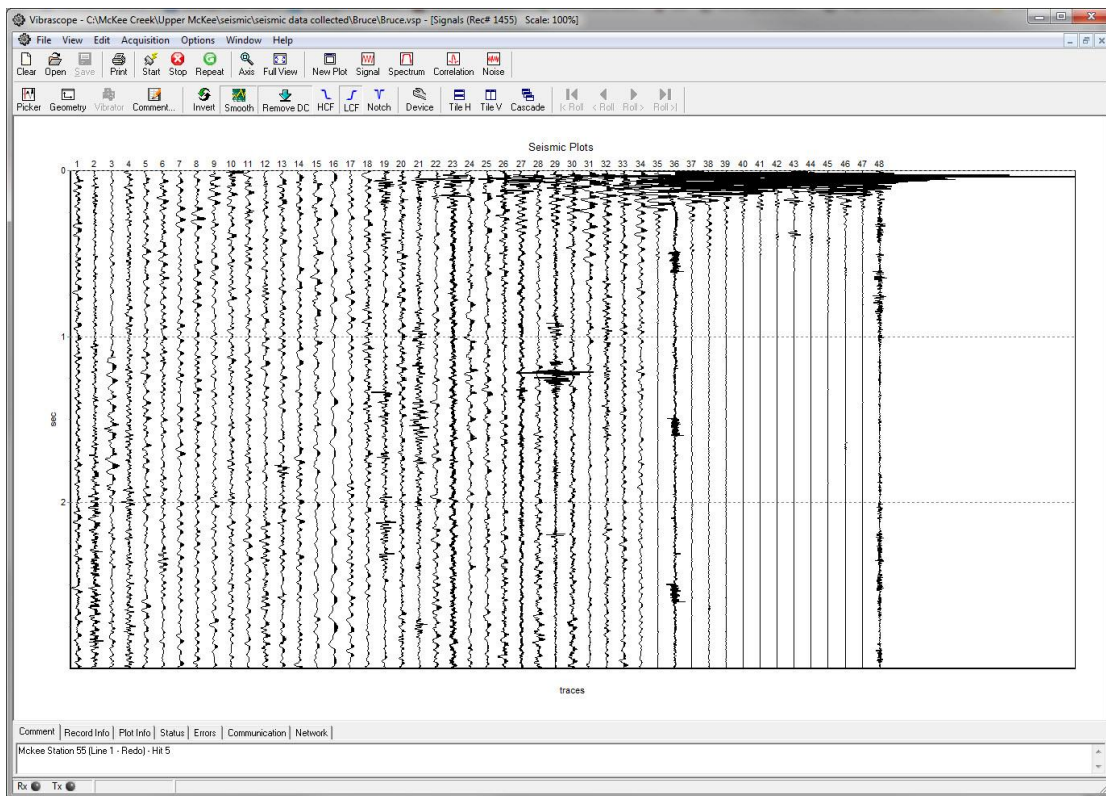
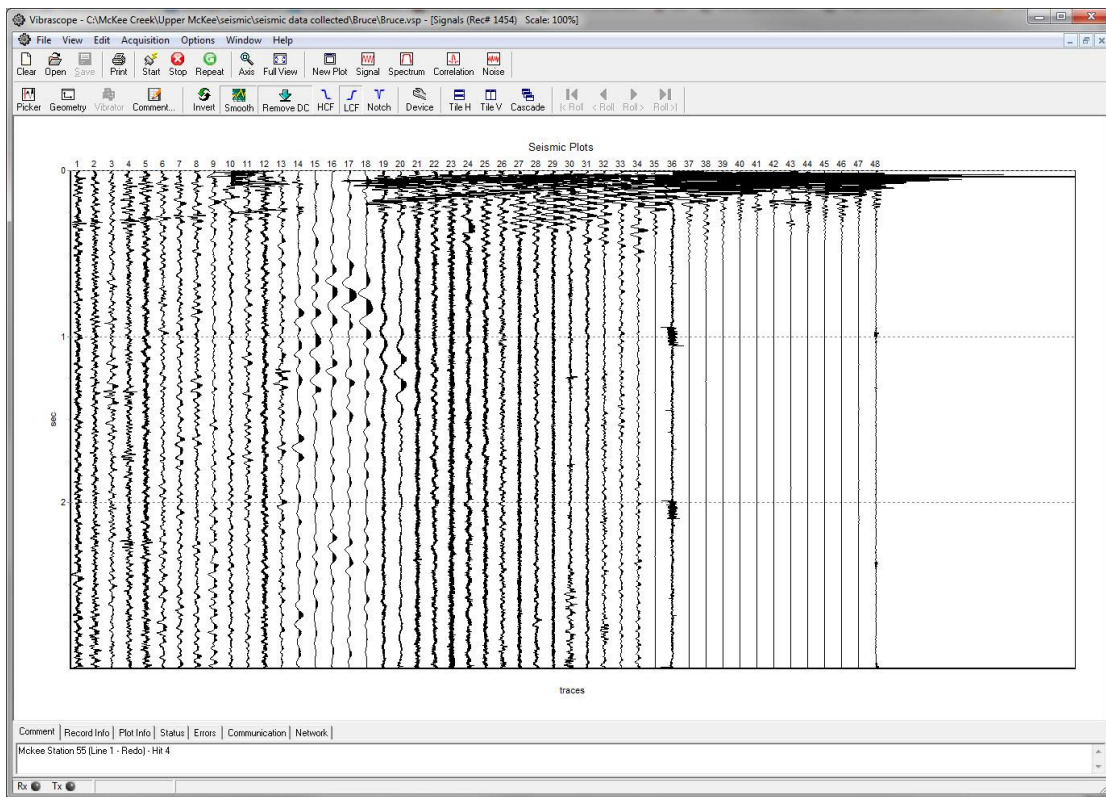


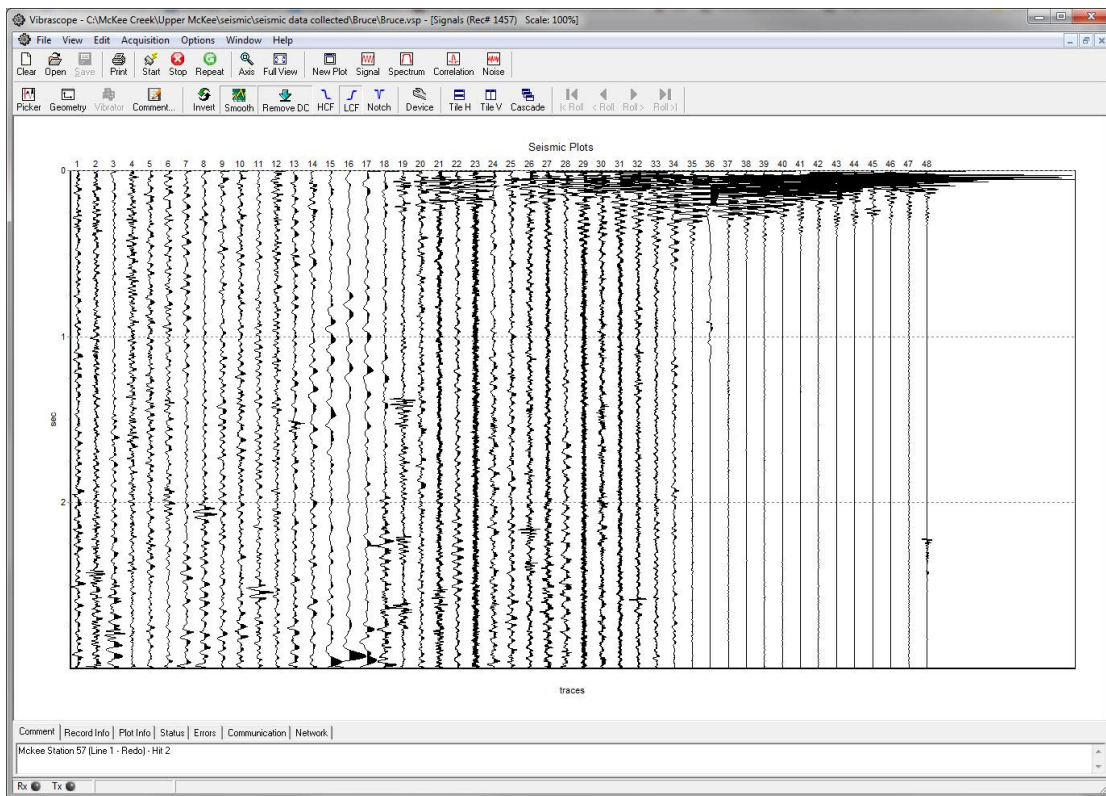
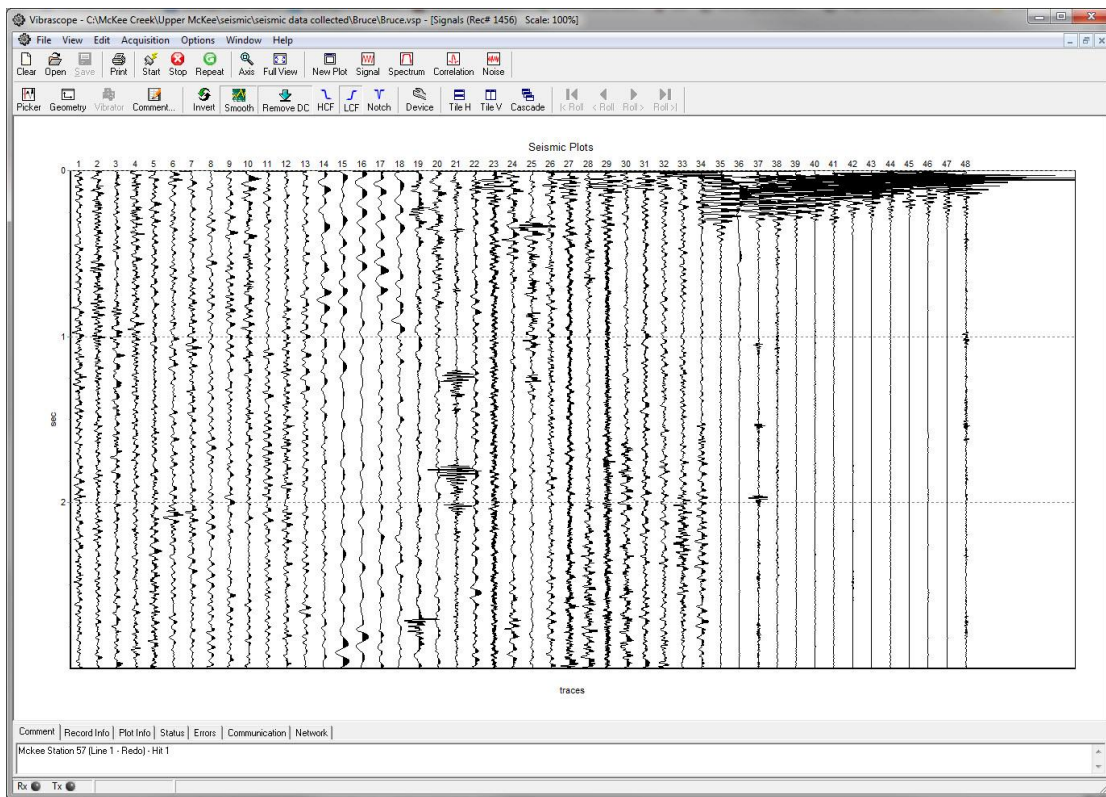


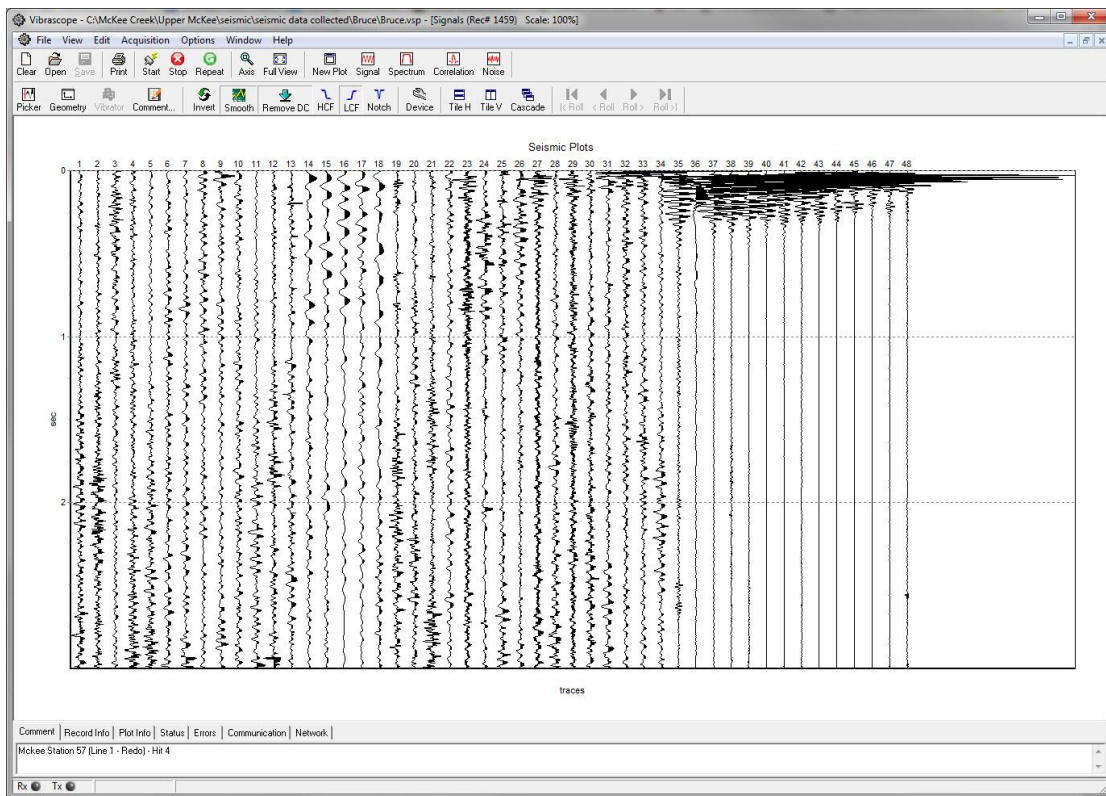
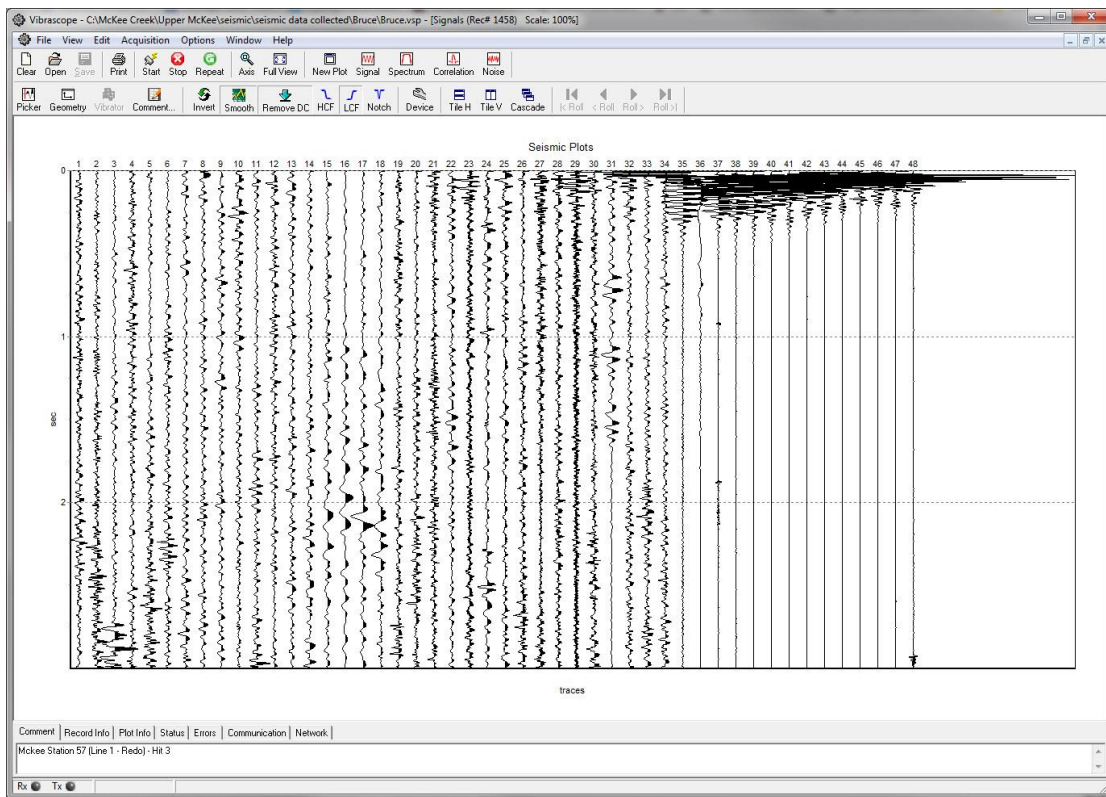


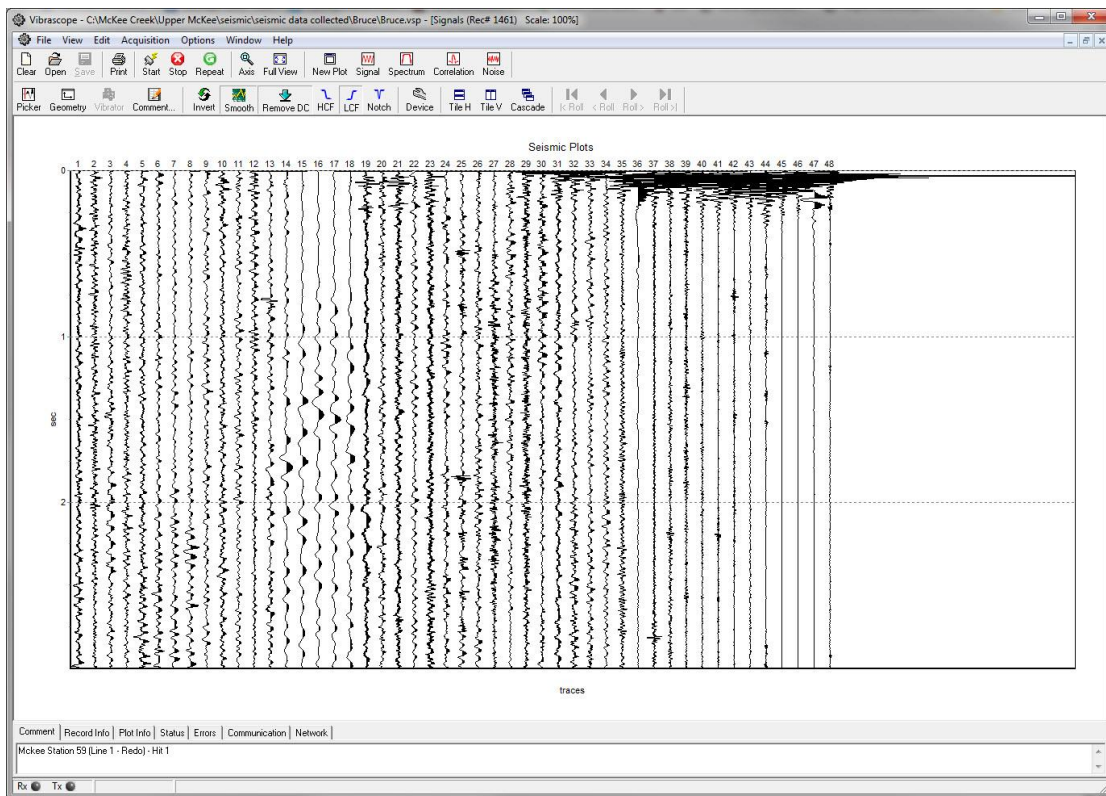
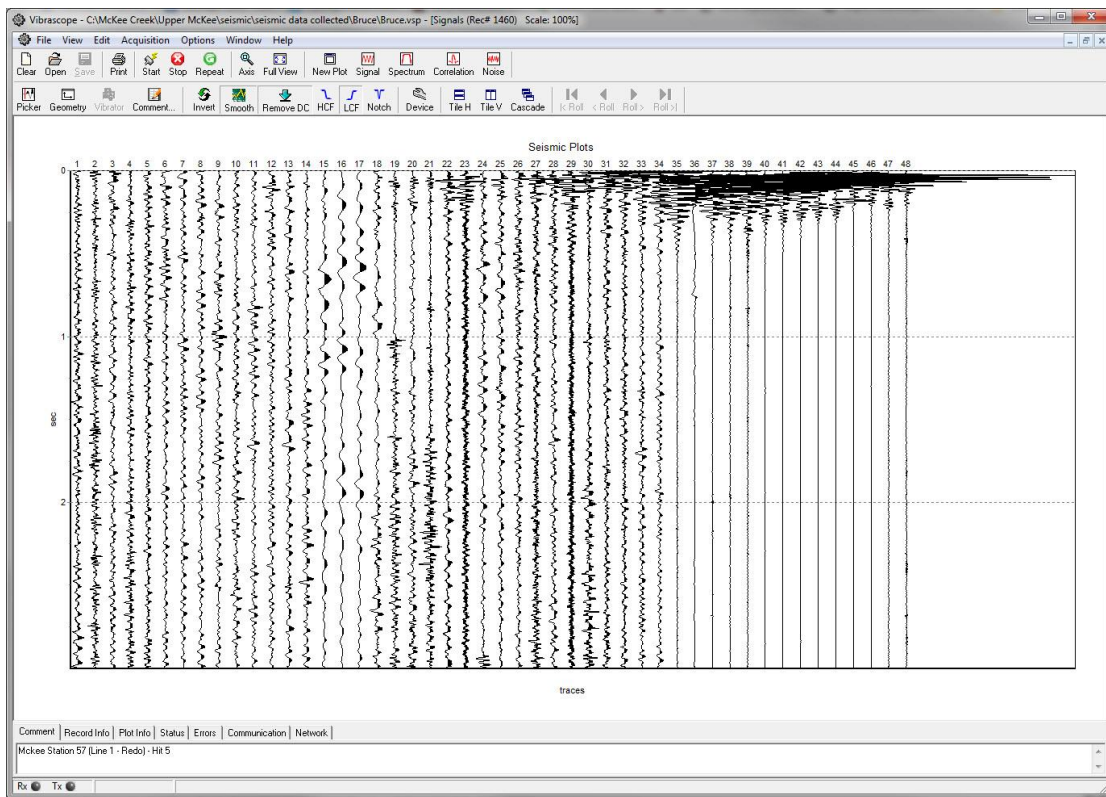


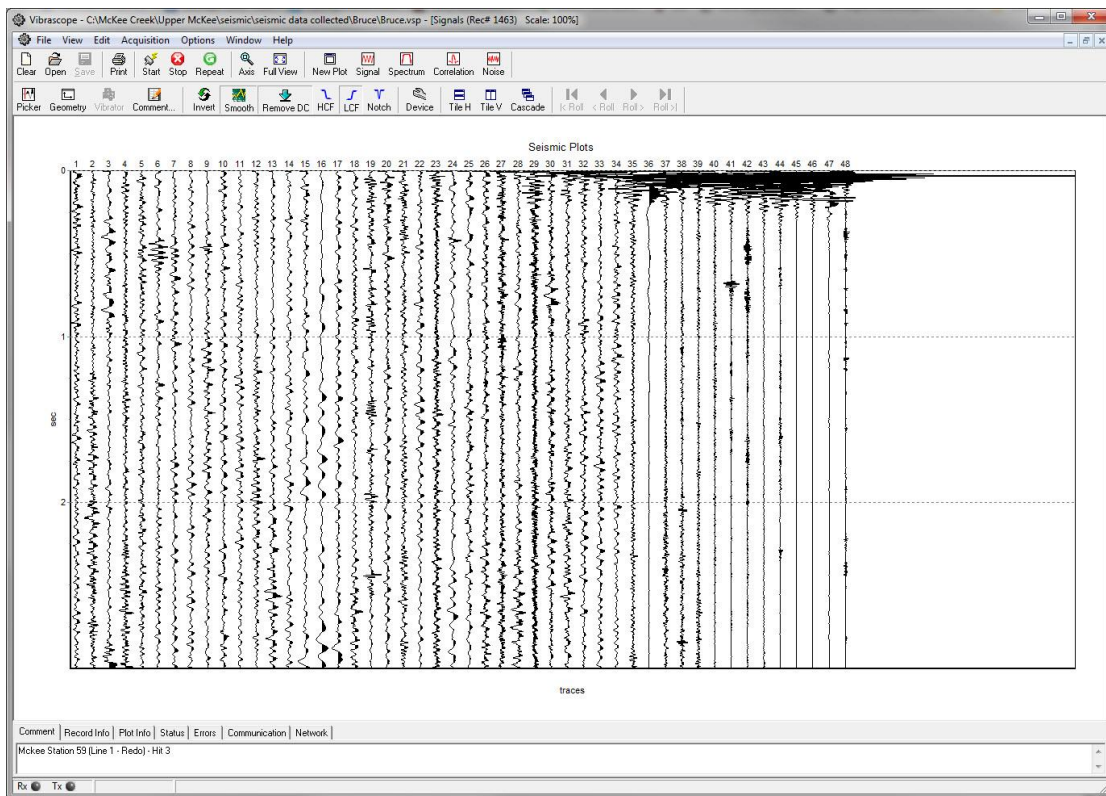
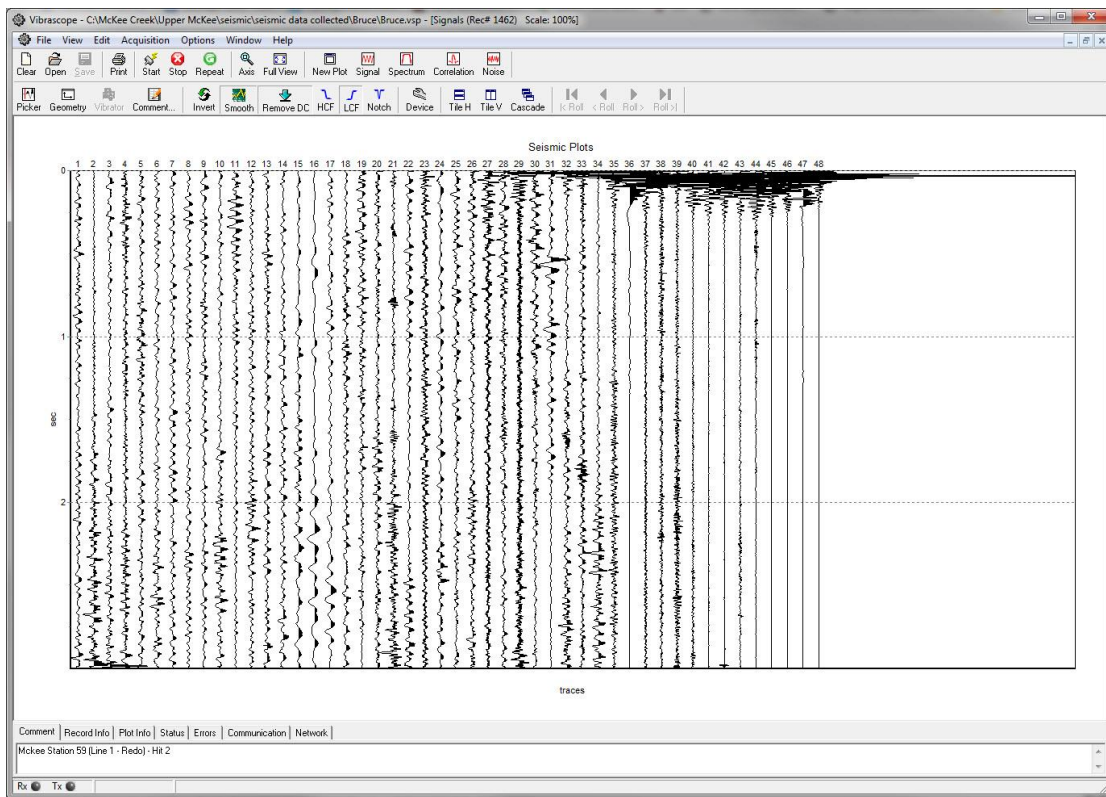


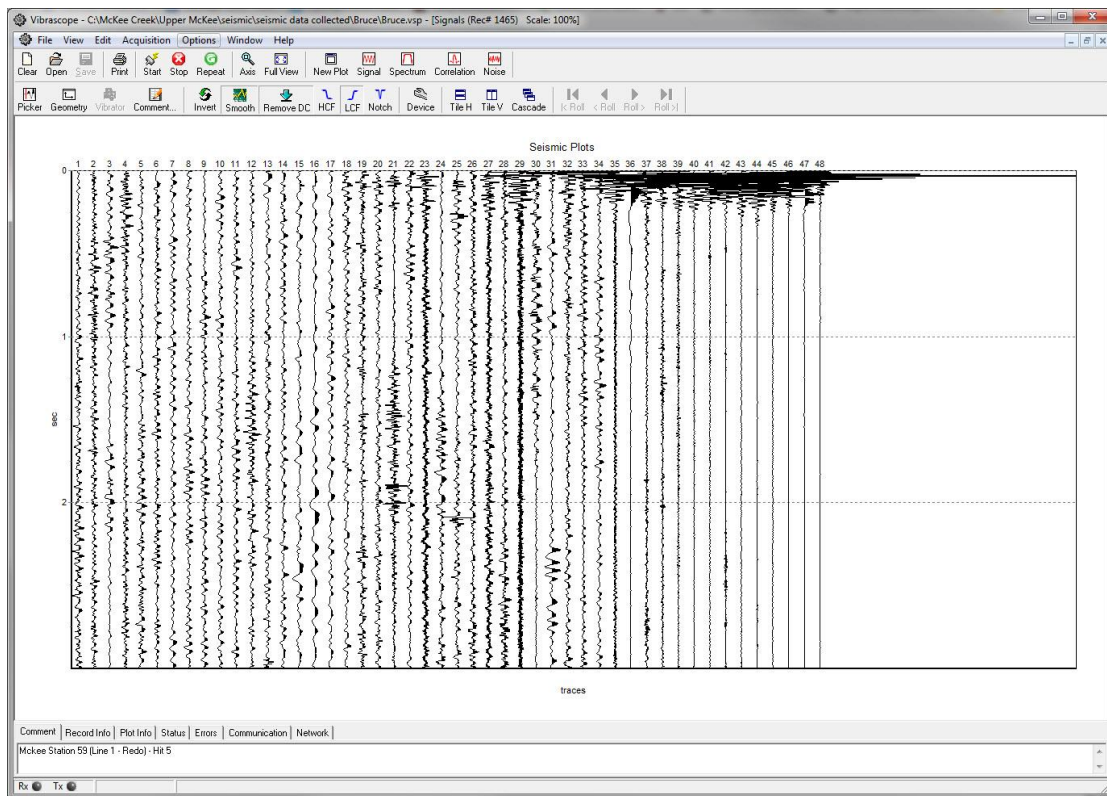
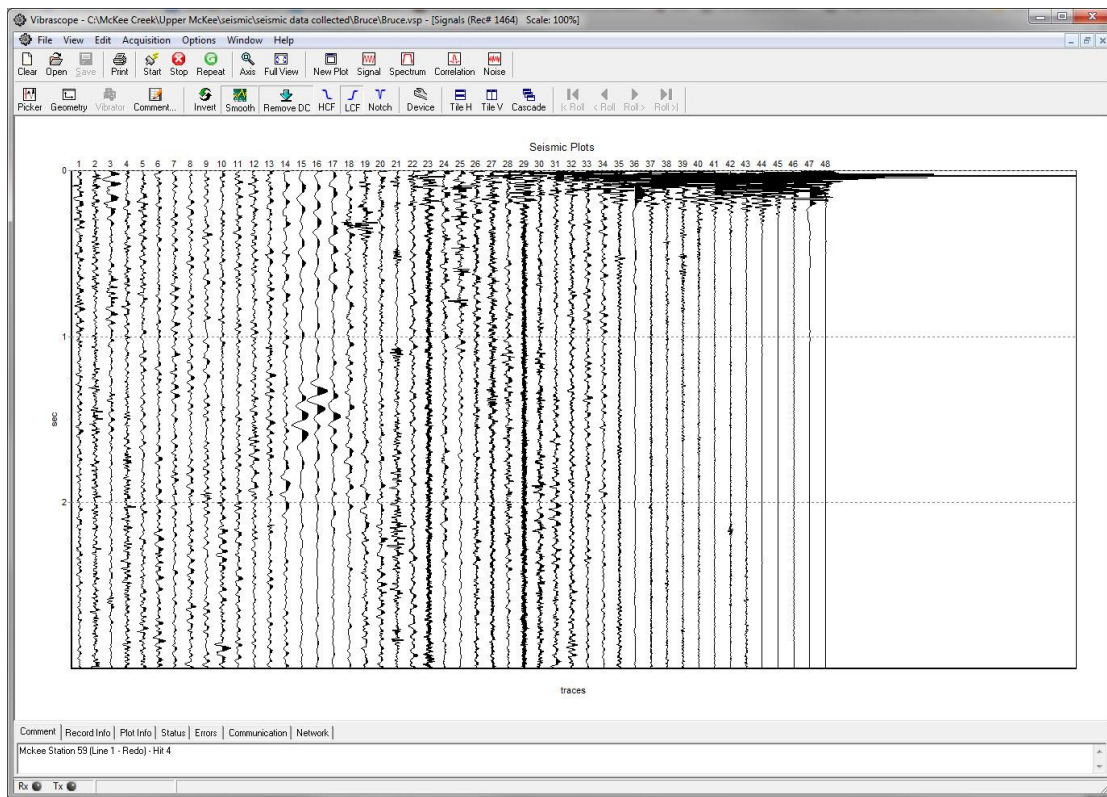






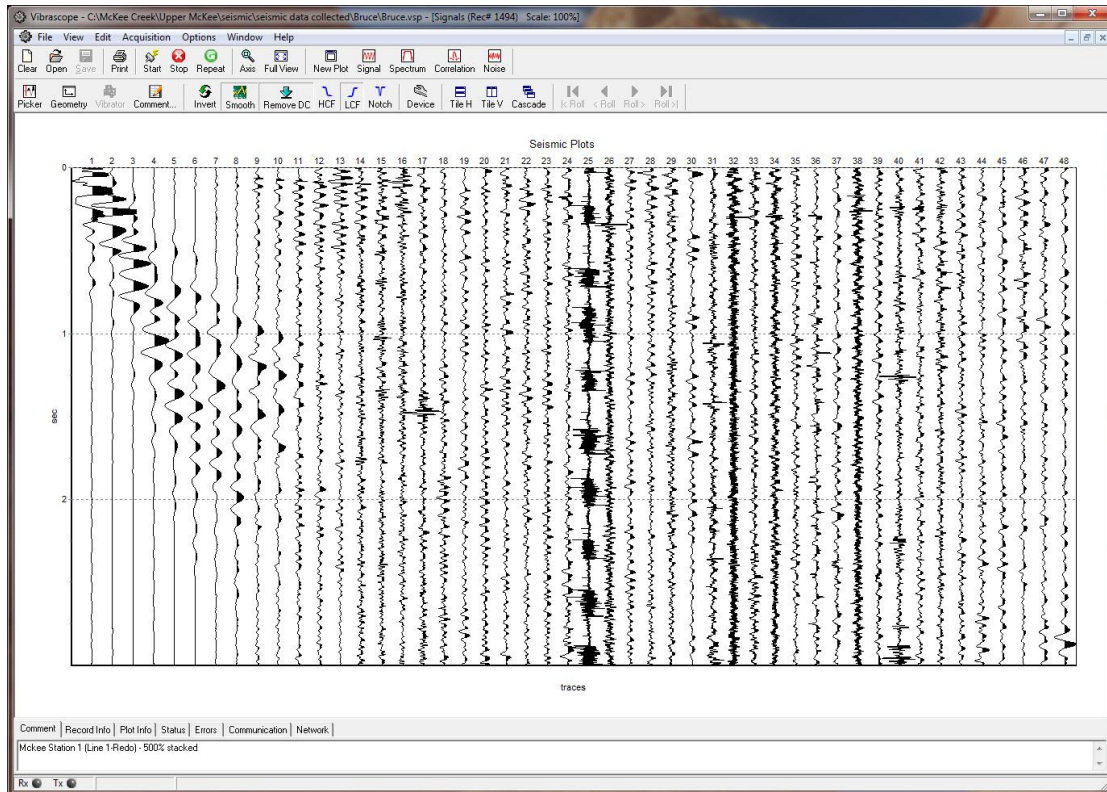


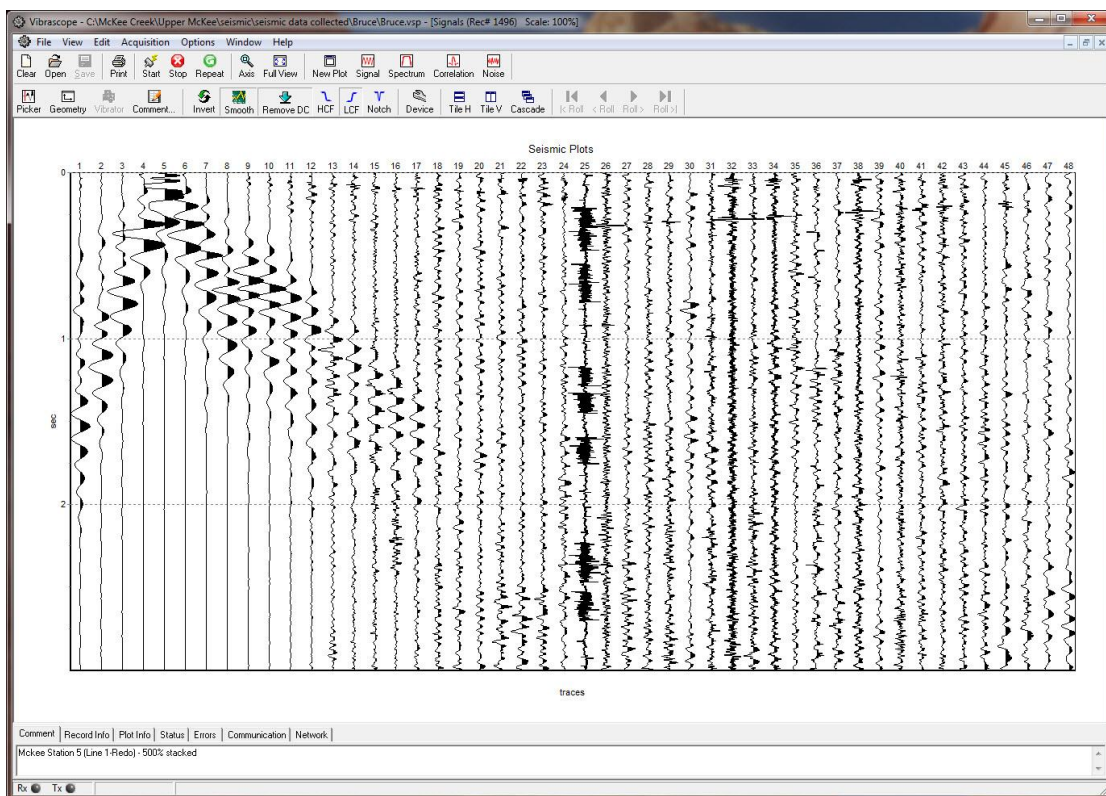
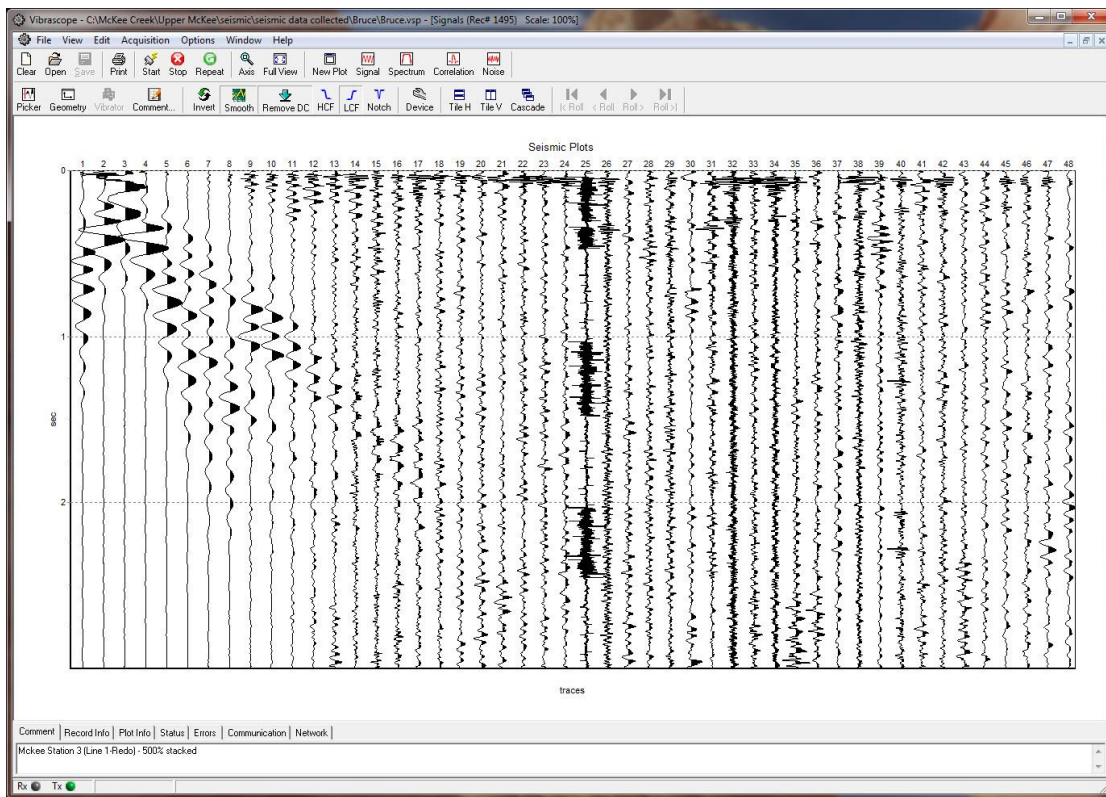


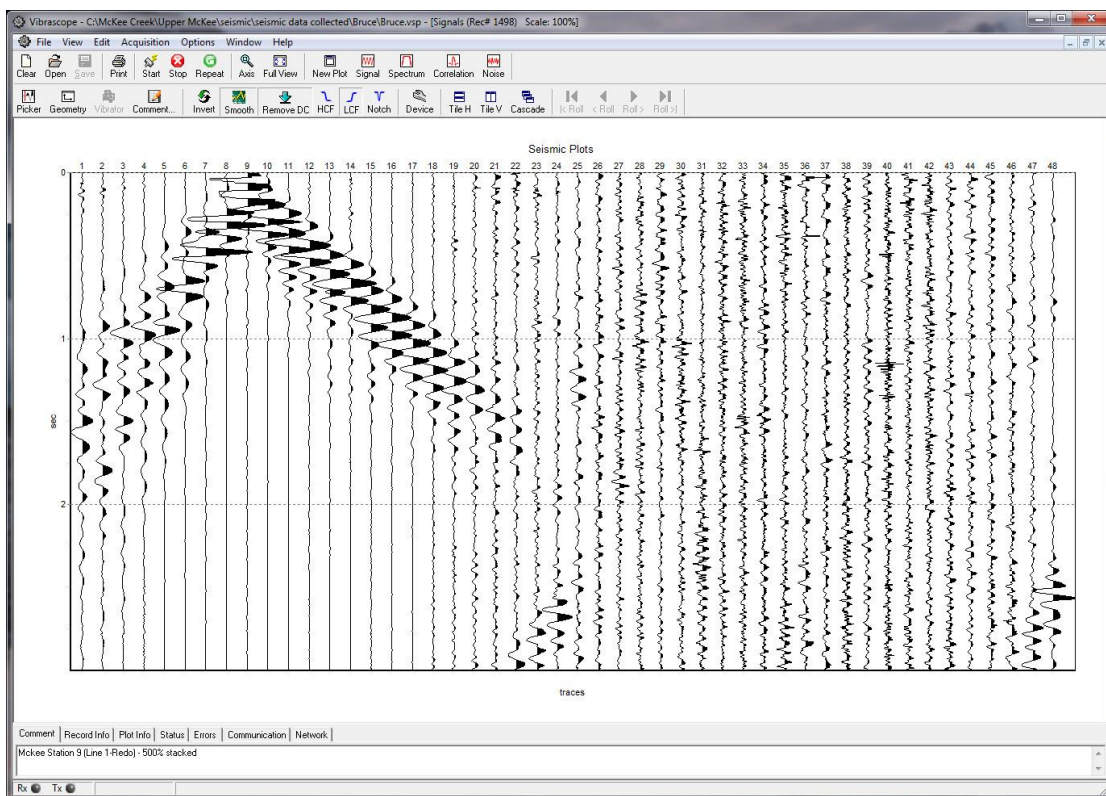
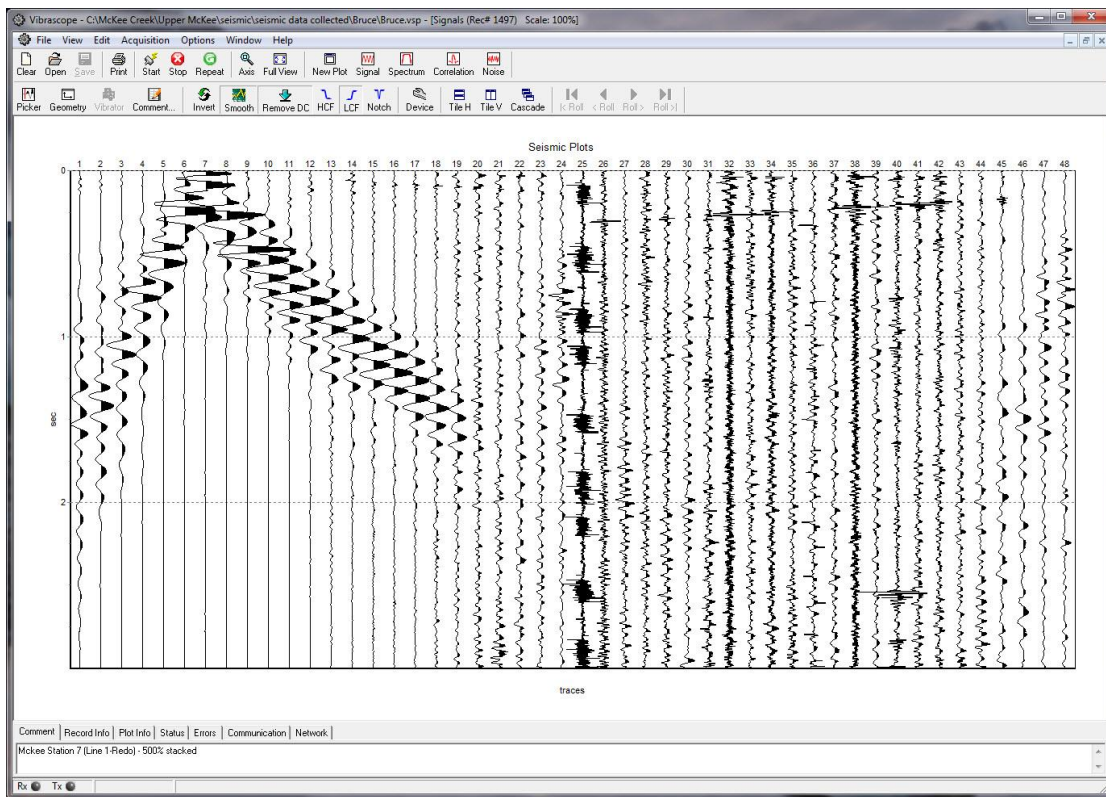


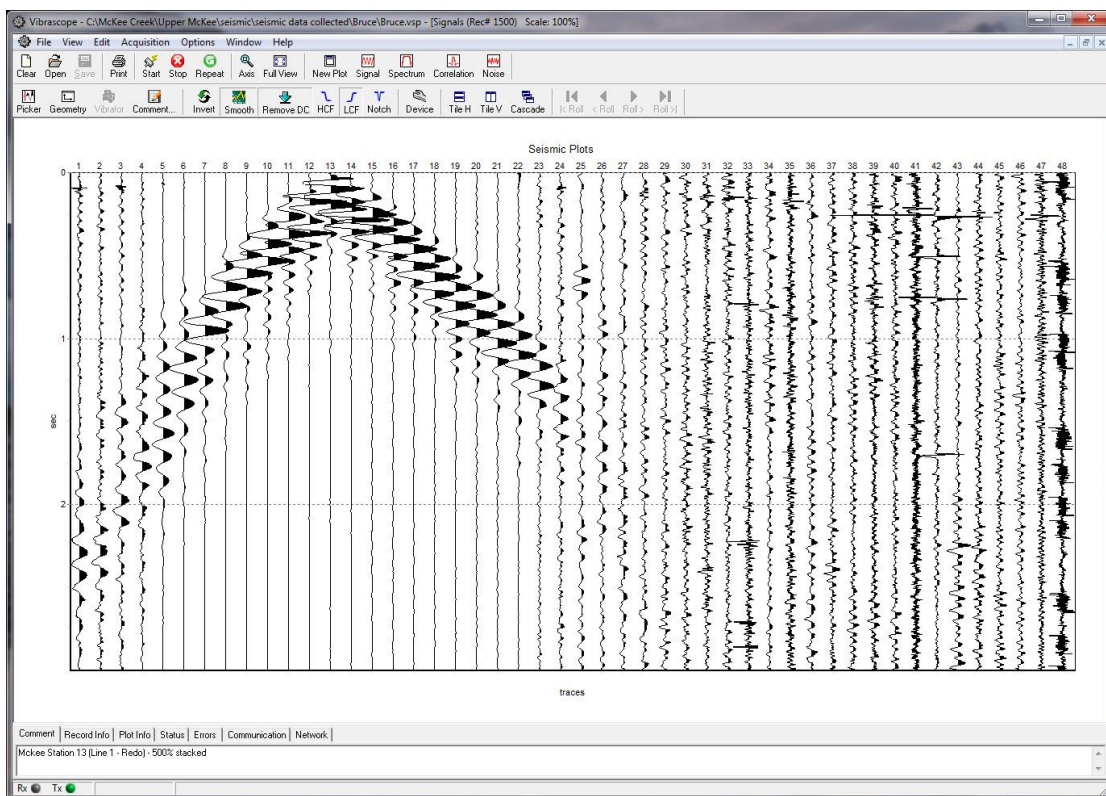
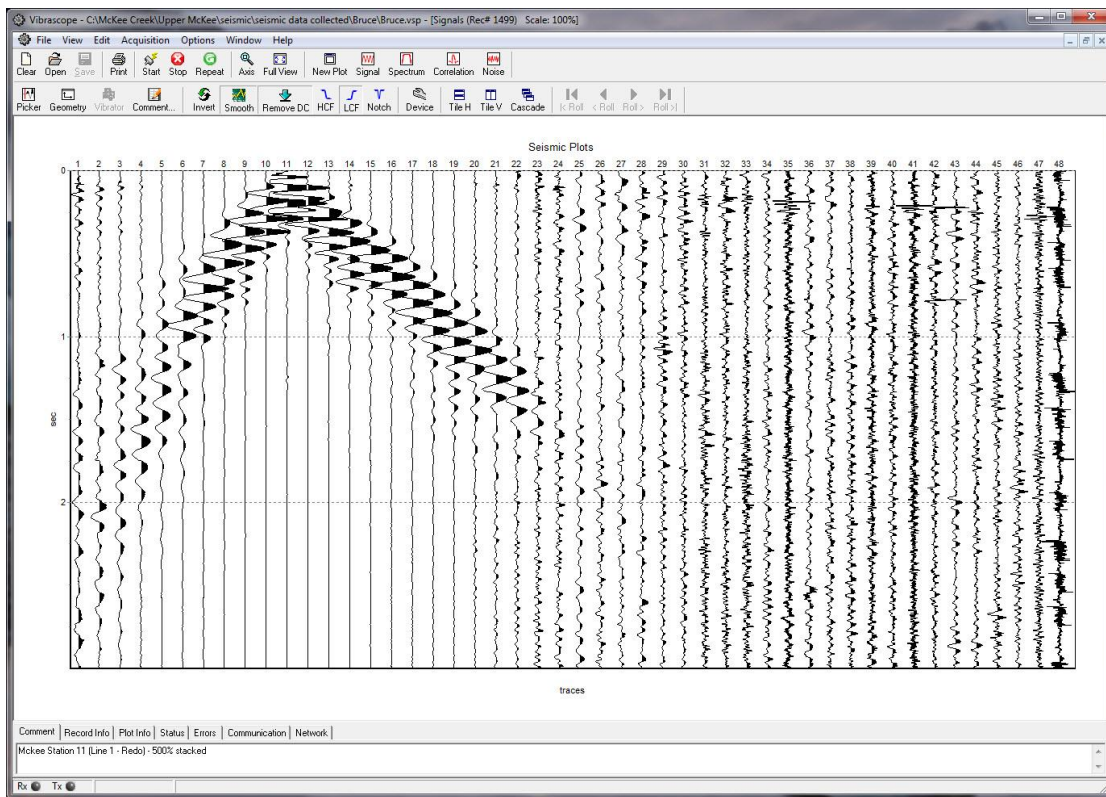
Appendix 5 –Stacked Traces (500%) with 3.0 sec records

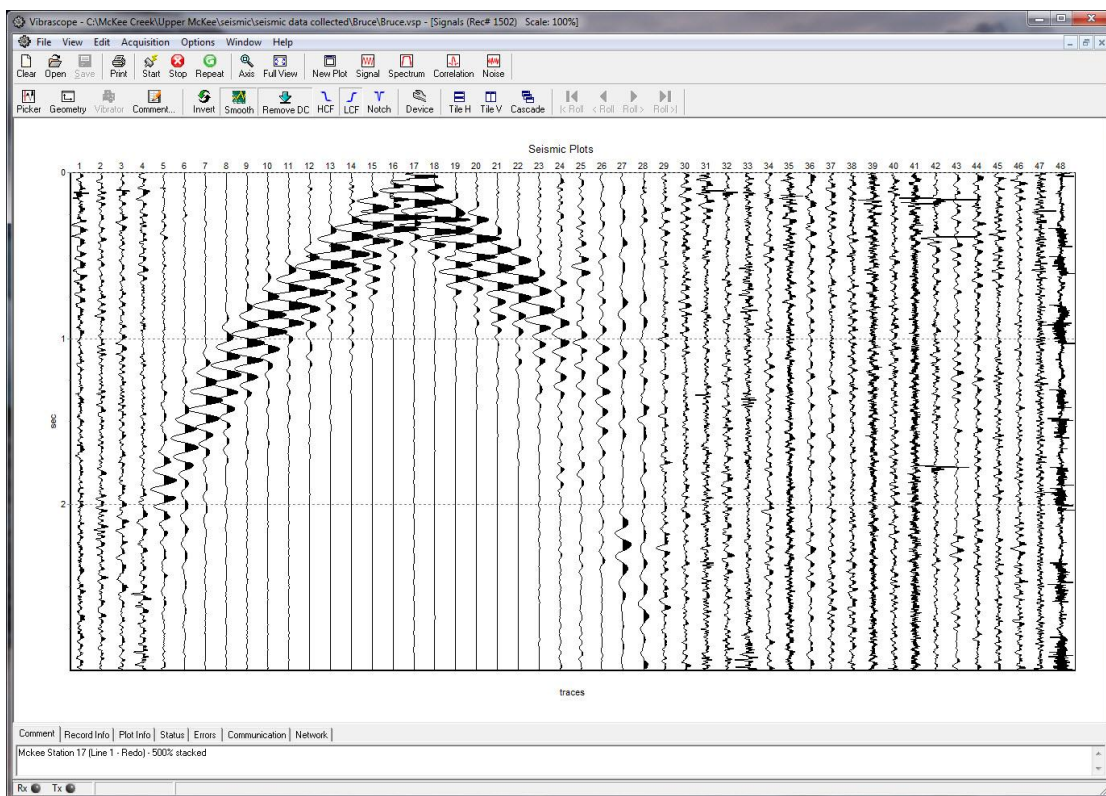
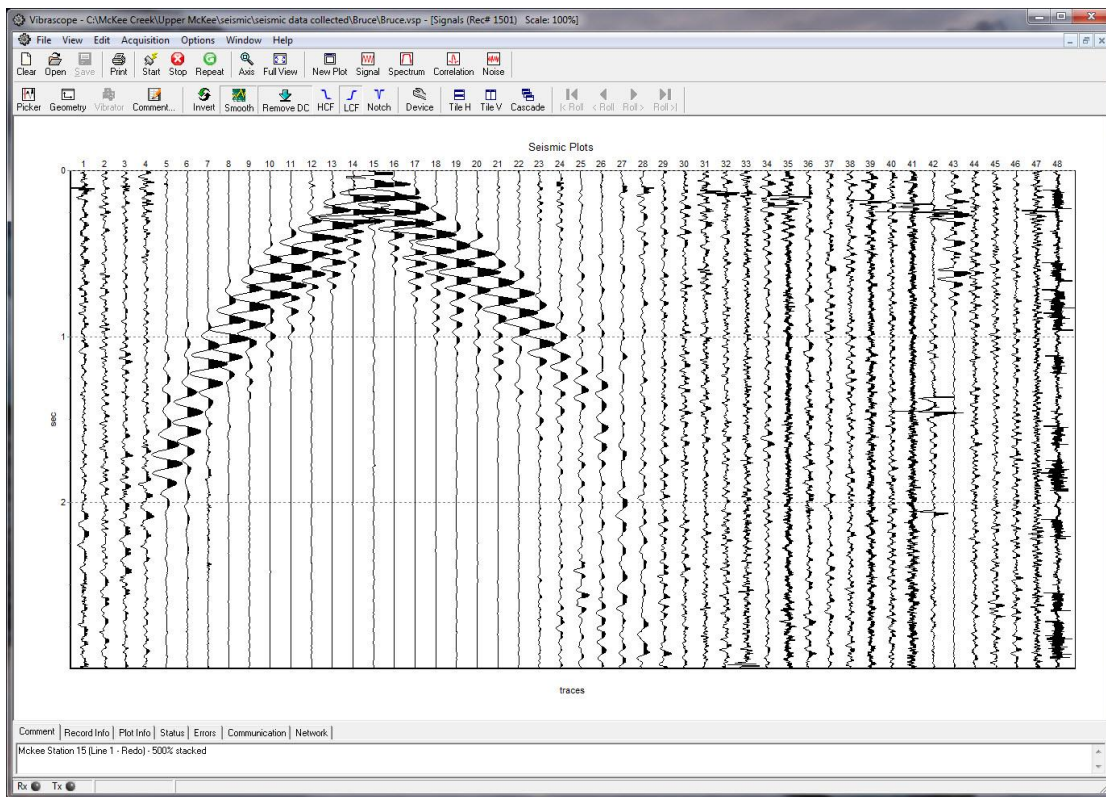
Stations 1-59

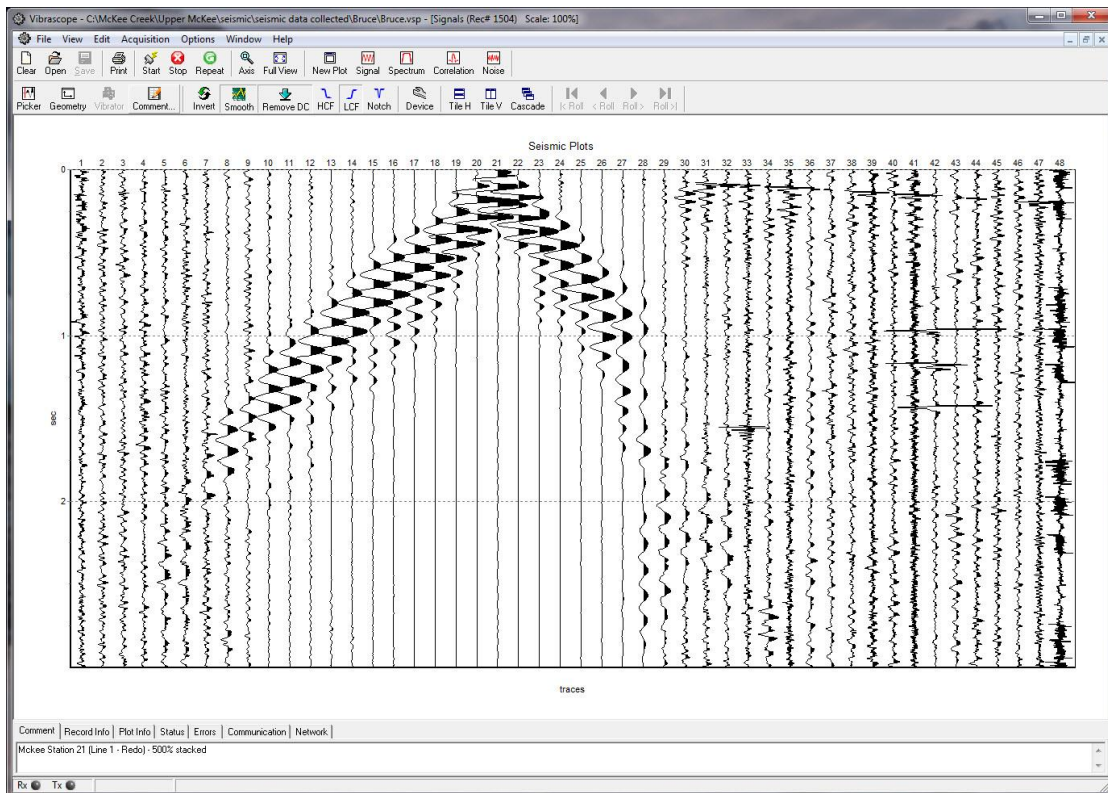
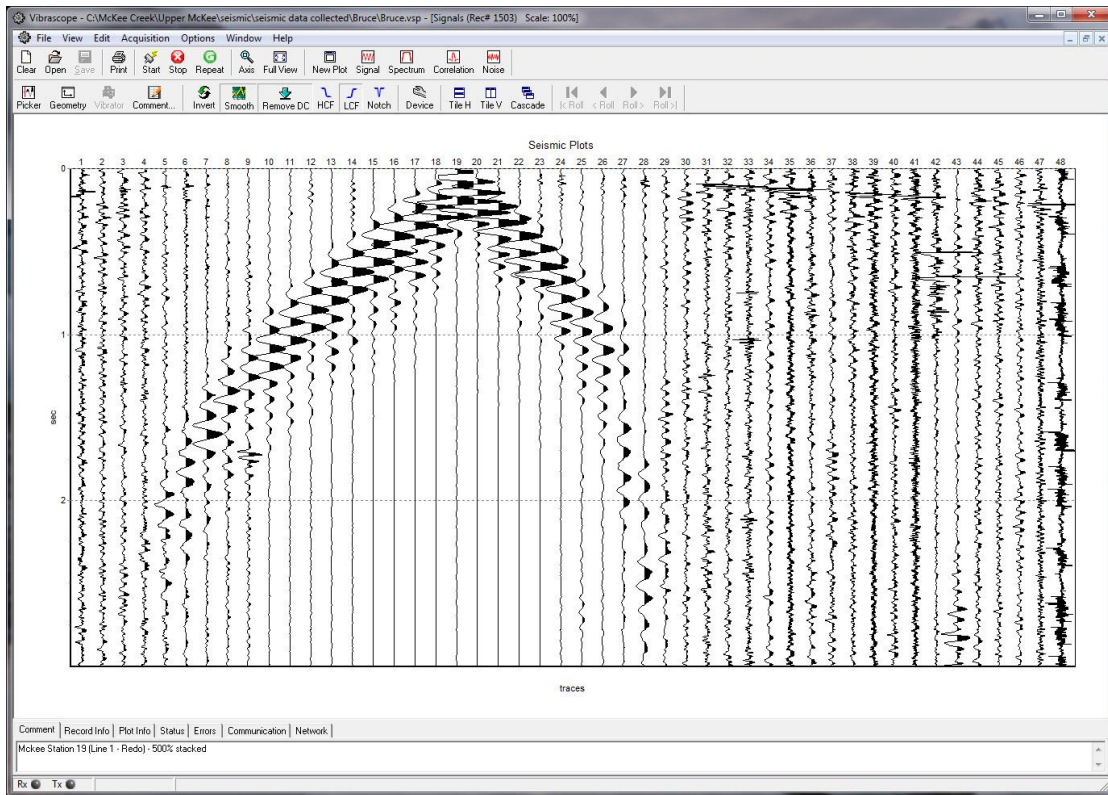


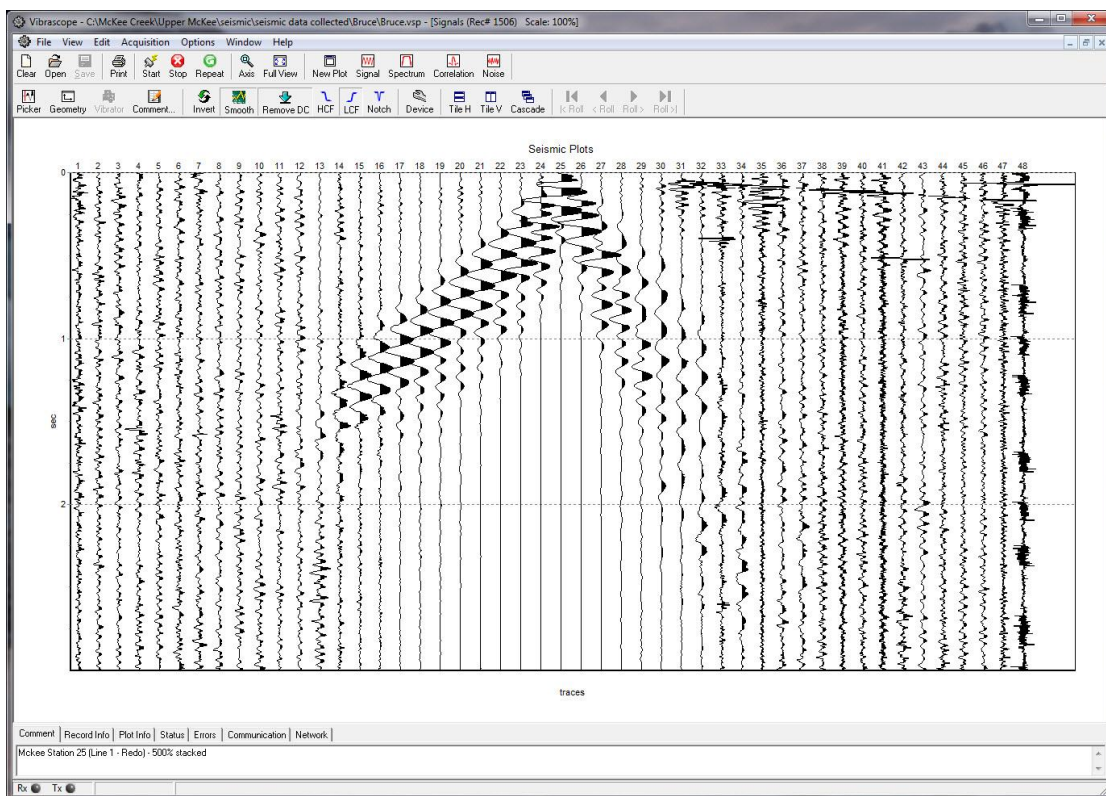
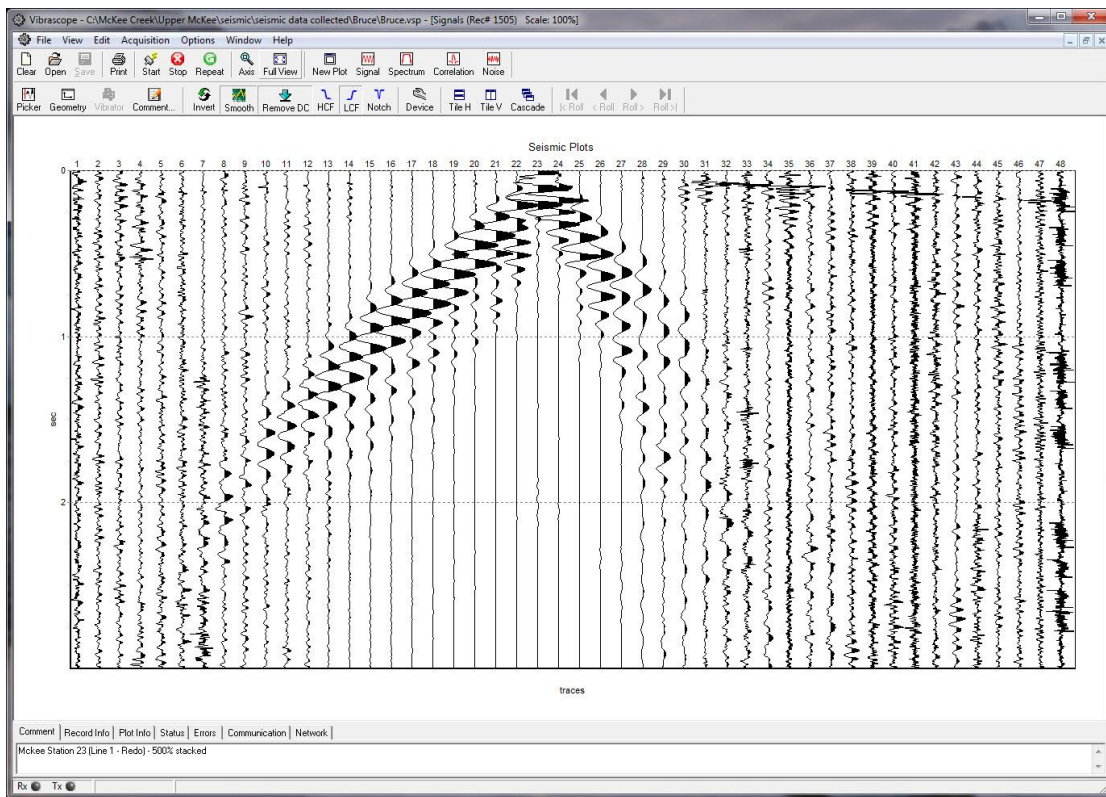


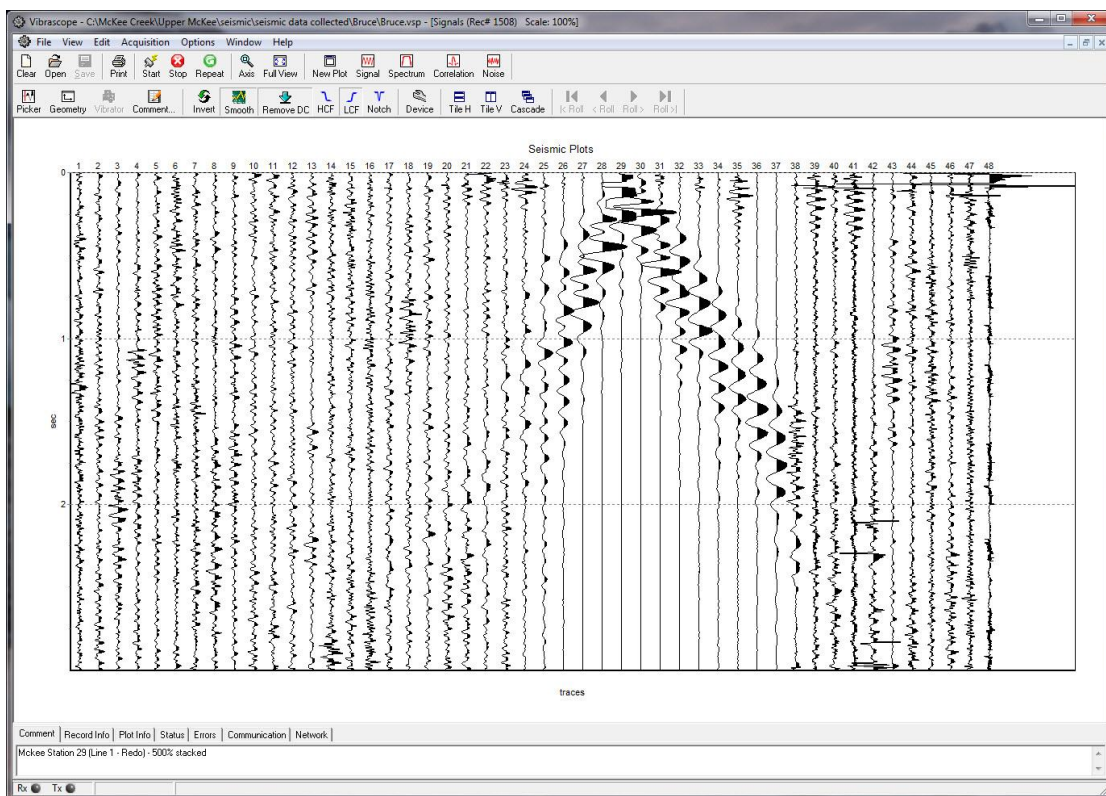
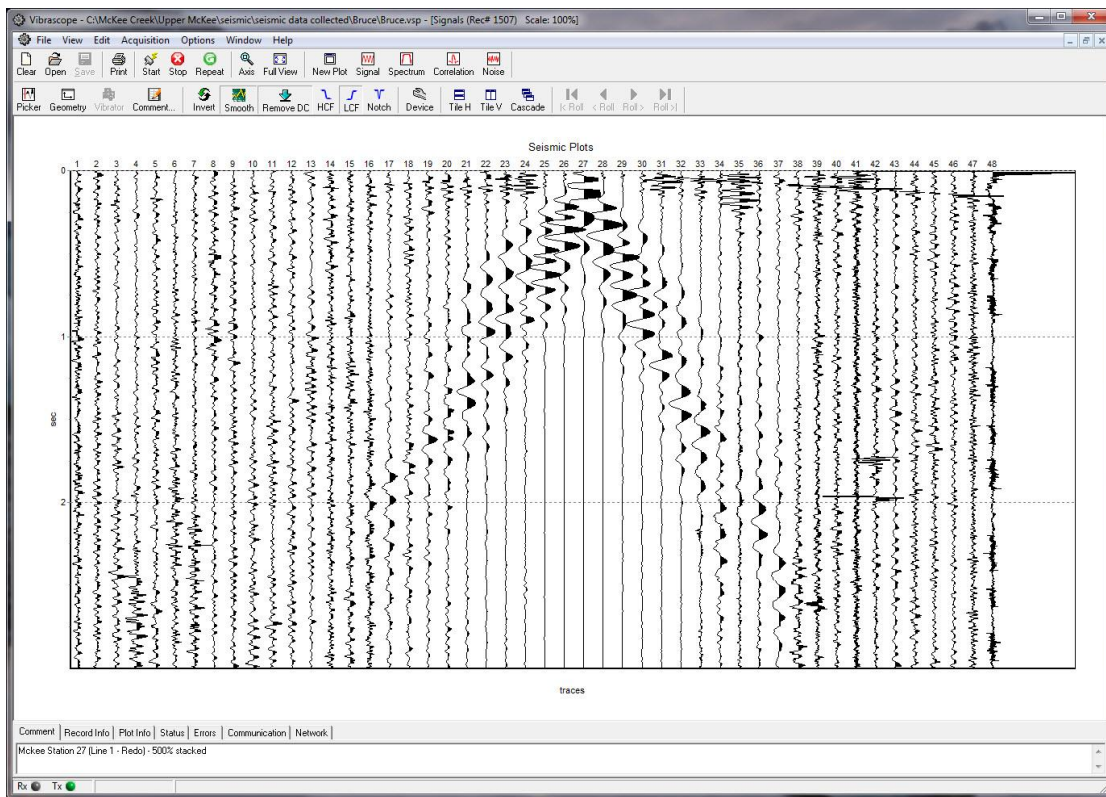


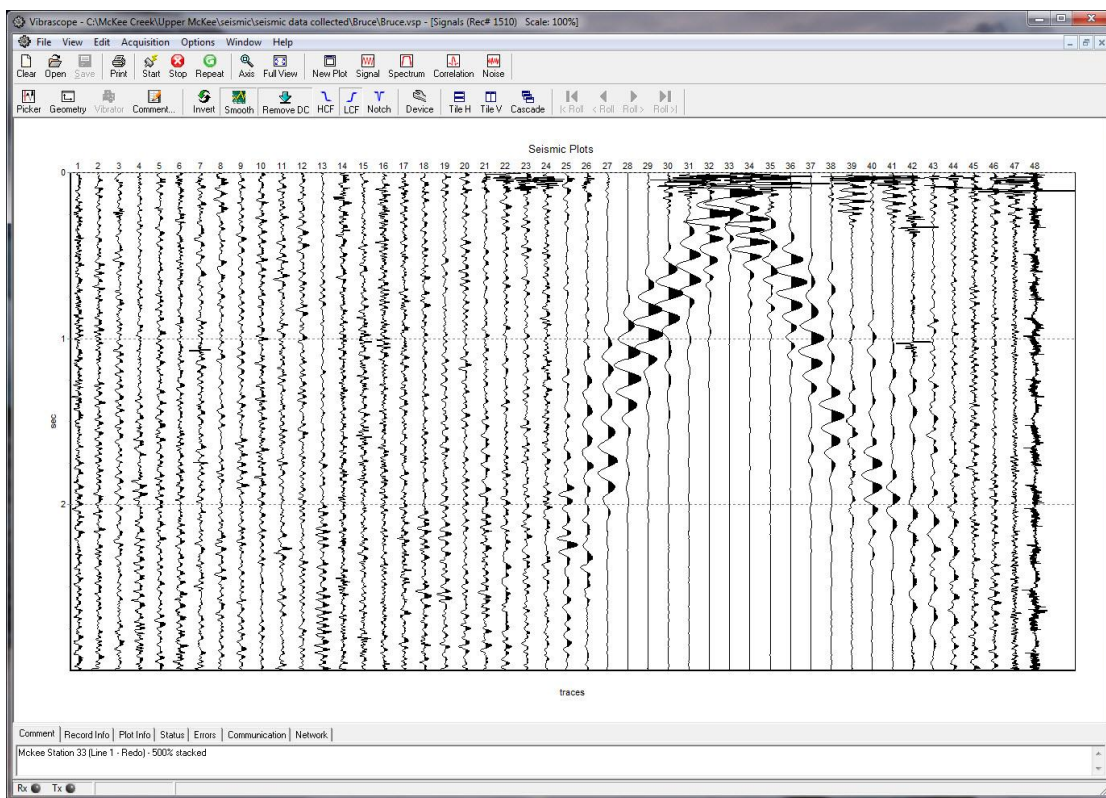
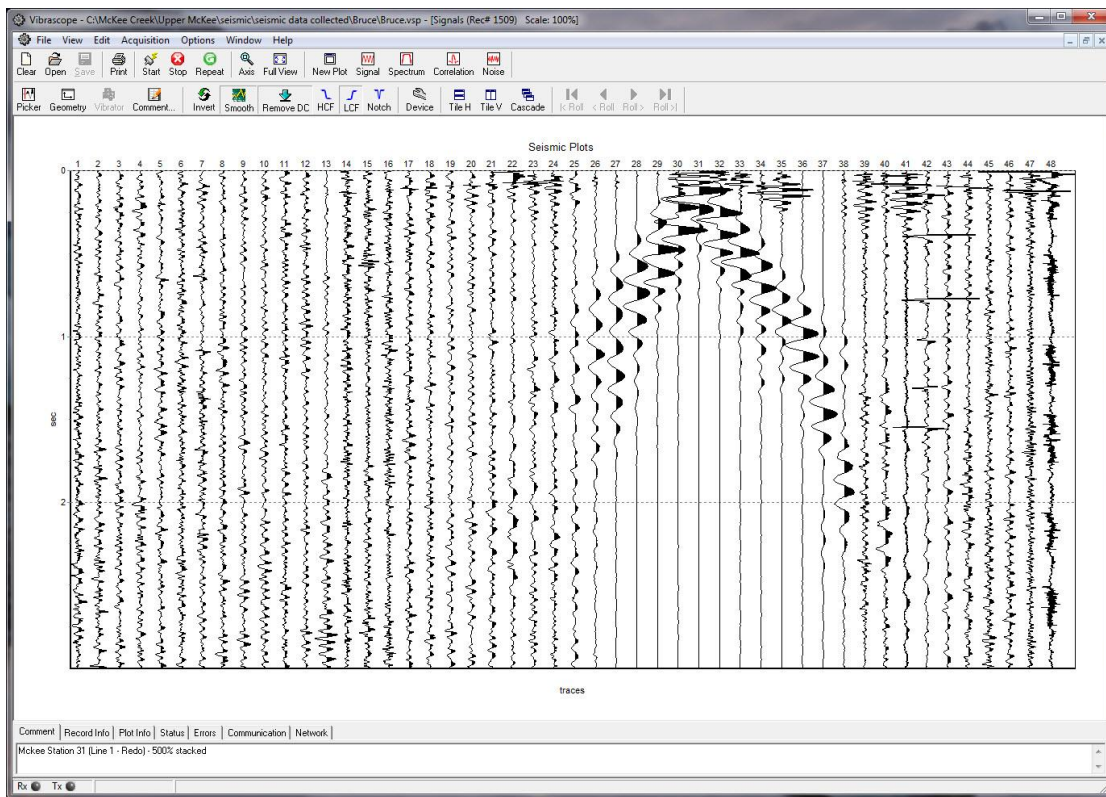


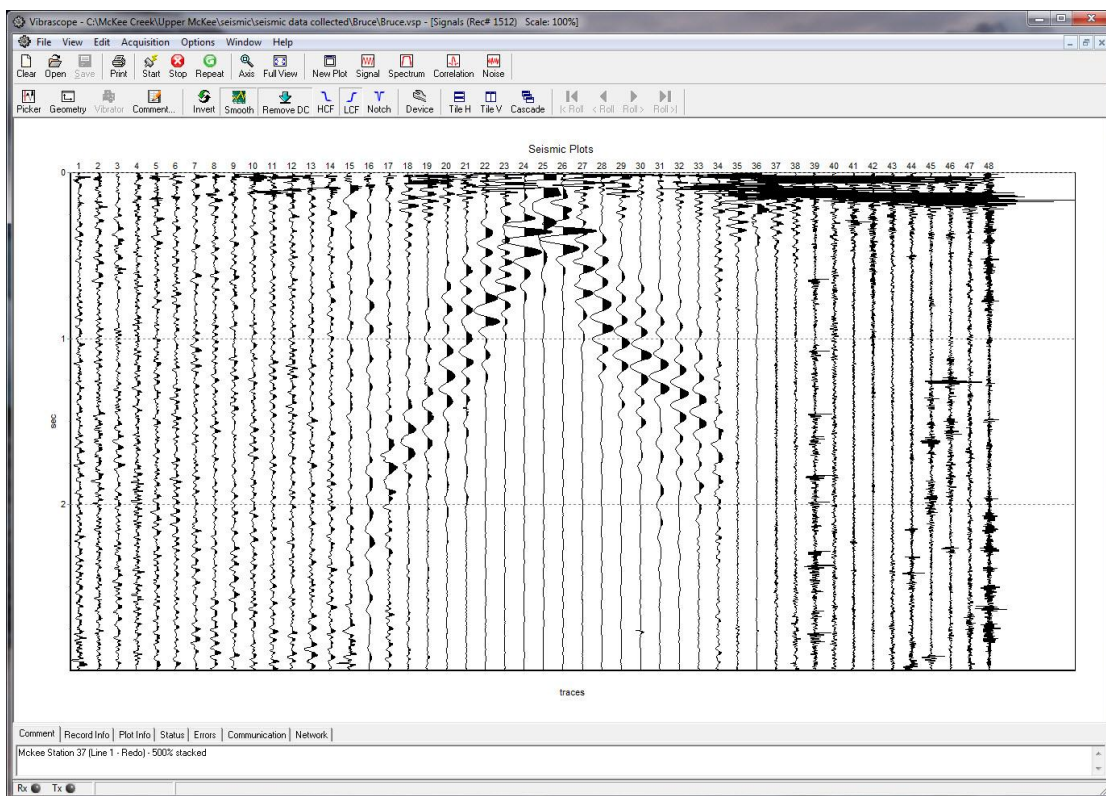
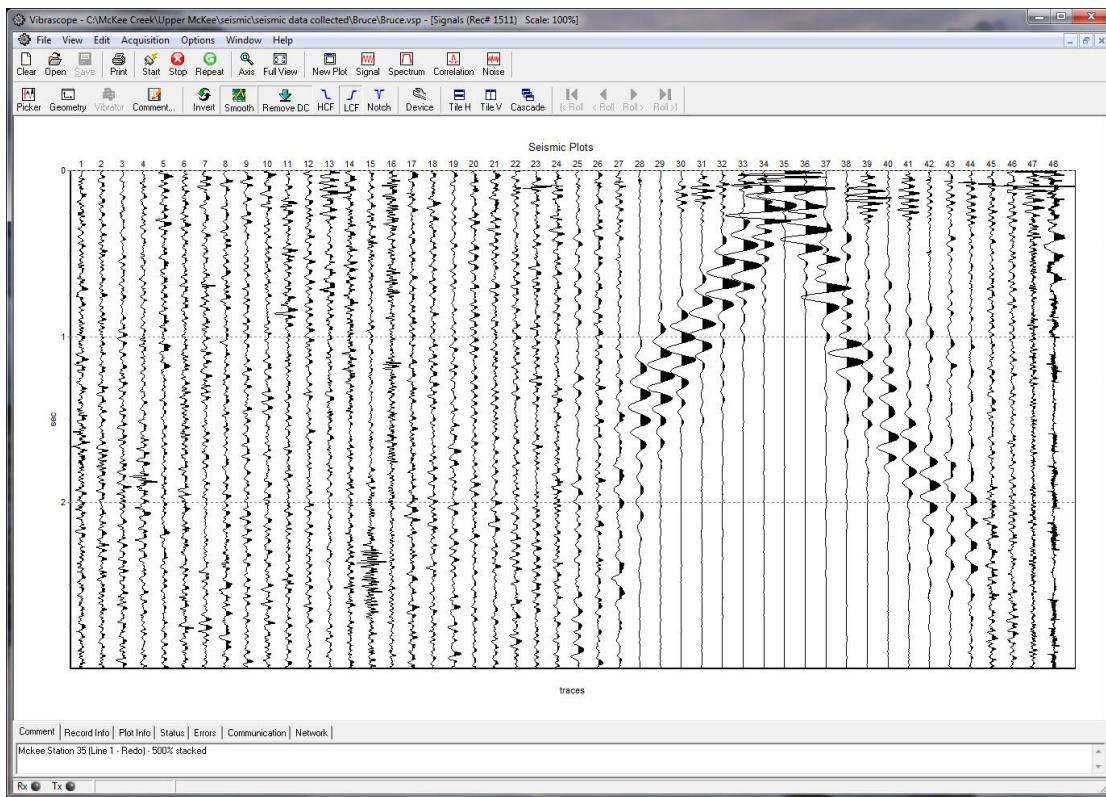


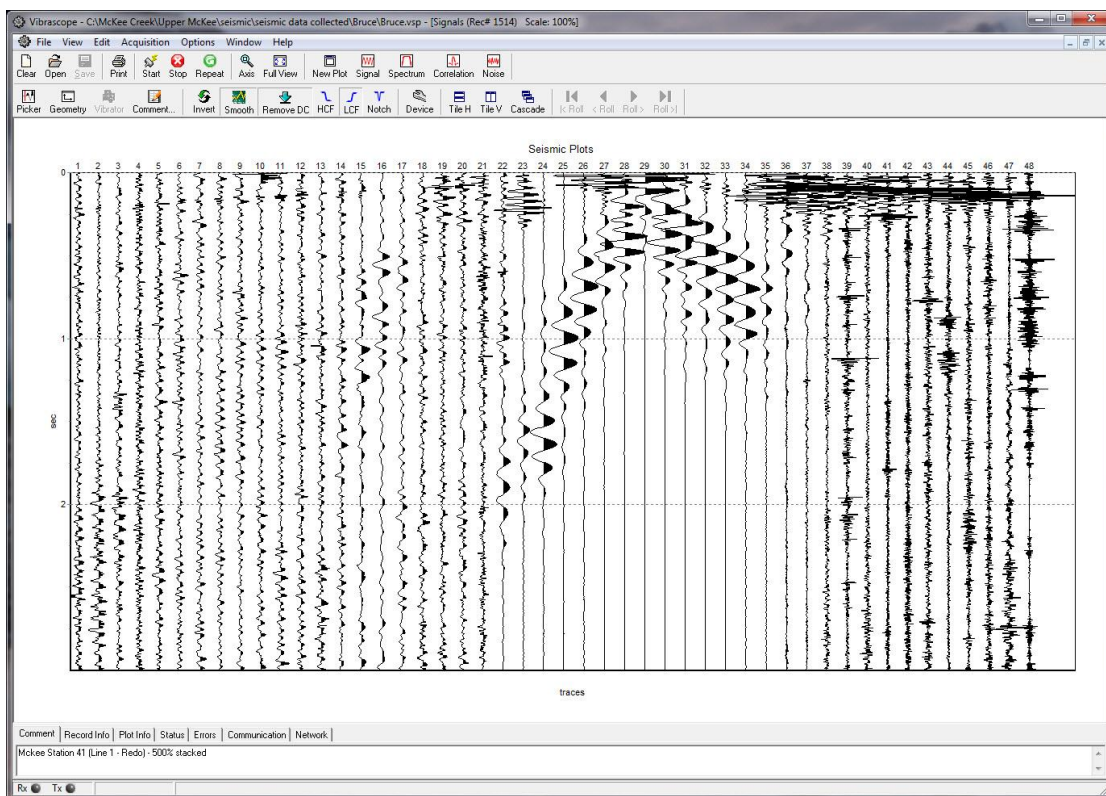
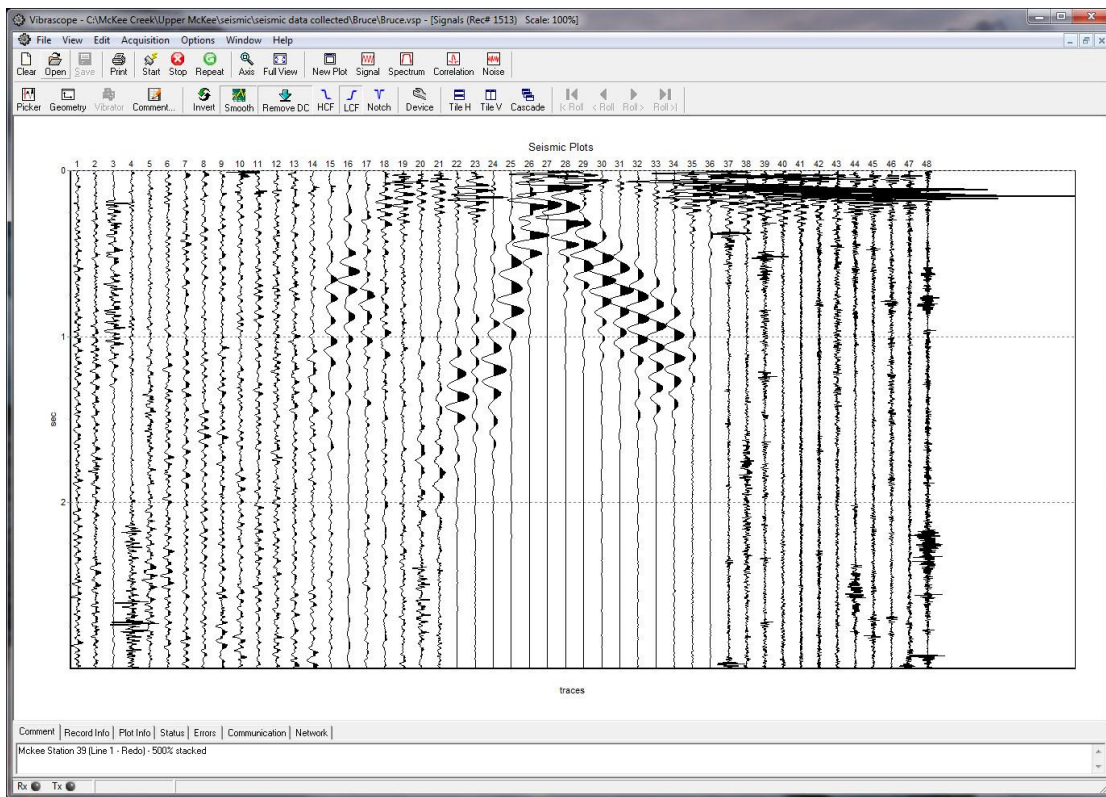


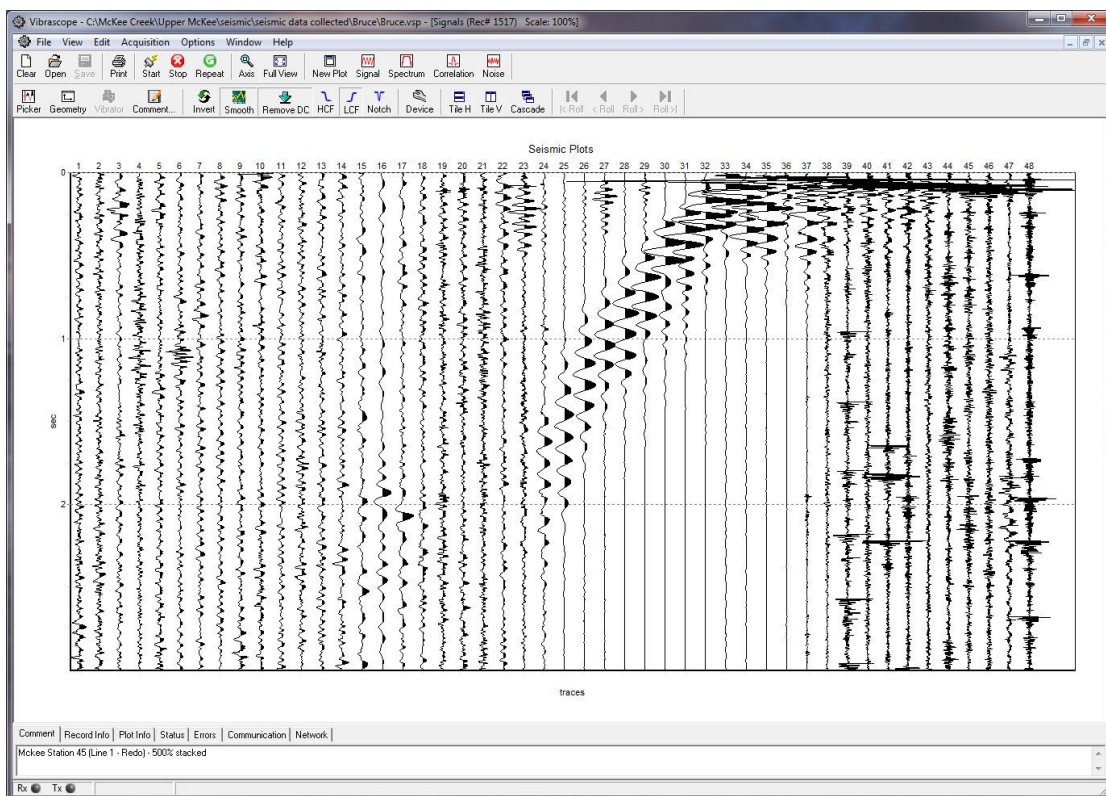
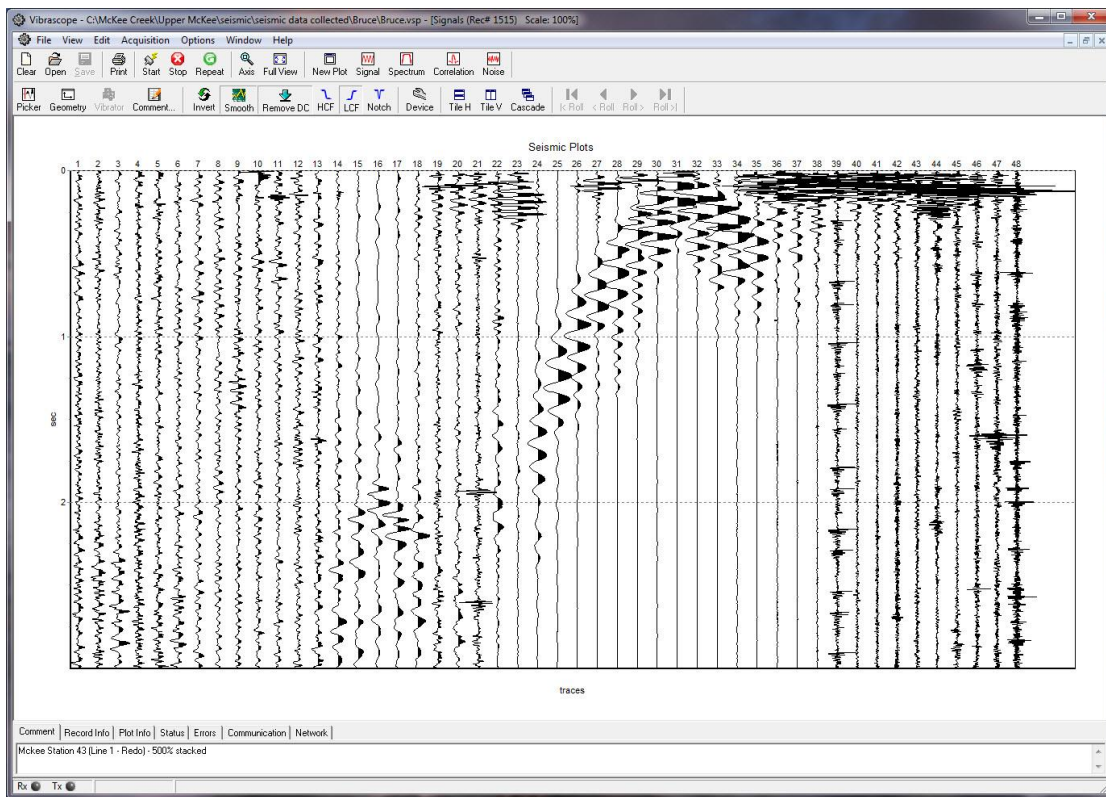


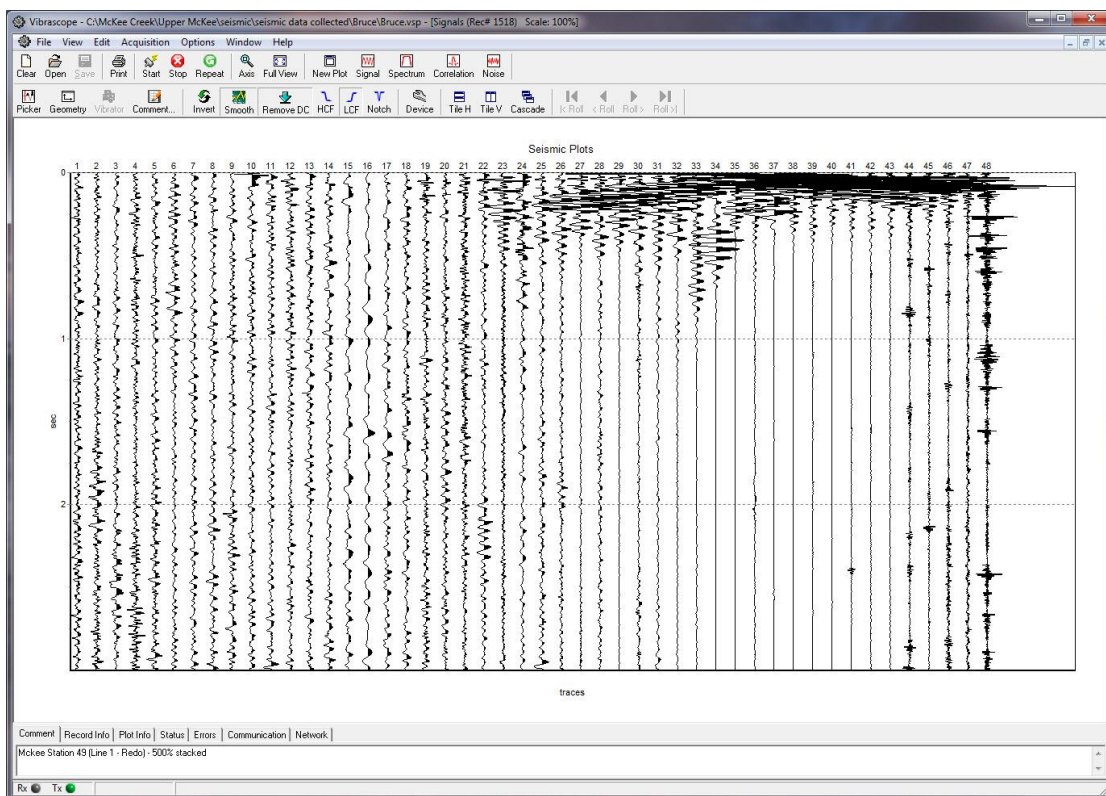
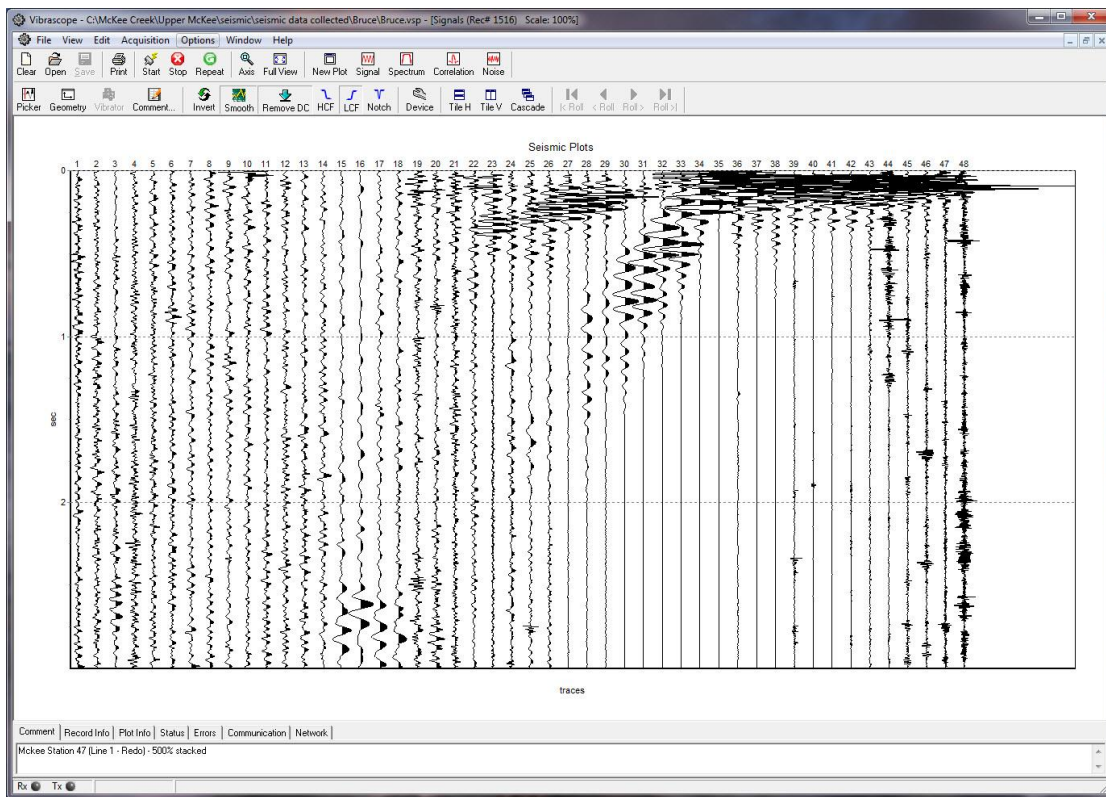


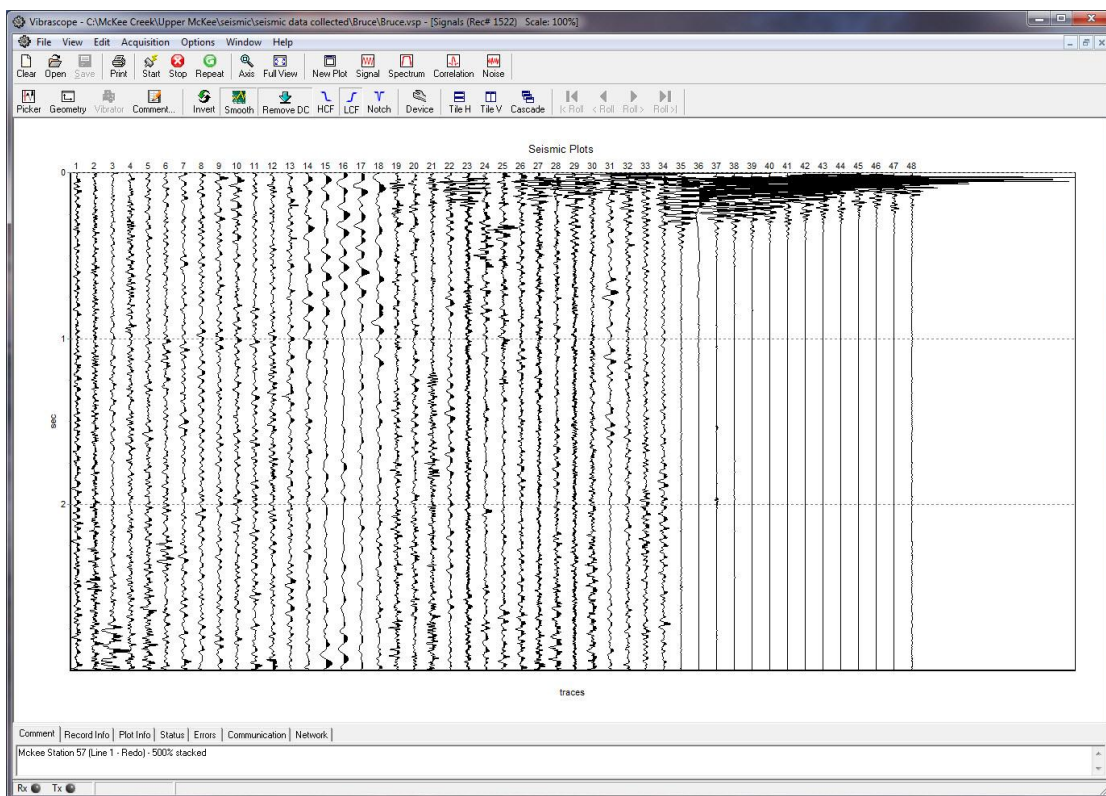
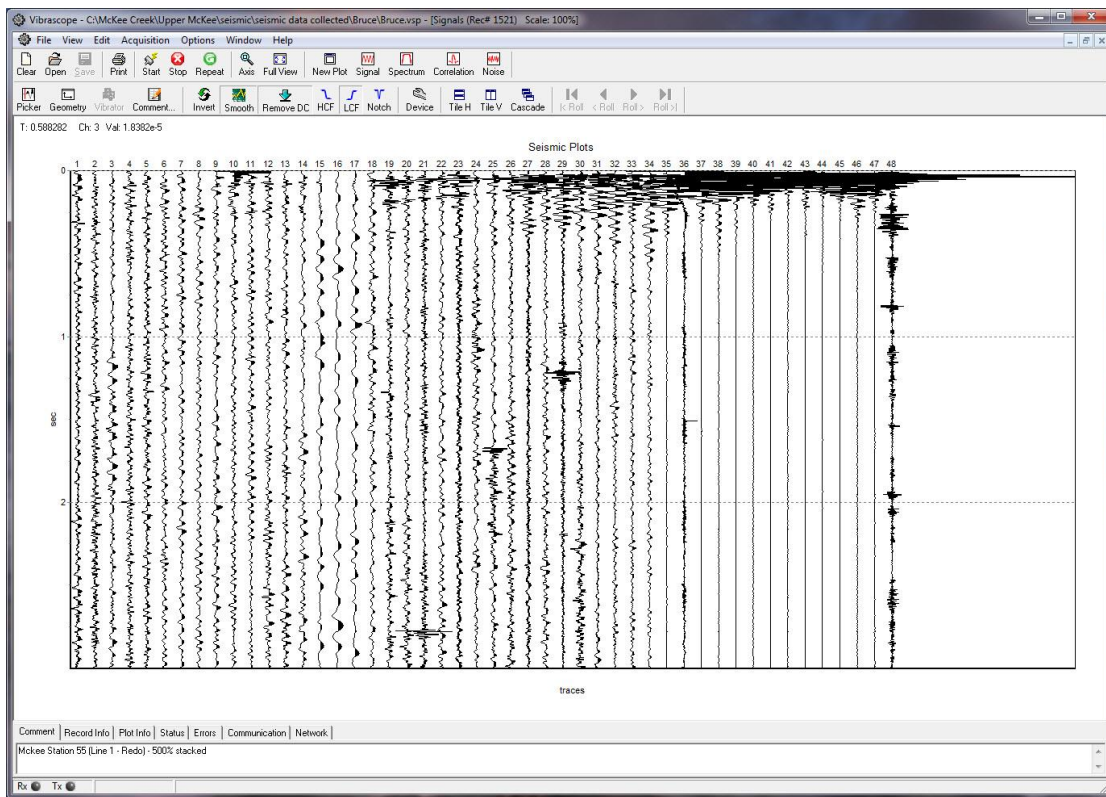


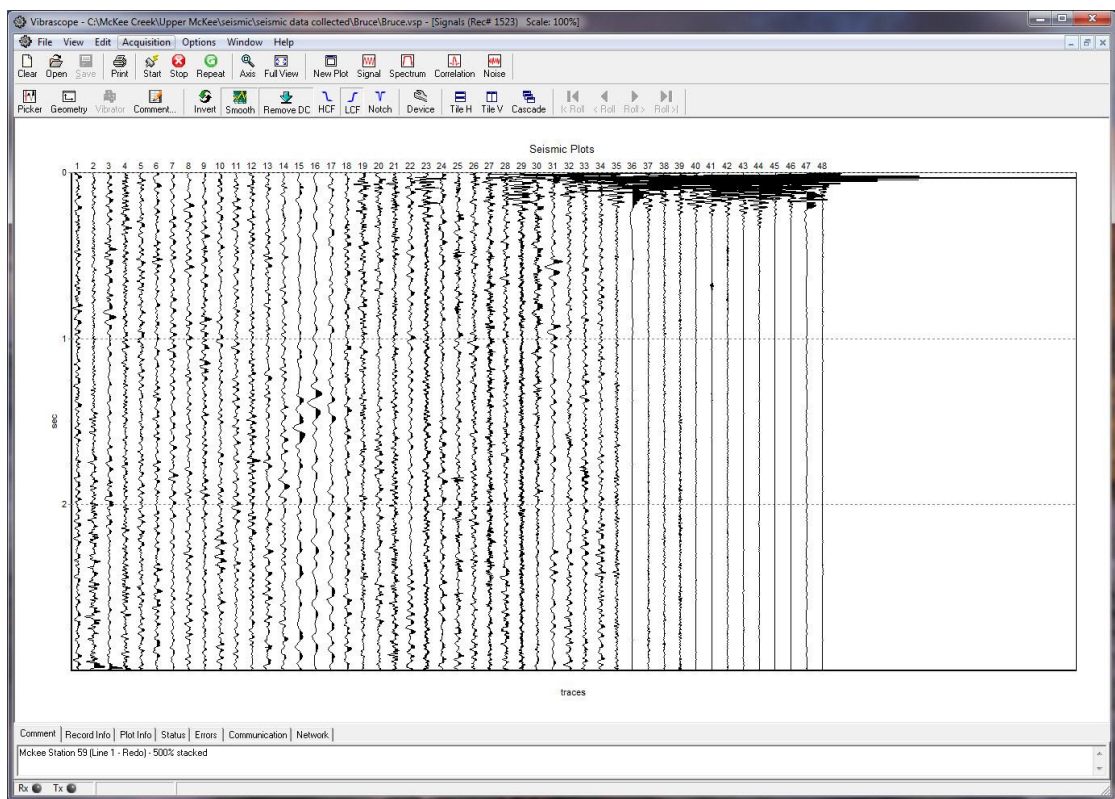












Appendix 6 – Statement of Qualifications

I, Charles Bruce Wrightson, of 240053 Range Road 282 Chestermere, Alberta, am a Professional Geologist registered with the Association of Professional Engineers and Geoscientists of Alberta (APEGA), membership number 31536. I have continuously been a member of APEGA since 1980.

I am a graduate of the University of Alberta with a B.Sc Degree in Geology (1977) and an M.Sc Degree in Geology (1979).

I have been practising Geology since 1978 either as an employee of Imperial Oil Ltd., The Geological Survey of Canada or as an independent Consulting Geologist.

I am the author of the report to which this Statement is attached.

Bruce Wrightson, M.Sc P. Geol.

Dated 23rd June 2020