SANDSTONE INJECTITES RECORD PRE-, SYN-, AND POST-FOLDING DEFORMATION AT SHEEP MOUNTAIN ANTICLINE, WYOMING

by

JENNIFER BEYER

Presented to the Faculty of the Graduate School of

The University of Texas at Arlington in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF SCIENCE IN GEOLOGY

THE UNIVERSITY OF TEXAS AT ARLINGTON

May 2015

Acknowledgements

I am especially indebted to Dr. W. Ashley Griffith of the Earth and Environmental Sciences Department, University of Texas at Arlington, for acting as my advisor on this thesis project. His guidance, support, and witty humor was invaluable. Special thanks are due to Dr. Majie Fan and Dr. Xinbao Yu for their assistance and positive feedback. I would also like to thank my colleagues for their helpful conversations and insights, and my family for feigning interest in my “sand volcanoes”.

Finally, I would like to thank Chrystal Fretz, Monet Alvarado, and Derek Bammel for their assistance in the field, and the American Chemical Society, Petroleum Research Fund for providing the funding support for this project.

April 16, 2015

Abstract

SANDSTONE INJECTITES RECORD PRE-, SYN-, AND POST-FOLDING DEFORMATION AT SHEEP MOUNTAIN ANTICLINE, WYOMING

Jennifer Beyer, MS

The University of Texas at Arlington, 2015

Supervising Professor: W. Ashley Griffith

Sandstone injectites ranging from 30 m to over 1 km in outcrop length intrude the Cretaceous Mowry Formation in the vicinity of Sheep Mountain Anticline (Bighorn Basin, WY). These injectites were sourced by the Peay Member of the overlying Cretaceous Frontier Formation, and represent a significant potential fluid pathway through impermeable shales. Sand injection was aided by pre-existing joints in the Mowry Formation during the early folding of Sheep Mountain Anticline. Upon unfolding around bedding orientations, most of the injectites restore to vertical (dike) and horizontal (sill) orientations. Downward injection of the Peay sand was likely made possible by a highly stratified horizontal stress field resulting from the deposition, burial, and lithification history of the rock units in the area.

The internal structure of the injectites is dominated by two sets of mutually offsetting deformation bands. The deformation bands have shear and compaction components, exhibiting significant porosity loss, as well as cataclasis and minor pressure solution. After formation of the deformation bands, subsequent faulting occurred along planes parallel to the deformation bands, evidenced in the field by slickensided surfaces. A detailed kinematic analysis of slickenline lineations yield shortening and extension axes consistent with deformation band formation associated with the initiation of Laramide–

oriented shortening, and continuing through the folding of Sheep Mountain Anticline. Beyond the formation and deformation of these sandstone injectites, this study highlights the importance of rock mechanical properties in the containment of hydraulic fractures.

Table of Contents

List of Illustrations

Chapter 1

Introduction

Clastic injectites are intrusive bodies of sediment, commonly sand, that cut across lower permeability rocks in a manner analogous to igneous dikes and sills (Jolly and Lonergan, 2002). Reports of clastic injectites in the geologic literature date back to the 1820's (Braccini, 2006), when they were considered geologic oddities. More recently geologists have recognized that clastic injectites occur in nearly all sedimentary environments. Locations of injectites are perhaps biased toward deep-water marine settings, but tectonically active environments with high sedimentation rates and mud-dominated sedimentary systems are also ideal conditions for sandstone injectite formation (Jolly and Lonergan, 2002). Clastic injectites have also been found to intrude granitic rock, mafic sills, and pillow basalts (Jolly and Lonergan, 2002; Hurst and Cartwright, 2007).

Injectites form as dikes, sills in cohesive rocks, as well as more irregular geometries in noncohesive host materials. Near the surface, laccolith-type structures may form where overlying strata are less resistant to bending (Rodrigues et al., 2009). Sand volcanoes and craters typically form if fluidized sediments break the seafloor (Braccini, 2006; Jolly and Lonergan, 2002). Clastic injectites can form at any depth if a source of non-cemented sediments can be fluidized, and intrusions can occur in all directions depending on the nature of the local stress field. In glacial environments, injectites are commonly intruded downward, but in most sedimentary environments, clastic injectites typically intrude upward or laterally (Jolly and Lonergan, 2002).

The importance of clastic injectites is being recognized in areas where these soft sediment deformation and intrusion processes directly affect hydrocarbon reservoirs

(Braccini, 2006). In cases where clastic injectites intrude impermeable units, they act as both seal risks and migration pathways that can potentially increase the connectivity between reservoirs isolated by units of low permeability (Jolly and Lonergan, 2002). Only recently was it recognized that a better understanding of clastic injectites and the mechanics of their intrusion could be directly relevant to the recovery of petroleum reserves (Hurst and Cartwright, 2007).

While clastic injectites are important with respect to drilling safety and the recovery of hydrocarbons, they also serve as examples of large-scale natural hydraulic fractures with large volumes of propant. Hydraulic fractures are generated and driven by internal fluid overpressure that locally exceeds the confining pressure (Gudmundsson, 2002). Any crustal fluid, including groundwater, oil, gas, and magma, can open a fracture if sufficiently pressurized. Man-made hydraulic fractures, commonly used in the petroleum and geothermal industries are used to stimulate permeability in tight reservoir rocks, and are known as hydrofracks, fracks, or fracs (Duffield and Sass, 2003). Clastic injectites are natural hydraulic fractures, in that they propagate as opening mode cracks in the $\sigma 1 - \sigma 2$ plane driven by overpressurized fluids.

The growth of natural fractures is influenced by the presence of mechanical stratigraphy, due to contrasts in mechanical properties between adjacent layers (Bourne, 2003) and to the presence of bedding plane discontinuities (Cooke and Underwood, 2001). For hydraulic fractures to be effective in petroleum recovery, they need to be contained within the reservoir layer. We know from theoretical modeling and experiments that the mechanical properties of the reservoir and the sealing formations, and the minimum horizontal in-situ stresses in these formations play important roles in the prediction of fracture containment (Simonson et al., 1978). Discontinuities, such as bedding interfaces and joints, are also significant in the containment of fractures (Cooke

and Underwood, 2001; Bourne, 2003). Depending on the strength of the interface, fractures may propagate straight across the contact, step over at the contact, or terminate at the contact (Cooke and Underwood, 2001). Pre-existing joints can either promote or hinder hydraulic fracture propagation (Warpinsky and Teufel, 1987). If the joints lack a cement fill, or the tensile strength of the contact between the cement fill and wall rock is weak, the joints can be dilated and promote propagation. Furthermore, if the joints are well cemented, hydraulic fracture propagation will terminate at the joints (Gale et al., 2007). The angle at which the fracture intersects the joints will also play a role in fracture propagation. Hydraulic fractures intersecting joints at large angles will likely terminate at the discontinuity, whereas hydraulic fractures intersecting joints as small angles are more likely to dilate the joints (Warpinsky and Teufel, 1987). Finally, hydraulic fractures are generally assumed to propagate upward from areas of higher pressure to areas of lower pressure, as both lithostatic compressive stresses and hydrostatic fluid pressure generally increase with depth; however, Simonson et al. (1978) showed that in a homogeneous medium, downward propagation is probable if the fluid pressure gradient is greater than the minimum horizontal in-situ stress gradient.

The presence of injectites at Sheep Mountain Anticline (Figure 1) was first reported in the early 1900s (see Fisher, 1906), and perhaps earlier, but they have only been studied in detail by Warner (1968). These sandstone injectites crop out in the Mowry Formation (Figure 2), a proven petroleum source rock, and they are well exposed in three dimensions (Figure 3), sometimes exceeding one kilometer in outcrop length. They are potential migration pathways through impermeable shales, but abundant deformation bands found within the injectites may act as barriers to fluid flow. Most importantly, these injectites provide an opportunity to study naturally forming hydraulic fractures that have preferentially propagated downward. This paper focuses on

determining the timing of sand intrusion and the mechanics that allow for downward propagation. We will also analyze the internal structures to determine the timing of deformation of the injectites and how this relates to the formation of Sheep Mountain Anticline.

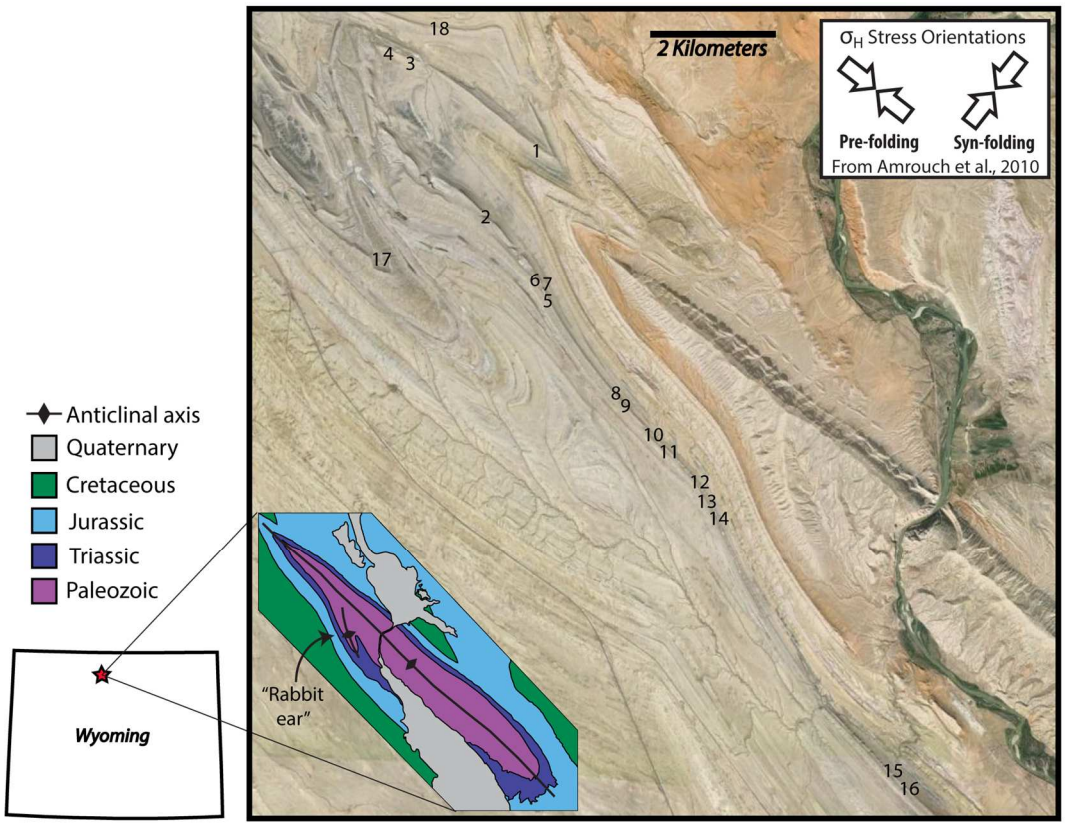


Figure 1 - The study area is in north central Wyoming in the Bighorn Basin. This study investigates 18 injectites located near Sheep Mountain Anticline, an asymmetric anticline that formed during the Laramide orogeny , a NE-SW oriented compression (Bellahsen et al., 2006). Prior to Laramide contraction, there was a NW-SE oriented compressional regime, interpreted from calcite twins, microfaults, and systematic fracture sets in the Madison, Amsden, Tensleep, and Phosphoria Formations (Bellahsen et al., 2006; Amrouch et al., 2010).

Chapter 2

Background

2.1 Geography of the Study Area

The study area is located at Sheep Mountain Anticline (SMA) in the eastern Bighorn Basin, located in north central Wyoming between the towns of Greybull and Lovell (Figure 1). The Bighorn Basin trends NW-SE and is bounded by the Bighorn Mountains to the east, the Owl Creek Mountains to the south, the Absaroka and Beartooth Mountains to the west, and the Nye-Bowler Lineament to the north. SMA is a basement-cored, doubly-plunging asymmetric fold that lies along the eastern flank of the basin (Johnson et al., 1965; Warner, 1968; Stanton and Erslev, 2004; Bellahsen, 2006). SMA trends NW-SE and formed sub-perpendicular to the inferred direction of maximum Laramide contraction (NE-SW), similar to many Laramide folds (Erslev, 1993). The northeastern forelimb dips between 40° and 90° to the northeast, and the southwestern backlimb dips between 10° and 40° to the southwest. The fold plunges as steeply as 20° toward the northwest at the northern extent and approximately 10° southeast at the southern extent (Bellahsen, 2006; Amrouch, 2010).

The subsurface geometry of the fold remains relatively unconstrained. The fold is interpreted to overlie a SW-dipping thrust fault (Hennier and Spang, 1983; Forster, 1996; Stanton and Erslev, 2004), that was later cut by a NE-dipping thrust fault (Stanton and Erslev, 2004). An earlier contrasting interpretation of the subsurface geometry involves a SW-dipping backthrust of an older NE-dipping thrust fault (Hennier and Spang, 1983; Forster, 1996). On the back limb, a secondary fold branching off the main anticline has been interpreted as a “rabbit ear” related to a shallower SW-dipping thrust fault that merges with the larger SW-verging thrust (Stanton and Erslev, 2004). Amrouch (2010)

proposed that the “rabbit ear” structure (Figure 1) is more likely controlled by a deeper basement structure, and suggests the shallow thrust fault is associated with a triangle zone above a NE-dipping basement normal fault reactivated as a thrust fault.

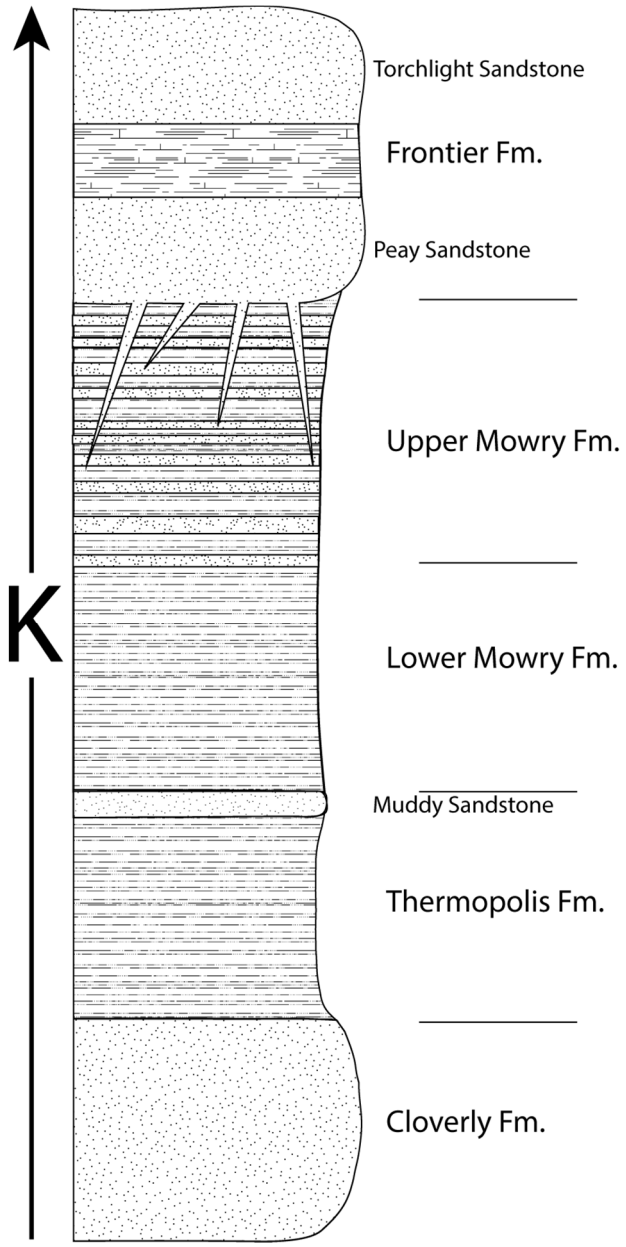


Figure 2 – Stratigraphic column of the study area

2.2 Geologic Setting

The Bighorn Basin was located in the Cordillera foreland during the late Cretaceous and was partitioned into intermontane basins and mountains during the Laramide Orogeny during the latest Cretaceous-early Eocene (DeCelles, 2004).

The Lower Cretaceous sedimentary rocks consist of three formations: the Cloverly Formation, the Thermopolis Formation, and the Mowry Formation (Figure 2). The Cloverly Formation consists of sandstones, siltstones, and shale and was deposited in a fluvial environment (Hennier, 1984). The region subsided and the deep water Thermopolis Formation was deposited on the Cloverly Formation during sea-level rise in Albian time (Finn, 2010). The Thermopolis Formation is 300 feet thick and primarily consists of dark grey to black shale with thin bentonite beds. It contains spherical concretions near its base, and the top of the formation is marked by the white to grey Muddy Sandstone Member (Hennier, 1984). The Muddy Sandstone Member represents a minor regression, while the overlying Mowry Formation indicates a subsequent transgression of the Cretaceous seas in the Late Albian or Early Cenomanian (Merewether et al., 1975). The Mowry Formation is 640 feet thick and consists of two units. The lower section contains grey to black shale with bentonite. The upper section contains ridge-forming light grey to brown siliceous shale with interbedded bentonite and fine-grained sandy units.

Marine deposition continued through Cenomanian time until the deposition of the Frontier Formation (Figure 2) conformably on top of the Mowry Formation during the Late Cenomanian (Tonnsen, 1980); its sediments were derived from the west as the Cordilleran thrust belt migrated eastward (DeCelles, 2004). Thomas (1965) suggested that some irregularities in the deposition of the Frontier Formation may have been controlled by pre-Laramide development of folds in the basin. The Frontier Formation is

450 feet thick and is divided into three members. The lower section, known as the Peay Sandstone Member, is resistant light grey sandstone. The middle section is dark grey, silty shale with bentonite. The upper section, known as the Torchlight Sandstone Member, is non-resistant light grey sandstone. By Conacian time, the basin was undergoing subsidence and the deeper water Cody Shale began accumulating (Finn, 2014). The Cody Formation is 2300 feet thick and consists of shale that can be divided into two sections. The lower section is dark-grey and thinly bedded. The upper section consists of buff-colored sandy shale and thinly laminated buff-colored sandstone (Hennier, 1984).

The sea completely retreated by the end of the Cretaceous, and by the latest Cretaceous, the effects of Laramide deformation were initiated (Dickinson et al., 1988). Many of the structural elements of the basin began their major growth during this time. Extensive uplift of the Bighorn Mountains took place in the Paleocene, with their present form mostly established by the Eocene (Hoy and Ridgeway, 1997; Crowley et al., 2002; Fan and Dettman, 2009). Deformation intensified during the late Paleocene-early Eocene, producing the present-day shape of the Bighorn Basin (Fan and Carrapa, 2014). There was some volcanism in the Absaroka Mountains, which extended into the central part of the basin during the Middle Eocene (Thomas, 1965). Volcanism increased into the Late Eocene, but Laramide deformation gradually decreased until it had nearly ceased (Fanshawe, 1971; Dickinson et al., 1988). The Bighorn Basin was almost completely filled with sediments during the Oligocene and Miocene (McMillan et al., 2006), but during the late Pliocene and early Pleistocene, uplift in surrounding areas caused folding, normal faulting, and excavation of the Bighorn Basin (Love, 1960; Ray and Keefer, 1985; Byrd et al., 1994).

2.3 Injectites at SMA: Previous Studies

Warner (1968) mapped a total of 13 injectites on the west flank of SMA. During his mapping, he recorded structural features including fractures, slickensides, and flow patterns within the injectites, as well as systematic fractures in the surrounding stratigraphic units. Warner (1968) observed that where outcrop exposures were of high enough quality to differentiate and measure joints, there was at least one systematic joint set in the Mowry Formation that was sub-parallel to the injectites. Because the Peay sandstone is the nearest sandstone unit stratigraphically (Figure 2) and is lithologically similar to the injectite material, he concluded that the Peay sandstone was the most likely source. None of the injectites Warner mapped extended above the Peay sandstone. Warner (1968) suggested that intrusion occurred at a critical time during the early stages of the development of SMA, when the Mowry shale was competent enough to fracture and trigger the release of the overpressurized fluids that had built up in the overlying Peay Member.

This interpretation does not explain why the injectites did not propagate upward. Descriptions of downward propagating injectites are rare in the literature, and the passive sweeping of sediments into fissures on the ocean floor or in glacial environments is the only mechanism that has been described for such injecties (e.g, Hurst and Cartwright, 2007). Warner (1968) discounted these mechanisms based on the vertical extent and thickness of the injectites.

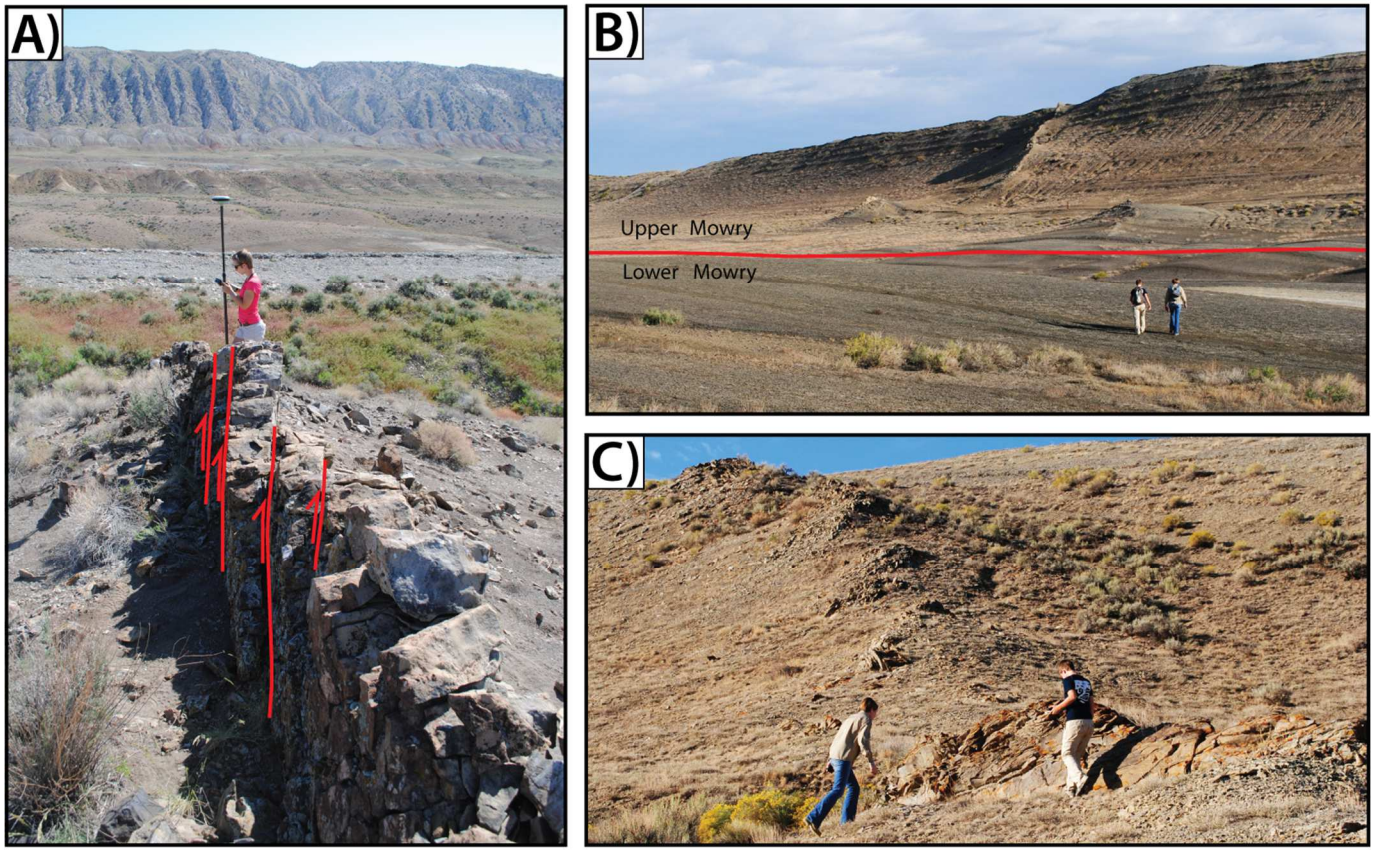


Figure 3 – (A) Injectite #10 stands 3-4 ft above the surrounding Mowry Shale. Fourteen through-going normal faults (red) cut the injectite, all of which are parallel to deformation bands. (B) Injectite #1 shows the containment of the injectites to the Upper Mowry shale. Injectite rarely crop out in the Lower Mowry, and are never seen to crop out above the Peay Sandstone. (C) Injectite #14 is very weathered, showing only a little bit of relief above the Mowry Shale. The injectites are often characterized by echelon-stepping segments.

2.4 General Mechanics of Upward Intrusion

Hydraulic fracturing, natural or artificial, requires a sustained pressure differential between the fluid in the fracture and the formation pressure of the surrounding rock in order for the fracture to dilate and the sand slurry to flow through the fracture. In the case of sandstone injectites, the pore fluid pressure must exceed the minimum principal stress plus the tensile strength of the adjacent strata for failure to occur (Vigorito and Hurst, 2010). When the excess pressure dissipates, the fracture propagation ceases and the intrusion "freezes" (Jolly and Lonergan, 2002). This is a slight oversimplification as fracture cessation should occur once the fluid pressure falls below a threshold level such that the stress intensity factor at the fracture tip becomes less than the fracture toughness of the country rock (or cohesive sediment) (Rubin, 1993); however for illustrative purposes, the Jolly and Lonergan (2002) criterion for fracture cessation is sufficiently accurate. Excess pressures are most commonly associated with the combined effects of low permeability and rapid burial. This type of overpressure is generally restricted to mudrocks or other lithologies that have been sealed by mudrocks and then rapidly buried (Maltman, 1994), such that the burial rate exceeds the rate at which fluids can escape from the pore spaces, a process referred to as disequilibrium compaction (Jolly and Lonergan, 2002).

Jolly and Lonergan (2002) described a general intrusion model for injectites describing an idealized sand body that has become overpressured as a result of disequilibrium compaction (Figure 4a). Before a sand body becomes sealed, the pore fluid pressure (P_f) increases along the hydrostatic gradient (path o-A in Figure 4b). P_f will continue to increase along this gradient until the sand body becomes sealed, at which point P_f will deviate from the hydrostatic gradient and begin to increase along a path parallel to the lithostatic gradient, σ_v (path A-B in Figure 4b). When P_f overcomes the

least compressive horizontal stress (σ_h), the seal fails and a dike forms (point B in Figure 4b). The dike propagates upward along the hydrostatic gradient until P_f exceeds σ_v and the intrusion deviates along bedding plane discontinuities forming a sill (path B-C in Figure 4b). This model is consistent with observations of laccolith-shaped sand bodies interconnected with conical sand networks in the North Sea Basin (Rodrigues et al., 2009). In order for flow across the bed to be generated, there has to be a mechanism that imposes a pressure differential rapidly enough for the flow to reach the minimum velocity required to keep the sand grains suspended in the flow (Lorenz et al., 1991). When the overpressure in the sand body exceeds the confining pressure, a vertical fracture can open in Mode I, and the fracture is dilated and filled by fluids from the sand body. As the fracture grows, a pressure gradient large enough to mobilize the sand develops at the base of the fracture (Vigorito and Hurst, 2010; Bureau et al., 2014). Other commonly-invoked fluidization events are seismicity and localized buildup of excess pressure due to depositional events such as slumping (Jolly and Lonergan, 2002).

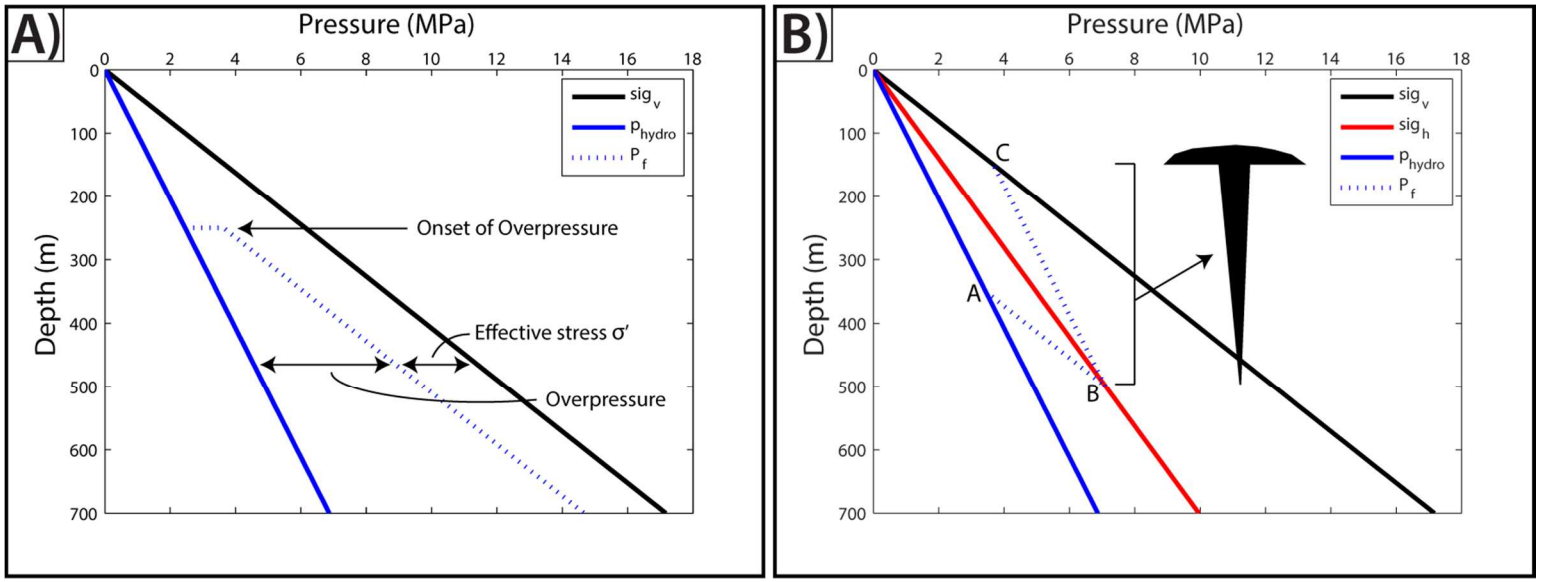


Figure 4 – (A) An idealized depth-pore fluid pressure path for a sand body that has become overpressured as a result of disequilibrium compaction. (B) Depth-pore fluid pressure path showing the upward intrusion of a dike when the pore fluid pressure exceeds the confining pressure. The dike will continue to propagate until the pore fluid pressure exceeds the lithostatic pressure, at which time a sill can open (Modified from Jolly and Lonergan, 2002).

While highly idealized, this general model for intrusion provides a mechanical explanation for many of the basic features observed in most clastic injectite complexes; however, this model does not provide a mechanism for downward intrusion. If the interpretation of downward intrusion of the injectites at SMA (Warner, 1968) is correct, this requires a modified model. In this study, we first characterize the three-dimensional geometry of the injectites, including their relationships between major structural discontinuities (joints, bedding planes) in the country rock, and we use this information to constrain the kinematics of intrusion and subsequent deformation. Key in the latter interpretations are deformation bands that are found throughout most of the injectite segments. Finally, we propose a modified mechanical model for injectite formation.

2.5 Deformation Bands

In the upper crust, deformation in stiff, low-porosity crystalline rocks is accommodated by fracturing, either as extensional fractures or shear fractures (Fossen, 2007), but in high-porosity granular rocks, strain is localized in the formation of deformation bands, tabular features of millimeters thickness that accommodate strain in highly porous rocks (Aydin, 1978; Antonellini and Aydin, 1994). Deformation bands can be classified kinematically as compaction bands, shear bands, dilation bands, or a mix of these end members depending on the dominant mode component of displacement discontinuity across the band. Compaction bands and dilation bands are characterized by no macroscopic shearing, but compaction bands display a volume reduction and dilation bands display an increase in volume. Shear bands are characterized by shearing with very little or no volume change (Aydin et al., 2006). Granular flow, cataclasis, phyllosilicate smearing, and dissolution and cementation may all act as mechanisms for strain localization during deformation band formation (Fossen, 2007).

Deformation bands often evolve from a single band to a cluster of bands and then finally into a slip plane which typically localizes along the interface between the bands and the undeformed host rock (Aydin and Johnson, 1978). Mair et al. (2000) produced cataclastic deformation bands in the laboratory during triaxial compression tests on core samples of Locharbriggs sandstone, a lower Permian Aeolian sandstone. During the experiments, an initial compactional shear band forms, perturbing the stress field in the surrounding medium. During the experiment, mean grain size reached a consistent minimum value despite increasing axial strain, suggesting that each band can only accommodate a finite amount of displacement, at which time a new band forms to accommodate additional strain. Compaction bands have been modelled theoretically as anticracks (analogous to pressure solution surfaces), where formation initiated at pervasive Griffith-type flaws (Sternlof et al., 2005). In this model, collapse of these flaws under compressive loading propagates outward to form bands of compacted grains.

Deformation bands often exhibit a reduction in porosity relative to the host sandstone, due in varying degrees to a number of petrophysical changes involved in formation (Antonellini and Aydin, 1994; Sternlof, 2004). This porosity reduction can greatly reduce the permeability within the deformation bands relative to the surrounding matrix and can contribute to significant permeability anisotropy at the broader reservoir scale (Fossen et al., 2007; Sternlof et al., 2004). Sandstones can be excellent clastic reservoirs or aquifers, but deformation bands may act as barriers or baffles to fluid flow (Pittman, 1981; Antonellini and Aydin, 1994; Fossen, 2007).

Chapter 3

Methodology

Before traveling to the study area, we located many of the injectites using Google Earth. Upon entering the study area, we used a high precision differential Leica Viva Global Navigation Satellite System (GNSS) in a base-rover configuration allowing for Real time Kinematic (RTK) corrections, and traditional mapping techniques to map the 3D geometry of a total of 18 injectites around the nose and along the west flank of SMA (Figure 1). The presence of injectites east of SMA is known (Erslev, pers. Comm), but they were not mapped in this study. We mapped the injectites by walking the contact between the injectites and beds of the host Mowry Formation and collecting position vectors referenced to a Wyoming West Central NAD83 coordinate system at approximately regular intervals of one meter, with 3D precision less than one inch. For injectites with a well-exposed contact, a finer spacing was used to map the contacts. Using a Brunton Compass, we measured the orientation of structural elements, including injectite contacts, orientation of joints and bedding in the Mowry Formation, and deformation bands in the injectites. Where possible, we also collected the slip direction and sense of slip on slickensided surfaces.

We organized and processed the position vector data in Matlab (Appendix A) to obtain maps of the injectite outlines in two- and three-dimensions (Figure 5). Because the plunge of the SMA fold axis is shallow and the trend is similar to the strike of bedding, we were able to unfold the structural element orientation data around the local Mowry bedding orientation to obtain the pre-folded orientations using Stereonet (Figure 6). We then determined principal stress directions for deformation band formation in a kinematic analysis of the slip direction and sense of slip data.

In order to determine the source sand for the injectites, we prepared thin sections of the injectite material and all sandstone members in the vicinity of the injectites, and we compared them using optical microscopy. We prepared the thin sections using blue epoxy to highlight the pore space.

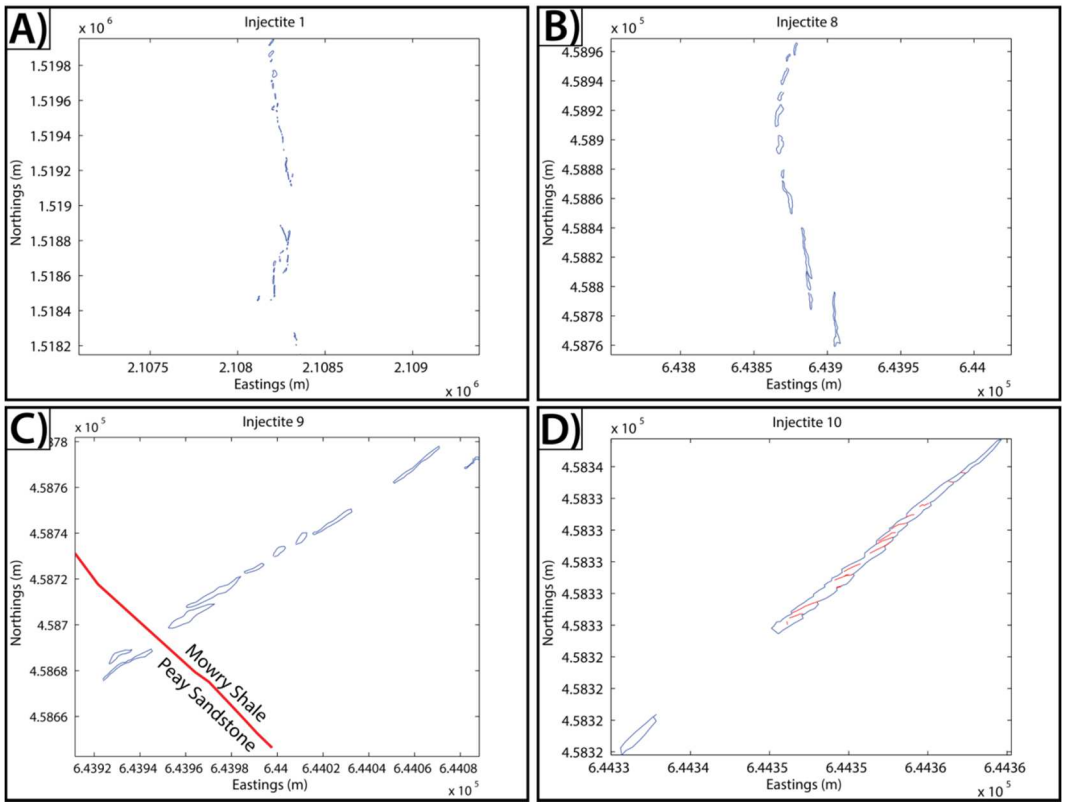


Figure 5 – 2D plots of injectite contacts created in Matlab. (A) Injectite #1 extends for over 1 km in outcrop length. (B) Injectite #8 shows evidence of mechanical interaction between the segments, where overlapping segments thin out at the tips. (C) Injectites crop out in the Upper Mowry, and a few can be traced back to the Peay Sandstone. Injectite #9 extended a short distance above the base of the Peay Sandstone. (D) Injectite #10 is among the shortest in length, but could be traced back to the Peay and pinched out at its lower extent. Through-going oblique normal faults (red) are parallel to deformation bands.

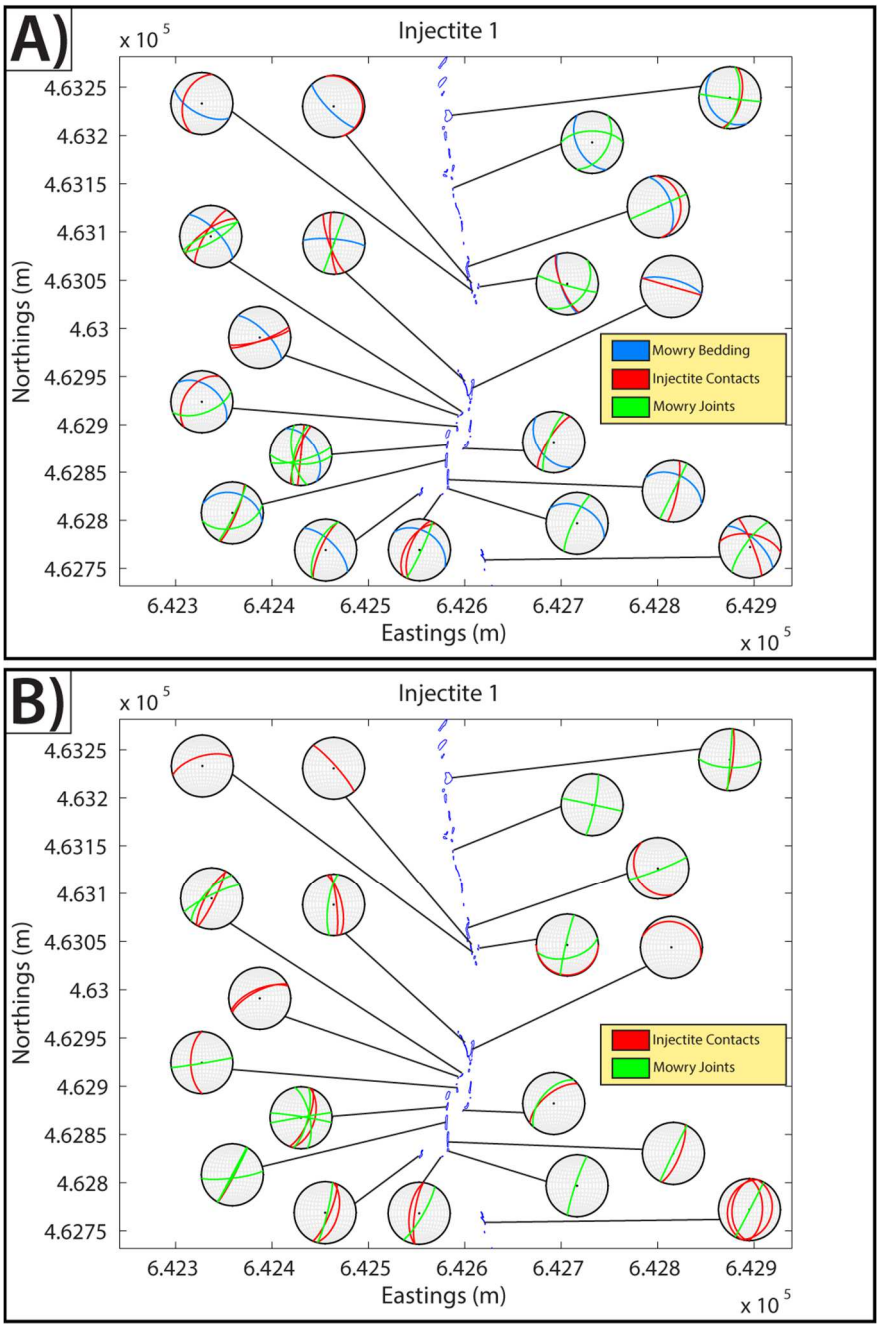


Figure 6 – (A) Present day orientations of Mowry bedding (blue), Mowry joint sets (green), and injectite contacts for each segment (red) of Injectite #1. (B) Unfolded orientations of Mowry joints (green) and injectite contacts for each segment (red) of Injectite #1. Most segments restore to sub-vertical, but a few restore to sub-horizontal. For many segments, there is a joint set sub-parallel to the injectite contact.

Chapter 4

Observations

4.1 Injectites

The injectites at SMA are most commonly found in the Upper Mowry Formation and very rarely continue into the Lower Mowry Formation (Figure 3b). One previous study reported injectites continuing down into the Muddy Sandstone Member of the Thermopolis Formation (Kozimko, 1977); however none of the injectites we mapped extended below the Mowry formation. Injectite #9 was traced up section into the Peay Member of the Frontier Formation, but no injectites continue more than a few meters into the Peay, nor do any extend upward into overlying rocks. The injectites range in outcrop length from less than 30 meters to more than 1 kilometer. Maximum apertures range from tens of centimeters to two meters. All injectites are segmented along their length. Most segments crosscut the local Mowry bedding, indicating they are dikes (Figure 7); however, a few segments are sills that are sub-parallel to and cause flexure of the surrounding Mowry bedding (Figure 8). The injectites are massive, tabular bodies with no apparent internal flow textures, but they commonly contain chert pebbles and deformation bands. The former are similar to pebbles found in the overlying Peay sandstone (Figure 9). The injectites are more resistant to weathering than the surrounding country rock, and the outcrops can vary in appearance from a protruding sand body standing up to 2m above the surrounding rock to piles of rubble arranged in the general trend of the injectite (Figure 3c).

Although segmented, the injectites are thought to persist at depth as the segments of each injectite are grouped together with spacing usually only a few meters at most, while the spacing between injectites can be at least a few hundred meters. The

injectite segments also show evidence of mechanical interaction where segments overlap and thin near their tips (Figure 5b and 5c) (Delaney and Pollard, 1981). Assuming the injectites grew as dominantly mode I fractures oriented opening in the direction of the least compressive principal stress, the segmented nature of the injectites could be a result of a change in the principal stress direction during propagation and related local bending of the fracture planes (Pollard et al., 1982; Pollard and Aydin, 1988). If the stress field changes along the propagation path, non-zero shear stresses are resolved on the injectite plane forcing the fracture plane to bend (Cotterell and Rice, 1980). Because the preferred propagation path is out of plane, the injectite tip twist and breakdown into echelon segments (Figure 3c) (Pollard et al., 1982; Cooke and Pollard, 1997).

While the current injectite attitudes appear to be non-systematic (Figure 10a), unfolded attitudes reveal a more systematic pattern (Figure 10b). Note that in this figure injectite orientations are chosen as representative orientations, chosen as the average orientation among multiple (sometimes more than 20-30) individual segments (Figure 6). In some injectites, one or more segments are sills, yet the overall injectite structure is dike-like, hence the dominance of sub-vertical orientations in Figure 10b. Upon unfolding, most injectite segments restore to sub-vertical, whereas only a few segments are sub-horizontal, consistent with the field observations that injectite segments are dikes and sills (Figure 6b). Those injectites that unfold to horizontal are clearly parallel to the Mowry bedding orientation in the field. The unfolded injectites can then be sub-divided into NW-SE (Figure 11a) and NE-SW striking injectites (Figure 11b). NW-SE striking injectites are occur in the northwestern backlimb and hinge region of SMA, whereas NE-SW striking injectites are spread across the entire backlimb and hinge regions (Figure 11). There does not appear to be a systematic relationship between the injectite strike and location with respect to SMA.

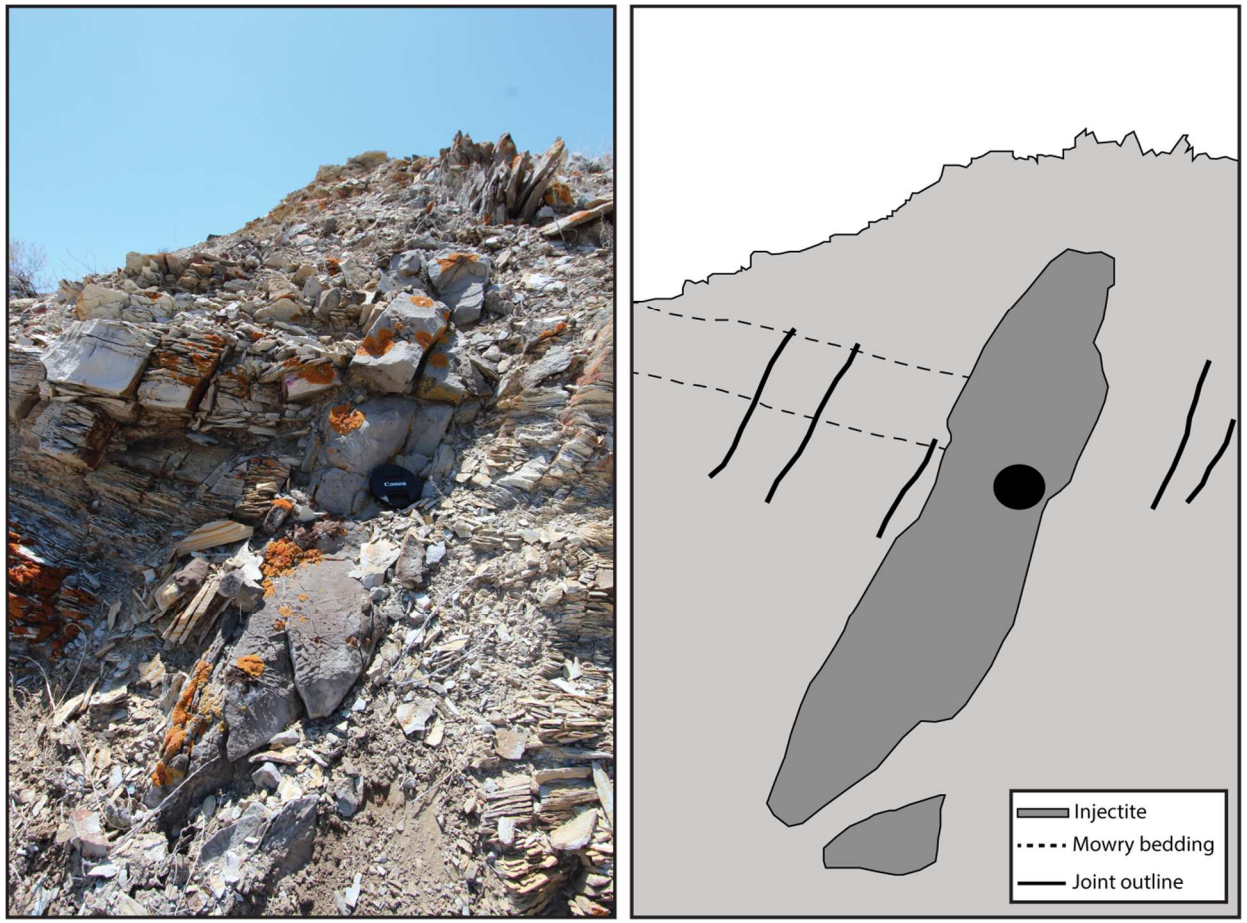


Figure 7 – Most injectite segments (dark grey) are dikes crosscutting the Mowry bedding (dashed lines), such as this segment of Injectite #14. Dike segments are usually seen to be sub-parallel to systematic joint sets in the Mowry (solid lines).

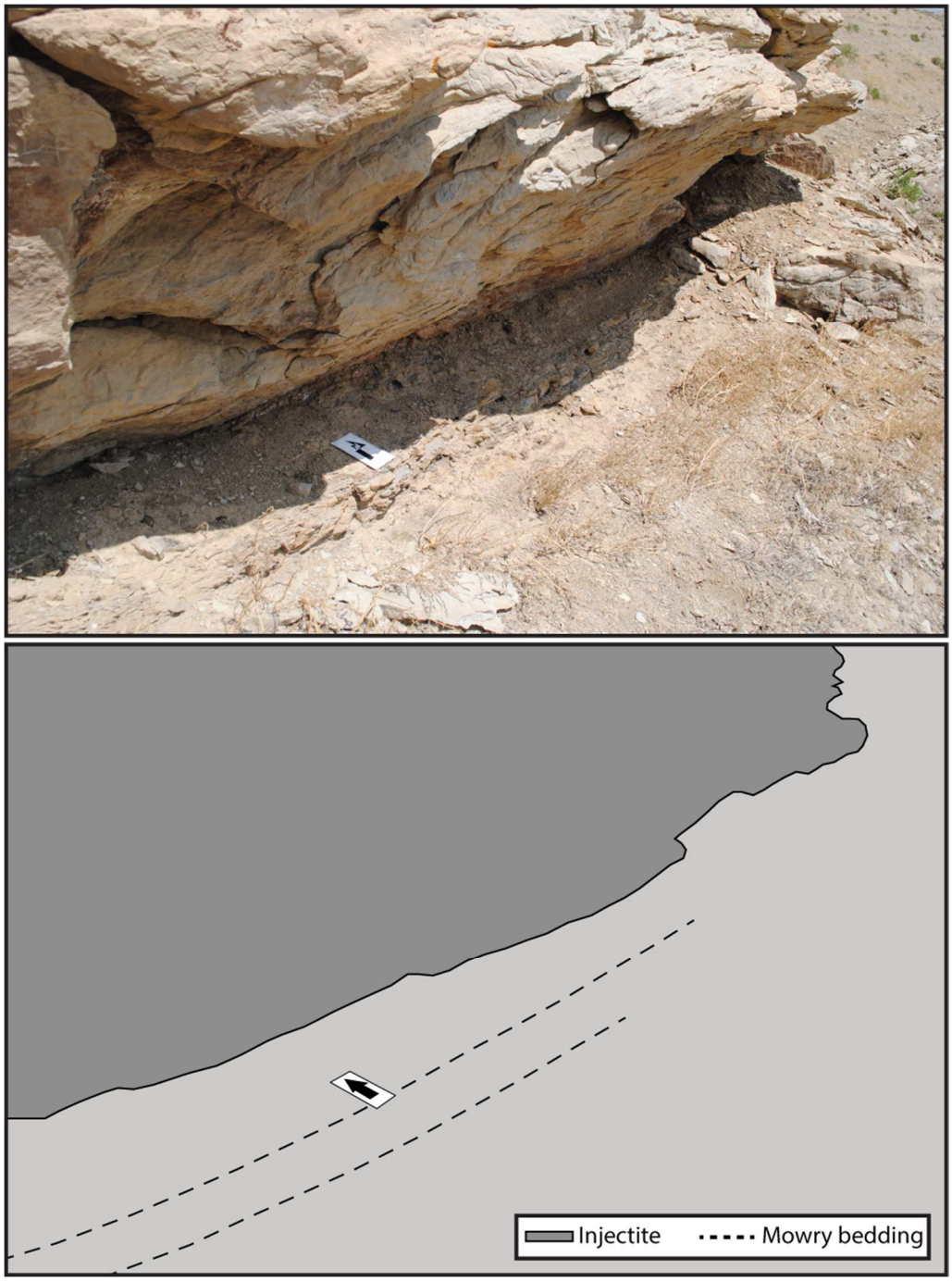


Figure 8 – While most segments crosscut the Mowry bedding, some segments such as this segment (dark grey) of Injectite #4 is sub-parallel to the Mowry bedding (dashed lines), consistent with it being a sill.

Figure 9 – Chert pebbles in Injectite #12 are similar to those that are found in the Peay Sandstone.

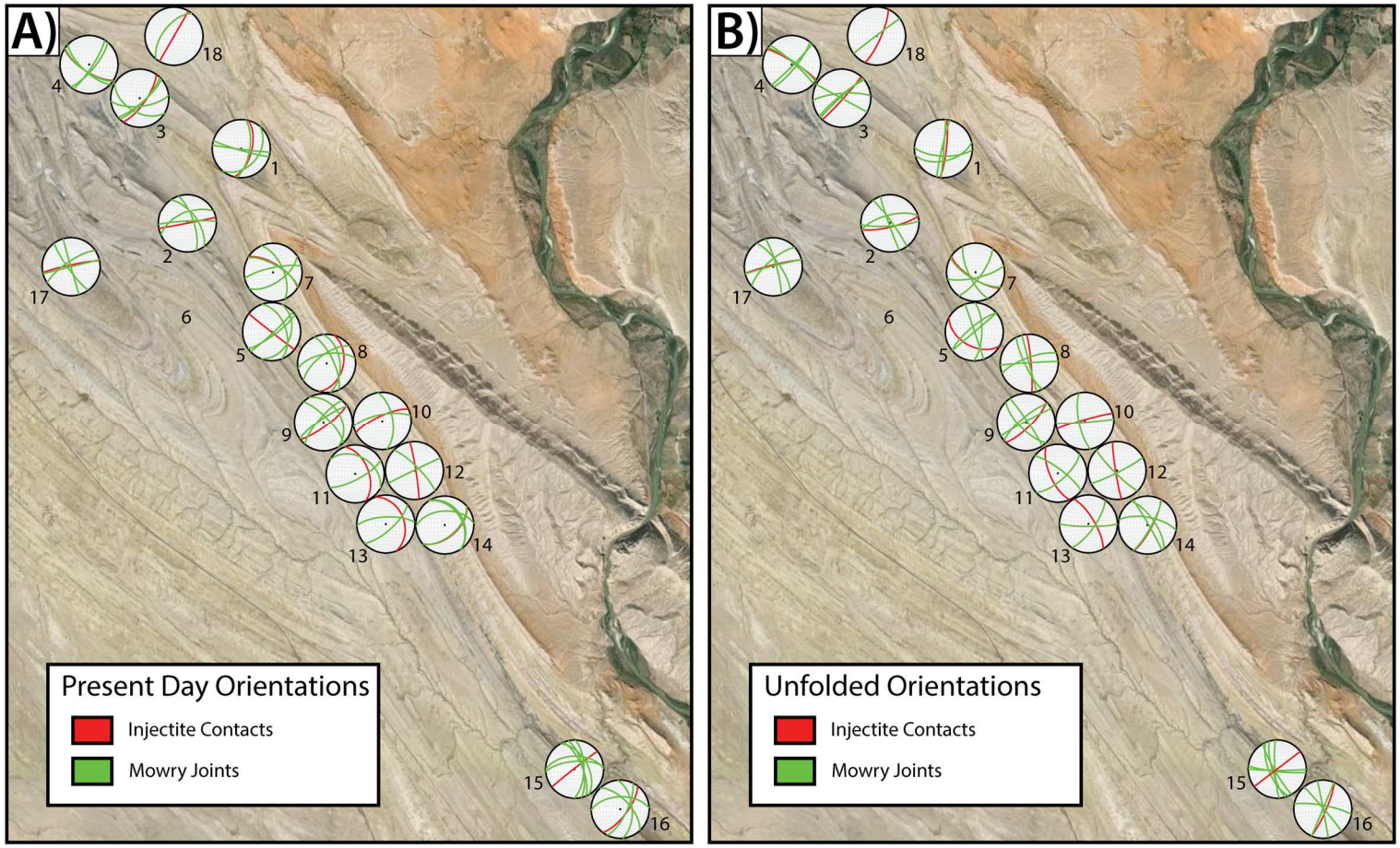


Figure 10 – (A) Present day orientations of and injectite contacts (red) and Mowry joints (green) and (B) unfolded injectite contacts (red) and Mowry joints (green) for each injectite. The contacts and joints were unfolded around the local Mowry bedding orientations.

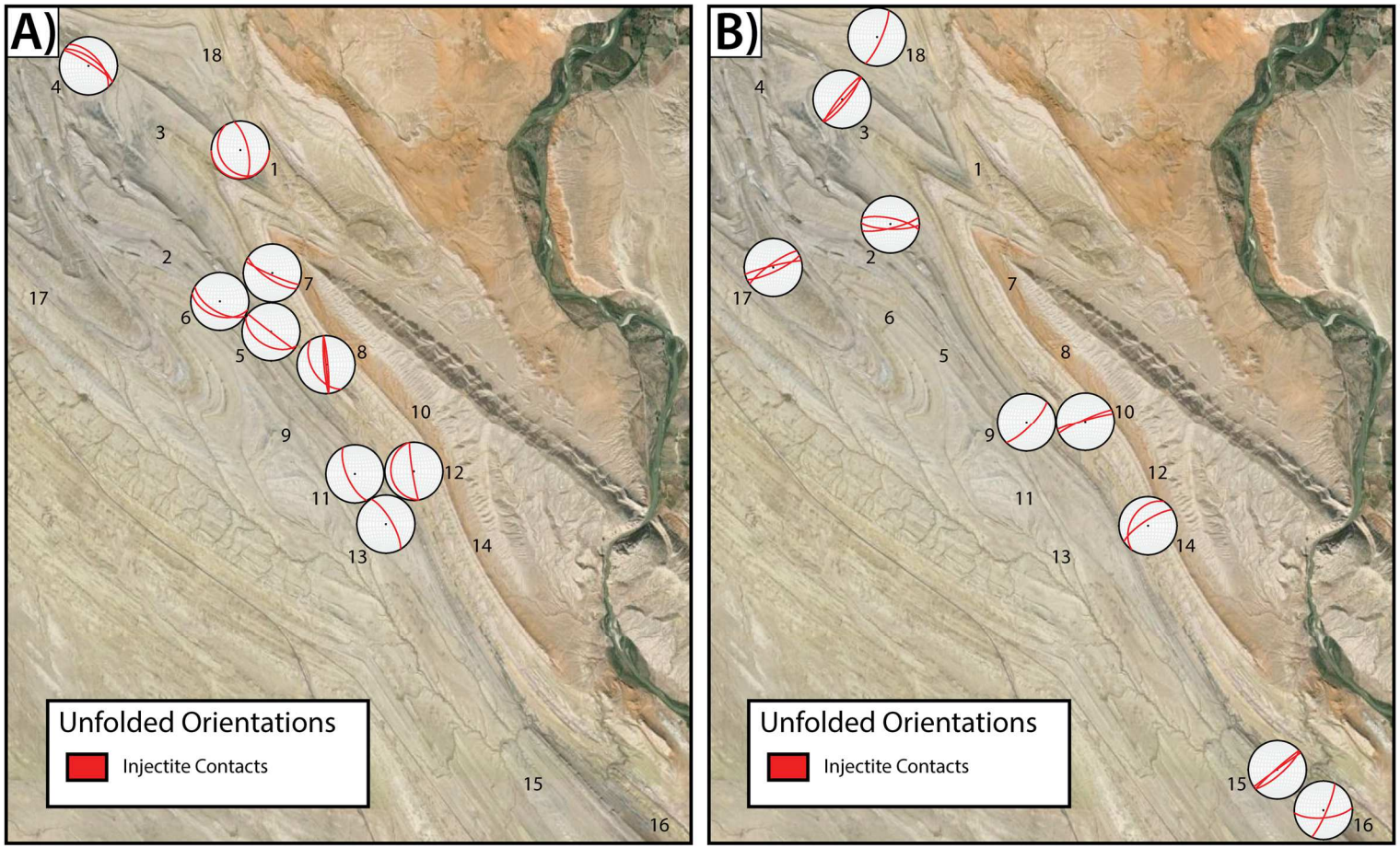


Figure 11 –. The injectites can be divided into two groups based on their unfolded orientations: (A) NW-striking injectites and (B) NE-striking injectites. There is no apparent between the strike of the injectites and the location with respect to SMA.

4.2 Joints in the Upper Mowry Formation

Outcrops of the Mowry Formation contain several joint sets that are often stained red along thin halos of several millimeters to a couple of centimeters thickness (Figure 12).. These joints are most prominent within more resistant sandstone interbeds, but they also cut across less-resistant shales. The alteration halos, characterized by the red staining occur along the length of individual joints, are more prominent near injectite contacts (Figure 12).

We observed at least two joint sets at most injectite locations, and these joint set orientations are consistent throughout the study area (Figure 10). We contoured the unfolded joint orientations using a Kamb contour plot (Figure 13a) and a 1% contour plot (Figure 13b). The Kamb contour plot shows two systematic joint sets: a NW-striking set and a NE-striking set. The 1% contour plot shows a third joint set striking E-W, which is less prominent and found at only a few locations along the backlimb near the rabbit ear structure and along hinge of SMA. These joint sets measured in the Mowry formation are consistent with joint sets reported in older units at SMA. Bellahsen et al. (2006) sampled fractures in the Tensleep Formation, Amsden Formation, and Phosphoria Formation. In these units, they found five systematic joint sets: Set I was interpreted to predate Laramide compression and strikes 110°; Set II was interpreted to be related to Laramide compression and strikes 45°; Set III formed in response to the bending of layers and strikes 135°; Set IV was interpreted to be related to late stage fold growth and are vertical joints striking 110°; Set V are Set I fractures that were reactivated as reverse faults in the forelimb during late stage fold growth. The E-striking, NE-striking, and NW-striking joint sets are roughly parallel to Sets I, II, and III reported by Bellahsen et al. (2006), respectfully. While we did not collect detailed data on abutting relationships (this is difficult in the friable Mowry outcrops), based on the systematic nature of the joint

orientations across the study area, it is plausible that the joints in our study area are temporally related to Sets I,II, and III of Bellahsen et al. (2006), although given the proliferation of the NW-striking joints throughout the study area does not provide an obvious connection with the formation mechanism inferred for Set III in the older units (e.g., Bellahsen et al., 2006). The Peay Sandstone of the overlying Frontier Formation lacks any systematic joint sets in most locations in our study area.

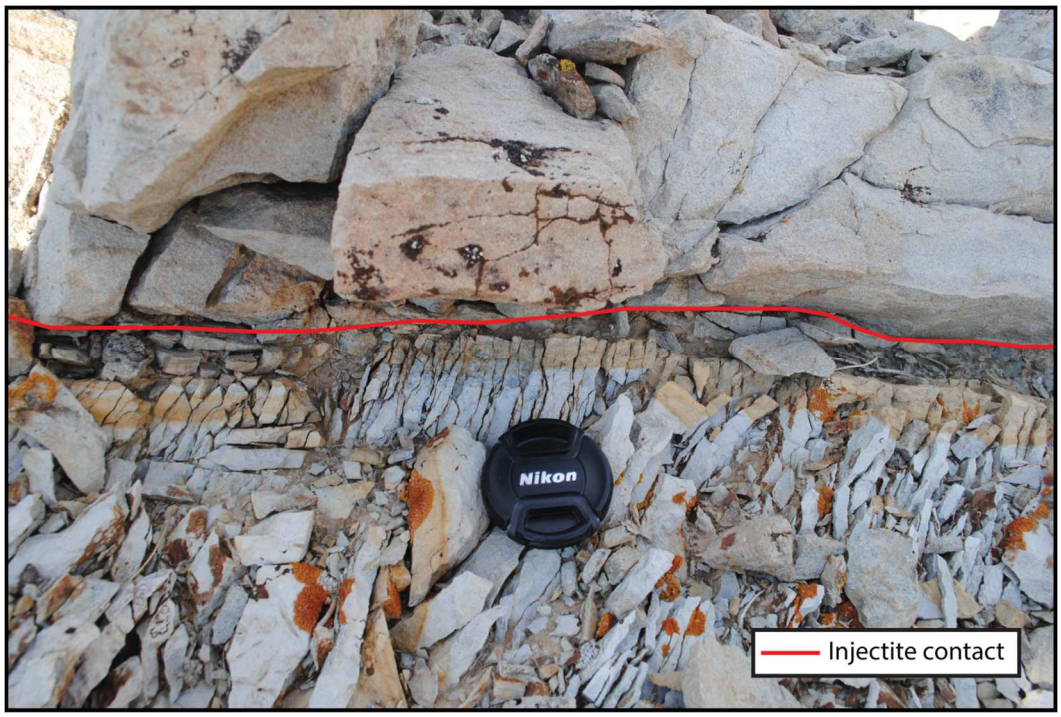


Figure 12 – Red alteration halos along the systematic Mowry joint sets and parallel injectite contact at Injectite #1. The staining is more pronounced near the injectites. Sub-vertical closely-spaced fractures terminating against the injectite are along sedimentary laminations in the Mowry formation.

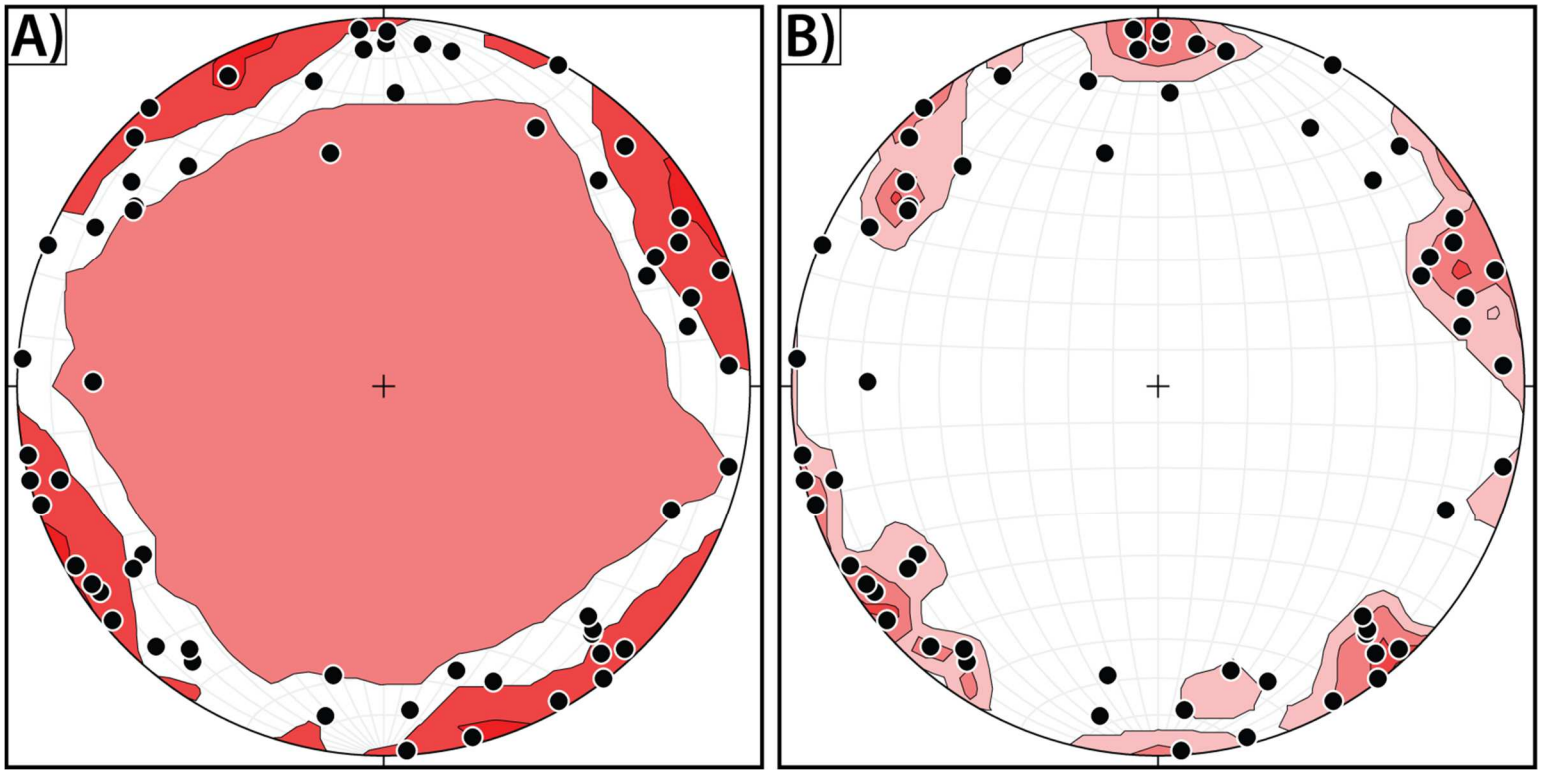


Figure 13 – Contours of the poles to the unfolded Mowry joints in the study area. (A) Kamb contour plot showing two systematic joint sets in the Mowry: a NW-striking set and a NE-striking set. (B) 1% contour plot showing three systematic joint sets in the Mowry. In addition to the NW-striking and NE-striking sets found in the Kamb plot, the 1% contour plot recognized a less prominent set striking E-W.

4.3 Injectite Material

The injectite material is a buff medium-grained sandstone. The framework grains of the sandstone contain approximately 70% quartz, 20% lithic fragments, 10% feldspar, and trace minerals. The sandstone is well-sorted with grain sizes averaging between 0.1 and 0.2 mm (Figure 14a). The grains are sub-angular to sub-rounded, with the quartz grains being moderately strained, evidenced by fractures, especially at grain contacts. This lithology is comparable to that of the Peay Sandstone of the Frontier Formation. The Peay Sandstone has approximately the same composition as the injectite material (Figure 14b). Thin sections were also made of the Torchlight Sandstone of the Frontier Formation and the Muddy Sandstone Member of the Thermopolis Formation (Figure 15) but neither was similar to the injectite material in lithology or porosity. While the overall compositions seem to be similar, the framework grains of the Torchlight Sandstone appear to be more elongate (Figure 15a), and the Muddy Sandstone Member grains are slightly larger and more rounded (Figure 15b). Both of these sandstones also contain less porosity.

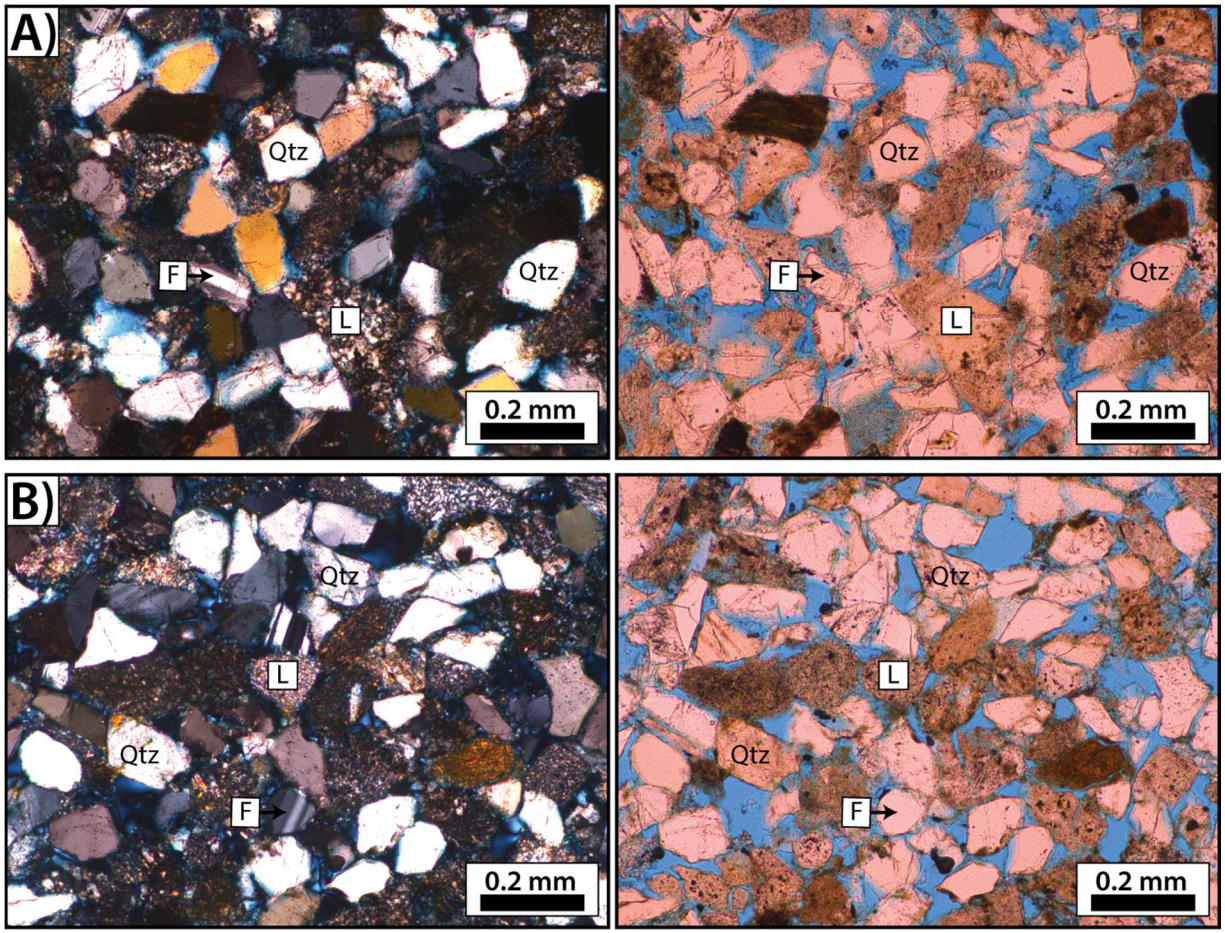


Figure 14 – Photomicrographs of (A) the injectite material and (B) the Peay Sandstone under cross-polarized light (left) and plain light (right). The injectite material and the Peay Sandstone is composed of approximately 70% quartz, 20% lithic fragments, 10% feldspar, and trace minerals. Grain size and roundness is similar, with the injectite material being slightly more rounded.

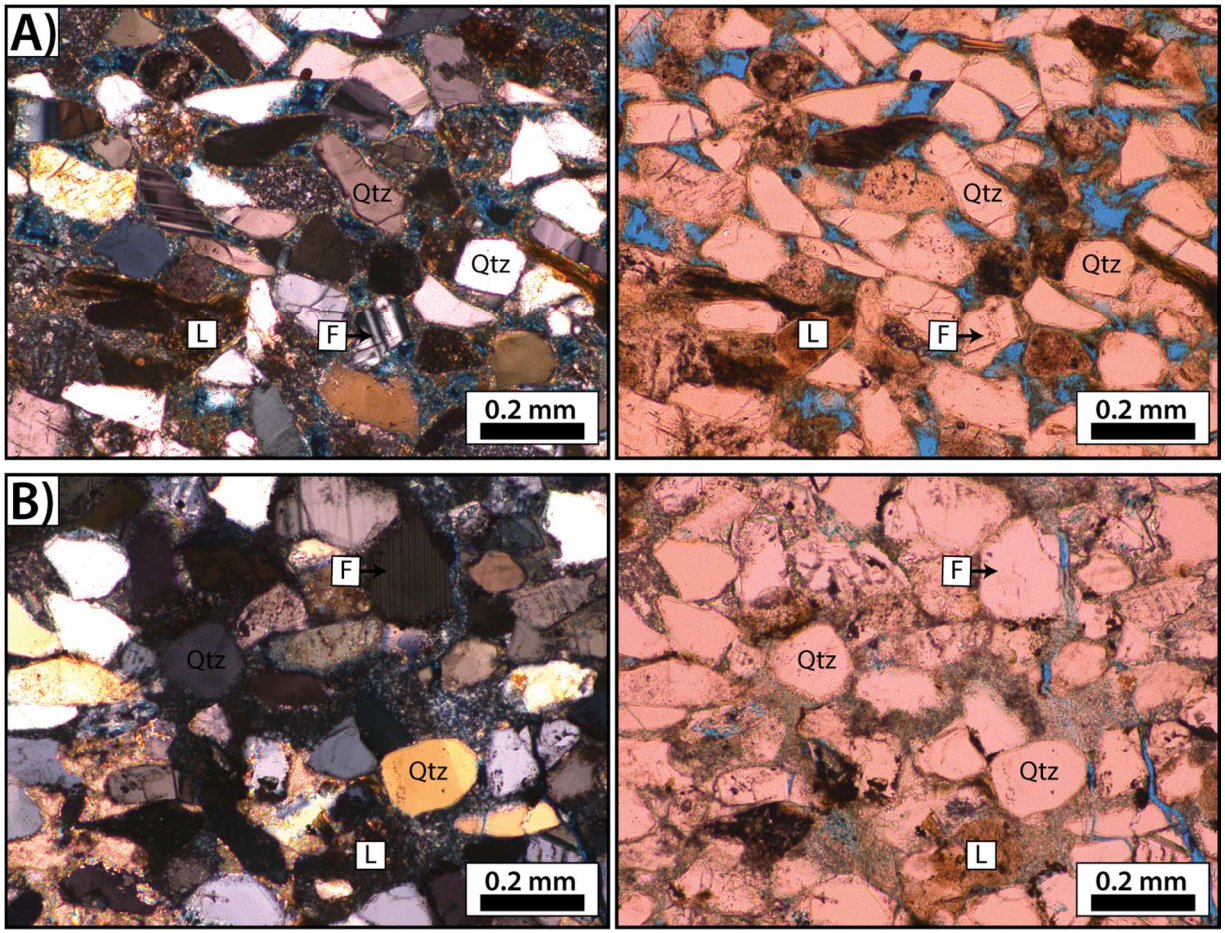


Figure 15 – Photomicrographs of (A) the Torchlight Sandstone and (B) the Muddy Sandstone Member under cross-polarized light (left) and plain light (right). Compared to the injectite material, the Torchlight Sandstone has more elongated grains, while the Muddy Sandstone Member grains are more rounded and slightly larger. There is also significantly less porosity.

4.4 Deformation Bands

Most injectite segments display two distinct sets of deformation bands (Figure 16b). At most locations, the two sets of deformation bands are mutually crosscutting. Occasionally, there is a clear offsetting relationship, where one deformation band set is consistently offset by a second set (Figure 16b). In outcrop, deformation bands tend to stand up as ridges that are more resistant to weathering than the rest of the injectite material. At the outcrop scale, deformation bands appear to range in thickness from 1 mm to 2 cm, but closer inspection shows that individual bands are 1-2 mm thick (Figure 16a) while thicker bands consist of a zone of individual deformation bands (Figure 16b) (Aydin and Johnson, 1978). Termed compound deformation bands (Mair et al., 2002), these groups of adjacent deformation bands have total thicknesses of 1-2 cm (Figure 16b). Aydin and Johnson (1978) interpreted compound deformation bands to represent a strain localization process where initial deformation band formation produces a discontinuity favoring localization of subsequent bands. Compound bands, and less frequently individual deformation bands, also play host to slickensided fault surfaces (Figure 16c), which form preferentially on the edge of bands. These surfaces have been interpreted as the last stage of deformation as faulting localized onto a single plane preferentially along the pre-existing anisotropy introduced by the deformation bands (Aydin and Johnson, 1978). These fault surfaces are typically contained within the injectites, and in rare cases cut through the entire injectite. In the latter cases, the localized faults appear to transition into diffuse deformation in the Mowry Formation, however poor outcrop quality made it impossible to characterize this deformation in detail. We were able to determine the sense of slip on a number of slickensided surfaces using cross-cutting deformation bands as offset markers as well as steps in slickensides surfaces. Where possible, we used both criteria to insure a consistent interpretation. The

majority of the deformation bands and slickensided surfaces exhibited reverse slip, whereas only a few indicated normal slip (Figure 3a).

The density of deformation bands varies between injectites, and even between individual segments of a single injectite. Some outcrops contain tens of bands per meter (Figure 16a) and some contain hundreds of bands (Figure 16b). While there is no clear pattern of deformation band density within a single injectite, the deformation bands do appear to be more well developed in the backlimb than around the nose of SMA.

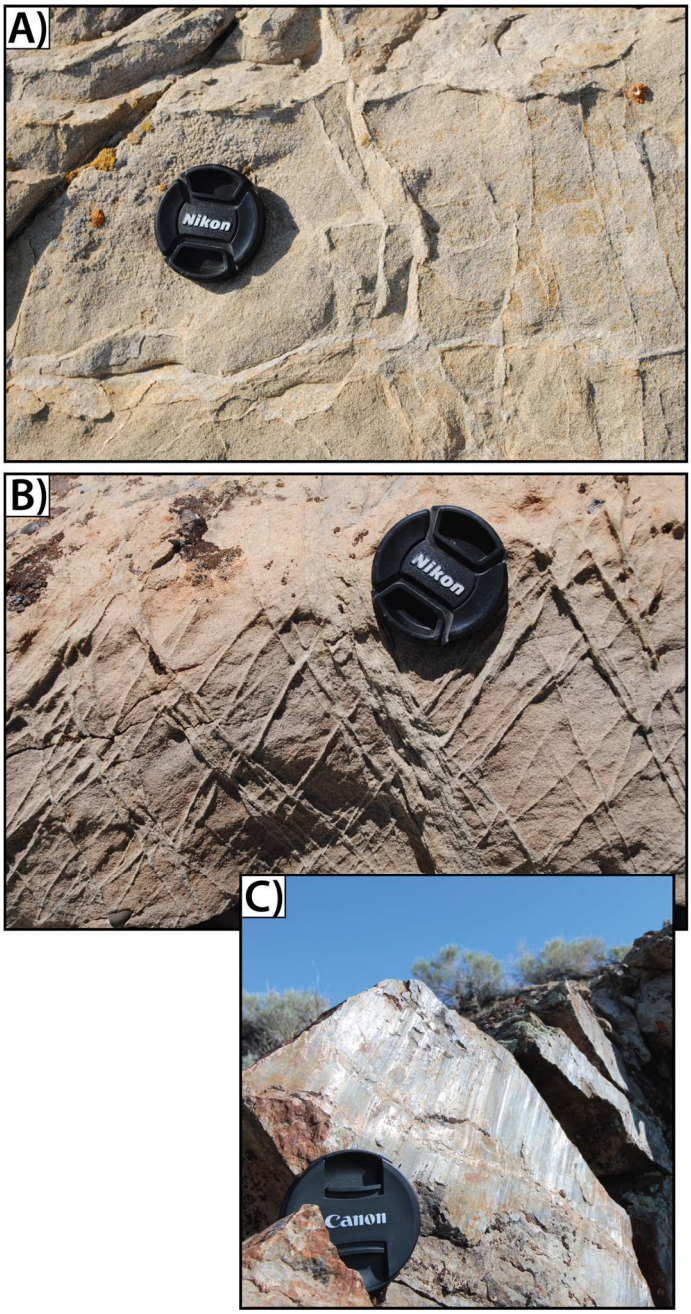


Figure 16 – Deformation is first accommodated in individual deformation bands (A), but as deformation progresses, zones of deformation bands (B) form and form compound deformation bands to accommodate displacement. Eventually, deformation becomes localized onto a single plane, and a slip surface (C) forms, accommodating much greater displacements. Figures A and B also show the variation in density of deformation bands depending upon location.

Deformation bands are systematic on the outcrop scale: band orientation is consistent for each set across a single injectite; however deformation band orientation is less consistent from injectite to injectite (Figure 17). This observation holds in both the present-day and unfolded orientations (Figure 17); however the deformation bands can be subdivided into two generalized groups based on present day orientations: a NE-oriented set (Figure 18a) and a NW-oriented set (Figure 18b).

In thin section, the deformation bands are easily recognized in thin section by their significant loss of porosity (Figure 19) and range in thickness from 0.2 mm to approximately 1.3 mm. The injectites have approximately 15% porosity, but within the deformation bands there is only < 5% porosity. Most deformation bands exhibit incipient cataclasis evident by microcracks growing from grain boundaries as well as minor pressure solution (Figure 19a) within the deformation bands, consistent with the observations of Kunkle and Griffith (2011). In most samples, there is only a slight reduction in average grain size within the deformation bands, as compared to grain sizes outside the deformation bands. A few deformation samples exhibit more significant deformation, evidenced by extreme comminution (Figure 19b). These deformation bands also tend to be narrower than the deformation bands with very limited cataclasis.

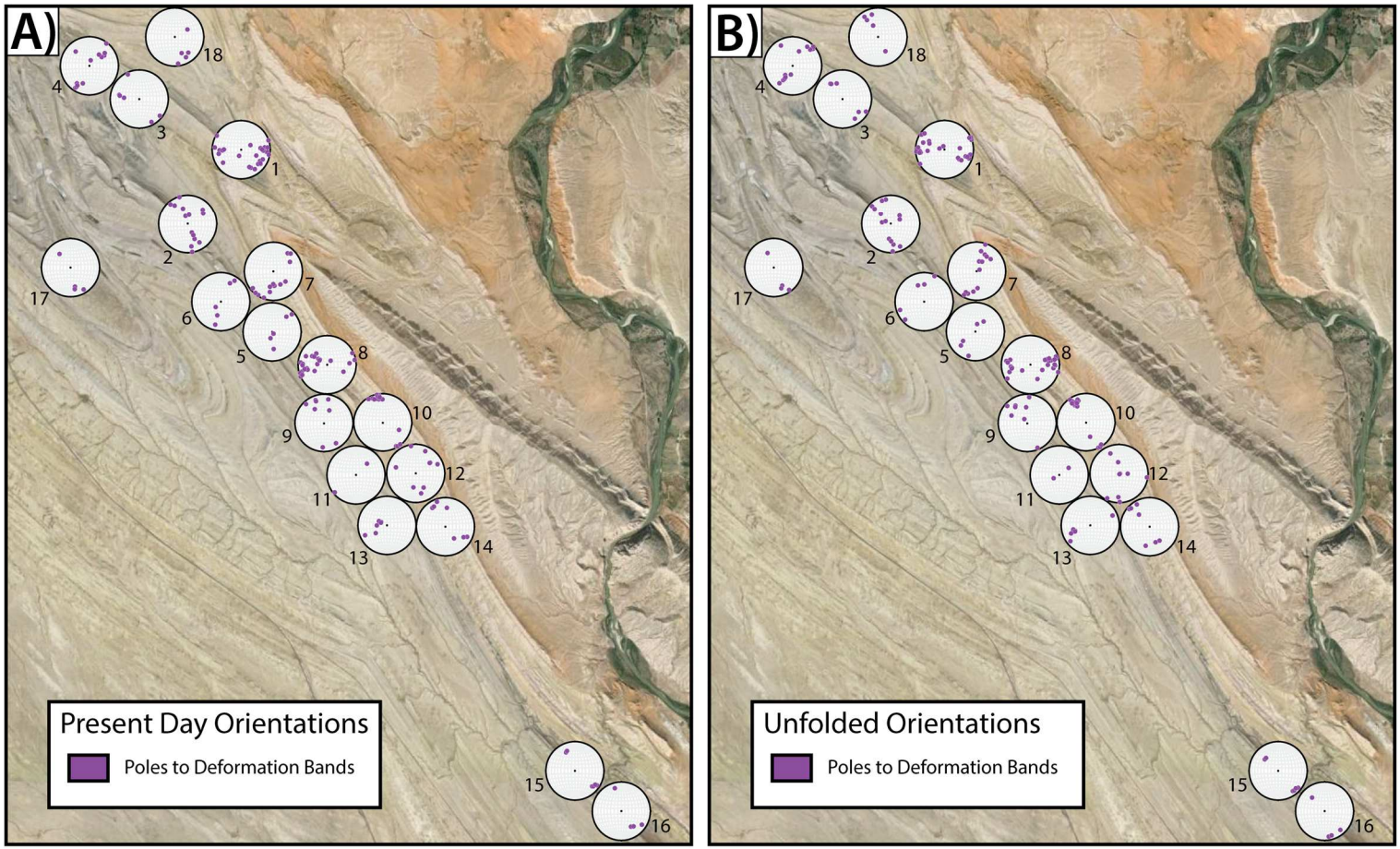


Figure 17 – (A) Present day orientations of deformation bands and (B) unfolded orientations of deformation bands. Neither the present day nor unfolded orientations of the deformation bands show a strong systematic relationship.

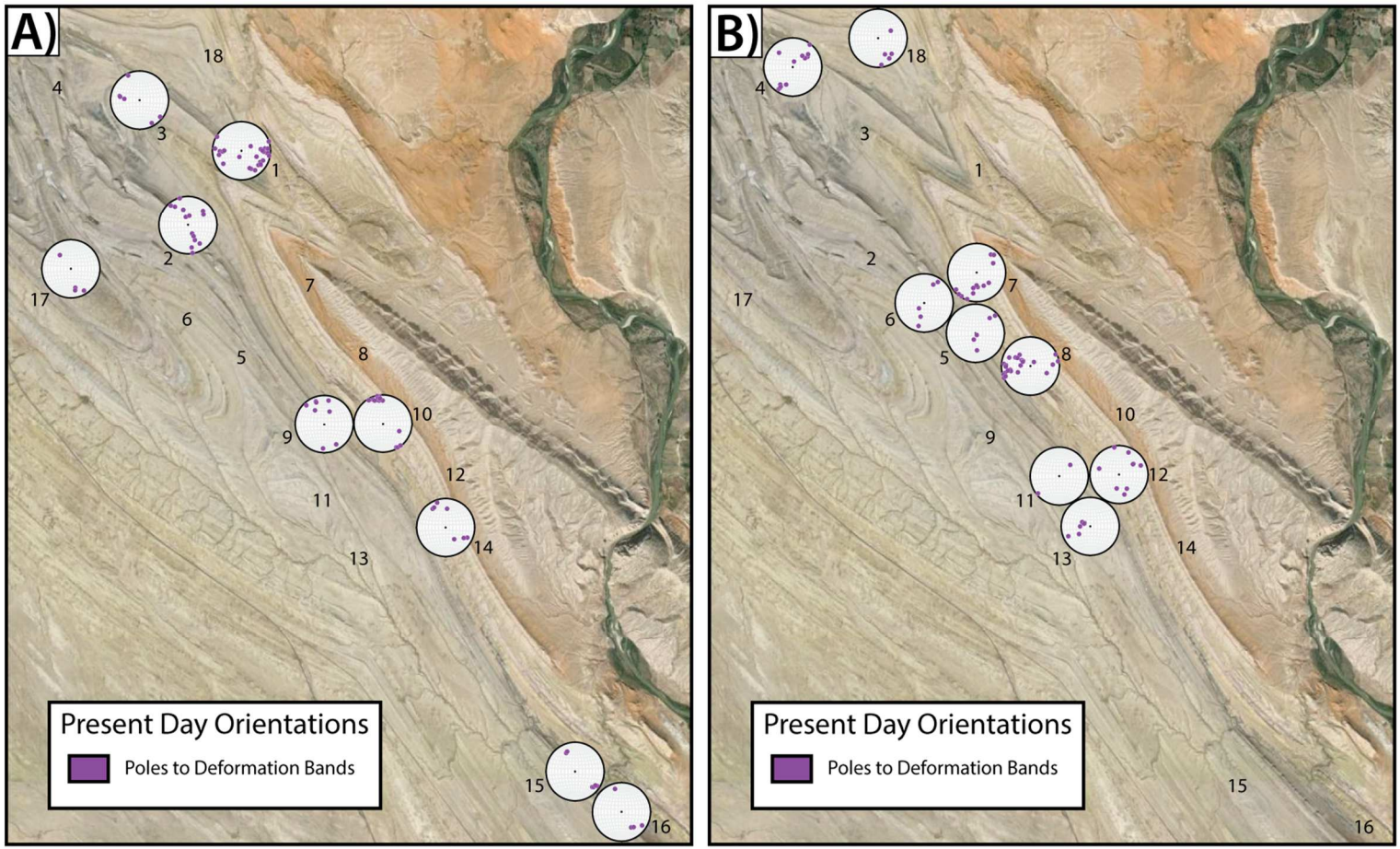


Figure 18 – Present day orientations of the deformation bands divided into two loosely defined groups: (A) NE-striking deformation bands, and (B) NW-striking deformation bands.

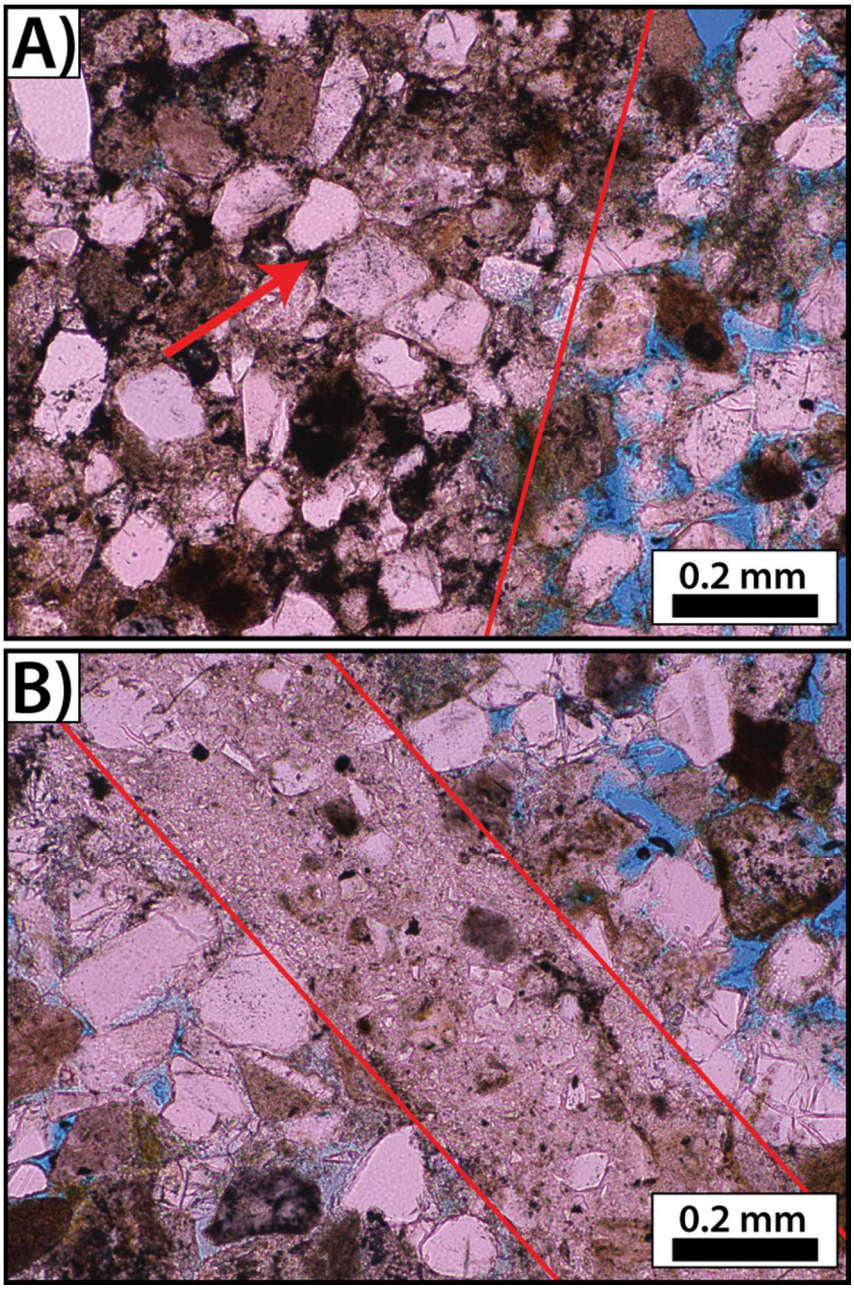


Figure 19 – Photomicrographs of the deformation bands within the injectites under plain light. Both deformation bands are characterized by significant porosity loss. (A) There is only a slight reduction in grain size within the deformation bands, relative to the grain size just outside the deformation bands. Deformation mechanisms include cementation and minor pressure solution with concavo-convex contacts (red arrow). (B) A few deformation bands exhibit more advanced deformation, evidenced by extreme cataclasis. These deformation bands also tend to be narrower.

4.5 Intrusion Direction Indicators

The Peay Sandstone is the only sandstone in the vicinity that is mineralogically similar to the injectite material (Warner, 1968). The injectites locally contain abundant chert pebbles identical to those in the Peay Sandstone. In the field, injectites #6, #9, #12, and #18 can be followed directly to the Peay Sandstone.

In addition to the proximity of the injectites to the overlying Peay Member, and the lithologic similarity between the two bodies, a number of field observations of wall rock deformation consistently support the interpretation of a forceful, downward intrusion of the injectites at SMA. (i) At the injectite contacts, the Mowry bedding is deformed. Adjacent to dikes, bedding exhibits downward warping and drag folding (Figure 20a), consistent with downward sand transport. (ii) Mini injectites (< 10cm thick) have been documented at Injectites #4, 10, and 14. These mini intrusions are always directed downward and pinch out at their lower tips (Figure 21b), and they can usually be traced to an upper source. These mini injectites are parallel to joints along most of their length (Figure 21a), occasionally cutting across, parallel to bedding, to adjacent joints (Figure 20b). The mini injectites are always sub-parallel to local lager injetites suggesting that they are small-scale representations of the larger scale injectites. (iii) Sandstone dikes (i.e., injectites that cut bedding at high angles) are sub-parallel to at least one joint set at most localities (Figure 7 and Figure 10). Along with the evidence presented by the mini-injectites, this suggests that sand injectites exploited pre-existing joints. Suitably oriented joints could be dilated if the pore fluid pressure within the injectites exceeded the regional normal stress acting perpendicular to the joints. If the pore fluid pressure in the injectites was greater than the most compressive horizontal stress, the injectites would be able to dilate vertical joints of any orientation (Delaney et al., 1986). (iv) Furthermore, around individual injectite segments, the spatial density of systematic joints in the Mowry tends to

increase as the distance to the injectite decreases (Figure 22). We conducted line surveys of joints in resistant sandstone beds within the upper Mowry at Injectite #1 at varying distances from the dike contact. Delaney et al. (1986) made a similar observation along igneous dikes where there was a significantly greater joint density within 5 meters of the dike contacts, and a decrease in joint density further beyond that. They measured as many as 28 joints within the first 2 meters of a dike contact. Delaney et al. (1986) interpreted these joints as having formed within the process zone ahead of the propagating dikes. As the injectite propagates, tensile stresses are induced in front of the crack tip, with the most tensile stresses on either side of, and parallel to, the crack plane. Depending on the local stress intensity factor, these stresses may be large enough enough to open sub-parallel joints in front of the injectite. Joints directly in front of the injectite tip can therefore be infilled, while the rest of the joints become adjacent to the injectite contact (Delaney et al., 1986). (v) Finally, directly above injectite #10, symmetric folds occur in the lower portion of the Peay Sandstone (Figure 20b). These folds are nearly symmetric and sub-parallel to the Peay and Mowry bedding, and the axial trace of the fold is in line with the injectite. Furthermore, the fold axis plunges parallel to the injectite, but up section; therefore the convex side of the fold points down section toward the injectite within the Mowry Shale (Figure 20b). We are not aware of any descriptions of such features in the literature, but we entertain the possibility that these slump folds could be suction features associated with the sudden removal of sand from below during injection, causing the Peay Sandstone beds to collapse downward.

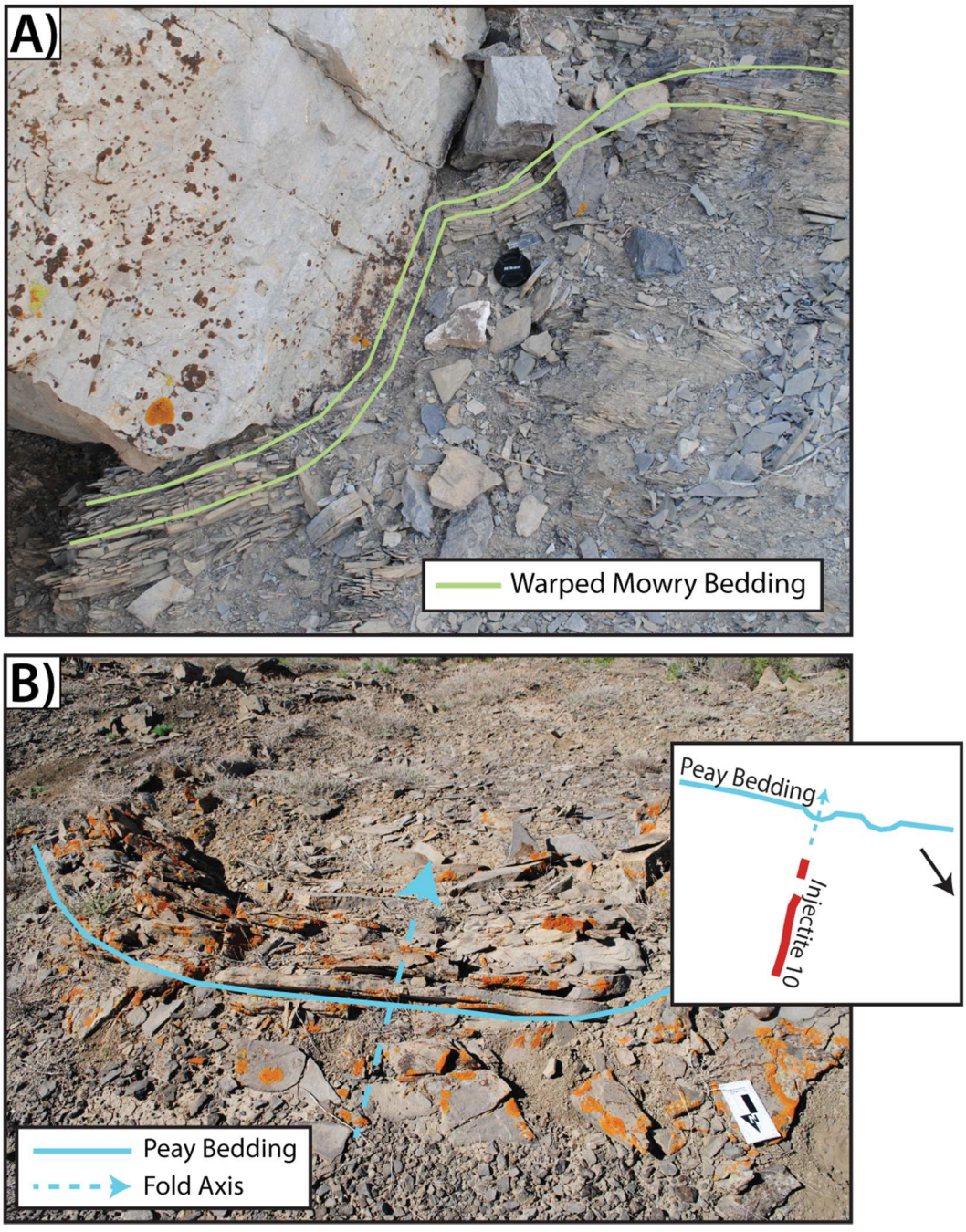


Figure 20 – (A) Mowry bedding being dragged downward along the contact of Injectite #2 segment. (B) Slump folding in the Peay Sandstone directly above Injectite #10. Axes of the folds are near parallel to the strike of the injectite (inset).

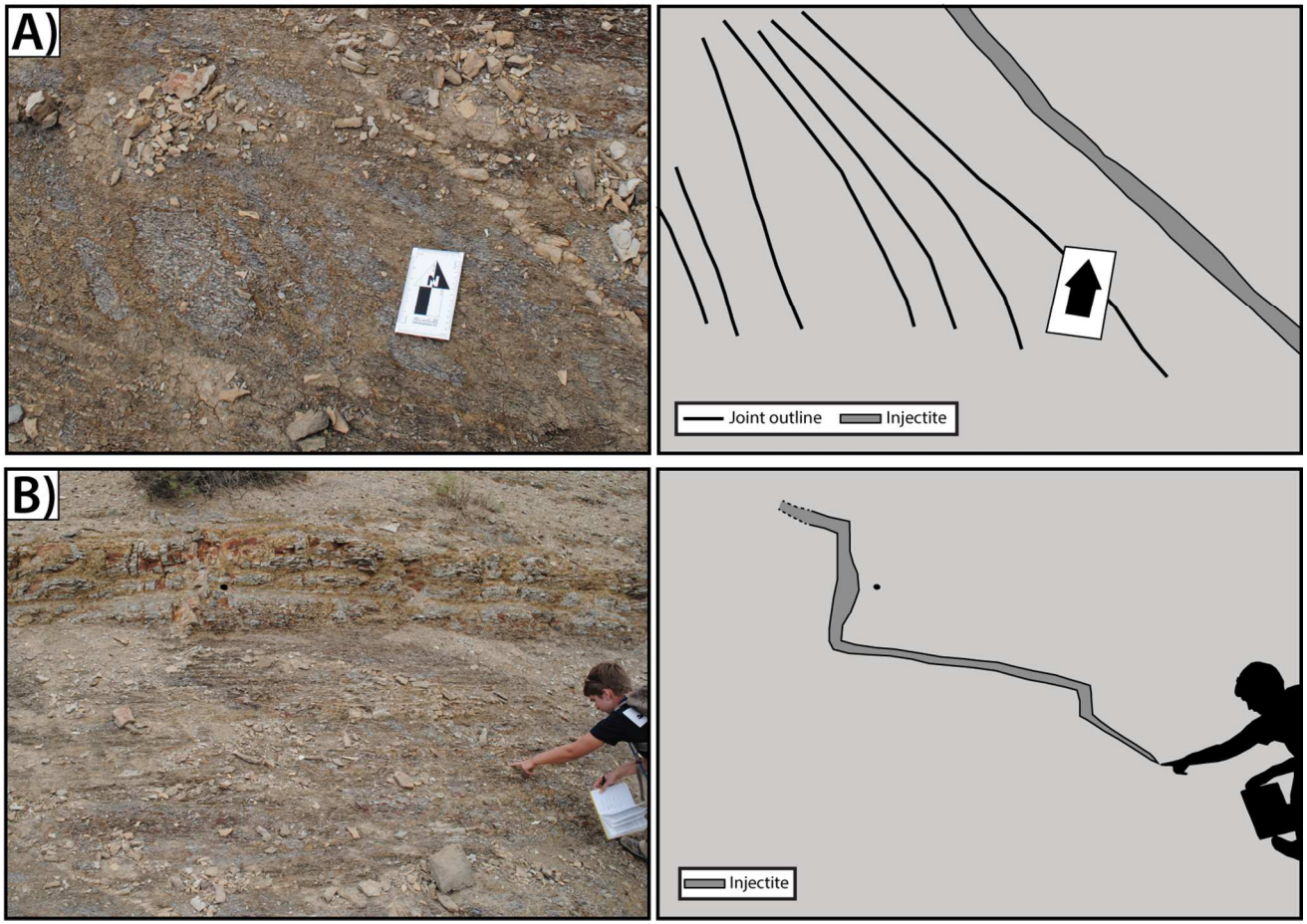


Figure 21 – Mini injectites (< 10 cm) near Injectite #4. (A) Mini injectites (red) exploit systematic joint sets (orange) in the Mowry shale. The joints are stained red from hydrothermal fluids. (B) Mini injectites (red) are seen to pinch out at their lower extents, and they can often be traced to an upper source.

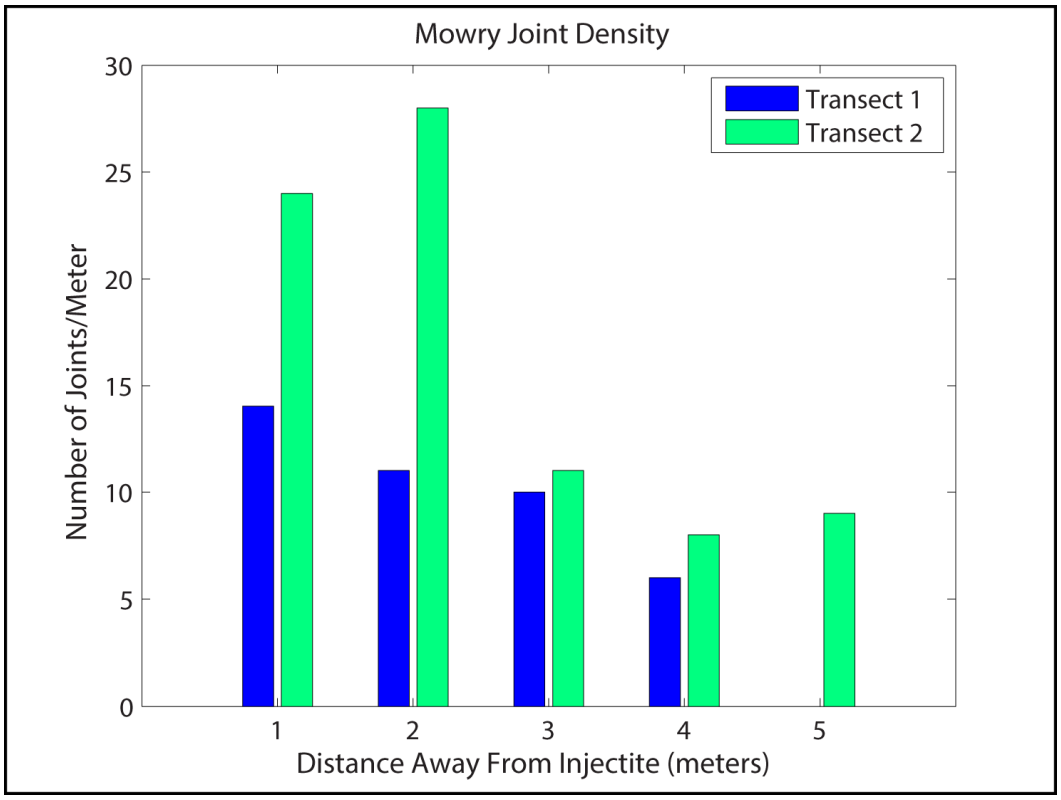


Figure 22 – The density of joints measured as number of joints per meter. Joint densities are binned in one meter increments. In both transects, joint density is substantially higher within 2-3 meters from the injectite contact, falling to a roughly steady value between 3 and 4 meters from the injectite contact. Due to outcrop quality, no joints could be measured at the 5 meter bin for transect 1; however this does not imply that joints do not exist there. .

Chapter 5

Discussion

5.1 Timing and Direction of Intrusion

Unfolded injectite contacts (Figure 6b), are either sub-vertical (dike) or sub-horizontal (sill), suggesting that intrusion occurred prior to the folding of Sheep Mountain Anticline, or during the early stages of folding, when the Mowry bedding was still nearly horizontal. At least one joint set is usually sub-parallel to the injectites. Because the injectites appear to have exploited the joint sets in the Mowry Formation during intrusion, it is essential to determine the timing of formation for the Mowry joints. As Mode I fractures, the Mowry joints would have opened in the direction of the local least compressive principal stress direction and propagated perpendicular to it. Although the Mowry joint set with a NW-SE attitude is similar to Set III fractures identified by Bellahsen et al. (2006) in orientation, they likely did not form at the same time, or by the same mechanism. The Set III fractures in older units were only found in the hinge of SMA and are interpreted to have formed in response to the bending of layers (Bellahsen et al., 2006). It is less likely that the NW-SE joints in the Mowry shale on the flanks of SMA, and stratigraphically above the units examined by Bellahsen et al. (2006), formed by this mechanism. Furthermore, Amrouch et al. (2010) used calcite twins in the matrix of the Madison and Phosphoria formations to interpret a pre-folding maximum compressive stress oriented at 135°. Two sites from their study also show microfaulting related to this compression trend. They argued that the Set I fractures identified by Bellahsen et al. (2006) (which actually range in strike between 110° and 140°) could be associated with this pre-folding compression. Therefore, the NW-SE Mowry joints likely formed prior to Laramide compression, in a local stress field where the most compressive horizontal

stress trended NW-SE (Bellahsen et al., 2006; Amrouch et al., 2010). The Mowry joint set with a NE-SW attitude is consistent with having formed during Laramide compression, similar to Set II fractures reported by Bellahsen et al. (2006) in older units. It is possible that the injectites exploiting the NW-SE joint set formed prior to the folding of Sheep Mountain Anticline, while the injectites exploiting the NE-SW joint set formed during the early stages of folding. However, if the horizontal normal stresses were near isotropic, both sets of injectites could have formed around the same time. Unfortunately, due to the thin layering and friable nature of most outcrops within the Mowry Formation, it is difficult to establish definitive abutting relationships; however we can use attitude data from the joints in conjunction with data collected from older units at SMA (Bellahsen et al., 2006; Amrouch et al., 2010) to establish some constraints on the timing of the Mowry joints.

While most injectites described in the literature intrude upward or laterally (Jolly and Lonergan, 2002), there is abundant evidence pointing to downward (and lateral) intrusion of the Sheep Mountain injectites: (i) The injectite material contains chert pebbles, which are known to occur in the Peay Sandstone. The lithologies of no other sandstones in the area resemble the injectite material; (ii) The injectites are only found in the Mowry Formation. They have not been seen above the Peay Sandstone or below the Mowry Shale; (iii) Mini injectites can be seen to pinch out at their lower tips, and they can often be traced back to an upper source. These mini injectites are interpreted to represent small analogs to the large-scale injectites; (iv) The Mowry Shale is often warped downward near the injectites, and (v) At several locations, the Peay Sandstone slumps downward above the injectites.

5.2 Intrusion Mechanics

The only known mechanism for downward intrusion of sandstone injectites is by flushing sediments into open fissures (Hurst and Cartwright, 2007). These Neptunian

dikes typically range from 1-10 meters in length (Talbot and Brunn, 1989). This method of intrusion does not seem likely because the injectites can be as long as 1 km. Furthermore, abundant field evidence exists for forceful intrusion of the injectites at SMA. The Mowry Shale is warped and shows evidence of drag folding at the injectite contacts (Figure 20a). Joint density in the Mowry also increases as you approach the injectite (Figure 22), which has been interpreted to be the result joints infilling the process zone of a propagating injectite (Delaney et al., 1986). Some injectite segments are sills (Figure 8). Sills can only form once the pore fluid pressure within the injectite exceeds the lithostatic stress (Jolly and Lonergan, 2002); sill formation for a downward propagating injectite would require significant fluid pressures. We also see mini injectites transitioning from dike to sill and back to dike, jumping from joint to joint (Figure 21b).

The general model for injectite intrusion provides the basic mechanics for upward intrusion (Jolly and Lonergan, 2002), but it is insufficient to explain why downward propagation would be preferred over upward propagation. Simonson et al. (1978) showed that for vertical hydraulic fractures stress gradients and heterogeneous material properties of the country rock play a major role in the propagation of hydraulic fractures. In a layered sequence of rocks, there will be a variation in the in-situ stresses due to different material properties. As a fracture propagates through this sequence, a decrease in in-situ stresses would promote fracture propagation, whereas an increase in in-situ stresses would inhibit fracture propagation. For a vertical hydraulic fracture in an otherwise homogeneous medium, if the vertical pressure gradient within the fracture is greater than the gradient of the normal stress resisting injectite opening, the stress intensity factor of the lower tip exceeds that of the upper tip, making downward propagation probable (Simonson et al., 1978). For sedimentary rocks with contrasting elastic properties, the horizontal normal stresses can also be highly stratified, raising the

possibility that the local confining pressures may be locally smaller in rocks underlying the sand layer than they are in the rocks above (e.g., Bourne, 2003; Simonson et al., 1978). In the case of the Sheep Mountain injectites, the sand was injected into a shale unit with interbedded sandstone layers, and at most localities, they were contained by the transition into a pure shale unit. Here, we explore the potential influence of heterogeneous material properties on the local stress field by taking into account the elastic properties.

To do this, we take into account, in an approximate sense, the depositional, burial, and lithification history of the rock units involved in sand injection. For illustrative purposes, we neglect thermal and chemical contributions to stress changes. At the time of intrusion, the Peay Sandstone was a sand slurry, not yet lithified, sitting on a pre-fractured Mowry Shale, and sealed from above by the bentonite-rich middle member of the Frontier Formation. The change in horizontal normal stress within each of the stratigraphic layers with burial depends on the degree of lithification and material properites of each layer (Maltman, 1994). The horizontal normal stress is also dependent upon the coupling between adjacent layers (Bourne and Willemse, 2001); however by analyzing the evolution of stresses in each layer individually, we can ignore this coupling. In general, the change in the horizontal least compressive stress σ_h can be related to a change in vertical lithostatic stress σ_v by a ratio *K* by the relationship

$$\sigma_h = K\sigma_v. \qquad \text{Equation 1}$$

For well-lithified rocks idealized as elastic materials in a basin under a state of uniaxial strain, *K* is a function of Poisson's ratio (*v*):

$$K = \frac{v}{1-v}. \qquad \text{Equation 2}$$

It should be noted that this assumption is a gross approximation given that the Mowry Shale contains systematic vertical joints, evidence of an anisotropic stress field

prior to injectite formation; however an anisotropic horizontal stress field does not invalidate the implied mechanism explained below. For sediments, *K* is determined in the laboratory using one-dimensional compression experiments (Maltman, 1994). Based on the typical range for Poisson's ratio (Gercek, 2007), *K* varies between 0.05 and 0.67 for rocks, and based on experimental data, *K* varies between 0.3 and 0.7 for sediments (Maltman, 1995). The least compressive principal stress can be modeled as a function of the lithostatic stress and *K.* This shows how a difference in material properties can lead to a stratified horizontal stress field. For sedimentary rocks *K* is also a function of time, decreasing as the sediments undergo compaction and lithification. Therefore an accurate estimate of the horizontal stress in any unit involved needs to take into account the depth at which a unit lithified. To illustrate how the burial history of the sedimentary rocks involved in the SMA injectites may have resulted in downward injection of the Peay sand, we assumed a lithification depth of 350m for both the upper and lower Mowry Shale to develop plots of the evolution of the σ_h. For the Peay unit and the overlying mud unit, we assumed they were still unlithified at the time of the intrusion, and therefore, the σ_h in these layers only depended on one K value (Figure 23).

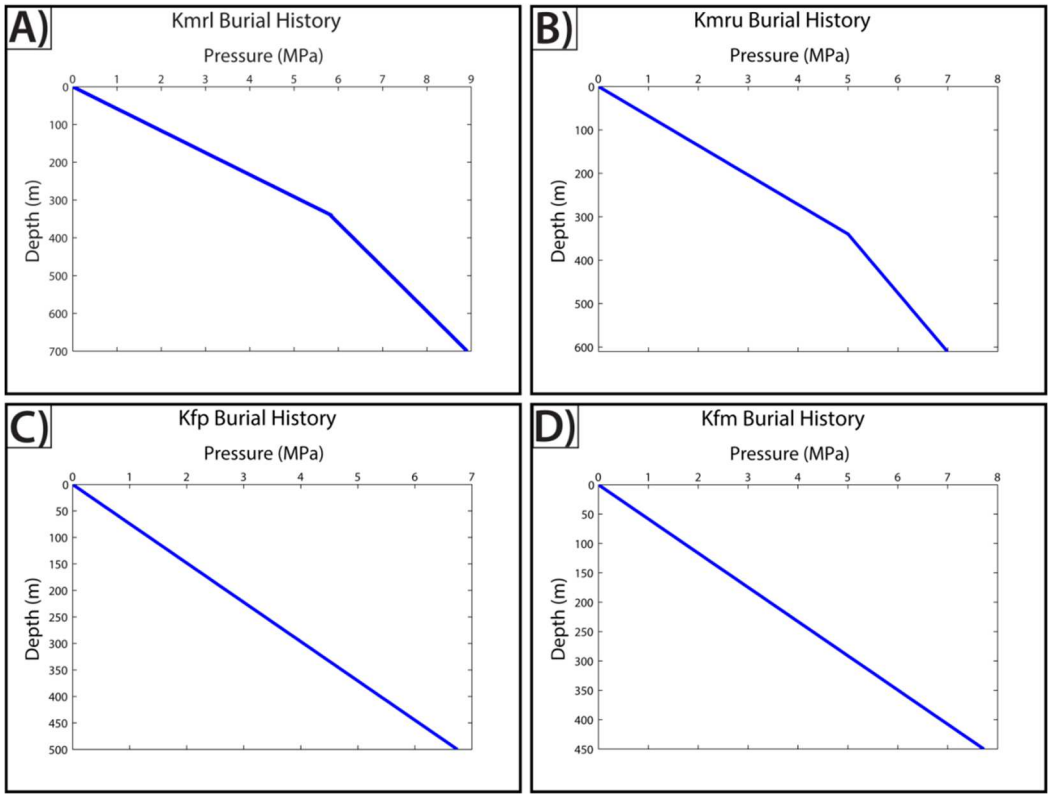


Figure 23 – Diagrams showing the evolution of the confining pressure in the units involved in sand intrusion: (A) Lower Mowry Shale, (B) Upper Mowry Shale, (C) Peay Sandstone, and (D) Bentonite-rich mud of the Frontier Formation. The K value for a given unit decreases when the unit becomes lithified. Because of this, and the difference in elastic properties, a stratified horizontal stress field is created.

Figure 24 is a model for injectite intrusion that was modified from the general intrusion model (Jolly and Lonergan, 2002). It follows that before the sand body becomes sealed, the pore fluid pressure increases along the hydrostatic gradient. When the sand body becomes sealed, the pore fluid pressure will divert from the hydrostatic gradient along the lithostatic gradient, and intrusion commences once the pore fluid pressure exceeds the confining pressure. By including the effects of mechanical stratigraphy, it is possible to produce a scenario wherein the confining pressure in the shale unit below the sand body is smaller than in the mud unit sitting above the sand body. This same concept explains why we do

not find the injectites in the Lower Mowry Formation. The interbedded sand layers in the Upper Mowry, as well as the pre-existing joints that formed in response to a compressive horizontal stress, may have played a role in promoting fracture propagation while the lack of sand layers in the Lower Mowry may have acted as a barrier to propagation.

Another consideration is the timing of intrusion with respect to the maturity of petroleum bearing rock units. The Mowry Formation is a source rock within the Bighorn Basin (Finn et al., 2008). If the Mowry shale was mature at the time of sand intrusion, the presence of petroleum in the shale would have created tension in the unit, allowing for easier intrusion. Petroleum generation in the Bighorn Basin is thought to have started in the Paleocene. More specifically, the Mowry shale may have started generating petroleum during 59-63 Ma (Finn et al., 2008). While the Laramide orogeny started in the very latest Cretaceous, it is difficult to constrain exactly when deformation started in the Bighorn Basin, specifically when the folding of Sheep Mountain Anticline was initiated.

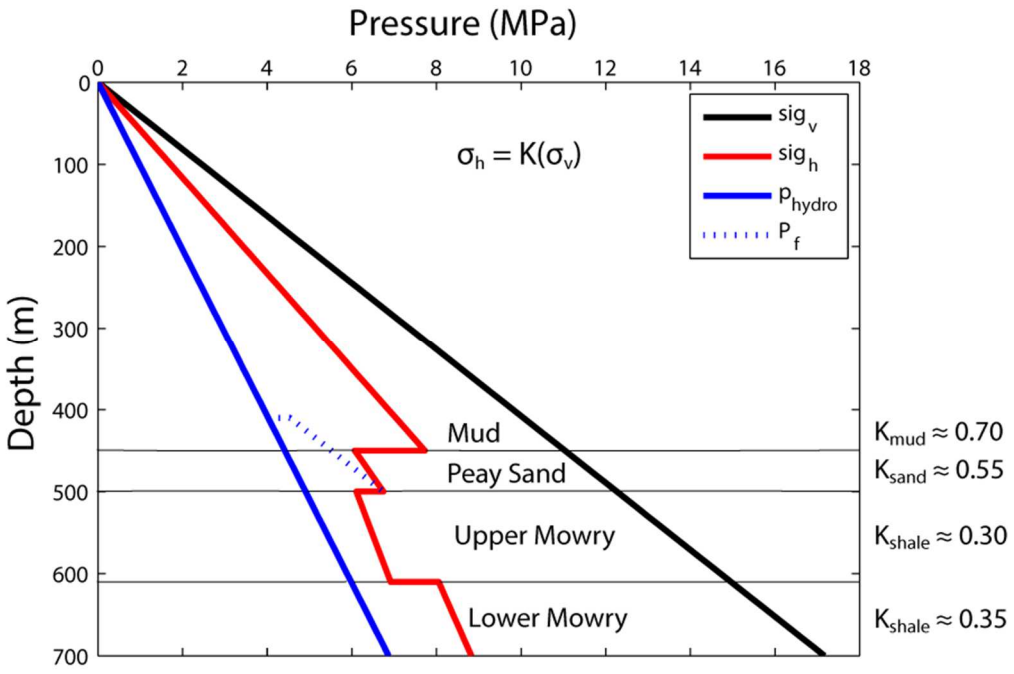


Figure 24 – Model for downward intrusion modified from Jolly and Lonergan's model for upward intrusion. By considering the lithification history of the units involved, the confining pressure is dependent upon the elastic properties of the rocks. With this it is possible to have a scenario where the confining pressure below the sand body is smaller, allowing for downward intrusion.

5.3 Timing of Deformation: Deformation Band Formation

As the deformation bands are contained within the injectites, they must have formed at some time after injectite intrusion and lithification. Neither the current attitudes nor the unfolded attitudes of the deformation bands show any obvious systematic relationships, spatial or temporal. However, they may be related by common principal deformation axes. To check for kinematic compatibility of the deformation bands, we performed a Bingham analysis (Marrett and Allmendinger, 1990) on both the present day and unfolded deformation band orientations. This graphical method uses the orientation of the fault plane, slip direction, and the sense of slip to determine the shortening and extension axes for each fault surface (Figure 25).

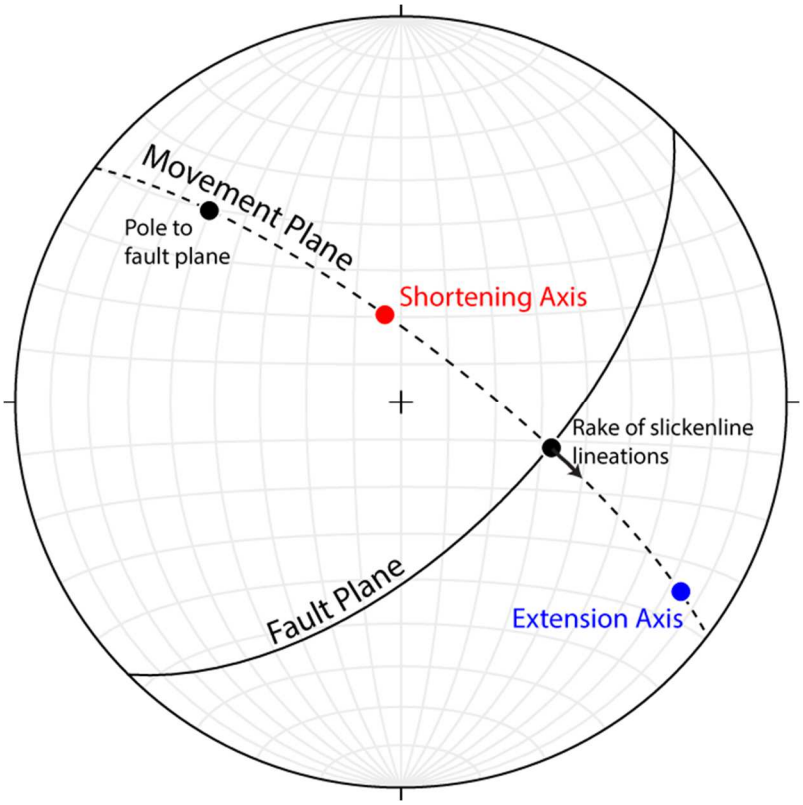


Figure 25 – Illustration of Bingham analysis. The slickensided surface is plotted as the fault plane with the rake of the slickenline lineations. The Movement Plane is the plane that contains the rake of the lineations and the pole to the fault plane. The shortening and extensional axes are each plotted 45° from the pole to the fault. The direction of slip always points toward the extension axis.

We were determined the sense of slip for fifteen of the eighteen injectites. Nine of the fifteen injectites exhibited reverse slip on the slickensided surfaces. After the analysis, these injectites showed sub-vertical extension axes and NE-SW shortening axes (Figure 26a), which were consistent along the length of each injectite. This NE-SW compression is in agreement with the paleostress regime associated with Bellahsen et al.'s (2006) Set II fractures, as well as that inferred from calcite twins in the Madison, Phosphoria, and Tensleep Formations (Amrouch et al., 2010). These axes suggest deformation band formation during Laramide contraction and the folding of Sheep Mountain Anticline.

During the Late Pliocene and Early Pleistocene, regional uplift of mountain ranges caused extensional faulting in the basins (Love, 1960; Ray and Keefer, 1985; Byrd et al., 1994; McMillan et al., 2006). Amrouch et al. (2010) inferred a post-folding NE-SW extension from calcite veins in Sets I and III fractures. They hypothesized this recorded extension may indicate outer rim extension; however, they could not rule out the possibility that the extension was linked to the permutation of Set I principal axes. Beaudoin et al. (2012) obtained paleostress tensors from calcite twinning at Rattlesnake Mountain Anticline (RMA), northwest of SMA. They found indicators of an E-W extension that clearly postdated Laramide compression. This extension event was tentatively related to Basin and Range extension. There is a general agreement that the Bighorn Basin experienced a post-folding extension, although the direction of extension varies from study to study. We identified normal slip on the slickensided fault surfaces of six injectites at SMA. The kinematic analysis showed that these six injectites experienced a NW-SE extension (Figure 26b), sub-parallel to the axial trace of SMA, which is consistent with deformation band formation occurring post-Laramide, during post-folding extension.

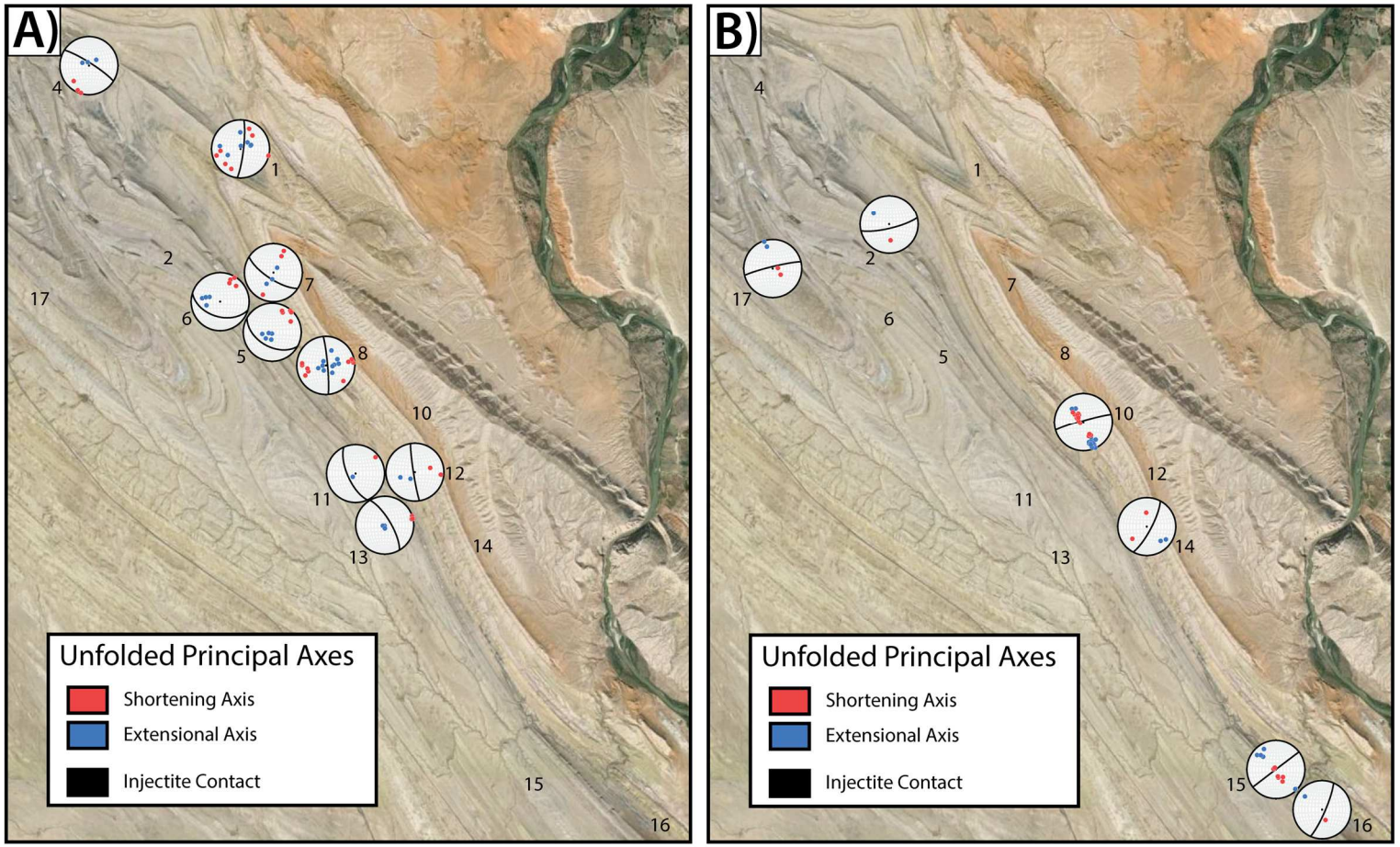


Figure 26 – Unfolded principal axes of deformation for the deformation bands. (A) Some of the injectites contained deformation bands that exhibited reverse slip, consistent with Laramide contraction, and (B) some injectites contained deformation bands that exhibited normal slip, consistent with post-folding extension.

Chapter 6

Conclusions

Sandstone injectites are a common feature in sedimentary environments around the world; however, in most cases, they are not easily accessible, and therefore difficult to study at sub-seismic resolution. Sheep Mountain Anticline offers unique exposures of sandstone injectites that have been subsequently deformed. We characterized injectites at SMA located around the nose and west flank of the fold. The injectites formed prior to the folding or early stages of folding of SMA. They were deformed during Laramide compression, and the formation of SMA, but upon unfolding around the local bedding orientations, the injectites restore to dike and sill orientations. These injectites were sourced by the Peay Sandstone of the Frontier Formation and propagated downward into the Mowry Shale Formation. Sand injection was driven by overpressurized pore fluids in the Peay Sandstone and a stratified σ_h which arose from the depositional, burial, and lithification history of the rock units. Intrusion into the underlying Mowry shale was also aided by pre-existing joint sets in the Mowry Shale. Deformation bands dominate the internal structure of the injectites. These deformation structures formed after sand intrusion and were subsequently faulted resulting in slickensided surfaces. While there is no observable trend in the attitude of the deformation bands, common principal axes of deformation were obtained from a kinematic analysis on the slickensided surfaces. Deformation bands exhibiting reverse slip formed during the folding of SMA, probably during the later stages, while deformation bands exhibiting normal slip formed during post-folding extension of the basin rim.

Beyond the formation and deformation of these sandstone injectites and the regional implication, this study highlights the importance of rock mechanical properties in determining the intrusion direction and containment of hydraulic fractures.

Appendix A

Position Vector Data and Structural Measurements

Injectite #1				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
-2	747	462732.2143	642628.4384	1229.702759
	748	462732.5596	642628.4964	1229.741773
	749	462732.6362	642628.112	1229.730191
	750	462732.2841	642628.037	1229.673803
	751	462731.7842	642628.0672	1229.598213
	752	462731.9095	642628.425	1229.656125
	753	462732.1262	642628.4165	1229.691177
-1	738	462749.284	642620.7307	1232.256373
	739	462749.7114	642620.328	1232.171029
	740	462749.2776	642620.0247	1232.13933
	741	462748.729	642620.1019	1232.043623
	742	462748.202	642620.1031	1231.958584
	743	462747.8027	642620.645	1232.076846
	744	462748.451	642620.7029	1232.169505
	745	462748.7869	642620.635	1232.229856
	746	462749.0377	642620.7724	1232.205472
0	691	462763.7221	642619.4118	1235.336072
	692	462764.197	642619.4435	1235.587837
	693	462764.5993	642619.3905	1235.421721
	694	462765.0276	642619.0341	1235.11052
	695	462765.4814	642618.822	1235.069982
	696	462765.8219	642618.5535	1234.940137
	697	462766.3626	642618.4358	1234.832848
	698	462767.1398	642618.5084	1234.641433
	699	462767.9177	642618.3048	1234.373514
	700	462768.583	642617.992	1234.163812
	701	462769.6413	642617.2782	1233.905646
	702	462769.9351	642616.8362	1233.796833
	703	462769.4673	642616.689	1233.899855
	704	462768.8552	642616.9902	1234.104376
	705	462768.2188	642617.362	1234.263786
	706	462767.7439	642617.6571	1234.40247
	707	462767.2325	642617.8113	1234.511588
	708	462766.6655	642617.7534	1234.530181
	709	462765.393	642618.2612	1234.849002
	710	462764.9322	642618.4447	1234.914839
	711	462764.4765	642618.7903	1234.999268
	712	462764.3707	642618.2965	1234.912096
	713	462764.3442	642617.9122	1234.789261
	714	462764.4262	642617.4696	1234.69142
	715	462764.3969	642616.7798	1234.244584
	716	462763.7099	642616.7366	1234.339377
	717	462761.9878	642618.2097	1234.527743
	718	462761.4526	642618.7083	1234.581388
	719	462760.7917	642619.2378	1234.606991
	720	462760.1325	642619.6218	1234.488424
	721	462759.4963	642620.047	1234.445142
	722	462759.0894	642620.278	1234.352788
	723	462758.0519	642620.9635	1234.264396
	724	462757.5389	642621.0416	1234.120835
	725	462756.5947	642620.6484	1233.822436
	726	462756.7541	642621.3622	1234.094927
	727	462757.4883	642621.5134	1234.291218
	728	462758.0854	642621.3756	1234.404604
	729	462759.4137	642620.5085	1234.573158
	730	462760.1453	642620.1098	1234.7155
	731	462760.8292	642619.7395	1234.788347
	732	462761.9536	642618.95	1234.891674

	733	462762.8397	642618.1929	1234.923983
	734	462763.4072	642618.1073	1235.036454
	735	462763.7312	642618.3947	1235.194036
	736	462763.7581	642618.7367	1235.287304
	737	462763.7105	642619.1427	1235.367772
1	2	462830.4331	642555.7866	1237.630912
	3	462830.6833	642555.466	1237.717475
	4	462831.3493	642555.3532	1237.937845
	5	462831.8086	642555.6443	1237.898526
	6	462832.4121	642555.4556	1237.972897
	7	462832.634	642555.8293	1237.888772
	8	462832.8922	642556.3456	1237.719608
	9	462833.6005	642556.6962	1237.530023
	10	462833.9465	642556.0747	1237.294108
	11	462833.5164	642555.6333	1237.331903
	12	462833.1263	642555.103	1237.243511
	13	462832.5109	642554.8107	1237.11458
	14	462831.9415	642554.6442	1237.11519
	15	462831.2252	642554.4464	1237.177064
	16	462830.6638	642554.9634	1237.553188
	17	462830.2051	642555.1036	1237.530937
	18	462829.6909	642554.846	1237.126468
	19	462829.2751	642554.5293	1236.839346
	20	462828.839	642554.2416	1236.615318
	21	462828.3135	642554.1029	1236.564416
	22	462828.1602	642553.5878	1236.397996
	23	462827.5914	642553.0757	1236.138916
	24	462826.859	642552.6167	1235.84204
	25	462825.883	642552.6012	1235.696346
	26	462825.3356	642552.8441	1235.514076
	27	462825.7522	642553.4159	1235.901781
	28	462826.4249	642553.9167	1236.445544
	29	462826.923	642554.6183	1236.701881
	30	462827.411	642555.0789	1236.960961
	31	462827.9599	642555.362	1237.311786
	32	462828.3854	642555.6641	1237.42822
	33	462828.8262	642555.9439	1237.532461
	34	462829.5223	642555.9732	1237.670536
	35	462830.1798	642555.9561	1237.544653
2	36	462826.5234	642576.2259	1237.510516
	37	462826.649	642576.4685	1237.652552
	38	462826.7962	642576.7816	1237.823545
	39	462827.0166	642576.955	1238.064947
	40	462827.0684	642577.2345	1238.18961
	41	462827.2013	642577.4564	1238.305739
	42	462827.4607	642577.5996	1238.451128
	43	462827.6969	642577.0931	1238.291718
	44	462827.6332	642576.7224	1238.054584
	45	462827.4542	642576.5036	1237.874447
	46	462827.2101	642576.3164	1237.746736
	47	462826.9361	642575.965	1237.584277
	48	462826.698	642575.6937	1237.368479
	49	462826.25	642575.5072	1237.150852
3	50	462832.5703	642582.7898	1241.939259
	51	462832.9074	642583.1211	1242.191024
	52	462833.4829	642583.4366	1242.545811
	53	462833.9248	642583.2351	1242.758562
	54	462834.5174	642583.4509	1242.786908
	55	462835.2934	642583.361	1242.731435

	56	462835.4574	642582.7346	1242.539715
	57	462835.049	642581.8796	1241.760951
	58	462833.9785	642581.7897	1241.758513
	59	462832.6224	642581.641	1241.540276
	60	462831.9897	642581.2816	1241.162934
4	61	462837.8641	642583.0248	1243.185587
	62	462838.598	642583.168	1243.577559
	63	462839.7538	642583.119	1244.383451
	64	462840.692	642582.8245	1244.680326
	65	462841.8131	642582.9038	1245.190561
	66	462843.0256	642582.9574	1245.744078
	67	462844.1149	642583.0738	1246.175065
	68	462845.635	642583.054	1246.749308
	69	462846.6039	642583.1607	1247.168713
	70	462848.1301	642583.0501	1247.79081
	71	462849.7257	642582.9385	1248.512881
	72	462850.5569	642583.3034	1248.770742
	73	462851.5444	642583.4439	1248.921008
	74	462852.3747	642583.2147	1248.811585
	75	462852.9971	642582.7047	1248.394314
	76	462852.5408	642582.1652	1247.78959
	77	462851.7529	642582.0503	1247.632923
	78	462850.5374	642581.8873	1247.390607
	79	462849.8068	642581.8284	1247.27204
	80	462849.1438	642581.6486	1247.055937
	81	462848.2684	642581.7525	1246.796552
	82	462847.1529	642581.7964	1246.381415
	83	462846.607	642581.5319	1246.117458
	84	462845.1723	642581.6715	1245.809
	85	462843.8476	642581.4999	1245.11558
	86	462842.0798	642581.6209	1244.790359
	87	462840.5213	642581.7781	1244.201485
	88	462839.6078	642581.908	1243.872606
	89	462839.0848	642581.6769	1243.459297
	90	462838.4914	642581.7339	1243.316041
	91	462837.5919	642581.9689	1242.861279
	92	462836.7092	642582.4335	1242.550079
	93	462837.2618	642582.8806	1242.771668
5	94	462855.6796	642581.5919	1249.461418
	95	462856.6955	642581.4255	1250.239268
	96	462858.3564	642581.4453	1251.226515
	97	462860.34	642581.4813	1252.196389
	98	462862.455	642581.7407	1253.145536
	99	462864.5356	642581.6541	1253.849929
	100	462867.0846	642582.0058	1254.810049
	101	462869.8117	642581.9571	1254.937455
	102	462870.0628	642581.3469	1254.590897
	103	462869.2871	642580.879	1253.94655
	104	462868.3651	642580.5949	1253.720389
	105	462867.2526	642580.1383	1253.211677
	106	462866.1965	642580.2301	1253.015691
	107	462865.2805	642580.3367	1252.786177
	108	462864.6231	642580.2471	1252.346046
	109	462863.7568	642580.0399	1251.931822
	110	462862.2075	642579.86	1251.300886
	111	462860.7229	642579.7305	1250.829056
	112	462859.593	642579.9317	1250.477926
	113	462858.4664	642579.8987	1249.782373
	114	462857.4368	642579.697	1249.049329
	115	462856.4928	642579.8085	1248.631448

	116	462855.4026	642579.8201	1248.24801
	117	462855.2633	642580.241	1248.397971
	118	462854.7643	642581.0524	1248.68235
	119	462855.1526	642581.5023	1249.056949
6	120	462875.5553	642581.4797	1256.797345
	121	462875.9461	642581.6608	1257.054901
	122	462876.4268	642581.8193	1257.504176
	123	462877.0376	642581.9424	1257.894929
	124	462877.9544	642582.2039	1258.369198
	125	462878.5424	642582.2929	1258.753246
	126	462879.081	642582.4304	1258.941613
	127	462879.6592	642582.5203	1259.232392
	128	462880.8397	642582.666	1259.170213
	129	462881.5751	642582.7907	1259.148267
	130	462882.2673	642582.7514	1259.159545
	131	462882.9013	642582.8117	1259.062009
	132	462883.1869	642582.5185	1258.941613
	133	462882.7053	642582.3213	1258.626145
	134	462881.7763	642582.05	1258.318297
	135	462881.5233	642581.9001	1258.189671
	136	462880.7814	642581.4727	1257.823606
	137	462880.0889	642581.2984	1257.451445
	138	462879.4425	642581.0481	1257.156094
	139	462878.0709	642580.8552	1256.679997
	140	462877.0355	642580.6415	1256.313627
	141	462876.2658	642580.8665	1256.138367
	142	462875.6696	642580.8836	1255.815279
	143	462874.9637	642580.9311	1255.73786
	144	462874.843	642581.2277	1256.062167
	145	462875.1454	642581.4264	1256.458407
7	146	462886.8464	642580.3483	1259.533534
	147	462886.2706	642580.5815	1259.445752
	148	462886.5635	642581.4965	1259.463125
	149	462886.8997	642582.2241	1259.504883
	150	462887.2554	642582.6447	1259.453067
	151	462887.7958	642582.8739	1259.381744
	152	462888.8556	642583.2982	1259.22782
	153	462891.0044	642583.9194	1258.780373
	154	462893.9107	642584.902	1258.056778
	155	462894.7989	642583.1116	1257.81751
	156	462893.267	642581.8546	1258.212531
	157	462891.2364	642580.9564	1258.826093
	158	462889.0757	642580.487	1259.18911
	159	462887.552	642580.2401	1259.415272
8	160	462894.3706	642592.8905	1258.52678
	161	462894.8205	642592.9353	1258.330793
	162	462895.2277	642592.8738	1258.125358
	163	462895.6097	642592.7433	1257.900721
	164	462895.998	642592.6516	1257.652004
	165	462896.6283	642592.586	1257.310018
	166	462897.1544	642592.4897	1256.992417
	167	462897.8792	642592.352	1256.7056
	168	462898.4077	642592.3282	1256.455969
	169	462898.903	642592.1996	1256.223101
	170	462898.6814	642591.9079	1256.295949
	171	462897.8454	642591.7695	1256.656222
	172	462896.9502	642591.9262	1257.089953
	173	462896.2439	642591.7097	1257.24662
	174	462895.5545	642591.6924	1257.500518

	175	462894.3847	642591.743	1257.999476
	176	462893.6059	642591.7914	1258.251545
	177	462893.6733	642592.3855	1258.474659
	178	462894.1424	642592.811	1258.591397
9	179	462901.6362	642592.2011	1255.43245
	180	462902.3244	642592.2367	1255.156606
	181	462902.5436	642591.5278	1255.007254
	182	462902.0431	642590.9889	1255.134661
	183	462901.3911	642591.1218	1255.437632
	184	462901.4716	642591.6582	1255.517794
10	185	462908.2829	642593.1341	1253.526536
	186	462908.5173	642593.4943	1253.388766
	187	462908.9556	642593.6827	1253.178454
	188	462908.767	642593.3215	1253.178454
	189	462908.4463	642592.8345	1253.247034
	190	462908.3149	642592.6455	1253.327197
	191	462908.044	642592.3696	1253.459175
	192	462907.8897	642592.5769	1253.531717
	193	462908.0915	642592.8299	1253.522269
	194	462908.1945	642592.9774	1253.533851
11	195	462911.6927	642597.4595	1253.208934
	196	462911.8838	642597.7487	1252.996489
	197	462912.1624	642597.7676	1252.95717
	198	462912.4785	642597.9929	1252.729179
	199	462912.8208	642598.0758	1252.601773
	200	462913.1969	642598.0542	1252.372563
	201	462913.171	642597.685	1252.404872
	202	462912.7355	642597.2586	1252.431999
	203	462912.5462	642596.9182	1252.426818
	204	462912.0362	642596.9398	1252.678582
	205	462911.6324	642596.7773	1252.774899
	206	462911.4193	642596.6935	1252.871216
	207	462910.8865	642596.4448	1253.059278
	208	462910.607	642596.1083	1253.078785
	209	462910.4028	642595.7346	1253.066288
	210	462910.1892	642595.3076	1253.06263
	211	462910.0529	642594.6724	1252.824582
	212	462909.6716	642594.7504	1252.988259
	213	462909.8045	642595.4841	1253.355848
	214	462910.1675	642596.0644	1253.455517
	215	462910.4894	642596.4177	1253.502457
	216	462910.6171	642596.8514	1253.461309
	217	462910.9173	642597.2099	1253.404616
	218	462911.0728	642597.4144	1253.288182
	219	462911.4431	642597.3927	1253.29123
12	220	462874.8211	642598.8317	1263.854074
	221	462875.1707	642599.0557	1264.086941
	222	462875.5233	642599.2956	1264.349984
	223	462875.9214	642599.2273	1264.362785
	224	462875.9278	642598.8418	1264.292681
	225	462875.5553	642598.6891	1264.141805
	226	462875.2143	642598.5248	1263.93576
	227	462874.9195	642598.3135	1263.671804
	228	462874.5824	642598.0036	1263.445947
	229	462874.1767	642597.7113	1263.184733
	230	462873.8753	642597.4958	1262.935407
	231	462873.8863	642597.7975	1263.004901
	232	462874.0883	642598.0752	1263.157606
	233	462874.388	642598.3391	1263.406018

	234	462874.6751	642598.6656	1263.69954
13	235	462877.788	642602.6176	1264.766645
	236	462878.0648	642602.7338	1264.708124
	237	462878.4077	642602.8139	1264.45514
	238	462879.5196	642603.5198	1263.880287
	239	462880.4745	642603.6305	1263.556589
	240	462881.0805	642603.6856	1263.195401
	241	462881.6791	642603.8889	1262.79276
	242	462882.5715	642603.7189	1262.354153
	243	462883.0071	642603.3656	1262.233757
	244	462882.0741	642602.8304	1262.861036
	245	462881.6004	642602.5801	1263.084454
	246	462881.3481	642602.3918	1263.284403
	247	462880.3172	642602.2028	1263.816888
	248	462879.8884	642602.0522	1264.015008
	249	462879.4653	642601.8648	1264.212519
	250	462878.8533	642600.2944	1264.144853
	251	462878.5905	642599.8601	1264.110716
	252	462877.806	642599.7034	1264.354556
	253	462877.3049	642600.1344	1264.554504
	254	462876.8663	642600.5352	1264.724583
	255	462876.5533	642600.9958	1264.768169
	256	462876.6459	642601.8062	1264.894052
	257	462877.3677	642602.2747	1264.887041
	258	462877.809	642602.6103	1264.752015
14	259	462887.5477	642606.1576	1260.015118
	260	462888.0884	642606.2524	1259.791395
	261	462888.5328	642605.8305	1259.628936
	262	462888.0878	642605.3361	1259.934956
	263	462887.3609	642605.4294	1260.195255
	264	462887.3328	642605.9308	1260.124541
15	265	462894.3914	642605.6918	1258.073542
	266	462895.2628	642605.8485	1257.737043
	267	462896.1958	642605.9863	1257.408469
	268	462897.0267	642605.8863	1257.163105
	269	462898.088	642606.1134	1256.713525
	270	462899.0789	642606.1332	1256.381293
	271	462900.0384	642606.4295	1255.953658
	272	462900.7471	642606.4807	1255.617159
	273	462901.8065	642606.4889	1255.230977
	274	462903.1879	642606.6779	1254.802124
	275	462904.2032	642606.7074	1254.405274
	276	462904.9768	642606.634	1254.211117
	277	462904.9792	642606.1201	1254.31993
	278	462904.1788	642605.9665	1254.656125
	279	462903.0352	642605.7199	1255.002987
	280	462902.0726	642605.6867	1255.390693
	281	462901.364	642605.6775	1255.772302
	282	462900.8336	642605.8363	1256.018276
	283	462900.0326	642605.5419	1256.284976
	284	462899.0777	642605.3431	1256.658356
	285	462898.3013	642605.1877	1256.990588
	286	462897.2943	642604.9079	1257.406945
	287	462896.5292	642604.789	1257.736738
	288	462895.5868	642604.4882	1258.044586
	289	462894.7602	642604.2337	1258.299094
	290	462893.8202	642604.173	1258.46521
	291	462892.8601	642604.636	1258.684057
	292	462892.6168	642605.3541	1258.64108

	293	462893.4346	642605.6184	1258.428329
	294	462894.0588	642605.5858	1258.261299
16	295	462916.6067	642605.0716	1251.826666
	296	462917.1014	642604.9624	1251.65415
	297	462917.8092	642604.7171	1251.370076
	298	462917.3757	642604.0035	1251.335024
	299	462916.6342	642603.724	1251.459687
	300	462916.0404	642603.7783	1251.648663
	301	462915.3982	642603.6741	1251.691945
	302	462914.6338	642604.1005	1251.855318
	303	462915.1034	642604.6799	1251.880006
	304	462915.8008	642604.9131	1251.857451
	305	462916.1776	642605.0307	1251.847393
17	306	462922.18	642605.6809	1250.866242
	307	462922.7231	642606.0375	1250.886358
	308	462923.5007	642606.1512	1250.831494
	309	462924.2642	642606.3843	1250.743102
	310	462924.7949	642606.1094	1250.763219
	311	462924.5894	642605.5382	1250.866851
	312	462923.9356	642605.3264	1250.873862
	313	462923.4973	642605.0734	1250.89093
	314	462923.0755	642604.796	1250.800405
	315	462922.5646	642604.9941	1250.848563
	316	462922.1026	642605.4325	1250.850697
18	317	462929.8573	642607.1207	1251.023518
	318	462930.7098	642607.2573	1251.057961
	319	462931.5498	642607.328	1251.133246
	320	462932.4877	642607.3704	1251.004621
	321	462933.5634	642607.3359	1250.982675
	322	462934.6326	642607.3874	1250.950671
	323	462935.6162	642607.8288	1250.726034
	324	462936.5531	642608.1775	1250.652577
	325	462937.4044	642608.4116	1250.455676
	326	462938.6422	642608.5603	1250.252374
	327	462939.5606	642608.6015	1250.046025
	328	462940.4924	642609.0001	1249.737872
	329	462941.4214	642609.2638	1249.530608
	330	462942.5617	642609.1955	1249.437949
	331	462943.9832	642609.5299	1249.087734
	332	462945.2326	642609.6204	1248.729898
	333	462946.4771	642609.465	1248.444301
	334	462947.4263	642609.0001	1248.36109
	335	462946.8264	642607.9336	1248.689055
	336	462945.8626	642607.3457	1249.041709
	337	462944.9775	642606.7635	1249.35291
	338	462944.3652	642606.9961	1249.502871
	339	462943.8098	642607.6724	1249.663806
	340	462942.6382	642607.6855	1249.816815
	341	462941.5622	642607.4588	1250.063094
	342	462940.671	642607.2908	1250.20635
	343	462939.7429	642607.1823	1250.401422
	344	462938.8568	642607.1189	1250.636118
	345	462938.0659	642606.8546	1250.762
	346	462937.4288	642606.698	1250.792785
	347	462936.5431	642606.5331	1251.003097
	348	462935.7771	642606.5279	1251.050036
	349	462934.1684	642606.1274	1251.157326
	350	462933.015	642605.8802	1251.378306
	351	462931.976	642605.6169	1251.47828

	352	462931.7282	642604.974	1251.279855
	353	462930.9881	642604.2965	1251.000354
	354	462929.3596	642604.3897	1250.879653
	355	462928.7378	642604.6208	1250.734568
	356	462927.8474	642604.7098	1250.777545
	357	462926.6557	642605.3087	1250.85344
	358	462926.0726	642605.8808	1250.93726
	359	462926.3935	642606.7327	1250.829056
	360	462927.2497	642607.2292	1250.819302
	361	462928.4616	642607.1232	1250.93726
19	362	462933.1507	642602.888	1250.97536
	363	462933.7913	642602.8008	1250.953719
	364	462934.3354	642602.7051	1250.923239
	365	462935.3699	642602.5832	1250.73914
	366	462936.1276	642602.5061	1250.660502
	367	462936.986	642602.304	1250.45019
	368	462937.5407	642602.1461	1250.247193
	369	462938.0278	642601.9928	1250.13777
	370	462938.4551	642601.8373	1250.044501
	371	462939.0778	642601.7886	1249.881738
	372	462939.4716	642601.624	1249.738786
	373	462940.1135	642601.453	1249.627839
	374	462940.3391	642601.1488	1249.588825
	375	462940.9773	642600.947	1249.553773
	376	462941.753	642600.7718	1249.492203
	377	462942.2947	642600.6797	1249.415089
	378	462942.5266	642600.4929	1249.323039
	379	462942.3998	642600.142	1249.310847
	380	462942.75	642600.0094	1249.270309
	381	462943.3843	642599.676	1249.097487
	382	462943.9144	642599.4041	1248.869497
	383	462944.6023	642599.2706	1248.702771
	384	462945.2829	642599.0228	1248.663147
	385	462945.7627	642598.9573	1248.649736
	386	462946.0507	642599.0076	1248.519586
	387	462946.6768	642598.7988	1248.332744
	388	462947.1401	642598.4973	1248.139501
	389	462947.0642	642598.1669	1248.066349
	390	462947.5997	642598.0874	1248.247095
	391	462948.2117	642597.9079	1248.309579
	392	462948.6979	642597.6646	1248.220882
	393	462949.1987	642597.561	1248.06391
	394	462949.7482	642597.3589	1247.826166
	395	462950.2841	642597.1297	1247.588422
	396	462950.9985	642596.8615	1247.326904
	397	462951.5868	642596.681	1247.373843
	398	462952.1089	642596.4445	1247.238512
	399	462952.5521	642595.9395	1246.897746
	400	462952.3433	642595.738	1246.805391
	401	462952.6667	642595.4536	1246.862999
	402	462953.1318	642595.1509	1246.733154
	403	462953.4476	642594.8632	1246.546921
	404	462953.3299	642594.6233	1246.356421
	405	462952.6216	642594.7523	1246.296071
	406	462952.0388	642595.1506	1246.485047
	407	462952.0111	642595.7197	1246.665793
	408	462951.5651	642596.0559	1246.663659
	409	462950.833	642596.4405	1246.795028
	410	462950.114	642596.3991	1246.563075
	411	462949.4529	642596.5387	1246.602395
	412	462948.1965	642597.0215	1247.111106

	413	462947.493	642597.4644	1247.411334
	414	462946.9797	642597.8216	1247.876458
	415	462946.8651	642598.1813	1248.01819
	416	462946.3851	642598.2419	1247.907243
	417	462945.7596	642598.3678	1248.025506
	418	462944.5063	642598.4918	1248.456798
	419	462943.4087	642599.1545	1248.586947
	420	462942.5992	642599.3496	1248.589995
	421	462941.9335	642599.6196	1248.812194
	422	462941.7366	642599.8729	1248.92497
	423	462941.9137	642600.1253	1249.047195
	424	462941.2757	642600.2944	1249.041709
	425	462940.3189	642600.5867	1249.178564
	426	462939.3792	642601.0366	1249.210873
	427	462938.6645	642601.2177	1249.167286
	428	462937.6455	642601.5127	1249.370893
	429	462936.5736	642601.7959	1249.606198
	430	462935.6912	642602.0294	1249.882957
	431	462934.8444	642602.1872	1250.19751
	432	462934.1723	642602.3058	1250.370942
	433	462933.4555	642602.3393	1250.500177
	434	462932.1241	642602.4253	1250.491338
	435	462931.0283	642602.6597	1250.413004
	436	462930.242	642602.7926	1250.441046
	437	462930.5504	642603.461	1250.786689
	438	462931.5709	642603.2123	1250.910438
	439	462932.5441	642603.03	1250.940003
20	440	462955.3736	642593.4858	1246.441765
	441	462955.8003	642593.5504	1246.605747
	442	462956.506	642593.4553	1246.512783
	443	462957.0153	642593.2651	1246.321369
	444	462957.1003	642592.7071	1246.193048
	445	462956.2222	642592.7202	1245.944636
	446	462955.4599	642592.7156	1245.901964
	447	462954.7238	642592.8482	1246.128735
	448	462955.1173	642593.2273	1246.41098
21	494	463027.6103	642612.064	1236.425428
	495	463028.2854	642611.8448	1236.406835
	496	463028.8359	642611.7351	1236.289792
	497	463029.2837	642611.2803	1236.191036
	498	463028.6939	642610.8125	1236.223955
	499	463027.9563	642610.7997	1236.306251
	500	463027.143	642610.7899	1236.298021
	501	463026.3622	642611.0143	1236.236756
	502	463025.7263	642611.4708	1236.164824
	503	463025.4703	642612.2746	1236.121847
	504	463026.6093	642612.367	1236.270894
	505	463027.4777	642612.2234	1236.378488
22	506	463031.8516	642610.1724	1236.01852
	507	463032.3469	642610.2971	1236.190427
	508	463032.9474	642610.7015	1236.250472
	509	463033.5783	642610.6555	1236.340388
	510	463033.9221	642610.9396	1236.357762
	511	463034.4299	642611.1081	1236.362639
	512	463034.9209	642610.9847	1236.33094
	513	463035.1087	642610.397	1236.090148
	514	463034.8664	642609.9764	1236.032845
	515	463034.2415	642609.7042	1236.016081
	516	463033.8023	642609.5268	1235.987125

	517	463033.3113	642609.3089	1235.906658
	518	463032.584	642609.2635	1235.763097
	519	463032.0647	642609.4601	1235.726826
	520	463031.7376	642609.7222	1235.773156
23	521	463040.7685	642614.1558	1236.747296
	522	463041.468	642614.129	1236.899087
	523	463041.6235	642614.3893	1236.998452
	524	463042.0499	642614.2558	1237.046305
	525	463042.6683	642614.0004	1236.903964
	526	463042.8832	642613.4463	1236.694261
	527	463042.5437	642613.1439	1236.489131
	528	463041.978	642612.9796	1236.404396
	529	463041.8311	642613.4584	1236.647627
	530	463041.3553	642613.7005	1236.752478
	531	463040.6402	642614.0077	1236.677192
24	532	463043.5882	642614.482	1236.972848
	533	463043.9561	642614.7145	1236.914936
	534	463044.435	642614.45	1236.86434
	535	463045.2643	642614.5633	1236.61989
	536	463045.9129	642614.4609	1236.461394
	537	463046.3762	642614.2403	1236.428171
	538	463046.6173	642613.9778	1236.262055
	539	463045.8599	642614.0964	1236.39129
	540	463045.0747	642614.0982	1236.589715
	541	463044.5749	642614.1223	1236.794236
	542	463044.1122	642614.2143	1236.859463
	543	463043.6763	642614.2729	1236.909755
25	544	463036.2465	642607.5664	1235.427208
	545	463036.8589	642607.6316	1235.586618
	546	463037.5834	642607.77	1235.631728
	547	463038.2972	642607.8215	1235.49975
	548	463038.8468	642607.7852	1235.384536
	549	463039.4259	642607.652	1235.297972
	550	463039.2933	642607.3853	1235.27115
	551	463038.6672	642607.2792	1235.269016
	552	463037.9141	642607.2481	1235.354665
	553	463037.5279	642607.1555	1235.349484
	554	463037.0899	642607.1457	1235.339425
	555	463036.58	642607.0991	1235.239451
	556	463036.2651	642607.3009	1235.250119
	557	463036.0344	642607.5264	1235.34674
26	558	463039.2939	642606.8364	1235.041026
	559	463039.7036	642606.9683	1235.067848
	560	463040.3778	642607.096	1235.113568
	561	463040.9505	642607.2021	1235.227564
	562	463041.6735	642607.0698	1235.201656
	563	463042.6226	642607.0357	1235.247376
	564	463043.2136	642606.7736	1235.328757
	565	463043.9086	642606.5758	1235.383926
	566	463044.7629	642606.7403	1235.516819
	567	463045.2982	642606.609	1235.493044
	568	463045.7639	642606.239	1235.34674
	569	463046.1083	642606.1951	1235.265664
	570	463046.6829	642606.1503	1235.214762
	571	463047.0136	642606.1871	1234.991648
	572	463047.6317	642606.003	1234.807244
	573	463048.2087	642605.9409	1234.701174
	574	463048.7528	642605.832	1234.81456
	575	463049.5172	642605.676	1234.879787

	576	463049.9454	642605.2965	1234.81334
	577	463049.3212	642605.4004	1234.702088
	578	463048.8405	642605.5931	1234.681362
	579	463048.2861	642605.6422	1234.595104
	580	463047.6021	642605.6034	1234.617964
	581	463047.2769	642605.7729	1234.723729
	582	463046.6865	642605.7052	1234.885578
	583	463046.1863	642605.7263	1234.967264
	584	463045.5761	642605.7312	1235.061143
	585	463044.8986	642605.8704	1234.980371
	586	463044.2371	642605.8131	1234.975494
	587	463043.7068	642605.9329	1235.013594
	588	463043.0408	642606.3027	1235.026396
	589	463042.1538	642606.363	1234.952634
	590	463041.7311	642606.5578	1235.004755
	591	463041.0194	642606.62	1234.976408
	592	463040.2458	642606.6151	1234.857232
	593	463039.7145	642606.7053	1234.901428
27	594	463053.5439	642604.2242	1235.29401
	595	463053.6104	642605.0097	1235.255605
	596	463054.1105	642604.9841	1235.450372
	597	463054.6842	642604.8369	1235.592104
	598	463055.2703	642604.6546	1235.691774
	599	463055.9527	642604.3312	1235.822838
	600	463056.6632	642604.088	1236.001451
	601	463057.3731	642603.9088	1236.157204
	602	463058.1479	642603.8063	1236.277904
	603	463058.9102	642603.5982	1236.42878
	604	463059.6344	642603.2547	1236.587886
	605	463060.3888	642603.1766	1236.718645
	606	463061.1892	642602.9806	1236.808256
	607	463061.9119	642602.6502	1237.071299
	608	463062.6675	642602.4689	1237.172797
	609	463063.2954	642602.7968	1237.301423
	610	463064.2476	642603.1684	1237.291974
	611	463065.4317	642603.4058	1237.421819
	612	463066.6463	642603.2729	1237.566904
	613	463067.416	642603.386	1237.601651
	614	463067.5245	642603.8438	1237.641275
	615	463068.1164	642604.0011	1237.754051
	616	463068.6757	642604.0925	1237.708636
	617	463069.4853	642604.5305	1237.382804
	618	463069.7968	642604.4894	1237.289536
	619	463070.1506	642604.2517	1237.043562
	620	463070.0238	642603.953	1236.910669
	621	463069.5365	642603.6265	1236.896344
	622	463068.8525	642603.0428	1236.993575
	623	463068.3371	642602.7325	1236.897563
	624	463067.9296	642602.357	1236.757355
	625	463067.519	642602.2979	1236.885371
	626	463066.9054	642602.1815	1236.852452
	627	463066.4851	642602.144	1236.889028
	628	463066.0654	642602.1568	1236.9317
	629	463065.5512	642602.0958	1236.912498
	630	463064.8133	642601.9772	1236.915241
	631	463064.4399	642601.5027	1236.780824
	632	463063.9733	642601.2323	1236.587581
	633	463063.5721	642601.0863	1236.44402
	634	463062.8571	642601.4493	1236.629034
	635	463062.4368	642601.3615	1236.530279
	636	463062.0457	642601.2509	1236.525402

	637	463061.2724	642601.2844	1236.338255
	638	463060.5711	642601.5591	1236.180978
	639	463059.853	642601.9111	1236.066068
	640	463059.2391	642602.1528	1235.961827
	641	463058.6633	642602.329	1235.846917
	642	463058.2814	642602.0248	1235.74298
	643	463057.7136	642602.0693	1235.503408
	644	463057.0768	642602.3744	1235.439095
	645	463056.7272	642602.98	1235.479633
	646	463056.2627	642602.9931	1235.352227
	647	463055.8714	642602.905	1235.259872
	648	463055.3495	642603.0431	1235.198303
	649	463054.6543	642602.8767	1235.027615
	650	463054.066	642603.0059	1235.018471
	651	463053.4333	642602.8282	1234.825837
	652	463052.7539	642602.5606	1234.689896
	653	463052.2357	642602.4902	1234.548469
	654	463051.5066	642602.1921	1234.319869
	655	463050.9549	642602.329	1234.220505
	656	463050.6264	642602.4033	1234.333585
	657	463049.9485	642602.4753	1234.307677
	658	463049.5958	642602.6454	1234.262567
	659	463049.5172	642602.8413	1234.199778
	660	463049.6778	642603.0172	1234.323527
	661	463050.1756	642602.9843	1234.419234
	662	463050.8254	642602.9602	1234.560966
	663	463051.6096	642603.1236	1234.670084
	664	463052.2519	642603.3531	1234.885578
	665	463052.6899	642603.5747	1235.030663
	666	463053.0562	642603.7061	1235.101072
	667	463053.279	642603.9929	1235.206837
28	668	463073.4147	642603.7542	1236.822887
	669	463073.8719	642603.5829	1236.843613
	670	463074.4337	642603.386	1236.768023
	671	463074.8552	642603.2537	1236.657685
	672	463074.8467	642602.9864	1236.528145
	673	463074.765	642602.6609	1236.376964
	674	463074.3776	642602.7173	1236.29985
	675	463074.0807	642602.6533	1236.237671
	676	463073.9484	642602.8042	1236.340998
	677	463073.6519	642602.9108	1236.401348
	678	463073.1401	642603.1148	1236.409273
	679	463072.8158	642603.1282	1236.349837
	680	463072.4641	642603.1577	1236.317224
	681	463072.1215	642603.2775	1236.420551
	682	463071.9736	642603.5076	1236.609222
	683	463071.9916	642603.9078	1236.838127
	684	463071.7734	642604.0938	1236.921032
	685	463071.4247	642604.284	1236.967057
	686	463071.5137	642604.3754	1237.029541
	687	463071.7898	642604.3821	1237.087758
	688	463072.2172	642604.0484	1236.940235
	689	463072.7231	642603.87	1236.951512
	690	463073.2547	642603.8475	1236.881104
29	801	463088.3121	642598.7201	1236.153546
	802	463087.598	642598.6561	1235.956645
	803	463086.8723	642598.7512	1235.835944
	804	463087.3773	642599.0734	1236.082528
	805	463088.0683	642599.1274	1236.297107
	806	463088.7011	642599.1283	1236.557711

	807	463089.3692	642598.9381	1236.608917
	808	463089.5466	642598.6144	1236.466271
	809	463089.0403	642598.5129	1236.317528
	810	463088.5365	642598.7092	1236.23066
30	811	463102.0321	642597.4955	1239.72946
	812	463102.7901	642597.6497	1240.028773
	813	463103.8536	642597.507	1240.121737
	814	463105.138	642597.3592	1240.246096
	815	463106.897	642597.2626	1240.574365
	816	463107.8629	642597.1599	1240.695066
	817	463108.2009	642597.6552	1240.933724
	818	463109.1562	642597.3266	1240.935248
	819	463110.4367	642597.365	1240.732861
	820	463111.1215	642596.8316	1240.352776
	821	463111.4041	642596.3921	1239.988844
	822	463110.575	642596.2964	1240.041575
	823	463109.4576	642596.4055	1240.223236
	824	463107.8846	642596.5923	1240.1702
	825	463106.9479	642596.6658	1239.9797
	826	463105.9527	642596.8036	1239.940686
	827	463104.629	642596.9999	1239.839492
	828	463103.4772	642596.9429	1239.608149
	829	463102.4341	642597.0325	1239.427403
	830	463101.545	642596.8834	1239.228978
	831	463100.4855	642596.9782	1239.012875
	832	463101.3591	642597.294	1239.448739
31	833	463113.7937	642595.8111	1239.620341
	834	463114.4225	642595.723	1239.630704
	835	463115.1982	642595.6066	1239.466722
	836	463115.8789	642595.2128	1239.137843
	837	463115.7338	642595.0077	1239.046708
	838	463115.372	642595.2338	1239.178991
	839	463114.8066	642595.3625	1239.206423
	840	463113.9845	642595.4115	1239.225625
	841	463113.4219	642595.7163	1239.458188
32	842	463117.8378	642594.4145	1238.770559
	843	463118.591	642594.5566	1238.910157
	844	463121.4055	642593.7418	1238.912596
	845	463123.1072	642592.9125	1238.850112
	846	463125.0408	642591.9883	1238.718438
	847	463126.5106	642591.2242	1238.599871
	848	463129.7662	642590.6667	1238.61633
	849	463130.1715	642590.2967	1238.457529
	850	463129.5504	642590.2644	1238.252704
	851	463126.966	642590.5655	1238.243255
	852	463126.0077	642590.9496	1238.355421
	853	463124.8833	642591.6723	1238.415772
	854	463122.9511	642592.7	1238.598956
	855	463121.2717	642593.502	1238.683386
	856	463120.0083	642593.8217	1238.705332
	857	463118.6275	642594.15	1238.641933
	858	463118.0134	642594.2685	1238.639495
33	859	463135.5918	642588.417	1238.40297
	860	463136.0091	642588.5432	1238.616635
	861	463137.0225	642588.5304	1238.762634
	862	463137.7504	642588.4075	1238.838834
	863	463138.8138	642588.4213	1239.147596
	864	463139.3951	642588.4514	1238.997635
	865	463139.3122	642587.9558	1238.750442

	866	463138.6624	642587.7153	1238.459663
	867	463137.9622	642587.9628	1238.343839
	868	463137.2731	642588.0704	1238.423392
	869	463136.7945	642588.1408	1238.386206
	870	463136.2922	642588.1494	1238.285927
	871	463135.7616	642588.2253	1238.223138
	872	463135.387	642588.3219	1238.316407
34	873	463143.1886	642587.9887	1239.122908
	874	463143.666	642588.0421	1239.27104
	875	463144.7913	642587.893	1239.264944
	876	463145.2412	642587.4432	1239.260982
	877	463145.3722	642587.1685	1239.156436
	878	463145.0199	642587.1722	1239.102791
	879	463144.1265	642587.3892	1238.999768
	880	463143.5797	642587.4822	1238.95923
	881	463142.9427	642587.6775	1238.96685
	882	463142.9902	642587.8559	1239.02842
35	883	463154.3327	642587.2097	1241.52656
	884	463155.0926	642587.4925	1241.727423
	885	463155.8839	642587.2847	1241.786859
	886	463156.6992	642586.7924	1241.837456
	887	463157.0067	642585.8298	1241.766133
	888	463156.3587	642585.582	1241.61038
	889	463155.5297	642586.0621	1241.628973
	890	463154.6833	642586.3508	1241.513149
	891	463154.1508	642586.9957	1241.45859
36	892	463157.6243	642581.5943	1240.800527
	893	463158.1504	642581.42	1240.816071
	894	463158.4832	642580.7351	1240.595092
	895	463159.0242	642579.8131	1240.330525
	896	463159.4579	642579.3282	1240.150693
	897	463159.9121	642579.0529	1239.775484
	898	463159.9468	642578.0571	1239.240256
	899	463159.1919	642577.5692	1239.03604
	900	463158.6319	642577.8179	1239.175943
	901	463157.9827	642578.3641	1239.428622
	902	463157.6224	642578.9673	1239.891918
	903	463157.5139	642579.6519	1240.146121
	904	463157.3835	642580.6824	1240.471952
	905	463157.5072	642581.4038	1240.679521
37	906	463161.4943	642580.6598	1240.323515
	907	463161.6495	642581.0917	1240.589605
	908	463162.505	642581.3984	1240.810585
	909	463163.225	642581.9939	1241.002304
	910	463164.1031	642582.1729	1241.088563
	911	463165.0324	642582.161	1240.872459
	912	463164.6618	642581.6638	1240.638678
	913	463164.3107	642581.2063	1240.440863
	914	463163.634	642581.2764	1240.433548
	915	463163.0336	642580.7848	1240.397276
	916	463162.6166	642580.1984	1240.146426
	917	463162.5422	642579.248	1239.828215
	918	463162.3246	642578.7036	1239.489887
	919	463161.9347	642578.7551	1239.490801
	920	463161.8454	642579.5534	1239.909596
	921	463161.6802	642580.3124	1240.077846
38	922	463164.054	642588.0012	1242.111471
	923	463165.3516	642588.3646	1242.186452

	924	463166.3266	642588.5157	1242.249851
	925	463167.6156	642588.944	1242.192548
	926	463169.1646	642588.8105	1242.097146
	927	463169.4319	642587.8412	1242.12915
	928	463168.0271	642587.4057	1242.133722
	929	463166.6256	642587.1563	1242.070323
	930	463165.3397	642587.043	1242.031614
	931	463164.2009	642586.9192	1242.041367
	932	463162.7675	642587.0018	1242.095622
	933	463163.4484	642587.7568	1242.150181
39	934	463179.0072	642584.8557	1241.531132
	935	463179.9606	642584.5631	1241.476573
	936	463181.2258	642584.5024	1241.376599
	937	463182.7797	642584.3379	1241.247363
	938	463184.2519	642584.3049	1241.154399
	939	463185.5574	642584.0858	1240.927019
	940	463186.3319	642583.4817	1240.851123
	941	463185.5549	642583.0275	1240.765779
	942	463184.4448	642583.2576	1240.980054
	943	463182.9943	642583.3634	1241.177259
	944	463181.744	642583.4219	1241.216883
	945	463180.5126	642583.5509	1241.210483
	946	463178.9859	642583.827	1241.371417
	947	463177.9797	642584.0306	1241.396106
	948	463177.226	642584.2918	1241.463162
	949	463176.2872	642584.6216	1241.539971
	950	463177.945	642585.0514	1241.531742
	951	463178.6533	642584.9721	1241.527779
40	952	463196.8636	642580.7851	1239.910511
	953	463197.6963	642581	1239.837968
	954	463199.3931	642580.7747	1239.781885
	955	463200.7571	642580.5769	1239.717572
	956	463202.0739	642580.8387	1239.467636
	957	463203.2766	642580.7342	1239.307921
	958	463203.9749	642580.2157	1239.204594
	959	463203.0038	642579.1133	1239.285671
	960	463202.0141	642578.7926	1239.314627
	961	463201.2113	642578.7908	1239.357299
	962	463200.1984	642578.9462	1239.546275
	963	463199.1527	642579.1654	1239.692884
	964	463197.8685	642579.2123	1239.814804
	965	463196.5771	642579.3775	1239.824862
	966	463195.841	642579.7473	1239.829434
	967	463194.7495	642580.1548	1239.773351
	968	463195.4594	642580.5672	1239.90411
	969	463196.2784	642580.6583	1239.891613
41	970	463206.1423	642577.866	1238.781836
	971	463206.9497	642578.4604	1238.970508
	972	463208.3741	642578.9926	1238.93698
	973	463209.1138	642579.0496	1238.955268
	974	463209.3308	642578.1711	1238.801039
	975	463209.1464	642577.4756	1238.652601
	976	463208.5701	642576.8794	1238.663879
	977	463207.6557	642576.9202	1238.429792
	978	463206.6532	642576.8306	1238.454786
	979	463206.1247	642577.3278	1238.659612
42	980	463216.3074	642579.4312	1238.908633
	981	463215.432	642579.7238	1238.903452
	982	463214.5365	642580.8762	1238.541959

	983	463214.1991	642581.5584	1238.231368
	984	463215.2037	642582.8605	1237.746431
	985	463215.8709	642584.7137	1236.657685
	986	463216.5784	642585.1776	1236.280038
	987	463217.8649	642586.1776	1235.653979
	988	463218.6842	642586.8616	1235.345826
	989	463219.5194	642586.8137	1235.235488
	990	463220.8715	642586.7336	1234.999573
	991	463222.5549	642585.8033	1234.911791
	992	463223.494	642585.5482	1234.369857
	993	463223.9253	642584.9124	1234.324137
	994	463226.4993	642583.5634	1233.805062
	995	463225.9348	642581.7397	1234.57773
	996	463226.5511	642581.057	1234.653625
	997	463225.8278	642579.7549	1235.590885
	998	463221.7015	642580.7229	1237.418161
	999	463220.5911	642580.6818	1237.857988
	1000	463218.3453	642579.494	1238.528852
	1001	463217.619	642579.0983	1238.817498
	1002	463216.6601	642579.3937	1238.93576
43	1003	463244.2499	642576.8651	1232.595616
	1004	463242.2434	642575.5895	1233.65632
	1005	463241.0733	642576.0985	1233.655405
	1006	463241.4848	642576.8611	1233.139684
	1007	463243.1969	642577.3238	1232.457237
	1008	463244.3886	642578.3702	1231.59069
	1009	463245.236	642578.8774	1231.026201
	1010	463245.812	642578.3199	1231.137757
	1011	463244.9702	642577.6432	1232.038137
44	1012	463249.4834	642573.2255	1233.157972
	1013	463250.0661	642574.573	1232.522464
	1014	463251.6096	642575.6803	1231.706514
	1015	463253.0596	642576.9775	1230.82869
	1016	463254.5924	642578.0965	1230.050536
	1017	463255.7504	642579.0401	1229.349496
	1018	463256.9766	642580.16	1228.734714
	1019	463258.1952	642580.6486	1228.208325
	1020	463260.02	642581.217	1227.442972
	1021	463260.5382	642579.3199	1227.997403
	1022	463259.1016	642577.3686	1228.998671
	1023	463256.6812	642574.762	1230.373929
	1024	463254.0746	642572.8432	1231.607149
	1025	463250.8202	642572.4955	1232.891577
45	1026	463269.2835	642573.3846	1226.077468
	1027	463269.6032	642574.4544	1225.638861
	1028	463270.5911	642574.9707	1225.039319
	1029	463271.7076	642575.8114	1224.348642
	1030	463273.2989	642576.8949	1223.450397
	1031	463274.6382	642578.1632	1222.564648
	1032	463275.7504	642579.6945	1221.286012
	1033	463278.0693	642580.6223	1220.454823
	1034	463281.6257	642581.6334	1218.844564
	1035	463279.7783	642579.4263	1220.552359
	1036	463276.8727	642577.4338	1222.002292
	1037	463273.8701	642575.1359	1223.716182
	1038	463272.2516	642574.298	1224.550115
	1039	463271.6615	642573.6406	1224.805233
	1040	463270.9562	642572.9996	1225.317602
	1041	463269.645	642572.6896	1225.805586

Injectite #2				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	23	461828.1291	641866.8804	1278.994404
	24	461828.2845	641866.3873	1279.153205
	25	461828.1291	641866.0928	1279.558284
	26	461827.82	641866.3318	1279.685081
	27	461827.6716	641866.475	1279.505553
	28	461827.5323	641866.7762	1279.228795
	29	461827.9303	641867.1813	1278.840785
2	30	461828.7682	641865.4256	1279.591202
	31	461829.1526	641865.7143	1279.297985
	32	461829.4897	641865.3135	1279.417466
	33	461829.4732	641864.8928	1279.701845
	34	461829.4358	641864.2015	1280.006949
	35	461829.3032	641863.4996	1280.613197
	36	461828.8963	641864.0046	1280.643981
	37	461828.5753	641864.3222	1280.626608
	38	461828.5933	641864.7532	1280.205679
3	39	461830.0929	641856.7483	1282.82513
	40	461829.9429	641856.0649	1282.938211
	41	461829.4897	641856.0649	1283.007705
	42	461829.2882	641856.5822	1283.00801
	43	461829.4748	641857.0141	1282.842504
	44	461829.6485	641857.6593	1282.51332
	45	461830.1688	641857.4133	1282.510272
4	46	461828.0498	641854.0575	1283.738006
	47	461828.7167	641853.9121	1283.695944
	48	461828.9469	641853.5912	1283.672779
	49	461828.2461	641853.279	1283.761476
	50	461827.6243	641853.5759	1283.856269
	51	461826.9833	641853.3793	1283.927287
	52	461826.7825	641853.9325	1283.750503
	53	461826.9885	641854.5113	1283.719718
	54	461827.3829	641854.8674	1283.624011
	55	461827.97	641854.8805	1283.618525
	56	461828.2751	641854.5424	1283.669731
5	57	461821.4741	641853.8012	1285.107472
	58	461821.7831	641853.596	1285.148925
	59	461822.0355	641853.2577	1285.13399
	60	461822.5354	641853.2681	1284.993172
	61	461822.985	641852.9968	1284.811816
	62	461822.6994	641852.6329	1285.173004
	63	461822.397	641852.3174	1285.398861
	64	461821.9895	641852.1784	1285.586923
	65	461821.9157	641851.5146	1285.714939
	66	461821.8551	641851.1046	1285.798454
	67	461821.5859	641851.1317	1285.960608
	68	461821.2717	641851.6017	1286.200485
	69	461821.1437	641851.7648	1286.302593
	70	461820.6981	641852.0818	1286.134953
	71	461820.7736	641852.5442	1286.05662
	72	461820.4314	641852.67	1286.081308
	73	461820.3228	641852.9227	1286.037417
	74	461820.7645	641853.1885	1285.581741
	75	461821.0492	641853.5079	1285.301935
6	76	461812.0314	641857.4246	1286.53668

	77	461811.1816	641856.1426	1286.831726
	78	461811.0115	641855.3114	1286.775643
	79	461810.3717	641855.192	1286.952732
	80	461810.2395	641855.9229	1287.015825
	81	461810.2952	641856.8391	1286.882628
	82	461810.4848	641857.5886	1286.628729
	83	461810.736	641858.4548	1286.55893
	84	461811.0271	641859.1144	1286.403177
	85	461811.355	641859.4317	1286.266322
	86	461812.0765	641859.3004	1286.288572
	87	461812.5712	641858.88	1286.278209
	88	461812.9692	641858.528	1286.085576
	89	461812.1655	641857.7608	1286.542776
7	91	461805.7561	641854.7643	1287.922605
	92	461805.3809	641853.529	1288.419734
	93	461804.9216	641851.9562	1289.082979
	94	461804.7271	641851.1564	1289.518538
	95	461804.2535	641849.7345	1290.230246
	96	461804.1047	641849.0006	1290.540837
	97	461803.6789	641847.6982	1291.097097
	98	461803.155	641847.3763	1291.326916
	99	461803.2675	641847.5406	1291.293083
	100	461803.0742	641847.9316	1291.101059
	101	461803.4817	641849.22	1290.554248
	102	461803.6994	641850.167	1290.133015
	103	461804.2608	641851.3058	1289.533778
	104	461804.4556	641851.8968	1289.213433
	105	461804.4864	641852.2083	1289.064081
	106	461804.7988	641853.7914	1288.454481
	107	461805.3166	641855.1935	1287.949428
	108	461805.412	641855.9137	1287.678765
8	109	461803.871	641846.1327	1291.52717
	110	461804.0691	641845.14	1291.81673
	111	461803.7762	641843.445	1292.546421
	112	461803.5058	641842.3407	1293.12676
	113	461803.3022	641841.6826	1293.465393
	114	461802.6868	641840.1918	1294.101511
	115	461802.4579	641839.2796	1294.542556
	116	461801.8654	641838.9906	1294.811999
	117	461801.7678	641839.6968	1294.502018
	118	461802.3738	641841.4946	1293.802502
	119	461802.4262	641842.4547	1293.364199
	120	461802.7923	641843.4242	1292.979847
	121	461803.5637	641846.0504	1291.760342
9	122	461797.7046	641825.8412	1300.476707
	123	461797.3327	641824.4151	1301.085393
	124	461796.7344	641823.3876	1301.634033
	125	461796.3714	641822.864	1301.932127
	126	461795.8008	641821.9675	1302.484425
	127	461795.3789	641821.956	1302.612441
	128	461795.4051	641822.6131	1302.185111
	129	461795.7416	641823.501	1301.641958
10	130	461787.1691	641805.1993	1309.637471
	131	461786.8137	641805.0228	1309.845954
	132	461786.7034	641805.3297	1309.78347
	133	461786.5894	641805.6266	1309.702393
	134	461786.2319	641805.8726	1309.63808
	135	461786.1167	641806.1884	1309.368333
	136	461786.8308	641806.0329	1309.3726

	137	461787.0238	641805.5413	1309.478365
11	138	461788.5974	641795.8297	1311.526621
	139	461788.1802	641794.7547	1312.085624
	140	461788.1091	641793.6998	1312.312396
	141	461787.2353	641793.3727	1312.953085
	142	461787.3953	641792.4147	1312.94638
	143	461786.6153	641791.3458	1313.609624
	144	461785.9615	641790.1748	1314.056766
	145	461785.2056	641788.7956	1314.852599
	146	461784.8746	641788.4124	1315.128138
	147	461784.6878	641787.6977	1315.367711
	148	461784.9051	641787.2161	1315.388132
	149	461785.0861	641786.9408	1315.278709
	150	461784.5412	641786.7784	1315.603931
	151	461784.0824	641787.1298	1315.776447
	152	461783.8825	641787.6913	1315.777667
	153	461783.3698	641788.3533	1315.895929
	154	461783.3302	641789.1311	1315.579852
	155	461783.9044	641789.8617	1315.211348
	156	461784.2955	641790.6664	1314.844979
	157	461784.4573	641791.6802	1314.433194
	158	461784.7118	641792.6113	1314.151254
	159	461785.0627	641793.4285	1313.702588
	160	461785.6866	641793.8958	1313.462406
	161	461786.3629	641794.3969	1313.071957
	162	461786.8336	641795.5719	1312.542215
	163	461787.6081	641796.3939	1311.914022
	164	461788.1503	641796.2004	1311.666524
12	165	461768.2371	641742.0042	1334.211361
	166	461769.1619	641741.9161	1333.889492
	167	461769.6337	641742.3297	1333.698077
	168	461770.4253	641742.7232	1333.134807
	169	461770.0068	641743.4361	1333.436864
	170	461770.2189	641743.9067	1333.358835
	171	461770.666	641744.8062	1333.252155
	172	461771.218	641745.7718	1333.068056
	173	461771.2162	641748.949	1332.799222
	174	461771.3628	641750.0585	1332.626096
	175	461771.5439	641751.8666	1332.39841
	176	461772.027	641753.1446	1331.702552
	177	461772.8862	641754.4629	1330.490972
	178	461772.8996	641755.2612	1329.98348
	179	461773.4297	641756.7867	1329.346753
	180	461773.8283	641757.8175	1328.896258
	181	461774.4797	641759.2333	1328.457346
	182	461774.3614	641759.9907	1328.647846
	183	461774.8665	641760.5723	1328.082138
	184	461775.1969	641760.8487	1327.815742
	185	461775.805	641761.8387	1327.75844
	186	461776.6734	641762.0503	1327.201875
	187	461777.1967	641763	1326.544422
	188	461777.8352	641764.303	1325.904342
	189	461778.1184	641766.0587	1325.348082
	190	461779.1797	641767.3151	1324.563831
	191	461780.9378	641770.018	1322.057766
	192	461781.776	641772.0069	1320.939455
	193	461782.3286	641774.5187	1319.247815
	194	461782.8815	641776.8773	1318.070982
	195	461783.3311	641780.1526	1317.500396
	196	461784.0507	641782.0994	1316.234562

	197	461784.4665	641784.1406	1315.555468
	198	461784.5229	641785.8853	1315.532303
	199	461784.3129	641786.8357	1315.709087
	200	461783.1491	641787.4526	1316.128187
	201	461781.6681	641783.3049	1318.198388
	202	461781.2959	641782.2673	1318.890284
	203	461780.9354	641781.4352	1319.243243
	204	461780.1828	641780.0841	1320.218603
	205	461779.4568	641777.4229	1321.789847
	206	461779.294	641775.9473	1322.69175
	207	461778.45	641774.1834	1323.452835
	208	461778.1766	641773.2273	1323.954536
	209	461777.6993	641772.2102	1324.44374
	210	461776.6462	641769.2213	1325.803758
	211	461774.9147	641767.3611	1326.761439
	212	461774.4983	641766.1885	1327.4003
	213	461772.5311	641763.9169	1328.510991
	214	461772.2016	641761.6711	1329.643323
	215	461771.1735	641759.4598	1330.97347
	216	461770.211	641755.7135	1332.673035
	217	461769.6867	641753.8825	1332.781849
	218	461769.6456	641752.4658	1333.025689
	219	461769.5694	641750.9924	1333.266176
	220	461769.224	641749.9704	1333.300313
	221	461769.1893	641748.7448	1333.586216
	222	461769.0268	641747.539	1334.001049
	223	461768.8485	641746.4774	1334.385401
	224	461768.3121	641745.5008	1334.312859
	225	461768.2252	641744.7068	1334.336329
	226	461768.2411	641743.7915	1334.427159
	227	461768.1444	641742.4349	1334.319869
13	228	461770.0942	641731.8473	1336.030102
	229	461771.0733	641732.107	1335.763707
	230	461772.5378	641732.332	1335.159593
	231	461772.9591	641731.2252	1335.580827
	232	461773.6476	641731.0402	1335.449763
	233	461774.2782	641730.5434	1335.472318
	234	461774.3084	641729.444	1335.909096
	235	461772.3802	641728.8271	1336.900916
	236	461772.0145	641727.8593	1337.117628
	237	461771.2055	641726.7288	1337.500457
	238	461770.5639	641725.9171	1337.843052
	239	461770.2607	641724.6675	1337.989966
	240	461769.6547	641723.7375	1338.256971
	241	461768.7147	641723.4809	1338.396874
	242	461768.2511	641724.0292	1338.405713
	243	461768.5291	641725.0363	1338.362736
	244	461768.5577	641725.8242	1338.264591
	245	461768.7053	641726.6974	1338.034162
	246	461768.9537	641727.5021	1337.933883
	247	461769.2182	641728.3897	1337.755575
	248	461769.4743	641729.3867	1337.44224
	249	461769.6886	641730.0188	1337.112142
	250	461769.6395	641730.9607	1336.686946
14	251	461752.4149	641736.238	1339.549628
	252	461753.4256	641736.6226	1339.48562
	253	461754.0986	641736.8695	1339.357299
	254	461755.1316	641736.3093	1339.390522
	255	461755.7677	641736.8634	1339.11163
	256	461756.2621	641736.8323	1338.987272

	257	461756.6843	641736.1752	1339.083284
	258	461756.5224	641735.5293	1339.297863
	259	461756.0917	641735.4309	1339.639848
	260	461755.6263	641734.9456	1339.851684
	261	461754.7686	641734.0955	1340.349728
	262	461754.4211	641733.5289	1340.507614
	263	461753.6759	641732.9483	1340.770351
	264	461753.315	641732.307	1340.87886
	265	461753.023	641731.6468	1341.056559
	266	461752.8761	641730.9942	1341.162629
	267	461752.1501	641729.9243	1341.494251
	268	461751.7428	641728.7591	1341.86245
	269	461751.6569	641728.3427	1341.935907
	270	461751.6133	641727.9697	1341.988942
	271	461751.3256	641727.4378	1342.093793
	272	461751.2945	641726.9849	1342.1895
	273	461750.6218	641727.2988	1342.292827
	274	461750.2411	641727.8426	1342.25869
	275	461750.6227	641728.9075	1342.150791
	276	461751.3207	641730.3879	1341.731081
	277	461751.7578	641731.2207	1341.592092
	278	461752.0589	641731.9936	1341.426891
	279	461752.1763	641732.787	1341.220236
	280	461752.0348	641733.4591	1340.77279
	281	461752.4536	641734.0419	1340.565526
	282	461752.0851	641734.9377	1340.119299
	283	461752.1519	641735.7753	1339.779142
15	284	461763.9153	641721.9307	1339.770608
	285	461764.7593	641721.5317	1339.663318
	286	461765.5137	641721.1034	1339.611197
	287	461765.6323	641720.5219	1339.588337
	288	461763.4316	641718.081	1340.545409
	289	461762.8644	641716.5912	1340.450007
	290	461761.9253	641715.7551	1340.928543
	291	461760.7454	641715.7121	1341.490289
	292	461759.6878	641715.5933	1342.073676
	293	461758.4451	641715.7341	1342.824094
	294	461757.3064	641716.5351	1343.274283
	295	461756.9558	641717.5818	1343.273674
	296	461756.901	641718.1216	1343.155716
	297	461756.5492	641718.6376	1342.942051
	298	461757.4255	641719.167	1342.671999
	299	461758.4021	641719.6916	1342.218761
	300	461758.7158	641720.3582	1341.970044
	301	461758.8608	641721.1059	1341.511625
	302	461759.3708	641722.1821	1341.032479
	303	461760.2318	641722.8088	1340.73469
	304	461761.1892	641722.7993	1340.485364
	305	461762.1999	641723.6068	1339.837664
	306	461763.7133	641723.198	1339.503603
	307	461763.9979	641722.4107	1339.719706
16	308	461762.4745	641713.3966	1340.69659
	309	461762.1783	641712.3432	1340.720364
	310	461761.0737	641711.4117	1341.01602
	311	461759.5265	641709.6643	1341.303751
	312	461757.8056	641709.3732	1342.129759
	313	461756.3898	641709.2866	1342.689067
	314	461756.1393	641710.8646	1343.08165
	315	461756.6364	641712.2341	1343.133771
	316	461757.2585	641713.9525	1343.105119

	317	461758.101	641714.8709	1342.689677
	318	461758.603	641714.1866	1342.398593
	319	461759.8335	641714.2369	1341.911827
	320	461761.6687	641713.9294	1341.05412
17	321	461744.3792	641722.7152	1345.278039
	322	461743.9866	641723.1913	1345.071384
	323	461743.4819	641722.0069	1345.428305
	324	461742.6711	641721.3308	1345.442631
	325	461742.1782	641720.7636	1345.338389
	326	461740.8508	641720.4472	1344.983297
	327	461740.0385	641719.7928	1344.919289
	328	461738.9684	641718.8308	1344.815352
	329	461738.2192	641717.9036	1344.60565
	330	461737.4624	641717.2154	1344.317004
	331	461736.7787	641716.6049	1344.092367
	332	461735.964	641715.8953	1343.750076
	333	461735.4501	641715.9471	1343.508979
	334	461735.6223	641716.8036	1343.543727
	335	461735.8963	641717.7979	1343.569635
	336	461736.3529	641718.555	1343.646749
	337	461737.2042	641719.1381	1343.806769
	338	461737.9543	641719.6843	1343.969227
	339	461738.7382	641719.9931	1344.200266
	340	461739.4856	641720.4149	1344.452335
	341	461740.0529	641721.4881	1344.439229
	342	461740.1973	641722.3604	1344.356323
	343	461740.5046	641723.4367	1343.969532
	344	461740.8557	641724.0301	1343.876263
	345	461741.4598	641724.6032	1343.704661
	346	461742.6184	641724.6275	1343.932042
	347	461743.3962	641724.9037	1343.907658
	348	461744.3673	641723.9868	1344.502627
	349	461745.1982	641724.3185	1344.197827
	350	461746.703	641724.1088	1344.042989
	351	461747.3815	641723.0258	1344.319747
	352	461748.4925	641722.038	1344.144487
	353	461748.754	641721.2113	1344.455079
	354	461748.9582	641720.0403	1344.829068
	355	461748.7393	641719.388	1345.051572
	356	461748.0749	641717.7284	1345.583448
	357	461748.0654	641717.1121	1345.853501
	358	461748.7192	641717.1569	1345.592897
	359	461749.1837	641716.5708	1345.653552
	360	461748.5504	641715.603	1346.064118
	361	461748.074	641714.2881	1346.391168
	362	461747.7579	641712.9385	1346.637142
	363	461746.8877	641711.6424	1346.624035
	364	461746.7411	641710.6994	1346.521623
	365	461747.3934	641710.3733	1346.300947
	366	461747.5967	641709.3985	1346.002548
	367	461747.2376	641708.5612	1345.6947
	368	461746.8039	641707.795	1345.304556
	369	461746.3232	641708.6493	1345.536509
	370	461745.9023	641708.2345	1345.374051
	371	461744.9574	641707.9285	1345.256093
	372	461744.0683	641707.6703	1345.120152
	373	461743.3523	641707.4889	1345.026883
	374	461743.291	641708.0034	1345.371917
	375	461743.6815	641708.991	1345.839785
	376	461744.1637	641710.6043	1346.466759
	377	461744.3039	641711.9405	1346.694444

	378	461744.3097	641713.6755	1346.803563
	379	461744.6879	641715.0943	1346.840443
	380	461744.6867	641716.2102	1346.749918
	381	461744.3435	641717.2407	1346.512479
	382	461743.5629	641717.6909	1346.296071
	383	461743.3544	641718.5379	1345.981822
	384	461743.8354	641719.1564	1345.787969
	385	461744.1079	641720.2201	1345.712683
	386	461744.2844	641721.5103	1345.531327
	387	461744.2911	641722.1193	1345.434706
18	388	461751.3902	641717.4144	1345.142403
	389	461751.2908	641718.1402	1344.895819
	390	461751.2741	641718.6065	1344.530364
	391	461751.7389	641718.2328	1344.420941
	392	461752.3866	641717.5827	1344.271894
	393	461752.5673	641715.8612	1344.571512
	394	461753.1135	641715.1815	1344.356628
	395	461753.0239	641714.3503	1344.421551
	396	461752.3314	641714.4893	1344.800722
	397	461751.8053	641715.1665	1345.200315
	398	461751.549	641716.031	1345.29907
	399	461751.5002	641716.8161	1345.265237
19	400	461750.9077	641714.1366	1345.144536
	401	461750.8934	641712.958	1344.89521
	402	461750.8617	641712.0606	1344.806513
	403	461750.6099	641711.0737	1344.827239
	404	461750.3883	641710.3001	1344.906487
	405	461749.9817	641709.5442	1345.146365
	406	461749.7805	641708.8486	1345.266151
	407	461750.68	641708.0784	1344.81139
	408	461750.5188	641707.2942	1344.751344
	409	461750.3764	641706.7797	1344.74982
	410	461749.9921	641706.7541	1344.869302
	411	461749.1048	641707.3103	1345.076261
	412	461748.626	641707.0534	1345.06285
	413	461748.2236	641706.8162	1345.079309
	414	461747.9508	641706.2975	1344.974153
	415	461747.6921	641706.9583	1345.095768
	416	461748.0947	641707.4112	1345.307604
	417	461748.1776	641708.1564	1345.565465
	418	461748.4102	641709.4269	1346.040648
	419	461748.6945	641710.3403	1346.301252
	420	461748.868	641712.0292	1346.551493
	421	461749.0963	641712.7894	1346.6091
	422	461749.4889	641713.5779	1346.329903
	423	461749.5986	641714.1622	1346.09094
	424	461749.7787	641714.6938	1345.89282
	425	461750.3831	641715.4092	1345.468539
	426	461750.8611	641714.6526	1345.335646
20	427	461751.6645	641709.4546	1344.658685
	428	461752.0726	641708.92	1344.281952
	429	461752.0251	641707.8705	1344.291401
	430	461751.6063	641707.1351	1344.357847
	431	461751.6493	641706.3322	1344.182587
	432	461751.414	641705.6897	1344.260311
	433	461751.2802	641704.9469	1344.130771
	434	461751.4201	641703.9545	1343.940271
	435	461751.5313	641703.2736	1343.870167
	436	461751.756	641702.518	1343.825057

	437	461751.748	641701.7572	1343.675705
	438	461750.733	641701.1985	1343.800368
	439	461749.843	641703.4543	1344.316395
	440	461749.284	641703.1745	1344.318223
	441	461748.9588	641703.8152	1344.448678
	442	461749.4803	641704.1968	1344.623328
	443	461749.4663	641704.5577	1344.673925
	444	461748.9262	641704.4964	1344.687946
	445	461748.4711	641704.6537	1344.618451
	446	461748.4967	641705.3611	1344.868692
	447	461748.5232	641706.0417	1344.998537
	448	461749.1962	641706.4758	1344.979639
	449	461750.1347	641706.4514	1344.860463
	450	461750.9738	641706.8659	1344.685507
	451	461751.0634	641707.5432	1344.769937
	452	461751.1479	641708.514	1344.802855
	453	461751.3878	641709.1824	1344.762927
21	454	461752.8237	641706.8236	1343.975628
	455	461753.294	641707.7117	1343.872911
	456	461753.5881	641708.264	1343.759525
	457	461754.0886	641708.1683	1343.424245
	458	461754.1715	641707.7267	1343.274893
	459	461753.8438	641706.6471	1343.381268
	460	461753.728	641705.957	1343.307811
	461	461753.4363	641704.7576	1343.415101
	462	461754.3937	641704.0535	1342.869509
	463	461754.131	641702.7901	1342.935346
	464	461753.6792	641701.5667	1343.130418
	465	461753.9834	641700.7013	1343.055742
	466	461754.1785	641699.4276	1342.914924
	467	461754.5275	641697.6963	1342.842991
	468	461754.0956	641697.7625	1343.001183
	469	461753.5625	641699.7409	1343.296839
	470	461753.0584	641701.3868	1343.487643
	471	461752.5274	641702.0964	1343.711367
	472	461752.5006	641703.902	1343.845174
	473	461752.3902	641705.4462	1344.014338
	474	461752.7968	641706.527	1343.993916
22	475	461756.6843	641701.0589	1342.340071
	476	461757.2268	641701.5459	1342.014545
	477	461757.7983	641701.1951	1341.727119
	478	461757.9339	641700.9171	1341.621048
	479	461757.7081	641700.303	1341.757599
	480	461757.9211	641699.4023	1341.842028
	481	461758.2153	641698.825	1341.676217
	482	461758.3198	641697.988	1341.6561
	483	461757.9114	641697.6485	1341.800575
	484	461758.4481	641697.3181	1341.486936
	485	461758.7002	641696.9517	1341.346728
	486	461758.2662	641696.5146	1341.501871
	487	461757.8693	641695.8989	1341.639641
	488	461757.3771	641696.3701	1342.026127
	489	461757.2241	641697.4833	1342.267529
	490	461756.5623	641698.1995	1342.466259
	491	461756.0137	641698.9238	1342.66194
	492	461756.067	641699.7482	1342.624145
	493	461756.7983	641700.4368	1342.429683
23	494	461761.3309	641697.0376	1340.755721
	495	461761.5787	641697.6985	1340.638068

	496	461761.7522	641698.366	1340.449702
	497	461762.2365	641698.6171	1340.250668
	498	461762.7306	641698.3334	1339.986711
	499	461762.601	641697.7457	1340.019629
	500	461762.2447	641696.6402	1340.084247
	501	461762.2152	641696.1412	1340.148864
	502	461761.8805	641695.4725	1340.311628
	503	461761.4998	641696.0135	1340.633496
	504	461761.4394	641696.7652	1340.715487
24	505	461769.2454	641695.0312	1338.454481
	506	461769.4039	641695.033	1338.325246
	507	461769.5249	641694.7535	1338.213384
	508	461769.7654	641694.5864	1338.134136
	509	461769.8641	641694.1137	1338.085673
	510	461769.8519	641693.5776	1338.06068
	511	461769.4304	641693.5846	1338.246912
	512	461769.1579	641694.0085	1338.3731
25	513	461756.1652	641678.0593	1343.486729
	514	461756.2682	641677.1333	1343.487643
	515	461755.9814	641676.3076	1343.541593
	516	461755.4443	641675.3984	1344.185635
	517	461754.7637	641673.9826	1344.552005
	518	461754.2965	641672.6793	1344.637044
	519	461753.5214	641671.8636	1345.046695
	520	461752.9227	641671.1071	1345.098816
	521	461752.3076	641670.2107	1345.264323
	522	461751.7035	641668.7382	1345.445679
	523	461750.9013	641667.0222	1345.424343
	524	461750.5913	641665.9557	1345.453299
	525	461750.0485	641664.4027	1345.576438
	526	461749.4544	641662.8363	1345.735239
	527	461748.8689	641661.1496	1345.793455
	528	461748.5796	641659.6274	1345.743163
	529	461747.7122	641658.4171	1346.117458
	530	461747.3769	641656.7748	1346.149767
	531	461747.5439	641655.5172	1346.157082
	532	461747.6098	641654.8207	1345.981822
	533	461747.0693	641653.8874	1346.046439
	534	461746.265	641652.9114	1346.211641
	535	461745.4277	641651.4374	1346.383853
	536	461745.1436	641650.4691	1346.445423
	537	461744.8833	641648.5257	1346.554846
	538	461745.2265	641648.0959	1346.413723
	539	461745.2997	641647.1757	1346.561551
	540	461745.2445	641645.688	1346.419819
	541	461744.5819	641644.4563	1346.514003
	542	461743.9482	641643.2798	1346.765767
	543	461743.3599	641642.1179	1346.800515
	544	461742.6095	641641.1203	1347.034906
	545	461742.3861	641639.7932	1346.882201
	546	461741.5778	641638.8062	1347.104095
	547	461740.635	641638.7852	1347.131832
	548	461740.2022	641638.3158	1347.041306
	549	461739.6136	641638.6285	1347.031858
	550	461739.9236	641640.1882	1346.99833
	551	461740.7042	641641.8149	1346.911462
	552	461741.3202	641642.2989	1347.055632
	553	461741.9941	641642.9201	1347.111106
	554	461742.4468	641644.0607	1347.084283
	555	461742.2788	641644.9062	1346.882506

	556	461743.1298	641645.8486	1346.9139
	557	461743.3325	641646.8715	1346.712123
	558	461743.0204	641647.6402	1346.55637
	559	461743.4959	641648.4998	1346.547531
	560	461743.8817	641649.2788	1346.513698
	561	461744.2533	641650.4865	1346.437803
	562	461744.4295	641651.7739	1346.293937
	563	461744.9995	641652.8194	1346.31192
	564	461745.5655	641653.8828	1346.204326
	565	461746.1781	641655.7939	1346.214384
	566	461745.6377	641656.0844	1346.051011
	567	461746.0397	641656.8754	1346.091855
	568	461746.4445	641658.0361	1346.036991
	569	461747.1562	641659.6686	1346.063203
	570	461747.4778	641660.842	1345.865083
	571	461748.1864	641662.7589	1345.854111
	572	461748.9088	641664.7624	1345.863864
	573	461749.3279	641666.0678	1345.773339
	574	461749.6925	641667.3904	1345.628863
	575	461750.0451	641668.5898	1345.521269
	576	461750.8589	641671.0157	1345.343266
	577	461752.0592	641672.9301	1345.271638
	578	461753.4162	641675.5273	1344.979944
	579	461753.5287	641676.5917	1344.859548
	580	461752.6198	641677.1534	1344.556577
	581	461752.3415	641677.9892	1344.301764
	582	461752.3076	641678.7247	1344.000622
	583	461752.76	641679.7637	1343.82079
	584	461753.4586	641680.4355	1343.686678
	585	461754.8402	641679.4836	1343.70649
	586	461755.5154	641678.9697	1343.739713
	587	461755.7473	641678.3013	1343.609259
26	588	461741.735	641638.4459	1347.032467
	589	461742.3303	641637.9677	1346.779179
	590	461742.195	641637.0871	1346.808439
	591	461741.9188	641636.3425	1346.752051
	592	461741.614	641635.6686	1346.767901
	593	461741.297	641634.8877	1346.553322
	594	461740.9953	641634.4558	1346.488704
	595	461740.6661	641634.1772	1346.479255
	596	461740.3003	641634.7634	1346.747784
	597	461740.6896	641635.9557	1346.877324
	598	461741.1413	641636.9296	1347.039782
	599	461741.5046	641638.0113	1347.076968
27	600	461737.9598	641635.5065	1346.985528
	601	461738.5325	641635.2727	1347.171456
	602	461739.2314	641635.0557	1347.112934
	603	461739.0979	641634.1105	1346.840748
	604	461738.431	641633.0583	1346.764548
	605	461737.9854	641631.997	1346.551493
	606	461737.4776	641631.1768	1346.714866
	607	461736.3867	641631.2871	1346.685605
	608	461736.0051	641632.1585	1346.769425
	609	461736.6897	641633.307	1347.018142
	610	461737.1344	641634.1979	1347.02881
	611	461737.9583	641635.0718	1347.276917
	612	461737.7882	641635.5781	1346.986138
28	613	461737.7742	641630.5266	1346.513393
	614	461738.4197	641630.6226	1346.360688

	615	461738.7386	641630.0472	1346.156472
	616	461738.2984	641629.049	1346.288451
	617	461737.6577	641628.0166	1346.161654
	618	461736.8875	641627.3399	1346.129345
	619	461736.2742	641628.0379	1346.164092
	620	461736.9686	641629.0724	1346.331732
	621	461737.4395	641630.2328	1346.521927
29	622	461733.5896	641629.0474	1346.184819
	623	461734.753	641628.3961	1346.336304
	624	461735.4162	641627.7158	1346.328075
	625	461734.9706	641627.2135	1346.349715
	626	461734.4006	641625.876	1346.103437
	627	461734.0818	641624.5202	1345.613319
	628	461733.0446	641623.2818	1345.754746
	629	461732.3874	641621.9874	1345.646237
	630	461731.8446	641621.1549	1345.678241
	631	461731.0036	641620.2966	1345.701406
	632	461730.0487	641618.7571	1345.724266
	633	461729.2108	641617.8662	1345.816315
	634	461728.7198	641616.8076	1345.56577
	635	461727.9712	641615.3735	1345.37527
	636	461726.8343	641613.2664	1345.009205
	637	461725.6879	641611.1697	1344.708063
	638	461724.7168	641609.0843	1344.41454
	639	461724.1658	641607.531	1344.149364
	640	461723.7881	641604.618	1343.724778
	641	461723.9149	641603.7326	1343.514466
	642	461723.5821	641603.603	1343.558052
	643	461723.1621	641602.9931	1343.483681
	644	461722.6902	641601.6383	1343.144134
	645	461721.6789	641600.0869	1342.810987
	646	461720.6898	641598.9238	1342.574767
	647	461719.7288	641597.0742	1342.147133
	648	461718.8705	641595.553	1341.848124
	649	461717.6373	641594.2295	1341.672864
	650	461716.8103	641592.2276	1341.246144
	651	461716.2452	641590.6439	1341.01602
	652	461715.6222	641588.9531	1340.72646
	653	461715.2604	641587.8824	1340.420441
	654	461715.3954	641587.3036	1340.277795
	655	461714.8029	641586.6412	1340.115946
	656	461714.2345	641586.4791	1340.107412
	657	461713.5093	641586.84	1340.195194
	658	461714.0708	641587.9961	1340.504566
	659	461714.5889	641589.6624	1340.675559
	660	461714.7865	641590.8194	1340.84076
	661	461715.2007	641592.0289	1341.051377
	662	461716.1663	641593.4831	1341.432072
	663	461716.3309	641594.4618	1341.527475
	664	461716.9679	641595.5158	1341.749064
	665	461718.9391	641598.2169	1342.329099
	666	461720.3472	641601.4548	1342.981371
	667	461720.8803	641603.8862	1343.259043
	668	461721.7838	641605.8403	1343.661989
	669	461722.2733	641607.3402	1343.742761
	670	461723.2812	641609.5774	1344.016471
	671	461724.2834	641612.2213	1344.367296
	672	461725.096	641613.3496	1344.701662
	673	461726.5871	641615.3866	1345.145755
	674	461727.5457	641617.0597	1345.498104
	675	461728.4613	641618.6364	1345.870875

	676	461728.9584	641620.0741	1345.899526
	677	461729.7619	641621.7831	1345.890077
	678	461730.6909	641622.9246	1346.157691
	679	461731.5486	641625.2475	1346.247912
	680	461732.207	641626.7816	1346.27443
	681	461732.6511	641627.7496	1346.256142
30	682	461711.4483	641582.0732	1339.891613
	683	461712.0122	641581.9363	1339.75933
	684	461711.6107	641581.0558	1339.72123
	685	461710.7893	641580.313	1339.701723
	686	461710.251	641578.9261	1339.584375
	687	461711.0639	641577.7389	1339.276527
	688	461710.6601	641576.6682	1339.097304
	689	461709.6862	641576.5822	1339.153083
	690	461708.4923	641577.0888	1339.151864
	691	461707.3856	641577.763	1339.195145
	692	461706.188	641578.2053	1339.243913
	693	461704.7704	641578.5561	1338.95222
	694	461703.3882	641578.6698	1338.793114
	695	461701.4978	641578.7429	1338.498677
	696	461700.0244	641579.2419	1338.309092
	697	461699.6979	641579.7073	1338.278612
	698	461702.0745	641579.2218	1338.688872
	699	461703.6125	641579.195	1338.88364
	700	461706.075	641578.7807	1339.228368
	701	461706.7047	641579.458	1339.374368
	702	461707.6304	641579.6546	1339.517928
	703	461708.4951	641579.9091	1339.631314
	704	461709.3503	641581.2594	1339.781276
	705	461710.0791	641582.1198	1339.880336
31	706	461742.4001	641707.7895	1345.043952
	707	461740.7575	641708.1244	1344.896124
	708	461739.6661	641708.4515	1344.831202
	709	461739.1083	641709.3958	1344.692213
	710	461738.9153	641710.1056	1344.557491
	711	461739.189	641711.3828	1344.795235
	712	461739.2579	641711.7025	1344.832421
	713	461739.7282	641713.6127	1344.870216
	714	461739.9023	641714.4728	1345.027493
	715	461740.5762	641716.6351	1345.320406
	716	461741.2175	641717.337	1345.682508
	717	461741.8637	641717.0886	1346.100694
	718	461742.5101	641718.1697	1345.829727
	719	461743.1066	641716.9548	1346.447556
	720	461743.2219	641715.3915	1346.877629
	721	461743.0033	641713.4316	1346.863303
	722	461743.0813	641711.815	1346.713342
	723	461742.9585	641710.4126	1346.298204
	724	461742.8524	641709.8527	1346.157387
	725	461742.8406	641708.3457	1345.443545
32	726	461738.4487	641707.6456	1344.514515
	727	461739.0144	641705.6306	1344.50659
	728	461738.431	641702.9151	1344.256654
	729	461738.3481	641700.894	1344.114617
	730	461737.9327	641698.8244	1344.124675
	731	461737.4505	641696.6993	1344.115531
	732	461737.1222	641695.6542	1344.185635
	733	461736.622	641693.8284	1344.265493
	734	461736.2944	641692.5598	1344.062496

	735	461735.5342	641690.4146	1343.988125
	736	461734.853	641688.0092	1343.825362
	737	461733.9724	641686.6168	1343.847003
	738	461732.7218	641683.9142	1343.706185
	739	461731.1826	641679.8164	1343.528182
	740	461730.0222	641677.546	1343.530315
	741	461728.1967	641673.4522	1343.615964
	742	461727.2878	641669.438	1343.612916
	743	461725.8525	641666.6396	1343.345911
	744	461725.1298	641665.1339	1343.145048
	745	461724.8007	641665.503	1343.028615
	746	461724.7339	641667.2453	1343.062752
	747	461725.7803	641669.2457	1343.155411
	748	461726.6197	641670.8834	1343.342863
	749	461727.1769	641673.2303	1343.301106
	750	461727.0501	641674.5632	1343.068543
	751	461728.9024	641677.2951	1343.298058
	752	461730.5931	641680.2291	1343.341949
	753	461731.6812	641683.3729	1343.453811
	754	461732.8955	641687.819	1343.297448
	755	461733.6005	641690.0382	1343.353836
	756	461733.7959	641691.6979	1343.24929
	757	461734.7643	641694.1292	1343.430646
	758	461735.2867	641695.3259	1343.547384
	759	461736.3221	641696.6484	1343.83542
	760	461735.8929	641697.3741	1343.525439
	761	461736.191	641698.405	1343.424855
	762	461736.8406	641700.1079	1343.635167
	763	461737.5724	641703.6393	1343.705575
	764	461738.2701	641706.1585	1344.228612
	765	461738.0104	641707.2737	1344.249948
	766	461738.1527	641707.9318	1344.389851
33	767	461723.4842	641664.5844	1342.958206
	768	461723.298	641662.1676	1343.268797
	769	461723.1496	641660.052	1343.38584
	770	461722.8057	641657.5734	1343.463869
	771	461722.0306	641655.2063	1343.295619
	772	461721.3826	641654.0767	1343.054523
	773	461720.9209	641654.3906	1343.063667
	774	461720.5883	641655.1191	1342.954243
	775	461721.386	641656.6809	1343.200827
	776	461721.7402	641658.126	1343.045074
	777	461721.9712	641659.3586	1343.093537
	778	461722.5329	641660.835	1343.210275
	779	461722.5503	641661.9104	1343.039587
	780	461722.9508	641663.3835	1342.96735
	781	461723.1779	641664.5774	1342.799405
34	782	461718.156	641646.318	1342.436083
	783	461717.9969	641644.4636	1342.407737
	784	461717.6443	641643.4535	1342.323003
	785	461717.2431	641644.1012	1342.170298
	786	461717.4897	641645.1647	1342.202607
	787	461717.7186	641645.8797	1342.343424

Injectite #3				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	2	464408.9541	640305.3331	1260.905439
	3	464407.2902	640304.2328	1260.815218
	4	464406.1871	640303.6427	1260.396728
	5	464405.1645	640303.1519	1259.808159
	6	464404.5339	640302.7984	1259.511588

	7	464404.4388	640302.1967	1259.125712
	8	464404.1075	640302.8273	1258.689848
	9	464404.2343	640304.1075	1258.809939
	10	464404.455	640304.9597	1258.613648
	11	464405.1609	640305.7135	1258.987637
	12	464406.3871	640306.3749	1259.347606
	13	464407.0067	640306.6504	1259.682581
	14	464408.9834	640305.775	1260.77468
2	15	464403.1529	640300.1597	1258.730691
	16	464403.2059	640299.5465	1258.477402
	17	464402.987	640298.8375	1257.982407
	18	464402.3448	640298.4248	1257.701686
	19	464401.9568	640297.7579	1257.215225
	20	464401.3865	640297.3985	1257.077151
	21	464400.4822	640296.5817	1256.462065
	22	464399.761	640296.08	1256.119774
	23	464398.7808	640295.4682	1255.631485
	24	464398.1855	640295.2918	1255.322722
	25	464397.1184	640295.2156	1255.326075
	26	464396.3043	640294.5441	1254.37388
	27	464395.4795	640294.1765	1254.040429
	28	464394.3923	640293.8741	1253.640531
	29	464393.63	640293.6114	1253.401568
	30	464393.2697	640293.5568	1253.294888
	31	464392.8588	640292.9329	1252.615184
	32	464392.4556	640292.8601	1252.606954
	33	464391.7061	640292.2419	1252.025396
	34	464391.376	640291.7033	1251.749857
	35	464391.0575	640291.0377	1251.253947
	36	464391.0989	640290.4396	1250.700735
	37	464390.6777	640290.1623	1250.492557
	38	464389.8172	640289.6804	1249.90856
	39	464389.2521	640289.3646	1249.601017
	40	464388.6977	640289.0583	1249.440692
	41	464387.986	640288.9519	1249.052682
	42	464387.3965	640289.197	1248.748186
	43	464386.8372	640289.802	1248.554334
	44	464386.8656	640290.5634	1248.68174
	45	464387.4813	640290.9797	1249.248363
	46	464388.3649	640290.8231	1249.927762
	47	464388.8126	640291.6403	1250.461772
	48	464388.9812	640292.7866	1250.46421
	49	464389.588	640294.11	1250.759562
	50	464390.2985	640294.5057	1251.22682
	51	464390.6564	640295.0202	1251.517294
	52	464391.9953	640295.4624	1252.378354
	53	464392.8354	640296.0519	1252.828849
	54	464393.3767	640296.2043	1253.285744
	55	464394.367	640296.8258	1253.902964
	56	464395.0391	640297.0282	1254.122115
	57	464397.2928	640297.7189	1255.488838
	58	464398.6007	640297.9764	1256.361481
	59	464399.1094	640298.6549	1256.532473
	60	464400.6581	640298.8963	1257.398715
	61	464401.136	640299.8202	1257.586167
	62	464401.5697	640300.3807	1257.744663
	63	464402.0333	640300.9723	1257.892796
	64	464402.2433	640301.4137	1258.112861
	65	464402.5183	640301.1162	1258.393887
	66	464402.8066	640300.563	1258.62584
	67	464402.9892	640300.2768	1258.710269

3	68	464388.1158	640287.8461	1248.827434
	69	464388.3518	640287.3212	1248.572622
	70	464388.5453	640286.9655	1248.098962
	71	464388.0976	640286.6839	1247.734422
	72	464387.5428	640286.1886	1247.365614
	73	464387.1923	640285.8875	1247.058375
	74	464386.5367	640285.4507	1246.646895
	75	464386.113	640285.4754	1246.43445
	76	464385.2638	640285.3178	1246.207679
	77	464384.7021	640285.1242	1245.94677
	78	464383.7331	640285.0874	1245.910499
	79	464382.9614	640284.9862	1245.570342
	80	464381.9881	640284.5991	1245.319796
	81	464381.6468	640284.3229	1245.000975
	82	464381.1679	640284.1547	1244.698614
	83	464380.6723	640283.8965	1244.177101
	84	464379.9884	640283.7081	1243.931737
	85	464379.2053	640283.2275	1243.532754
	86	464378.5844	640283.0092	1243.211495
	87	464378.0376	640282.7227	1242.966435
	88	464377.2857	640282.3984	1242.604333
	89	464376.8797	640282.1811	1242.431207
	90	464376.1491	640282.0778	1242.209312
	91	464375.4191	640281.9949	1241.950232
	92	464374.9406	640281.7068	1241.599407
	93	464374.1389	640281.2048	1241.215055
	94	464373.565	640280.4209	1240.632277
	95	464373.0569	640280.2194	1240.468295
	96	464372.6442	640280.0173	1240.316809
	97	464370.8099	640279.6711	1239.893442
	98	464370.5085	640279.0511	1239.391436
	99	464370.0205	640278.9008	1239.112849
	100	464369.3865	640278.7036	1238.886383
	101	464369.0722	640278.8063	1238.770559
	102	464368.8278	640279.451	1239.032992
	103	464368.4172	640279.9564	1238.986662
	104	464369.2	640280.662	1239.462455
	105	464369.9766	640280.5428	1239.826081
	106	464371.2616	640280.9515	1240.305836
	107	464372.86	640281.6559	1241.037051
	108	464373.6729	640282.3503	1241.395191
	109	464374.7824	640282.7572	1241.970044
	110	464376.3451	640283.8212	1242.714366
	111	464377.7316	640284.0455	1243.556528
	112	464378.6143	640284.5296	1243.941491
	113	464379.7719	640285.1261	1244.598335
	114	464380.7229	640285.4391	1245.088758
	115	464381.448	640285.7665	1245.493227
	116	464382.1872	640286.0892	1245.839175
	117	464382.8669	640286.223	1246.173541
	118	464384.0669	640286.4754	1246.789847
	119	464384.8088	640286.8601	1247.135794
	120	464386.4742	640287.0844	1247.973385
	121	464387.0451	640287.7004	1248.255325
	122	464387.9235	640287.993	1248.810366
4	123	464367.2581	640278.8213	1238.291108
	124	464366.7808	640278.5262	1238.086283
	125	464366.2306	640278.1233	1237.750088
	126	464365.7246	640277.8471	1237.440107
	127	464365.0666	640277.5902	1237.11458

	128	464364.4798	640277.3311	1236.904268
	129	464363.7389	640276.8666	1236.370564
	130	464363.0345	640276.6868	1236.163604
	131	464362.3313	640276.2826	1235.878312
	132	464361.7101	640275.9748	1235.597896
	133	464361.2447	640275.7958	1235.350398
	134	464360.7707	640275.6023	1235.049865
	135	464360.0227	640275.3935	1234.834372
	136	464359.3342	640275.1835	1234.628936
	137	464358.8169	640274.8004	1234.387535
	138	464358.1046	640274.9552	1234.314688
	139	464357.6602	640275.2094	1234.194597
	140	464357.958	640275.8394	1234.233001
	141	464358.4753	640276.1406	1234.443923
	142	464359.8106	640276.6935	1234.985857
	143	464361.0298	640277.1141	1235.57534
	144	464361.5092	640277.4235	1235.792968
	145	464362.0591	640277.5868	1236.024006
	146	464363.317	640277.7487	1236.618061
	147	464364.2305	640278.1498	1237.106046
	148	464364.7255	640278.7088	1237.329769
	149	464364.9974	640279.1325	1237.505029
	150	464365.649	640279.2699	1237.810134
	151	464366.3263	640279.6424	1238.110667
	152	464366.8756	640279.8762	1238.368223
	153	464367.312	640279.8552	1238.632789
	154	464367.4218	640279.3321	1238.70076
5	155	464355.2413	640271.0522	1233.283549
	156	464355.202	640270.4874	1233.247583
	157	464355.0252	640270.0817	1233.140903
	158	464354.625	640269.6895	1233.018373
	159	464354.1721	640269.2911	1232.836408
	160	464353.7984	640269.0527	1232.777886
	161	464353.2312	640268.7169	1232.640726
	162	464352.7904	640268.4133	1232.49046
	163	464352.8002	640268.7623	1232.563612
	164	464353.1404	640269.0713	1232.709611
	165	464353.2013	640269.4039	1232.697114
	166	464353.5899	640269.5913	1232.875117
	167	464353.9914	640269.8474	1233.011363
	168	464354.3035	640270.1826	1233.025384
	169	464354.6442	640270.3637	1233.17626
	170	464354.9106	640270.7243	1233.153095

Injectite #4				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	2	464551.2424	639919.3987	1276.454201
	3	464551.5082	639918.665	1276.460602
	4	464551.1717	639918.06	1275.927506
	5	464550.9284	639918.5468	1275.642518
	6	464550.6075	639919.0722	1275.411175
	7	464549.9592	639919.1204	1274.967691
	8	464549.769	639919.7175	1274.762256
	9	464549.6406	639920.0732	1274.743358
	10	464549.3739	639920.6782	1274.638507
	11	464549.4178	639920.9425	1274.605284
	12	464549.59	639921.7606	1274.59675
	13	464549.6053	639922.8353	1274.543105

	14	464550.1509	639922.5835	1274.811024
	15	464550.573	639922.244	1275.024384
	16	464550.815	639922.1629	1275.103632
	17	464550.8982	639921.9465	1275.63947
	18	464551.1147	639921.4756	1276.11252
	19	464551.3478	639920.9346	1276.39385
2	20	464547.3199	639934.7871	1272.521366
	21	464546.7414	639935.3903	1272.317455
	22	464546.2104	639936.1307	1271.958401
	23	464545.7803	639936.6677	1271.533815
	24	464545.2345	639937.3234	1271.378062
	25	464544.969	639937.9287	1271.140623
	26	464544.5483	639938.6273	1271.12203
	27	464544.2789	639939.2329	1271.166531
	28	464543.6376	639940.3156	1271.056193
	29	464543.1792	639940.999	1270.809915
	30	464542.9378	639941.7387	1270.663306
	31	464542.7482	639942.4916	1270.777301
	32	464542.6842	639943.6285	1270.512125
	33	464542.6132	639944.3697	1270.556016
	34	464543.4776	639944.2951	1271.257056
	35	464543.9043	639943.9555	1271.603004
	36	464544.3243	639942.789	1272.158959
	37	464545.0531	639941.881	1272.849636
	38	464545.7218	639941.0352	1273.116031
	39	464546.1732	639940.2607	1273.198937
	40	464546.4192	639937.8748	1273.04227
	41	464547.5522	639935.9027	1273.209605
	42	464547.9923	639934.5783	1273.290377
3	43	464541.3988	639945.5408	1269.644359
	44	464540.9051	639945.8739	1269.377355
	45	464540.4253	639946.3692	1268.948806
	46	464539.9846	639946.6984	1268.624499
	47	464539.7752	639947.2885	1268.283123
	48	464539.2933	639947.6802	1268.068848
	49	464538.9848	639948.0578	1267.860975
	50	464538.4837	639949.0243	1267.782946
	51	464537.7077	639949.9799	1267.645481
	52	464536.6943	639950.5471	1267.384877
	53	464536.0697	639951.6551	1267.208703
	54	464535.2059	639952.5381	1267.020946
	55	464535.0035	639953.1181	1266.827093
	56	464534.1656	639953.9237	1266.58752
	57	464534.2693	639955.7013	1266.491508
	58	464533.7853	639956.2335	1265.974872
	59	464533.1305	639956.9199	1265.461589
	60	464532.3201	639957.7197	1264.998903
	61	464531.0439	639959.0532	1264.349679
	62	464530.2712	639959.8725	1264.205813
	63	464529.4708	639960.2474	1263.877239
	64	464528.8868	639962.16	1264.171676
	65	464528.201	639962.7153	1264.214348
	66	464527.7636	639963.4441	1263.855598
	67	464527.1671	639963.7373	1263.347801
	68	464526.3503	639964.7666	1263.053669
	69	464525.5523	639965.5046	1262.661392
	70	464524.893	639966.4872	1262.3444
	71	464524.1972	639967.6052	1262.013996
	72	464523.6985	639968.1408	1261.832031
	73	464523.1404	639969.3475	1261.155375

	74	464521.7755	639971.7618	1260.919155
	75	464521.0858	639972.5735	1260.58357
	76	464521.4872	639972.9764	1261.141354
	77	464522.6311	639972.8758	1261.998147
	78	464523.0176	639972.8445	1262.424562
	79	464523.8927	639972.7777	1263.216128
	80	464524.6233	639973.7049	1263.391388
	81	464526.2933	639973.0886	1265.458846
	82	464526.6465	639972.436	1265.80327
	83	464527.4573	639971.8551	1266.228161
	84	464528.2446	639970.4109	1266.731081
	85	464528.6674	639969.3076	1266.818863
	86	464529.2419	639967.8406	1266.997476
	87	464530.3343	639967.2566	1267.568671
	88	464531.0003	639965.9526	1267.656149
	89	464530.9579	639964.4329	1267.15201
	90	464532.4472	639963.5773	1267.558918
	91	464533.0937	639963.0201	1268.003316
	92	464533.6097	639962.2453	1268.43979
	93	464534.3942	639961.1228	1268.824143
	94	464535.0898	639960.2797	1269.269455
	95	464536.0685	639959.044	1270.032979
	96	464536.6168	639958.0958	1270.220736
	97	464537.4081	639956.6992	1270.289926
	98	464538.2929	639954.9719	1270.655381
	99	464538.5529	639953.2022	1270.749259
	100	464539.3475	639950.8912	1270.905317
	101	464539.3991	639949.2164	1270.816011
	102	464540.4896	639948.5208	1270.761451
	103	464541.098	639947.2062	1270.327721
	104	464541.6314	639946.0059	1270.13143
4	105	464520.182	639978.7655	1261.025835
	106	464520.6676	639977.7578	1260.917936
	107	464520.952	639977.2735	1260.924946
	108	464521.3345	639976.4146	1260.958779
	109	464520.8937	639976.6292	1260.635691
	110	464520.4304	639977.023	1260.253167
	111	464520.0107	639977.5222	1260.192512
	112	464519.4627	639977.7438	1260.05017
	113	464518.6522	639979.2212	1259.350654
	114	464517.7205	639979.4659	1258.887358
	115	464517.6744	639980.4053	1258.946794
	116	464517.4858	639980.9028	1258.795309
	117	464517.191	639981.5864	1258.77763
	118	464517.2633	639982.5472	1258.989771
	119	464517.1691	639983.4713	1258.896197
	120	464516.9185	639984.0486	1258.773668
	121	464517.1035	639984.2452	1258.864498
	122	464517.5098	639983.6877	1259.263177
	123	464517.9292	639982.6069	1259.515246
	124	464517.9591	639982.5776	1259.580168
	125	464519.1789	639981.8251	1260.367162
	126	464519.5426	639981.3511	1260.839602
	127	464519.6669	639980.0691	1261.115141
	128	464520.0833	639978.984	1261.031016
5	129	464514.5725	639985.825	1257.20791
	130	464513.7901	639986.8016	1256.788505
	131	464513.0973	639987.1682	1256.372453
	132	464512.8214	639987.7763	1256.293815
	133	464512.4816	639988.527	1256.151778

	134	464511.8214	639989.2113	1255.85978
	135	464511.5333	639989.9181	1255.676595
	136	464511.2419	639990.4342	1255.745175
	137	464511.1947	639991.0005	1255.874715
	138	464510.5177	639991.4403	1255.464759
	139	464510.1532	639991.8923	1255.260848
	140	464509.9139	639992.5086	1255.170932
	141	464509.3308	639993.4617	1255.034991
	142	464508.7676	639994.3447	1255.006949
	143	464508.6539	639994.9458	1255.225796
	144	464509.3564	639994.5471	1255.39435
	145	464510.8521	639992.8064	1255.901233
	146	464511.4544	639991.9685	1256.128309
	147	464512.3691	639991.0383	1256.539179
	148	464512.9372	639990.308	1256.805574
	149	464513.9592	639989.2552	1257.064349
	150	464514.6069	639988.6029	1257.502347
	151	464514.8666	639987.765	1257.738872
	152	464515.2053	639985.9484	1257.592873
6	153	464521.0623	639994.4091	1261.533327
	154	464522.0245	639994.6791	1262.329464
	155	464522.8094	639994.9199	1262.83086
	156	464523.5248	639994.8934	1263.19784
	157	464524.1179	639995.1634	1263.65382
	158	464525.0329	639995.189	1264.206423
	159	464525.8665	639994.9153	1264.630704
	160	464526.8788	639994.7623	1265.326868
	161	464526.6557	639994.5599	1264.951964
	162	464526.2518	639994.5797	1264.693188
	163	464525.3691	639994.7516	1264.213433
	164	464524.7178	639994.7172	1263.831824
	165	464523.9948	639994.5075	1263.464844
	166	464523.3724	639994.3499	1263.050316
	167	464522.7381	639994.4286	1262.661696
	168	464522.1693	639994.2734	1262.242901
	169	464521.0794	639994.1939	1261.561978
7	170	464513.1104	639982.1171	1255.82107
	171	464512.8101	639982.9364	1255.796686
	172	464512.6794	639983.4859	1255.749442
	173	464512.8821	639983.9748	1255.971337
	174	464513.0744	639983.5786	1256.170371
	175	464513.1936	639983.0674	1256.153607
	176	464513.509	639982.478	1256.387693
	177	464513.4673	639982.0327	1256.277965
	178	464513.3542	639981.5806	1256.04266
8	179	464510.536	639983.9703	1254.406493
	180	464510.0922	639984.5902	1254.176674
	181	464509.7426	639984.9664	1254.086453
	182	464509.375	639985.3458	1253.798722
	183	464508.7237	639985.8204	1253.662781
	184	464508.8392	639986.2444	1253.879494
	185	464508.727	639986.6235	1253.896563
	186	464509.6478	639986.1938	1254.445203
	187	464510.1044	639986.5156	1254.733239
	188	464510.326	639986.1371	1255.344363
	189	464510.5382	639985.1837	1255.316931
	190	464511.1782	639984.3455	1255.164531
	191	464511.5601	639983.5871	1255.095037
	192	464511.1255	639983.5466	1254.757623

9	193	464506.548	639990.9666	1253.424123
	194	464507.2893	639990.6795	1253.883761
	195	464507.9586	639990.3918	1254.195877
	196	464508.7276	639989.6795	1254.69331
	197	464509.1589	639988.3009	1254.592117
	198	464509.3732	639987.7416	1254.530547
	199	464509.3424	639987.3743	1254.440631
	200	464509.3552	639987.01	1254.428134
	201	464509.2479	639986.6866	1254.207764
	202	464508.9745	639986.6156	1254.039819
	203	464507.9522	639987.3362	1253.416503
	204	464507.7096	639987.8043	1253.23088
	205	464507.2698	639988.3627	1253.039161
	206	464506.5931	639989.0165	1252.854147
	207	464506.0869	639989.5283	1252.664257
	208	464506.1356	639990.3607	1252.899562
	209	464506.3185	639990.8682	1253.265017
	210	464507.0491	639990.8478	1253.689604
10	211	464508.1418	639995.8709	1255.198973
	212	464507.6743	639995.4143	1254.77713
	213	464507.1156	639995.1957	1254.398873
	214	464506.6922	639995.2177	1254.168445
	215	464506.1164	639996.0754	1254.166921
	216	464505.733	639996.7725	1254.206849
	217	464505.5446	639996.9986	1254.169359
	218	464505.0368	639997.4726	1254.266895
	219	464504.7726	639998.7799	1254.463186
	220	464504.3123	639998.811	1254.050487
	221	464504.0956	639999.5907	1254.176065
	222	464503.7442	640000.1012	1254.323283
	223	464503.3775	640000.4258	1254.187342
	224	464502.7405	640000.8248	1254.054449
	225	464502.5746	640001.1723	1254.055669
	226	464501.9544	640001.4155	1253.686251
	227	464502.201	640002.0662	1253.942283
	228	464503.0959	640002.9142	1254.379061
	229	464504.3778	640002.2802	1255.056937
	230	464505.4648	640001.2582	1255.528157
11	231	464497.678	640006.5145	1252.41554
	232	464498.1182	640005.3447	1252.243328
	233	464498.4809	640004.6229	1251.960474
	234	464498.7503	640004.0045	1251.883664
	235	464498.1944	640003.4897	1251.390802
	236	464497.6101	640003.7024	1251.013155
	237	464497.0398	640003.9347	1250.735787
	238	464496.5762	640004.1535	1250.631241
	239	464496.1662	640004.6028	1250.555346
	240	464495.7721	640005.0917	1250.493471
	241	464495.1403	640005.8177	1250.219761
	242	464494.4484	640006.2819	1249.971044
	243	464493.8098	640006.7952	1249.694895
	244	464493.9628	640007.3243	1249.911608
	245	464494.4078	640008.1205	1250.308762
	246	464494.3057	640008.8483	1250.408432
	247	464494.5858	640009.5515	1250.682447
	248	464494.7544	640009.8365	1250.708965
	249	464494.663	640010.8625	1250.600456
	250	464494.8434	640011.1907	1250.576072
	251	464495.4594	640010.5644	1250.976579
	252	464496.3244	640009.4131	1251.644701

	253	464496.8407	640008.7182	1251.959254
	254	464497.0934	640008.0699	1252.139696
	255	464497.5415	640007.061	1252.402129
12	256	464492.4312	640012.5824	1249.257202
	257	464492.0042	640012.5636	1248.962766
	258	464491.615	640012.9199	1248.741176
	259	464491.5537	640013.5572	1248.693018
	260	464491.7738	640014.2137	1248.83475
	261	464492.2755	640013.7166	1249.226113
13	262	464482.905	640036.2669	1246.958706
	263	464482.9769	640035.6671	1246.6853
	264	464483.2336	640035.0529	1246.680423
	265	464483.8139	640034.2254	1246.699931
	266	464484.0833	640033.6292	1246.643238
	267	464483.7627	640033.4558	1246.400617
	268	464483.3719	640033.809	1246.265895
	269	464482.9727	640034.2586	1246.492362
	270	464482.0973	640035.1398	1246.081796
	271	464481.6126	640035.931	1246.028456
	272	464481.0454	640036.7869	1246.152815
	273	464480.587	640037.3694	1245.962315
	274	464479.9853	640038.2155	1245.904098
	275	464479.5043	640038.8925	1245.932139
	276	464479.1962	640039.3823	1245.939455
	277	464478.8688	640040.2001	1245.941588
	278	464478.8655	640040.724	1245.908975
	279	464479.5903	640040.5984	1246.309787
	280	464480.1228	640040.301	1246.697797
	281	464480.6495	640039.6929	1246.884334
	282	464481.2463	640038.6764	1247.151949
	283	464481.8415	640037.4115	1247.094342
	284	464482.3926	640036.4742	1247.042221
14	285	464477.3271	640038.5212	1245.270419
	286	464477.4006	640037.7175	1245.084186
	287	464477.0586	640037.4474	1244.898867
	288	464476.4448	640037.7998	1244.793102
	289	464475.6526	640038.0372	1244.5898
	290	464475.0814	640038.1003	1244.397776
	291	464474.5699	640038.4947	1244.320662
	292	464474.2072	640038.823	1244.333463
	293	464474.5967	640039.3518	1244.565416
	294	464475.5553	640039.4951	1244.986345
	295	464476.3902	640039.19	1245.125029
	296	464476.4493	640038.5959	1245.119238
	297	464476.6459	640038.2704	1245.040904
	298	464477.2141	640038.4956	1245.233233
	299	464477.3909	640038.0345	1245.170444
15	300	464472.027	640041.1306	1244.2088
	301	464471.9624	640040.4204	1244.024091
	302	464471.7365	640039.8614	1243.84304
	303	464471.8414	640039.147	1243.856147
	304	464471.9636	640038.509	1243.725083
	305	464471.9447	640038.0991	1243.482767
	306	464471.7216	640038.0037	1243.207837
	307	464471.1796	640038.0723	1243.017642
	308	464470.7035	640038.342	1242.889931
	309	464470.3902	640038.9882	1242.840858
	310	464470.6453	640039.4262	1243.062143
	311	464471.0915	640039.9824	1243.426683

	312	464470.9373	640040.7219	1243.50075
	313	464470.8858	640041.3034	1243.701308
	314	464471.3595	640041.6933	1244.015862
	315	464471.8868	640041.1949	1244.17893
	316	464472.0337	640040.6701	1244.126199
16	317	464476.5021	640043.7534	1245.872399
	318	464475.9443	640043.5483	1245.624291
	319	464475.4151	640043.6461	1245.579486
	320	464474.605	640043.8528	1245.262494
	321	464474.3264	640044.4042	1245.249692
	322	464473.5531	640045.2707	1245.227747
	323	464473.1563	640045.7944	1245.260665
	324	464472.4019	640046.3881	1245.064679
	325	464471.8057	640046.9678	1244.918679
	326	464471.3558	640047.721	1244.924775
	327	464470.6996	640048.5552	1244.75805
	328	464470.0952	640049.5815	1244.706539
	329	464469.3338	640050.8144	1244.822667
	330	464468.6611	640051.9093	1244.923556
	331	464468.1143	640052.6832	1244.984821
	332	464467.6034	640053.3117	1244.981468
	333	464466.8631	640054.3001	1244.724217
	334	464465.988	640055.4864	1244.571207
	335	464465.4247	640056.1015	1244.520915
	336	464464.9102	640056.7626	1244.433743
	337	464465.1196	640057.4828	1244.561149
	338	464466.1233	640057.6115	1244.982992
	339	464466.8853	640056.8178	1245.356372
	340	464467.6068	640055.8074	1245.646237
	341	464468.5358	640054.7567	1245.892515
	342	464469.5322	640054.5455	1246.095817
	343	464470.6456	640054.0224	1246.198535
	344	464471.5899	640053.0675	1246.332951
	345	464472.4702	640051.6072	1246.588069
	346	464473.5278	640049.6976	1246.714866
	347	464474.284	640048.5028	1246.724315
	348	464475.1113	640047.1998	1246.660916
	349	464475.6002	640046.0135	1246.505468
	350	464475.9787	640044.8681	1246.24334
17	351	464464.2659	640059.995	1244.008242
	352	464463.7629	640060.451	1243.875349
	353	464462.8726	640060.9621	1243.584265
	354	464462.1484	640061.5967	1243.350483
	355	464461.5032	640062.1938	1243.124017
	356	464461.035	640062.6559	1242.860975
	357	464461.1779	640063.4743	1242.892064
	358	464461.3636	640063.4505	1243.040197
	359	464461.7455	640063.0204	1243.282513
	360	464462.4112	640062.1399	1243.473013
	361	464463.3027	640061.2904	1243.748552
	362	464464.3332	640060.4763	1244.116446
	363	464464.6066	640060.0002	1244.127419
18	364	464455.7345	640072.4863	1241.87708
	365	464455.7598	640071.9697	1241.606418
	366	464455.4443	640071.4786	1241.337889
	367	464454.9277	640070.9544	1240.962985
	368	464454.4004	640071.6036	1240.993465
	369	464454.3736	640072.2297	1241.303751
	370	464453.5817	640072.6838	1241.251021

	371	464453.2595	640073.2629	1241.241877
	372	464452.581	640073.9411	1241.096792
	373	464451.9751	640075.0677	1241.197376
	374	464451.424	640075.6535	1241.167201
	375	464450.231	640077.1388	1240.874593
	376	464449.5443	640077.8447	1240.723107
	377	464448.6394	640079.0465	1240.565526
	378	464447.8667	640079.6083	1240.385694
	379	464447.7	640080.373	1240.496336
	380	464446.7088	640081.1125	1240.16319
	381	464446.4405	640081.7711	1240.118384
	382	464445.3329	640082.6096	1239.830348
	383	464444.8324	640083.5737	1239.777008
	384	464444.0774	640084.582	1239.673072
	385	464443.2356	640084.5613	1239.2558
	386	464441.9237	640086.0219	1238.930274
	387	464440.5762	640087.3755	1238.919911
	388	464438.4804	640089.7837	1239.071092
	389	464436.9424	640091.9225	1239.246961
	390	464435.3263	640093.431	1239.106448
	391	464434.0087	640094.6709	1238.825728
	392	464436.0621	640094.3841	1239.129613
	393	464438.103	640092.3483	1239.475561
	394	464440.4247	640090.1382	1239.661184
	395	464443.3328	640086.7586	1239.709648
	396	464446.7399	640083.5341	1240.19367
	397	464449.4017	640080.5961	1241.027907
	398	464451.9291	640077.3841	1241.545763
	399	464454.4358	640074.5434	1241.953585
	400	464455.7382	640072.9066	1241.927372

Injectite #5				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	1	460705.844	642555.213	1334.213
	2	460705.686	642555.458	1334.234
	3	460705.382	642555.975	1334.259
	4	460705.227	642556.182	1334.256
	5	460704.953	642556.594	1334.195
	6	460704.71	642556.79	1334.236
	7	460704.571	642557.044	1334.324
	8	460704.033	642557.764	1334.394
	9	460703.594	642558.409	1334.385
	10	460703.28	642558.762	1334.35
	11	460702.817	642559.3	1334.315
	12	460702.368	642559.845	1334.236
	13	460701.676	642560.638	1334.26
	14	460701.15	642561.336	1334.319
	15	460700.693	642562.068	1334.266
	16	460700.265	642562.481	1334.214
	17	460699.683	642563.064	1334.147
	18	460699.314	642563.597	1334.222
	19	460698.772	642564.628	1334.296
	20	460698.423	642565.626	1334.285
	21	460697.361	642566.784	1333.952
	22	460696.718	642567.637	1333.723
	23	460696.221	642568.056	1333.58
	24	460695.755	642568.677	1333.456
	25	460695.239	642569.402	1333.321
	26	460694.679	642570.109	1333.051

	27	460694.117	642571.017	1332.621
	28	460693.708	642571.399	1332.336
	29	460693.851	642571.754	1332.322
	30	460694.192	642571.842	1332.576
	31	460694.634	642571.144	1333.077
	32	460695.132	642570.29	1333.361
	33	460695.792	642569.616	1333.608
	34	460696.389	642568.867	1333.674
	35	460696.943	642568.174	1333.828
	36	460697.197	642567.769	1333.915
	37	460698.128	642567.085	1333.943
	38	460698.666	642566.204	1334.231
	39	460699.159	642565.519	1334.317
	40	460699.773	642564.429	1334.433
	41	460700.502	642563.336	1334.475
	42	460701.238	642562.497	1334.467
	43	460701.745	642561.716	1334.59
	44	460702.496	642560.786	1334.583
	45	460703.303	642559.562	1334.639
	46	460703.914	642558.792	1334.661
	47	460704.619	642558.02	1334.694
	48	460705.225	642557.147	1334.674
	49	460705.759	642556.36	1334.556
	50	460706.161	642555.808	1334.495
	51	460707.387	642554.452	1334.593
	52	460707.924	642553.364	1334.791
	53	460708.37	642552.847	1334.798
	54	460708.657	642552.222	1334.914
	55	460708.929	642551.658	1334.903
	56	460709.377	642550.856	1334.587
	57	460708.714	642551.021	1334.61
	58	460708.227	642551.941	1334.693
	59	460706.849	642553.336	1334.469
	60	460706.226	642554.699	1334.253
	61	460705.61	642555.509	1334.228
	62	460705.295	642556.122	1334.258
2	63	460695.538	642571.622	1333.324
	64	460695.27	642572.129	1333.271
	65	460694.815	642572.714	1333.01
	66	460694.239	642573.196	1332.767
	67	460693.874	642573.257	1332.22
	68	460693.316	642573.787	1331.784
	69	460693.04	642574.395	1331.808
	70	460692.717	642575.12	1331.676
	71	460692.364	642575.733	1331.569
	72	460691.94	642576.259	1331.404
	73	460691.872	642576.492	1331.447
	74	460692.268	642576.419	1331.793
	75	460692.574	642576	1331.889
	76	460693.193	642575.106	1332.08
	77	460693.254	642574.598	1332.359
	78	460693.573	642574.133	1332.501
	79	460693.943	642573.797	1332.919
	80	460694.409	642573.389	1333.017
	81	460695.013	642572.911	1333.058
	82	460695.482	642572.485	1333.096
	83	460695.854	642572.027	1333.133
	84	460696.27	642571.471	1333.147
	85	460696.374	642571.002	1333.21
	86	460696.204	642570.793	1333.301
	87	460695.702	642571.491	1333.338

	88	460695.353	642571.786	1333.333
3	89	460690.805	642577.415	1331.061
	90	460690.717	642577.763	1330.983
	91	460690.647	642578.176	1330.982
	92	460690.709	642578.602	1331.001
	93	460691.003	642578.545	1331.168
	94	460691.097	642578.006	1331.33
	95	460691.232	642577.64	1331.44
	96	460691.225	642577.242	1331.47
	97	460691.001	642577.033	1331.266
	98	460690.836	642577.228	1331.08
	99	460690.781	642577.53	1331.037
4	100	460683.41	642579.518	1328.191
	101	460683.116	642579.991	1328.162
	102	460682.661	642580.622	1328.169
	103	460682.465	642580.999	1328.064
	104	460682.232	642581.683	1327.894
	105	460682.076	642581.92	1327.782
	106	460681.798	642582.463	1327.485
	107	460681.609	642583.072	1327.25
	108	460681.342	642583.597	1327.035
	109	460680.959	642584.434	1326.622
	110	460680.811	642584.987	1326.415
	111	460681.069	642585.211	1326.439
	112	460681.206	642584.64	1326.786
	113	460681.944	642583.095	1327.427
	114	460682.296	642582.307	1327.998
	115	460682.553	642581.59	1328.333
	116	460683.028	642580.759	1328.413
	117	460683.478	642579.953	1328.333
	118	460683.249	642579.759	1328.152

Injectite #6				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	126	460772.102	642493.068	1338.735
	127	460771.694	642492.895	1339.062
	128	460771.084	642493.771	1339.159
	129	460770.541	642494.605	1339.181
	130	460770.208	642495.374	1339.037
	131	460769.918	642496.564	1338.932
	132	460769.406	642497.399	1338.973
	133	460768.846	642498.464	1338.897
	134	460768.708	642499.721	1338.765
	135	460768.761	642500.402	1338.594
	136	460769.084	642499.905	1338.654
	137	460769.416	642498.971	1338.664
	138	460769.831	642498.259	1338.527
	139	460770.226	642497.529	1338.494
	140	460770.683	642496.742	1338.588
	141	460770.613	642495.583	1338.829
	142	460770.904	642494.909	1338.897
	143	460771.366	642494.123	1338.755
	144	460771.674	642493.706	1338.745
	145	460772.069	642493.168	1338.707
2	146	460764.797	642500.795	1338.69
	147	460764.054	642501.702	1338.68
	148	460763.35	642502.68	1338.709

	149	460762.558	642503.999	1338.716
	150	460761.948	642505.162	1338.633
	151	460761.152	642506.202	1338.609
	152	460759.707	642508.649	1338.294
	153	460758.828	642509.991	1338.239
	154	460758.235	642511.064	1338.162
	155	460757.508	642512.634	1338.132
	156	460756.832	642513.477	1337.945
	157	460755.372	642515.637	1337.863
	158	460754.367	642517.005	1337.93
	159	460753.599	642518.323	1337.75
	160	460752.761	642520.452	1337.617
	161	460752.231	642521.535	1337.462
	162	460751.084	642523.299	1337.28
	163	460749.992	642524.86	1337.159
	164	460749.523	642526.148	1337.138
	165	460750.655	642525.323	1337.064
	166	460751.058	642524.515	1337.126
	167	460751.35	642523.877	1337.235
	168	460752.145	642522.879	1337.211
	169	460753.359	642520.797	1337.452
	170	460754.089	642519.239	1337.648
	171	460754.966	642517.827	1337.663
	172	460755.882	642516.355	1337.672
	173	460756.44	642515.365	1337.772
	174	460757.716	642513.557	1337.855
	175	460758.322	642512.336	1337.949
	176	460758.905	642511.341	1338.042
	177	460759.356	642510.463	1338.087
	178	460759.933	642509.49	1338.119
	179	460760.616	642508.487	1338.186
	180	460761.456	642507.247	1338.218
	181	460762.21	642506.144	1338.26
	182	460762.882	642504.975	1338.307
	183	460763.479	642503.912	1338.468
	184	460764.249	642502.751	1338.503
	185	460764.828	642501.75	1338.552
	186	460765.097	642501.244	1338.615
	187	460765.504	642500.712	1338.6
	188	460764.864	642500.722	1338.701
	189	460764.007	642501.673	1338.678

Injectite #7				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	190	460798.949	642556.497	1332.222
	191	460798.243	642557.363	1332.405
	192	460797.504	642558.787	1332.325
	193	460796.863	642559.999	1332.174
	194	460796.339	642561.02	1332.007
	195	460795.983	642562.634	1331.779
	196	460795.434	642563.964	1331.54
	197	460794.938	642565.22	1331.255
	198	460794.002	642566.852	1330.802
	199	460793.53	642568.35	1330.166
	200	460793.321	642569.466	1329.655
	201	460793.155	642570.249	1329.05
	202	460793.118	642571.114	1328.542
	203	460793.551	642571.881	1328.009
	204	460794.513	642572.268	1327.79

	205	460796.635	642571.623	1327.723
	206	460797.554	642570.716	1327.374
	207	460798.011	642569.375	1327.447
	208	460798.239	642567.677	1327.756
	209	460798.167	642566.641	1328.161
	210	460798.296	642565.523	1328.686
	211	460798.347	642564.336	1329.507
	212	460798.01	642563.038	1330.525
	213	460798.199	642561.792	1331.01
	214	460799.161	642560.219	1330.663
	215	460799.735	642559.252	1330.756
	216	460800.255	642557.991	1331.036
	217	460800.402	642557.236	1331.281
	218	460799.787	642556.645	1331.806
	219	460798.941	642556.394	1332.247
2	220	460796.636	642586.037	1318.292
	221	460797.254	642585.443	1318.306
	222	460797.646	642585.17	1318.373
	223	460798.483	642584.98	1317.961
	224	460798.797	642584.453	1318.17
	225	460799.026	642583.797	1318.55
	226	460799.113	642582.964	1319.102
	227	460799.181	642582.065	1319.651
	228	460799.522	642580.623	1320.147
	229	460799.802	642579.72	1320.41
	230	460799.822	642578.803	1320.871
	231	460800.219	642577.369	1321.427
	232	460800.511	642576.594	1321.603
	233	460800.873	642575.723	1321.884
	234	460801.183	642574.811	1322.15
	235	460801.752	642573.682	1322.305
	236	460802.071	642572.748	1322.475
	237	460802.507	642571.426	1322.949
	238	460802.239	642570.065	1323.935
	239	460801.625	642569.414	1324.689
	240	460800.54	642568.523	1325.824
	241	460799.316	642568.326	1326.834
	242	460798.515	642569.39	1327.12
	243	460798.024	642571.127	1327.102
	244	460797.436	642572.154	1327.206
	245	460797.011	642573.134	1326.942
	246	460797.13	642574.187	1326.034
	247	460796.9	642575.501	1325.304
	248	460796.803	642576.602	1324.957
	249	460796.445	642577.782	1324.595
	250	460795.738	642578.624	1324.346
	251	460795.448	642579.339	1323.904
	252	460795.157	642580.129	1323.432
	253	460794.979	642581.168	1322.888
	254	460794.711	642582.02	1322.417
	255	460794.488	642583.007	1321.886
	256	460794.428	642583.575	1321.514
	257	460794.266	642584.223	1321.151
	258	460794.207	642584.734	1320.689
	259	460794.252	642585.286	1320.179
	260	460794.179	642585.867	1319.687
	261	460794.324	642586.508	1319.09
	262	460795.068	642586.672	1318.657
	263	460795.739	642586.495	1318.587
	264	460796.408	642586.197	1318.264
	265	460796.964	642585.728	1318.247

3	266	460783.418	642599.74	1314.91
	267	460783.289	642600.322	1314.489
	268	460783.231	642600.99	1314.093
	269	460783.632	642600.827	1314.021
	270	460784.349	642600.473	1313.907
	271	460785.436	642599.857	1314.106
	272	460785.925	642599.115	1314.212
	273	460786.357	642598.307	1314.526
	274	460786.775	642597.49	1314.881
	275	460787.351	642596.493	1315.2
	276	460787.997	642595.584	1315.416
	277	460788.473	642594.787	1315.731
	278	460789.8	642593.15	1316.208
	279	460789.704	642592.309	1316.913
	280	460789.263	642591.706	1317.476
	281	460788.628	642592.415	1317.569
	282	460787.667	642592.959	1317.656
	283	460786.7	642593.685	1317.487
	284	460786.111	642594.966	1316.507
	285	460785.353	642596.329	1316.343
	286	460784.568	642597.083	1316.263
	287	460783.974	642598.059	1315.773
	288	460783.693	642599.057	1315.304
	289	460783.47	642599.561	1315.111
4	290	460779.825	642604.173	1313.844
	291	460779.323	642604.954	1313.692
	292	460778.949	642605.962	1313.483
	293	460778.496	642606.781	1313.232
	294	460777.94	642607.563	1312.923
	295	460777.701	642608.204	1312.414
	296	460777.673	642608.711	1312.108
	297	460778.014	642609.263	1311.756
	298	460778.503	642609.48	1311.414
	299	460779.085	642609.699	1311.303
	300	460779.674	642609.37	1311.281
	301	460780.076	642608.627	1311.479
	302	460780.625	642607.679	1311.855
	303	460780.755	642606.574	1312.287
	304	460780.892	642605.785	1312.712
	305	460780.887	642604.917	1313.019
	306	460780.876	642604.198	1313.359
	307	460780.38	642603.571	1313.717
	308	460779.941	642604.009	1313.881
5	309	460776.263	642610.82	1311.202
	310	460775.568	642611.397	1311.419
	311	460775.092	642612.027	1311.481
	312	460774.456	642613.064	1310.933
	313	460774.425	642613.767	1310.557
	314	460775.021	642613.909	1310.419
	315	460775.693	642613.529	1310.431
	316	460775.92	642612.826	1310.709
	317	460776.158	642612.182	1310.885
	318	460776.082	642611.655	1311.139
	319	460776.366	642611.14	1311.075
	320	460776.367	642610.73	1311.141
6	321	460767.436	642624.197	1308.708
	322	460767.755	642624.693	1308.409
	323	460767.909	642625.295	1308.022
	324	460768.479	642625.539	1307.668

	325	460768.657	642625.02	1307.852
	326	460768.955	642624.353	1308.043
	327	460769.104	642623.697	1308.302
	328	460769.353	642623.172	1308.539
	329	460769.506	642622.264	1308.857
	330	460769.35	642621.584	1309.295
	331	460769.41	642621.008	1309.426
	332	460769.879	642620.282	1309.37
	333	460769.844	642619.789	1309.575
	334	460769.976	642619.21	1309.774
	335	460770.536	642618.6	1309.815
	336	460771.077	642618.19	1309.537
	337	460771.319	642617.474	1309.693
	338	460771.597	642616.903	1309.877
	339	460771.767	642616.316	1310.208
	340	460771.235	642616.253	1310.432
	341	460770.457	642616.916	1310.513
	342	460769.586	642617.267	1310.701
	343	460768.874	642618.314	1310.599
	344	460768.37	642619.288	1310.525
	345	460768.17	642620.071	1310.429
	346	460767.887	642620.98	1310.194
	347	460767.563	642621.69	1309.929
	348	460767.534	642622.493	1309.65
	349	460767.391	642623.251	1309.294
	350	460767.401	642623.984	1308.909
7	351	460761.597	642631.162	1306.946
	352	460761.03	642632.18	1306.854
	353	460760.49	642632.755	1306.768
	354	460759.974	642633.686	1306.464
	355	460760.377	642634.131	1306.176
	356	460761.224	642634.389	1305.73
	357	460761.685	642633.547	1305.953
	358	460762.289	642632.579	1305.997
	359	460762.553	642631.811	1306.06
	360	460762.585	642630.963	1306.367
	361	460761.883	642630.63	1306.806
	362	460761.375	642631.22	1307.001
8	363	460759.693	642636.133	1305.64
	364	460759.354	642636.563	1305.509
	365	460759.36	642637.069	1305.298
	366	460759.911	642637.089	1305.307
	367	460760.134	642636.616	1305.333
	368	460760.085	642636.128	1305.485
	369	460759.689	642636.131	1305.643
9	370	460758.463	642638.8	1304.962
	371	460758.326	642639.615	1304.893
	372	460758.083	642640.287	1304.687
	373	460758.113	642641.229	1304.464
	374	460758.025	642642.938	1304.162
	375	460757.745	642644.041	1303.863
	376	460757.429	642644.765	1303.503
	377	460757.523	642645.704	1303.131
	378	460758.234	642645.897	1302.891
	379	460758.81	642644.995	1303.101
	380	460759.165	642644.106	1303.254
	381	460759.434	642642.993	1303.597
	382	460759.599	642641.984	1303.824
	383	460759.532	642640.882	1304.18

	384	460759.543	642639.927	1304.487
	385	460759.803	642639.022	1304.639
	386	460760.098	642638.061	1304.878
	387	460759.317	642638.148	1305.042
	370	460758.463	642638.8	1304.962
10	388	460755.837	642648.244	1302.547
	389	460755.215	642648.943	1302.615
	390	460754.542	642649.869	1302.263
	391	460753.636	642650.972	1302.037
	392	460752.838	642652.449	1301.798
	393	460752.197	642653.157	1301.766
	394	460751.518	642654.105	1301.703
	395	460750.764	642655.134	1301.505
	396	460750.116	642656.322	1301.394
	397	460749.704	642657.411	1301.318
	398	460749.449	642657.983	1301.249
	399	460748.356	642660.233	1301.104
	400	460747.613	642661.925	1300.959
	401	460747.179	642663.382	1300.751
	402	460746.763	642664.753	1300.511
	403	460746.43	642665.975	1300.514
	404	460746.005	642667.376	1300.329
	405	460745.863	642668.83	1300.06
	406	460746.103	642669.97	1299.698
	407	460747.11	642670.13	1299.448
	408	460747.937	642668.73	1299.581
	409	460748.235	642667.632	1299.747
	410	460748.378	642666.58	1299.913
	411	460748.859	642665.481	1300.021
	412	460749.38	642663.734	1300.051
	413	460749.973	642662.387	1300.052
	414	460750.342	642661.19	1300.257
	415	460750.761	642660.127	1300.302
	416	460751.233	642659.111	1300.464
	417	460751.871	642657.567	1300.642
	418	460752.436	642656.495	1300.671
	419	460752.824	642655.461	1301.018
	420	460753.495	642654.204	1301.222
	421	460753.727	642652.773	1301.609
	422	460754.593	642651.736	1301.444
	423	460755.856	642650.656	1301.701
	424	460756.246	642649.694	1301.793
	425	460756.647	642648.449	1302.081
	426	460756.649	642647.44	1302.409
	427	460755.654	642647.867	1302.602
11	428	460745.291	642670.935	1299.678
	429	460744.659	642671.927	1299.696
	430	460744.478	642673.236	1299.196
	431	460745.155	642673.787	1298.745
	432	460745.904	642673.783	1298.623
	433	460746.635	642673.316	1298.445
	434	460746.838	642672.409	1298.871
	435	460746.462	642671.633	1299.179
	436	460745.765	642670.988	1299.623
	437	460745.01	642671.17	1299.74
12	438	460747.06	642678.085	1297.55
	439	460746.802	642679.031	1297.566
	440	460746.588	642679.893	1297.383
	441	460746.65	642680.469	1297.003

	442	460747.066	642681.072	1296.167
	443	460747.548	642681.477	1295.65
	444	460748.337	642681.033	1295.462
	445	460748.727	642680.211	1295.707
	446	460748.802	642679.49	1296.121
	447	460748.494	642678.799	1296.522
	448	460748.198	642678.227	1296.748
	449	460748.068	642677.712	1297.027
	450	460747.384	642677.809	1297.431
13	451	460745.093	642684.01	1294.708
	452	460744.974	642684.568	1294.308
	453	460745.389	642684.214	1294.23
	454	460745.694	642683.818	1294.509
	455	460746.159	642683.609	1294.56
	456	460746.444	642683.44	1294.542
	457	460746.507	642683.155	1294.781
	458	460746.272	642683.075	1294.968
	459	460745.831	642683.347	1294.88
	460	460745.507	642683.511	1294.886
	461	460745.225	642683.867	1294.808
	462	460744.998	642684.176	1294.559

Injectite #8				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	1	458985.202	643879.649	1279.931
	2	458984.461	643879.178	1280.249
	3	458983.915	643878.953	1280.41
	4	458982.462	643878.383	1280.664
	5	458981.698	643878.322	1280.832
	6	458980.881	643878.54	1280.995
	7	458979.911	643878.4	1281.157
	8	458979.022	643877.974	1281.442
	9	458978.534	643877.587	1281.634
	10	458978.021	643877.866	1281.743
	11	458977.484	643878.666	1281.497
	12	458977.438	643879.106	1281.256
	13	458978.101	643879.548	1281.045
	14	458979.173	643879.617	1280.938
	15	458980.186	643879.312	1280.988
	16	458980.824	643879.146	1280.976
	17	458981.638	643879.275	1280.878
	18	458981.207	643880.518	1280.434
	19	458981.951	643880.491	1280.364
	20	458982.786	643880.467	1280.243
	21	458983.384	643880.533	1280.108
	22	458984.015	643880.443	1280.03
	23	458984.979	643880.108	1279.964
2	24	458978.454	643877.021	1281.635
	25	458978.533	643876.251	1281.624
	26	458978.33	643875.556	1281.686
	27	458977.5	643875.094	1281.889
	28	458976.781	643875.385	1282.068
	29	458976.269	643875.753	1282.225
	30	458975.915	643876.276	1282.271
	31	458975.557	643876.763	1282.295
	32	458975.045	643876.819	1282.312
	33	458974.465	643877.127	1282.407

	34	458974.15	643877.428	1282.449
	35	458973.581	643877.553	1282.552
	36	458973.099	643877.696	1282.59
	37	458972.408	643878.267	1282.581
	38	458971.463	643878.753	1282.426
	39	458970.971	643879.024	1282.305
	40	458970.126	643879.049	1282.012
	41	458969.41	643879.144	1281.756
	42	458969.004	643879.451	1281.681
	43	458969.556	643879.681	1281.537
	44	458970.316	643879.894	1281.363
	45	458971.095	643879.803	1281.42
	46	458971.771	643879.554	1281.526
	47	458972.399	643879.209	1281.551
	48	458972.847	643878.95	1281.563
	49	458973.37	643878.767	1281.555
	50	458973.959	643878.552	1281.516
	51	458974.571	643878.288	1281.588
	52	458975.197	643877.937	1281.568
	53	458975.928	643877.654	1281.596
	54	458976.54	643877.503	1281.74
	55	458976.841	643877.583	1281.792
	56	458977.348	643877.5	1281.804
	57	458977.921	643877.551	1281.768
	58	458978.304	643877.33	1281.657
3	59	458966.107	643879.084	1282.582
	60	458965.648	643878.524	1282.785
	61	458964.987	643878.279	1282.922
	62	458964.262	643877.782	1283.067
	63	458963.421	643877.667	1283.26
	64	458962.523	643877.455	1283.402
	65	458961.789	643877.266	1283.503
	66	458961.048	643877.122	1283.617
	67	458960.64	643877.058	1283.678
	68	458960.155	643877.14	1283.777
	69	458959.763	643877.21	1283.863
	70	458959.25	643877.164	1283.895
	71	458958.5	643877.189	1284.046
	72	458957.775	643877.485	1284.094
	73	458957.444	643877.818	1283.957
	74	458957.743	643878.015	1283.814
	75	458958.233	643878.002	1283.731
	76	458958.767	643878.022	1283.64
	77	458959.494	643878.02	1283.564
	78	458959.892	643878.04	1283.47
	79	458960.569	643878.16	1283.392
	80	458960.978	643878.488	1283.21
	81	458961.594	643878.501	1283.169
	82	458962.266	643878.466	1283.093
	83	458963.175	643878.706	1282.927
	84	458963.809	643878.788	1282.896
	85	458964.339	643879.264	1282.703
	86	458964.918	643879.494	1282.584
	87	458965.32	643879.668	1282.474
	88	458965.81	643879.272	1282.578
4	89	458958.427	643874.47	1284.538
	90	458958.002	643873.937	1284.775
	91	458957.674	643873.739	1284.87
	92	458957.52	643873.243	1284.885
	93	458956.788	643872.767	1285.07

	94	458956.46	643872.466	1285.183
	95	458955.898	643872.188	1285.41
	96	458955.39	643871.877	1285.571
	97	458954.605	643872.231	1285.667
	98	458954.218	643872.167	1285.787
	99	458953.724	643872.045	1285.911
	100	458953.457	643872.238	1285.98
	101	458953.514	643872.559	1285.809
	102	458953.964	643872.725	1285.644
	103	458954.51	643872.993	1285.491
	104	458955.29	643873.21	1285.283
	105	458955.747	643873.047	1285.254
	106	458956.126	643873.284	1285.134
	107	458956.521	643873.599	1285.041
	108	458956.794	643874.128	1284.864
	109	458957.01	643874.611	1284.753
	110	458957.493	643874.636	1284.647
	111	458958.114	643874.701	1284.541
5	112	458948.695	643872.988	1286.713
	113	458948.709	643872.436	1287.013
	114	458948.291	643872.286	1287.307
	115	458947.661	643872.181	1287.517
	116	458947.007	643872.166	1287.689
	117	458946.74	643871.655	1287.881
	118	458946.311	643871.051	1288.143
	119	458945.835	643870.904	1288.345
	120	458945.383	643870.914	1288.49
	121	458944.795	643870.488	1288.754
	122	458944.304	643870.484	1288.899
	123	458943.894	643870.152	1289.081
	124	458943.575	643870.017	1289.187
	125	458943.124	643869.938	1289.32
	126	458942.734	643869.868	1289.439
	127	458942.342	643869.748	1289.568
	128	458941.797	643869.57	1289.727
	129	458941.134	643869.611	1289.863
	130	458940.643	643869.353	1289.941
	131	458940.533	643868.826	1289.916
	132	458940.234	643868.418	1290.047
	133	458939.882	643868.365	1290.125
	134	458939.234	643868.393	1290.217
	135	458938.685	643868.611	1290.273
	136	458938.374	643868.693	1290.332
	137	458937.961	643868.687	1290.391
	138	458937.644	643869.111	1290.404
	139	458937.522	643869.42	1290.342
	140	458937.93	643869.748	1290.208
	141	458938.337	643869.717	1290.171
	142	458938.75	643869.978	1290.052
	143	458939.184	643870.198	1289.841
	144	458939.626	643870.367	1289.677
	145	458940.145	643870.581	1289.618
	146	458940.589	643870.763	1289.483
	147	458941.042	643870.933	1289.281
	148	458941.52	643870.959	1289.211
	149	458942.028	643871.224	1289.062
	150	458942.483	643871.228	1288.939
	151	458942.923	643871.516	1288.813
	152	458943.283	643871.765	1288.587
	153	458943.587	643872.09	1288.359
	154	458944.112	643872.247	1288.122

	155	458944.577	643872.485	1287.896
	156	458945.248	643872.681	1287.744
	157	458945.592	643872.986	1287.486
	158	458946.144	643873.106	1287.376
	159	458946.475	643873.257	1287.165
	160	458946.958	643873.456	1287.002
	161	458947.384	643873.633	1286.711
	162	458947.799	643873.563	1286.629
	163	458948.499	643873.532	1286.585
6	164	458932.395	643869.07	1291.638
	165	458932.399	643868.608	1291.876
	166	458932.227	643868.2	1292.146
	167	458931.731	643867.814	1292.677
	168	458931.071	643867.515	1293.005
	169	458930.534	643867.137	1293.214
	170	458930.068	643866.894	1293.401
	171	458929.564	643866.724	1293.73
	172	458928.864	643866.537	1294.176
	173	458928.599	643866.437	1294.313
	174	458928.369	643866.327	1294.503
	175	458928.218	643866.158	1294.61
	176	458928.006	643866.114	1294.825
	177	458927.691	643866.109	1294.993
	178	458927.501	643866.406	1295.133
	179	458927.07	643866.796	1295.168
	180	458926.736	643867.299	1295.052
	181	458926.529	643867.683	1294.637
	182	458926.763	643867.931	1294.396
	183	458927.167	643868.077	1294.107
	184	458927.441	643868.441	1293.862
	185	458927.819	643868.605	1293.614
	186	458928.38	643868.512	1293.423
	187	458928.827	643868.465	1293.298
	188	458929.357	643868.477	1293.1
	189	458929.9	643868.624	1292.929
	190	458930.339	643869.045	1292.663
	191	458930.632	643869.255	1292.44
	192	458930.956	643869.45	1292.205
	193	458931.401	643869.896	1291.653
	194	458931.706	643870.083	1291.513
	195	458931.967	643870.136	1291.408
	196	458932.092	643869.781	1291.516
7	197	458924.025	643868.427	1294.995
	198	458923.904	643868.044	1295.232
	199	458923.544	643867.951	1295.529
	200	458923.147	643867.638	1295.837
	201	458922.622	643867.322	1296.272
	202	458921.963	643867.211	1296.701
	203	458921.782	643866.936	1296.91
	204	458921.316	643866.586	1297.288
	205	458920.75	643866.304	1297.659
	206	458920.493	643866.175	1297.858
	207	458920.167	643865.834	1298.165
	208	458919.907	643865.578	1298.372
	209	458919.645	643865.396	1298.397
	210	458918.859	643865.294	1298.776
	211	458918.491	643864.954	1298.869
	212	458917.771	643865.055	1299.3
	213	458916.96	643864.971	1299.552
	214	458916.455	643864.801	1299.599

	215	458915.865	643864.599	1299.855
	216	458915.169	643864.875	1300.026
	217	458914.695	643864.847	1300.093
	218	458914.13	643864.622	1300.244
	219	458913.655	643864.553	1300.424
	220	458913.177	643864.477	1300.592
	221	458912.75	643864.335	1300.759
	222	458912.251	643864.451	1301.017
	223	458911.88	643864.476	1301.153
	224	458911.483	643864.473	1301.259
	225	458911.007	643864.449	1301.384
	226	458910.523	643864.548	1301.488
	227	458909.807	643864.677	1301.697
	228	458909.359	643864.736	1301.75
	229	458909.01	643864.81	1301.739
	230	458909.048	643865.276	1301.641
	231	458909.314	643865.631	1301.456
	232	458909.567	643866.089	1301.18
	233	458909.874	643866.568	1300.734
	234	458910.666	643866.629	1300.59
	235	458911.331	643866.474	1300.537
	236	458911.93	643866.292	1300.432
	237	458912.62	643866.314	1300.168
	238	458913.139	643866.292	1299.976
	239	458913.844	643866.421	1299.799
	240	458914.149	643866.5	1299.625
	241	458915.064	643866.642	1299.393
	242	458915.979	643866.67	1299.367
	243	458916.785	643867.111	1298.969
	244	458917.261	643867.296	1298.653
	245	458917.56	643867.985	1298.185
	246	458918.112	643868.332	1297.55
	247	458918.489	643868.676	1297.172
	248	458919.074	643869.107	1296.688
	249	458919.608	643869.44	1296.171
	250	458920.106	643869.711	1295.809
	251	458920.853	643870.138	1295.316
	252	458921.658	643869.843	1295.219
	253	458922.417	643868.928	1295.607
	254	458923.311	643868.748	1295.096
	255	458923.947	643868.565	1294.942
8	259	458903.107	643866.986	1303.251
	260	458902.555	643866.642	1303.614
	261	458901.72	643866.717	1303.968
	262	458901.172	643866.803	1304.175
	263	458900.92	643866.623	1304.267
	264	458900.497	643866.605	1304.501
	265	458900.079	643866.453	1304.746
	266	458899.646	643866.607	1304.875
	267	458899.179	643866.768	1304.996
	268	458898.574	643866.862	1305.152
	269	458898.042	643866.821	1305.266
	270	458897.243	643866.922	1305.471
	271	458896.603	643866.953	1305.661
	272	458895.915	643866.743	1305.844
	273	458895.461	643866.524	1305.911
	274	458895.154	643866.246	1305.959
	275	458894.836	643865.93	1305.941
	276	458894.628	643865.647	1305.927
	277	458894.189	643865.479	1305.981
	278	458893.727	643865.318	1306.096

	279	458893.213	643865.479	1306.198
	280	458892.702	643865.479	1306.328
	281	458892.272	643865.658	1306.365
	282	458891.669	643865.881	1306.417
	283	458891.3	643866.071	1306.508
	284	458890.764	643866.431	1306.552
	285	458890.474	643866.758	1306.486
	286	458890.374	643867.189	1306.367
	287	458890.788	643867.521	1306.221
	288	458890.802	643867.825	1306.106
	289	458891.277	643867.969	1305.928
	290	458891.758	643868.215	1305.828
	291	458892.356	643868.227	1305.751
	292	458892.817	643868.166	1305.75
	293	458893.479	643868.368	1305.468
	294	458893.575	643868.522	1305.397
	295	458894.25	643868.875	1305.193
	296	458894.825	643869.085	1305.093
	297	458895.078	643869.362	1304.968
	298	458895.462	643869.793	1304.625
	299	458895.902	643869.933	1304.312
	300	458896.159	643869.961	1304.26
	301	458896.503	643870.118	1304.23
	302	458896.838	643870.055	1304.251
	303	458897.514	643870.068	1304.139
	304	458898.688	643870.03	1303.749
	305	458899.113	643869.379	1303.984
	306	458899.326	643868.969	1304.094
	307	458899.837	643868.703	1304.088
	308	458900.126	643868.961	1303.785
	309	458900.457	643869.04	1303.571
	310	458900.677	643869.211	1303.301
	311	458901.163	643869.283	1303.088
	312	458901.584	643869.147	1302.948
	313	458902.045	643868.599	1303.151
	314	458902.615	643868.003	1303.258
	315	458902.905	643867.35	1303.306
9	316	458879.333	643869.481	1308.189
	317	458878.85	643869.312	1308.374
	318	458878.418	643868.943	1308.461
	319	458877.823	643868.857	1308.564
	320	458877.145	643868.783	1308.756
	321	458876.6	643868.656	1308.81
	322	458875.978	643868.613	1308.912
	323	458875.388	643868.644	1308.96
	324	458875.015	643868.881	1308.978
	325	458874.614	643869.322	1309.055
	326	458874.224	643869.458	1309.043
	327	458873.91	643869.58	1309.072
	328	458873.831	643869.807	1309.08
	329	458874.303	643870.135	1308.972
	330	458874.814	643870.232	1308.893
	331	458875.207	643870.272	1308.841
	332	458875.544	643870.174	1308.764
	333	458875.937	643870.01	1308.767
	334	458876.369	643870.205	1308.615
	335	458876.799	643870.27	1308.476
	336	458877.591	643870.168	1308.345
	337	458878.049	643870.267	1308.273
	338	458878.666	643870.441	1308.083
	339	458879.237	643870.41	1307.957

	340	458879.765	643870.233	1307.943
10	341	458872.248	643869.3	1309.122
	342	458870.74	643869.509	1309.182
	343	458870.106	643869.504	1309.184
	344	458869.702	643869.536	1309.155
	345	458869.184	643869.615	1309.09
	346	458868.665	643869.614	1309.009
	347	458867.974	643869.602	1308.962
	348	458867.481	643869.626	1308.936
	349	458866.759	643869.647	1308.912
	350	458866.377	643869.78	1308.949
	351	458865.865	643870.143	1308.964
	352	458865.422	643870.297	1308.976
	353	458865.152	643870.536	1309.078
	354	458864.807	643871.165	1309.215
	355	458864.507	643871.464	1309.246
	356	458864.146	643871.884	1309.362
	357	458863.564	643872.15	1309.365
	358	458863.121	643872.395	1309.441
	359	458862.696	643872.64	1309.542
	360	458862.18	643872.987	1309.623
	361	458861.633	643873.201	1309.702
	362	458861.302	643873.196	1309.657
	363	458860.747	643873.321	1309.696
	364	458860.173	643873.393	1309.704
	365	458859.755	643873.597	1309.716
	366	458859.347	643873.725	1309.7
	367	458858.824	643873.693	1309.639
	368	458858.509	643873.494	1309.518
	369	458858.071	643873.557	1309.399
	370	458857.736	643873.591	1309.33
	371	458856.864	643873.641	1309.095
	372	458856.621	643873.823	1309.098
	373	458856.244	643873.949	1309.012
	374	458855.754	643873.949	1308.867
	375	458855.336	643873.962	1308.738
	376	458854.662	643873.967	1308.582
	377	458854.024	643874.156	1308.471
	378	458853.4	643874.324	1308.4
	379	458852.696	643874.783	1308.346
	380	458852.11	643874.777	1308.199
	381	458851.475	643874.83	1308.103
	382	458850.875	643874.746	1307.861
	383	458850.263	643874.881	1307.835
	384	458849.458	643875.628	1307.854
	385	458849.892	643875.99	1308.02
	386	458850.503	643876.024	1308.098
	387	458851.092	643875.977	1308.209
	388	458851.614	643875.925	1308.342
	389	458852.22	643875.988	1308.409
	390	458852.947	643875.909	1308.498
	391	458853.43	643875.849	1308.556
	392	458853.984	643876.176	1308.507
	393	458854.623	643876.405	1308.608
	394	458855.327	643876.325	1308.697
	395	458855.947	643876.276	1308.714
	396	458856.333	643876.225	1308.7
	397	458856.803	643876.14	1308.738
	398	458857.207	643876.158	1308.71
	399	458857.728	643876.18	1308.675
	400	458858.32	643876.034	1308.802

	401	458858.907	643875.966	1308.824
	402	458859.33	643875.878	1308.842
	403	458859.848	643875.718	1308.854
	404	458860.264	643875.654	1308.864
	405	458860.785	643875.575	1308.868
	406	458861.264	643875.494	1308.888
	407	458861.574	643875.42	1308.942
	408	458862.047	643875.109	1308.988
	409	458862.459	643874.824	1309.089
	410	458863.252	643874.29	1309.235
	411	458863.633	643873.837	1309.342
	412	458864.042	643873.378	1309.336
	413	458864.107	643872.891	1309.369
	414	458864.564	643872.696	1309.329
	415	458864.952	643872.436	1309.335
	416	458865.634	643872.03	1309.408
	417	458866.086	643871.892	1309.44
	418	458866.562	643871.261	1309.555
	419	458867.037	643870.975	1309.534
	420	458867.68	643870.783	1309.501
	421	458868.31	643870.712	1309.47
	422	458868.739	643870.623	1309.396
	423	458869.409	643870.568	1309.359
	424	458869.869	643870.709	1309.284
	425	458870.322	643870.554	1309.285
	426	458870.858	643870.415	1309.23
	341	458872.248	643869.3	1309.122
11	527	458840.074	643882.345	1307.354
	428	458839.024	643882.404	1307.416
	429	458838.11	643882.764	1307.532
	430	458837.598	643882.869	1307.523
	431	458837.077	643882.762	1307.399
	432	458836.647	643882.833	1307.341
	433	458836.159	643882.983	1307.306
	434	458835.604	643883.095	1307.29
	435	458834.975	643883.145	1307.147
	436	458834.442	643883.262	1307.13
	437	458833.61	643883.513	1307.079
	438	458833.243	643883.487	1306.913
	439	458832.837	643883.607	1306.893
	440	458832.422	643883.717	1306.95
	441	458831.807	643883.498	1306.88
	442	458831.293	643883.452	1306.728
	443	458830.837	643883.312	1306.612
	444	458830.101	643883.411	1306.556
	445	458829.595	643883.425	1306.514
	446	458829.108	643883.453	1306.499
	447	458828.372	643883.465	1306.46
	448	458827.645	643883.441	1306.48
	449	458826.837	643883.591	1306.247
	450	458826.234	643883.804	1306.225
	451	458825.76	643883.957	1306.22
	452	458825.101	643884.167	1306.031
	453	458824.61	643884.387	1306.018
	454	458824.18	643884.534	1305.961
	455	458823.689	643884.568	1305.814
	456	458823.329	643884.666	1305.798
	457	458822.912	643884.692	1305.822
	458	458822.442	643884.481	1305.596
	459	458821.913	643884.792	1305.512
	460	458821.429	643885.017	1305.505

	461	458821.005	643885.193	1305.502
	462	458820.464	643885.311	1305.509
	463	458819.935	643885.452	1305.456
	464	458819.376	643885.514	1305.419
	465	458818.833	643885.59	1305.376
	466	458818.321	643885.545	1305.297
	467	458817.97	643885.521	1305.273
	468	458816.603	643885.259	1305.025
	469	458815.891	643885.263	1304.898
	470	458815.026	643885.684	1304.911
	471	458813.924	643885.826	1304.632
	472	458812.862	643885.99	1304.368
	473	458811.544	643885.92	1304.341
	553	458809.017	643886.813	1304.005
	552	458808.604	643887.135	1303.941
	551	458807.78	643887.506	1303.695
	550	458806.689	643887.98	1303.438
	549	458805.901	643888.545	1303.297
	548	458805.319	643889.307	1302.859
	493	458805.673	643889.493	1302.856
	494	458807.564	643889.102	1303.315
	495	458808.692	643888.768	1303.609
	496	458810.576	643888.712	1304.001
	497	458811.795	643888.371	1304.367
	498	458813.134	643888.093	1304.689
	499	458814.539	643887.494	1305.111
	500	458815.953	643887.259	1305.202
	501	458817.055	643887.133	1305.353
	502	458818.413	643887.336	1305.475
	503	458819.664	643887.134	1305.707
	504	458820.852	643886.888	1305.909
	505	458822.081	643886.43	1306.039
	506	458822.908	643885.909	1306.186
	507	458823.94	643885.557	1306.411
	508	458825.043	643885.288	1306.641
	509	458825.954	643884.894	1306.889
	510	458826.686	643884.619	1307.053
	511	458828.038	643884.518	1307.029
	512	458828.666	643884.61	1307.05
	513	458829.737	643884.359	1307.364
	514	458830.354	643884.347	1307.383
	515	458831.136	643884.412	1307.443
	516	458831.454	643884.717	1307.258
	517	458832.006	643884.993	1307.163
	518	458832.981	643884.876	1307.243
	519	458834.028	643884.492	1307.446
	520	458834.675	643884.27	1307.52
	521	458835.448	643883.973	1307.546
	522	458836.266	643884.146	1307.482
	523	458837.042	643884.202	1307.482
	524	458838.043	643884.083	1307.523
	525	458839.387	643883.606	1307.478
	526	458840.051	643882.629	1307.361
	527	458840.074	643882.345	1307.354
12	474	458810.483	643885.667	1303.89
	475	458809.618	643885.691	1303.668
	476	458808.188	643885.613	1303.448
	477	458806.992	643885.534	1303.162
	478	458806.061	643885.765	1303.017
	479	458805.054	643885.955	1302.846
	480	458803.955	643886.115	1302.72

	481	458803.122	643886.115	1302.495
	482	458801.932	643886.137	1302.067
	483	458800.772	643886.129	1301.502
	484	458799.745	643886.544	1301.393
	485	458798.515	643887.095	1301.112
	486	458797.715	643887.927	1300.872
	487	458797.674	643888.38	1300.965
	488	458799.102	643888.601	1301.466
	489	458800.503	643888.301	1301.872
	490	458801.996	643888.011	1302.443
	491	458803.38	643887.511	1302.961
	560	458804.488	643887.273	1303.147
	559	458805.28	643887.244	1303.342
	558	458806.492	643886.912	1303.523
	557	458807.245	643886.964	1303.673
	556	458807.918	643886.483	1303.807
	555	458808.561	643886.292	1303.845
	474	458810.483	643885.667	1303.89
13	528	458795.868	643887.739	1300.5
	529	458795.516	643887.199	1300.299
	530	458794.412	643887.488	1300.132
	531	458793.372	643887.801	1299.698
	532	458792.432	643887.767	1299.505
	533	458791.37	643887.69	1299.213
	534	458790.199	643887.939	1299.052
	535	458789.183	643888.11	1298.704
	536	458787.717	643888.051	1298.305
	537	458786.67	643888.109	1298.157
	538	458785.497	643888.32	1297.936
	539	458784.238	643888.908	1297.802
	540	458785.709	643889.274	1298.094
	541	458789.247	643889.206	1298.851
	542	458790.176	643889.856	1298.888
	543	458791.48	643889.888	1299.079
	544	458792.235	643889.53	1299.332
	545	458793.347	643889.041	1299.936
	546	458794.566	643888.788	1300.233
	547	458795.017	643888.118	1300.501
14	561	458796.59	643904.749	1302.286
	562	458795.994	643904.715	1302.348
	563	458795.086	643904.613	1302.386
	564	458794.08	643904.349	1302.42
	565	458792.965	643904.074	1302.708
	566	458791.875	643903.855	1302.696
	567	458791.044	643903.808	1302.808
	568	458789.599	643903.683	1302.814
	569	458788.901	643903.626	1302.746
	570	458787.553	643903.78	1302.632
	571	458786.193	643904.026	1302.456
	572	458785.027	643904.232	1302.251
	573	458784.019	643904.37	1302.131
	574	458782.93	643904.515	1302.018
	575	458781.896	643904.329	1301.756
	576	458780.789	643904.101	1301.626
	577	458779.98	643903.975	1301.596
	578	458779.018	643904.325	1301.554
	579	458777.594	643904.325	1301.239
	580	458776.566	643904.97	1301.197
	581	458775.542	643904.803	1300.971
	582	458773.947	643904.883	1300.536

	583	458773.079	643905.4	1300.467
	584	458772.225	643905.501	1300.304
	585	458771.264	643905.57	1300.181
	586	458770.293	643905.541	1299.998
	587	458769.221	643905.739	1299.936
	588	458768.136	643905.671	1299.71
	589	458767.13	643905.627	1299.657
	590	458765.919	643905.981	1299.669
	591	458765.989	643905.634	1299.585
	592	458765.502	643905.049	1299.293
	593	458764.611	643904.786	1299.196
	594	458763.525	643904.459	1299.072
	595	458762.709	643904.438	1298.904
	596	458761.668	643904.732	1298.773
	597	458760.719	643904.651	1298.622
	598	458759.687	643904.568	1298.371
	599	458759.262	643904.937	1298.347
	600	458759.732	643905.767	1298.627
	601	458760.584	643905.827	1298.859
	602	458761.497	643906.094	1299.04
	603	458761.988	643906.629	1299.162
	604	458761.856	643907.594	1299.079
	605	458761.213	643908.223	1298.942
	606	458761.502	643908.9	1298.895
	607	458762.49	643908.46	1299.14
	608	458763.618	643908.225	1299.177
	609	458765.186	643907.936	1299.28
	610	458766.307	643907.609	1299.55
	611	458767.411	643907.173	1299.762
	612	458768.607	643906.583	1299.986
	613	458769.505	643906.545	1300.015
	614	458770.507	643906.539	1300.083
	615	458771.203	643906.915	1300.123
	616	458772.109	643907.094	1300.152
	617	458773.069	643906.688	1300.434
	618	458774.004	643906.335	1300.651
	619	458774.837	643905.973	1300.884
	620	458775.625	643905.905	1301.055
	621	458776.613	643905.636	1301.339
	622	458777.72	643905.164	1301.479
	623	458778.95	643905.092	1301.576
	624	458779.798	643905.114	1301.681
	625	458780.739	643905.468	1301.658
	626	458781.641	643905.416	1301.908
	627	458782.915	643905.552	1302.008
	628	458784.135	643905.282	1302.254
	629	458785.181	643905.189	1302.333
	630	458786.323	643904.856	1302.491
	631	458787.266	643904.848	1302.569
	632	458788.17	643904.784	1302.675
	633	458788.889	643904.762	1302.675
	634	458789.746	643904.756	1302.65
	635	458790.602	643904.768	1302.583
	636	458791.623	643904.722	1302.54
	637	458792.761	643904.802	1302.541
	638	458793.558	643905.098	1302.486
	639	458794.076	643905.304	1302.385
	640	458795.025	643905.278	1302.335
	641	458796.114	643905.116	1302.327
15	666	458734.228	643921.741	1296.406
	667	458733.735	643921.544	1296.627

	668	458733.029	643921.655	1296.649
	669	458732.405	643921.714	1296.672
	670	458731.756	643921.693	1296.689
	671	458731.234	643921.598	1296.693
	672	458730.646	643921.452	1296.681
	673	458730.189	643921.548	1296.627
	674	458729.74	643921.66	1296.535
	675	458729.675	643922.133	1296.433
	676	458730.231	643922.265	1296.339
	677	458730.878	643922.26	1296.31
	678	458731.337	643922.098	1296.355
	679	458731.87	643922.185	1296.388
	680	458732.491	643922.21	1296.332
	681	458733.032	643922.176	1296.298
	682	458733.631	643922.242	1296.273
	683	458733.952	643921.972	1296.347
	684	458734.255	643921.724	1296.43

Injectite #9				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	685	458675.546	643923.87	1287.423
	686	458676.267	643924.792	1288.22
	687	458677.218	643925.87	1288.984
	688	458678.549	643926.989	1289.609
	689	458679.478	643928.346	1290.157
	690	458680.738	643929.653	1290.918
	691	458682.016	643931.457	1291.694
	692	458683.178	643933.523	1292.531
	693	458683.669	643935.346	1293.107
	694	458684.961	643937.412	1293.718
	695	458685.793	643940.15	1294.515
	696	458685.944	643942.066	1294.8
	697	458687.071	643943.473	1295.458
	698	458688.377	643945.443	1296.065
	699	458689.434	643944.892	1296.077
	700	458688.281	643942.624	1295.63
	701	458687.205	643940.246	1294.953
	702	458686.017	643937.809	1293.982
	703	458684.738	643936.018	1293.504
	704	458684.381	643934.778	1293.154
	705	458683.614	643933.693	1292.693
	706	458683.465	643932.107	1292.083
	707	458682.413	643930.25	1291.33
	708	458681.02	643928.717	1290.63
	709	458679.617	643927.159	1289.829
	710	458678.02	643925.638	1289.063
	711	458677.494	643924.787	1288.538
	712	458676.715	643924.147	1287.99
	713	458676.198	643923.789	1287.58
2	714	458682.784	643926.601	1289.772
	715	458683.541	643927.8	1290.689
	716	458684.929	643929.419	1291.859
	717	458686.326	643930.54	1292.453
	718	458687.204	643932.092	1293.006
	719	458687.475	643933.878	1293.523
	720	458688.142	643935.693	1293.804
	721	458689.183	643936.481	1293.977
	722	458688.856	643935.218	1293.817

	723	458689.007	643933.716	1293.415
	724	458688.228	643931.117	1292.587
	725	458687.581	643929.016	1291.826
	726	458686.638	643928.094	1291.273
	727	458684.976	643927.32	1290.542
	728	458683.787	643926.833	1290.147
	729	458683.064	643926.37	1289.709
3	730	458698.61	643952.468	1299.008
	731	458698.521	643954.022	1299.65
	732	458699.016	643955.924	1300.188
	733	458700.222	643958.739	1301.121
	734	458700.996	643961.167	1301.687
	735	458701.72	643962.141	1302.172
	736	458703.141	643963.29	1302.823
	737	458704.67	643965.113	1303.591
	738	458705.862	643967.443	1304.263
	739	458707.056	643969.572	1304.583
	740	458709.103	643972.605	1305.376
	741	458708.995	643970.073	1305.256
	742	458708.409	643968.382	1304.859
	743	458707.432	643965.654	1304.286
	744	458706.523	643962.986	1303.245
	745	458706.154	643961.369	1302.477
	746	458705.495	643960.3	1301.94
	747	458703.906	643959.149	1301.751
	748	458703.275	643958.08	1301.394
	749	458702.483	643956.238	1300.601
	750	458701.666	643954.859	1300.082
	751	458700.778	643953.877	1299.673
	752	458699.679	643953.143	1299.386
	753	458698.696	643952.334	1298.962
4	754	458707.547	643960.267	1301.819
	755	458707.775	643962.387	1302.969
	756	458708.441	643964.358	1303.85
	757	458709.061	643965.8	1304.327
	758	458710.267	643968.249	1304.863
	759	458711.774	643971.461	1305.732
	760	458713.359	643973.905	1306.251
	761	458714.216	643977.393	1306.608
	762	458716.138	643979.875	1307.49
	763	458718.138	643981.864	1307.957
	764	458720.094	643983.134	1307.887
	765	458721.096	643984.096	1307.786
	766	458720.529	643982.237	1307.814
	767	458719.275	643980.886	1307.62
	768	458717.611	643978.605	1307.123
	769	458716.955	643976.612	1306.534
	770	458716.435	643974.467	1305.949
	771	458714.506	643972.16	1305.94
	772	458713.399	643969.88	1305.12
	773	458712.215	643967.728	1304.291
	774	458709.979	643964.592	1303.612
	775	458709.217	643962.194	1302.431
	776	458708.593	643960.7	1301.939
	777	458707.757	643960.139	1301.682
5	778	458722.481	643986.163	1307.801
	779	458723.029	643988.148	1307.672
	780	458723.715	643990.56	1307.398
	781	458724.274	643991.775	1307.045

	782	458725.732	643993.837	1306.193
	783	458726.386	643994.213	1305.817
	784	458726.917	643993.19	1305.75
	785	458724.639	643989.52	1307.23
	786	458723.794	643987.025	1307.257
	787	458723.235	643985.642	1307.384
	788	458722.463	643985.847	1307.806
6	789	458729.71	643998.599	1304.167
	790	458730.27	644000.269	1303.981
	791	458731.393	644001.288	1303.657
	792	458731.97	644002.253	1303.135
	793	458732.643	644002.893	1302.697
	794	458733.535	644003.569	1302.295
	795	458734.322	644003.085	1302.33
	796	458734.182	644001.657	1302.676
	797	458733.835	644000.627	1302.811
	798	458733.122	643999.757	1303.114
	799	458732.191	643999.225	1303.55
	800	458731.317	643998.561	1303.801
	801	458730.052	643998.136	1304.143
7	802	458735.075	644007.984	1301.219
	803	458735.949	644010.539	1300.425
	804	458737.685	644012.104	1299.763
	805	458738.831	644012.776	1299.148
	806	458740.221	644012.878	1298.572
	807	458740.12	644010.926	1298.829
	808	458738.704	644009.786	1299.739
	809	458737.343	644008.919	1300.487
	810	458735.627	644008.075	1301.105
8	811	458739.345	644016.176	1298.008
	812	458739.819	644017.094	1297.605
	813	458740.925	644019.48	1296.68
	814	458742.534	644021.719	1295.833
	815	458743.37	644023.439	1295.113
	816	458745.338	644026.803	1293.441
	817	458746.537	644028.535	1292.531
	818	458748.048	644030.559	1291.34
	819	458749.277	644032.633	1290.038
	820	458750.624	644032.297	1289.439
	821	458750.148	644030.765	1290.113
	822	458749.047	644029.038	1291.016
	823	458746.971	644026.442	1292.588
	824	458745.335	644024.273	1293.632
	825	458744.301	644022.025	1294.699
	826	458742.653	644020.037	1295.881
	827	458741.744	644019.152	1296.493
	828	458740.568	644017.242	1297.331
	829	458740.47	644016.159	1297.666
	830	458739.932	644015.56	1298.052
	831	458739.261	644015.941	1298.061
9	832	458761.759	644051.022	1281.877
	833	458762.912	644052.878	1281.337
	834	458764.333	644055.34	1280.088
	835	458765.604	644056.578	1279.296
	836	458766.621	644058.266	1278.419
	837	458767.483	644059.349	1277.899
	838	458769.22	644061.082	1277.206
	839	458771.216	644063.04	1276.783
	840	458772.468	644065.401	1276.128

	841	458773.792	644067.071	1275.328
	842	458775.426	644068.694	1274.69
	843	458776.398	644070.027	1274.12
	844	458777.109	644070.767	1273.855
	845	458778.041	644070.711	1273.586
	846	458776.772	644068.831	1274.308
	847	458775.368	644066.939	1274.954
	848	458774.058	644065.199	1275.761
	849	458772.267	644063.277	1276.636
	850	458768.475	644059.141	1277.793
	851	458766.905	644056.402	1278.822
	852	458765.588	644054.561	1279.727
	853	458764.037	644052.686	1280.901
	854	458762.371	644050.733	1281.697
	855	458761.776	644051.17	1281.851
10	857	458768.264	644082.77	1273.154
	858	458769.12	644083.543	1272.799
	859	458770.464	644085.045	1272.502
	860	458770.546	644085.658	1272.473
	861	458771.105	644085.988	1272.354
	862	458771.747	644086.028	1272.379
	863	458772.124	644086.624	1272.264
	864	458772.415	644087.196	1272.221
	865	458772.187	644087.828	1272.067
	866	458772.577	644088.271	1271.976
	867	458773.236	644087.934	1271.932
	868	458773.346	644087.092	1272.065
	869	458773.027	644086.542	1272.207
	870	458772.514	644086.352	1272.25
	871	458772.501	644085.648	1272.288
	872	458771.419	644085.54	1272.41
	873	458770.818	644085.109	1272.495
	874	458769.754	644083.897	1272.66
	875	458768.948	644082.942	1272.992
	876	458768.94	644082.209	1273.221
	877	458768.459	644081.796	1273.472
	878	458768.313	644082.076	1273.473
	857	458768.264	644082.77	1273.154

Injectite #10				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	68	458325.651	644345.798	1288.606
	69	458325.742	644345.953	1288.563
	70	458325.888	644346.186	1288.537
	71	458326.054	644346.451	1288.501
	72	458326.146	644346.584	1288.474
	73	458326.224	644346.746	1288.457
	74	458326.425	644347.116	1288.455
	75	458326.617	644347.036	1288.517
	76	458326.673	644347.177	1288.525
	77	458326.837	644347.404	1288.464
	78	458326.927	644347.544	1288.437
	79	458327.051	644347.849	1288.387
	80	458327.315	644348.083	1288.428
	81	458327.468	644347.987	1288.512
	82	458327.533	644348.166	1288.488
	83	458327.614	644348.383	1288.462
	84	458327.703	644348.589	1288.448

	85	458327.878	644348.86	1288.442
	86	458328.022	644349.073	1288.372
	87	458328.2	644349.271	1288.192
	88	458328.341	644349.229	1288.229
	89	458328.417	644349.463	1288.115
	90	458328.528	644349.664	1288.044
	91	458328.599	644349.875	1287.973
	92	458328.819	644350.102	1287.9
	93	458329.131	644350.35	1287.875
	94	458329.22	644350.275	1287.958
	95	458329.414	644350.532	1287.879
	96	458329.686	644350.85	1287.669
	97	458329.935	644351.096	1287.649
	98	458330.199	644351.461	1287.521
	99	458330.359	644351.746	1287.49
	100	458330.577	644352.102	1287.321
	101	458330.788	644352.335	1287.216
	102	458330.973	644352.262	1287.321
	103	458331.135	644352.503	1287.244
	104	458331.362	644352.789	1287.012
	105	458331.489	644352.783	1286.978
	106	458331.591	644352.945	1286.907
	107	458331.72	644353.095	1286.826
	108	458331.843	644353.096	1286.832
	109	458332.005	644353.337	1286.711
	110	458332.194	644353.56	1286.575
	111	458332.336	644353.717	1286.456
	112	458332.46	644353.698	1286.444
	113	458332.62	644353.988	1286.399
	114	458332.787	644354.263	1286.263
	115	458333.057	644354.578	1286.13
	116	458333.28	644354.737	1286.054
	117	458333.403	644355.013	1285.902
	118	458333.56	644355.215	1285.799
	119	458333.745	644355.139	1285.822
	120	458333.852	644355.386	1285.748
	121	458334.096	644355.672	1285.55
	122	458334.405	644356.015	1285.313
	123	458334.721	644356.326	1285.159
	124	458334.915	644356.604	1285.077
	125	458335.032	644356.602	1285.11
	126	458335.074	644356.81	1285.017
	127	458335.241	644357.012	1284.918
	128	458335.373	644357.144	1284.889
	129	458335.531	644357.323	1284.808
	130	458335.692	644357.541	1284.72
	131	458335.916	644357.726	1284.58
	132	458336.119	644358.01	1284.461
	133	458336.237	644358.258	1284.401
	134	458337.065	644359.114	1284.043
	135	458337.384	644359.374	1283.903
	136	458337.754	644359.672	1283.687
	137	458337.623	644359.366	1283.838
	138	458336.879	644358.613	1284.191
	139	458336.346	644358.013	1284.443
	140	458336.138	644357.616	1284.561
	141	458335.813	644357.284	1284.837
	142	458335.57	644356.978	1284.955
	143	458335.332	644356.641	1285.101
	144	458335.163	644356.356	1285.137
	145	458334.967	644356.029	1285.239
	146	458334.749	644355.726	1285.369

	147	458334.516	644355.46	1285.49
	148	458334.287	644355.18	1285.639
	149	458334	644354.841	1285.825
	150	458333.742	644354.484	1285.972
	151	458333.385	644354.011	1286.224
	152	458333.037	644353.666	1286.366
	153	458332.813	644353.647	1286.435
	154	458332.68	644353.338	1286.409
	155	458332.518	644353.068	1286.525
	156	458332.243	644352.801	1286.76
	157	458332.091	644352.561	1286.77
	158	458331.983	644352.617	1286.806
	159	458331.809	644352.357	1286.839
	160	458331.593	644352.078	1286.922
	161	458331.331	644351.76	1287.033
	162	458331.117	644351.748	1287.149
	163	458330.86	644351.384	1287.28
	164	458330.544	644351.007	1287.48
	165	458330.279	644351.001	1287.564
	166	458330.102	644350.689	1287.599
	167	458329.956	644350.367	1287.675
	168	458329.836	644350.108	1287.53
	169	458329.525	644349.555	1287.584
	170	458329.322	644349.59	1287.688
	171	458329.122	644349.303	1287.618
	172	458328.962	644348.934	1287.679
	173	458328.799	644348.911	1287.697
	174	458328.679	644348.677	1287.683
	175	458328.523	644348.452	1287.714
	176	458328.41	644348.505	1287.719
	177	458328.245	644348.194	1287.768
	178	458327.961	644347.787	1287.871
	179	458327.83	644347.779	1287.89
	180	458327.637	644347.462	1287.878
	181	458327.402	644347.148	1287.882
	182	458327.214	644346.828	1287.907
	183	458327.022	644346.584	1287.964
	184	458326.867	644346.359	1288.042
	185	458326.7	644346.4	1288.131
	186	458326.567	644346.1	1288.135
	187	458326.349	644345.793	1288.146
	188	458326.232	644345.695	1288.344
	189	458326.204	644345.452	1288.522
	190	458325.942	644345.276	1288.682
	191	458325.804	644345.117	1288.795
	192	458325.456	644345.56	1289.035
	193	458325.633	644345.791	1288.605
2	194	458320.364	644337.85	1289.231
	195	458320.123	644337.538	1289.444
	196	458319.795	644337.175	1289.724
	197	458319.224	644336.5	1290.003
	198	458318.621	644335.88	1290.344
	199	458318.247	644335.586	1290.491
	200	458317.806	644335.659	1290.597
	201	458318.089	644335.939	1290.442
	202	458318.292	644336.338	1290.15
	203	458318.711	644336.772	1289.948
	204	458319.051	644337.089	1289.877
	205	458319.591	644337.531	1289.551
	206	458319.939	644337.846	1289.327
	207	458320.201	644337.668	1289.345

Injectite #11				
Segment #	GPS Point #	Northigns (m)	Eastings (m)	Elevation (m)
1	294	458071	644568.745	1283.631
	295	458071.401	644568.829	1283.6
	296	458071.772	644569.09	1283.55
	297	458072.215	644569.475	1283.422
	298	458072.494	644569.775	1283.386
	299	458072.41	644570.081	1283.358
	300	458072.301	644570.314	1283.327
	301	458071.806	644570.104	1283.527
	302	458071.343	644569.678	1283.757
	303	458070.702	644569.454	1283.605
	304	458070.273	644569.126	1283.543
	305	458070.69	644568.743	1283.628
	306	458071.006	644568.749	1283.633
2	307	458076.7	644578.241	1281.556
	308	458077.127	644577.75	1281.662
	309	458078.049	644576.807	1281.592
	310	458079.356	644575.649	1281.594
	311	458080.014	644575.306	1281.543
	312	458081.374	644575.431	1281.215
	313	458082.136	644575.843	1281.024
	314	458082.913	644575.992	1280.718
	315	458084.852	644575.316	1280.286
	316	458085.595	644574.862	1280.016
	317	458086.539	644574.766	1279.818
	318	458087.367	644574.78	1279.565
	319	458087.888	644574.673	1279.471
	320	458088.309	644574.351	1279.451
	321	458088.905	644574.022	1279.388
	322	458089.344	644574.107	1279.287
	323	458089.928	644574.213	1278.987
	324	458090.39	644574.554	1278.857
	325	458091.02	644574.683	1278.618
	326	458091.977	644574.756	1278.458
	327	458092.699	644574.396	1278.362
	328	458093.816	644574.305	1278.211
	329	458094.604	644574.179	1278.139
	330	458095.298	644574.162	1277.948
	331	458095.828	644574.387	1277.564
	332	458095.762	644575.257	1277.481
	333	458095.21	644575.551	1277.607
	334	458094.728	644575.635	1277.708
	335	458093.994	644575.674	1277.859
	336	458093.303	644575.191	1278.117
	337	458092.758	644574.958	1278.244
	338	458092.026	644575.143	1278.324
	339	458091.19	644575.069	1278.504
	340	458090.02	644575.176	1278.778
	341	458089.116	644575.211	1278.977
	342	458088.32	644575.299	1279.129
	343	458087.874	644575.773	1279.109
	344	458087.546	644576.085	1279.184
	345	458086.994	644575.949	1279.388
	346	458086.463	644576.058	1279.472
	347	458085.16	644576.933	1279.655
	348	458084.323	644577.349	1279.716

	349	458083.325	644577.433	1280.043
	350	458082.416	644576.987	1280.38
	351	458081.465	644577.31	1280.461
	352	458080.695	644577.351	1280.673
	353	458079.79	644577.054	1280.878
	354	458078.944	644577.436	1280.997
	355	458078.271	644577.814	1281.023
	356	458077.734	644578.298	1280.76
	357	458077.253	644578.723	1280.8
	358	458076.846	644579.275	1280.815
	359	458075.87	644579.693	1280.842
	360	458075.228	644580.203	1280.743
	361	458074.622	644580.789	1280.527
	362	458073.889	644580.718	1280.719
	363	458073.596	644580.002	1281.192
	364	458074.047	644579.063	1281.505
	365	458074.935	644578.215	1281.725
	366	458075.857	644577.979	1281.697
	367	458076.695	644578.176	1281.554
3	368	458104.24	644573.275	1276.221
	384	458104.82	644573.307	1276.107
	370	458105.664	644573.183	1275.908
	371	458106.678	644573.035	1275.698
	372	458107.149	644573.019	1275.566
	380	458107.741	644573.099	1275.333
	374	458108.422	644573.371	1274.812
	375	458109.001	644573.75	1274.428
	376	458109.358	644573.976	1274.091
	377	458109.29	644574.206	1274.028
	378	458109.105	644573.957	1274.322
	379	458108.339	644573.348	1274.867
	373	458107.715	644573.085	1275.347
	381	458107.24	644572.932	1275.545
	382	458106.524	644573.021	1275.751
	383	458105.456	644573.161	1275.961
	369	458104.861	644573.258	1276.1
	385	458104.231	644573.264	1276.219

Injectite #12				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	1	457630.204	645057.212	1281.408
	2	457629.936	645056.651	1281.487
	3	457629.858	645055.581	1281.633
	4	457629.404	645053.744	1281.818
	5	457629.169	645052.714	1281.795
	6	457630.258	645051.909	1282.168
	7	457630.106	645049.606	1282.206
	8	457629.884	645047.74	1282.428
	9	457630.174	645046	1282.643
	10	457630.639	645042.969	1282.634
	11	457630.446	645040.501	1282.091
	12	457629.797	645038.755	1281.442
	13	457629.257	645037.199	1281.009
	14	457628.273	645036.044	1280.419
	15	457627.906	645034.498	1279.989
	16	457628.707	645033.222	1279.633
	17	457629.423	645031.809	1279.571
	18	457629.915	645030.76	1279.637

	19	457630.857	645029.21	1279.311
	20	457630.984	645026.812	1278.461
	21	457632.236	645024.42	1278.177
	22	457632.431	645022.467	1277.691
	23	457632.915	645019.361	1277.217
	24	457633.479	645017.373	1277.173
	25	457633.573	645015.616	1276.932
	26	457634.431	645015.095	1276.933
	27	457635.149	645014.417	1276.727
	28	457635.484	645014.729	1276.671
	29	457635.93	645014.92	1276.705
	30	457636.62	645014.54	1276.605
	31	457637.167	645013.701	1276.38
	32	457637.465	645013.725	1276.266
	33	457637.993	645013.901	1276.095
	34	457638.808	645014.169	1275.782
	35	457638.964	645014.948	1275.76
	36	457639.035	645017.242	1276.059
	37	457639.443	645018.288	1275.997
	38	457639.559	645019.905	1276.037
	39	457639.572	645021.764	1276.181
	40	457639.324	645023.913	1276.492
	41	457639.229	645026.315	1277.002
	42	457638.688	645028.64	1277.549
	43	457638.169	645030.605	1278.095
	44	457637.625	645032.854	1278.759
	45	457636.465	645035.83	1279.689
	46	457635.617	645038.216	1280.341
	47	457635.371	645039.772	1280.511
	48	457635.342	645041.209	1280.366
	49	457634.81	645043.415	1280.556
	50	457634.163	645044.98	1280.888
	51	457634.333	645047.051	1280.978
	52	457633.496	645049.309	1281.287
	53	457632.736	645052.306	1281.484
	54	457631.988	645055.163	1281.459
	55	457631.209	645056.329	1281.417
	56	457630.962	645057.26	1281.261
	57	457630.303	645057.216	1281.381
2	58	457637.671	645052.096	1279.215
	59	457638.286	645052.353	1278.765
	60	457638.658	645052.099	1278.728
	61	457638.989	645051.904	1278.582
	62	457639.732	645052.031	1278.323
	63	457640.468	645052.512	1277.844
	64	457641.055	645052.748	1277.47
	65	457641.706	645053.012	1277.073
	66	457642.467	645053.355	1276.548
	67	457642.939	645053.513	1276.197
	68	457643.464	645053.397	1276.014
	69	457643.622	645053.23	1275.998
	70	457643.378	645052.771	1276.274
	71	457642.385	645052.545	1276.894
	72	457641.701	645052.305	1277.268
	73	457641.08	645051.949	1277.649
	74	457640.051	645051.222	1278.155
	75	457639.849	645050.976	1278.258
	76	457639.289	645051.15	1278.613
	77	457638.556	645051.455	1279.053
	78	457637.739	645051.614	1279.245
	79	457637.593	645051.914	1279.275

3	80	457647.382	645050.861	1275.259
	81	457647.379	645051.295	1275.099
	82	457648.014	645051.56	1274.812
	83	457648.731	645051.794	1274.444
	84	457649.27	645052.102	1274.122
	85	457649.991	645052.104	1273.686
	86	457650.66	645052.154	1273.451
	87	457651.398	645052.436	1273.094
	88	457651.983	645052.598	1272.727
	89	457652.433	645052.767	1272.451
	90	457652.654	645052.613	1272.409
	91	457652.385	645052.278	1272.682
	92	457651.747	645052.06	1273.038
	93	457650.954	645051.723	1273.403
	94	457650.418	645051.502	1273.775
	95	457650.355	645051.03	1273.937
	96	457649.636	645050.98	1274.405
	97	457648.468	645050.86	1274.9
	98	457647.813	645050.565	1275.194
	99	457647.419	645050.715	1275.318
4	100	457633.125	645059.758	1279.192
	101	457632.756	645059.54	1279.468
	102	457632.36	645059.558	1279.893
	103	457631.73	645060.041	1280.136
	104	457631.443	645060.516	1280.159
	105	457631.064	645061.003	1280.109
	106	457630.329	645061.547	1279.973
	107	457629.605	645062.286	1279.781
	108	457629.893	645062.592	1279.438
	109	457630.28	645062.678	1279.199
	110	457630.731	645062.35	1279.091
	111	457630.984	645062.042	1279.054
	112	457631.562	645061.756	1278.835
	113	457632.125	645061.183	1278.814
	114	457632.417	645060.69	1278.87
	115	457632.776	645060.056	1279.092
	116	457633.13	645059.826	1279.132
5	124	457627.635	645063.9	1279.762
	125	457627.196	645064.373	1279.717
	126	457626.901	645064.918	1279.631
	127	457626.822	645065.333	1279.329
	128	457627.008	645065.781	1278.848
	129	457627.32	645065.676	1278.595
	130	457627.736	645065.182	1278.711
	131	457627.885	645064.689	1279.008
	132	457627.685	645064.463	1279.463
	133	457627.677	645064.089	1279.62
6	136	457626.185	645066.992	1278.529
	137	457625.597	645067.349	1278.603
	138	457625.023	645067.664	1278.66
	139	457624.578	645068.047	1278.523
	140	457624.285	645068.459	1278.309
	141	457624.291	645068.855	1278.096
	142	457624.85	645068.798	1277.924
	143	457625.217	645068.44	1277.966
	144	457625.275	645068.049	1278.283
	145	457625.481	645067.824	1278.392
	146	457625.85	645067.507	1278.361
	147	457626.236	645067.329	1278.33

	148	457626.294	645067.064	1278.458
7	149	457630.913	645057.397	1281.394
	150	457629.696	645058.13	1281.377
	151	457627.788	645059.161	1281.091
	152	457626.34	645060.101	1280.876
	153	457625.326	645060.865	1280.659
	154	457625.1	645061.429	1280.521
	155	457623.301	645062.124	1280.235
	156	457621.923	645062.469	1279.993
	157	457620.318	645062.923	1279.747
	158	457619.31	645063.529	1279.633
	159	457618.146	645063.923	1279.641
	160	457617.017	645063.977	1279.493
	161	457615.809	645064.417	1279.239
	162	457614.736	645064.755	1279.148
	163	457613.479	645065.034	1279.139
	164	457612.403	645065.558	1279.093
	165	457610.933	645065.858	1279.024
	166	457609.733	645066.429	1278.979
	167	457608.907	645066.828	1278.954
	168	457607.895	645067.006	1278.862
	169	457606.658	645067.264	1278.749
	170	457605.666	645067.859	1278.622
	171	457604.625	645068.426	1278.493
	172	457604.292	645068.739	1278.405
	173	457603.561	645069.293	1278.408
	174	457602.739	645069.758	1278.612
	175	457602.247	645070.044	1278.727
	176	457601.692	645070.282	1278.806
	177	457601.55	645070.566	1278.845
	178	457601.016	645070.803	1278.832
	179	457600.313	645071.212	1278.922
	180	457599.672	645071.628	1278.966
	181	457598.621	645072.134	1278.953
	182	457597.546	645072.412	1278.87
	183	457596.656	645072.928	1278.841
	184	457595.815	645073.452	1278.794
	185	457594.922	645073.919	1278.757
	186	457594.159	645074.42	1278.768
	187	457593.488	645074.743	1278.708
	188	457592.615	645075.15	1278.625
	189	457591.661	645075.693	1278.581
	190	457590.607	645076.274	1278.586
	191	457589.718	645076.813	1278.576
	192	457588.532	645077.409	1278.425
	193	457587.349	645078.25	1278.391
	194	457586.606	645078.657	1278.25
	195	457585.502	645079.361	1278.206
	196	457584.953	645079.907	1278.224
	197	457584.771	645080.075	1278.19
	198	457584.321	645080.327	1278.162
	199	457583.84	645080.423	1278.267
	200	457583.068	645080.941	1278.331
	201	457582.775	645081.394	1278.332
	202	457581.65	645082.086	1278.38
	203	457581.213	645082.138	1278.69
	204	457580.44	645082.488	1278.863
	205	457579.651	645082.849	1278.966
	206	457579.897	645083.11	1278.745
	207	457580.771	645082.696	1278.491
	208	457581.532	645082.325	1278.347

	209	457582.033	645081.879	1278.422
	210	457582.988	645081.236	1278.33
	211	457583.431	645081.12	1278.189
	212	457584.173	645080.625	1278.125
	213	457584.386	645080.287	1278.164
	214	457584.943	645080.045	1278.18
	215	457585.41	645079.922	1277.975
	216	457586.747	645079.129	1278.049
	217	457587.8	645078.4	1278.018
	218	457588.954	645077.736	1278.089
	219	457589.913	645077.236	1278.069
	220	457591.399	645076.452	1278.329
	221	457592.99	645075.593	1278.325
	222	457594.658	645074.798	1278.465
	223	457597.141	645073.792	1278.456
	224	457599.219	645072.679	1278.705
	225	457600.789	645071.589	1278.649
	226	457602.943	645070.153	1278.511
	227	457603.665	645069.336	1278.403
	228	457604.519	645068.682	1278.392
	229	457606.079	645068.323	1278.224
	230	457607.784	645067.916	1278.242
	231	457609.52	645067.189	1278.533
	232	457611.211	645066.634	1278.533
	233	457614.015	645065.493	1278.958
	234	457615.706	645065.078	1278.972
	235	457618.144	645064.644	1279.164
	236	457620.944	645063.351	1279.656
	237	457622.935	645062.874	1279.888
	238	457625.26	645062.143	1280.225
	239	457627.811	645060.368	1280.868
	240	457629.791	645059.096	1280.784
	241	457630.885	645058.062	1280.859
	242	457631.265	645057.546	1281.264
	243	457630.932	645057.389	1281.38
8	244	457576.834	645084.795	1279.36
	245	457576.493	645084.808	1279.558
	246	457575.998	645084.631	1279.802
	247	457575.575	645084.655	1279.955
	248	457575.339	645084.527	1280.187
	249	457575.161	645083.901	1280.467
	250	457575.345	645083.303	1280.469
	251	457575.761	645082.907	1280.243
	252	457576.08	645082.849	1280.095
	253	457576.22	645083.224	1279.955
	254	457575.677	645083.47	1280.117
	255	457575.64	645083.881	1280.207
	256	457575.711	645084.178	1280.058
	257	457575.831	645084.373	1279.991
	258	457576.097	645084.359	1279.885
	244	457576.834	645084.795	1279.36
9	259	457572.342	645083.118	1281.081
	260	457571.577	645083.298	1281.167
	261	457570.889	645083.237	1281.231
	262	457569.937	645083.26	1281.122
	263	457569.429	645083.705	1281.124
	264	457569.539	645084.78	1280.982
	265	457569.829	645085.928	1280.503
	266	457570.559	645086.779	1280.263
	267	457571.176	645087.422	1280.181

	268	457571.876	645088.135	1279.934
	269	457572.63	645089.103	1279.688
	270	457573.033	645088.638	1279.626
	271	457573.002	645087.871	1279.692
	272	457572.37	645087.502	1280.118
	273	457571.848	645086.899	1280.402
	274	457571.307	645086.32	1280.724
	275	457571.148	645085.998	1280.854
	276	457571.377	645085.591	1281.054
	277	457571.661	645085.267	1281.173
	278	457572.114	645084.638	1281.346
	279	457572.521	645083.967	1281.478
	280	457572.549	645083.379	1281.515
	281	457572.324	645083.107	1281.066
10	282	457567.245	645084.612	1281.106
	283	457566.849	645084.487	1281.231
	284	457566.194	645084.489	1281.219
	285	457565.053	645084.67	1281.279
	286	457564.372	645084.567	1281.369
	287	457563.338	645084.233	1281.351
	288	457562.451	645084.427	1281.279
	289	457561.6	645084.962	1281.132
	290	457560.837	645085.224	1280.865
	291	457560.114	645085.453	1280.755
	292	457559.535	645085.384	1280.556
	293	457559.27	645086.061	1280.194
	294	457559.702	645086.234	1280.208
	295	457560.069	645085.877	1280.416
	296	457560.714	645085.937	1280.453
	297	457560.662	645086.551	1280.178
	298	457560.924	645087.073	1280.036
	299	457561.279	645087.481	1279.9
	300	457561.875	645087.663	1279.932
	301	457562.162	645087.34	1280.11
	302	457562.193	645086.96	1280.32
	303	457562.487	645086.629	1280.622
	304	457563.56	645085.898	1280.95
	305	457564.348	645086.112	1280.901
	306	457564.866	645086.538	1280.844
	307	457565.552	645086.435	1280.739
	308	457566.112	645086.318	1280.682
	309	457566.932	645085.765	1280.816
	310	457567.426	645084.946	1281.128
11	311	457557.388	645085.544	1280.466
	312	457556.686	645085.074	1280.958
	313	457555.761	645084.764	1281.272
	314	457554.456	645084.088	1281.019
	315	457553.737	645083.244	1280.758
	316	457552.731	645083.026	1280.151
	317	457551.54	645083.116	1279.492
	318	457551.477	645084.073	1279.038
	319	457551.655	645084.66	1278.729
	320	457552.508	645085.162	1278.684
	321	457553.905	645085.946	1278.779
	322	457554.957	645086.413	1278.964
	323	457555.813	645086.424	1279.325
	324	457556.307	645086.489	1279.465
	325	457557.323	645086.143	1279.806
	326	457557.721	645085.764	1280.049
	327	457557.423	645085.475	1280.444

Injectite #13				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	1	457518.332	645147.92	1263.986
	2	457517.96	645147.661	1264.205
	3	457517.099	645147.554	1264.545
	4	457516.368	645147.43	1264.786
	5	457515.897	645147.416	1264.922
	6	457515.369	645147.382	1265.081
	7	457514.913	645147.438	1265.236
	8	457514.251	645147.054	1265.462
	9	457513.981	645146.526	1265.71
	10	457513.724	645145.884	1266.085
	11	457513.139	645145.684	1266.257
	12	457512.595	645145.212	1266.531
	13	457511.976	645144.82	1266.589
	14	457511.497	645144.534	1266.772
	15	457510.976	645144.405	1266.856
	16	457510.406	645144.477	1266.878
	17	457509.633	645144.299	1266.89
	18	457508.952	645144.257	1266.962
	19	457508.413	645144.513	1267.029
	20	457507.601	645144.825	1267.119
	21	457506.88	645145.068	1267.174
	22	457506.265	645145.151	1267.13
	23	457505.572	645145.23	1267.055
	24	457504.746	645145.535	1267.018
	25	457503.988	645145.621	1267.035
	26	457503.227	645145.662	1266.942
	27	457502.37	645145.86	1267.034
	28	457501.716	645145.694	1267.051
	29	457501.113	645145.889	1267.011
	30	457500.417	645146.149	1266.935
	31	457499.789	645146.335	1266.908
	32	457498.948	645146.549	1266.875
	33	457498.327	645146.701	1266.756
	34	457497.861	645146.935	1266.748
	35	457497.231	645147.169	1266.641
	36	457496.636	645147.45	1266.591
	37	457495.511	645147.951	1266.439
	38	457494.951	645148.227	1266.311
	39	457494.406	645148.741	1266.203
	40	457493.918	645149.025	1266.187
	41	457494.126	645149.236	1266.053
	42	457494.905	645148.922	1266.075
	43	457495.658	645148.839	1266.072
	44	457496.55	645148.787	1265.953
	45	457497.218	645148.805	1265.933
	46	457498.487	645148.575	1266
	47	457499.244	645148.366	1265.966
	48	457499.862	645148.272	1266.015
	49	457500.522	645147.926	1266.126
	50	457501.068	645147.748	1266.245
	51	457501.641	645147.4	1266.485
	52	457502.229	645147.229	1266.56
	53	457502.783	645147.014	1266.64
	54	457503.362	645146.644	1266.811
	55	457503.74	645146.48	1266.895
	56	457504.215	645146.339	1266.857

	57	457504.847	645146.278	1266.888
	58	457505.427	645146.193	1266.932
	59	457506.172	645146.023	1267.051
	60	457506.851	645145.764	1267.201
	61	457507.574	645145.659	1267.241
	62	457508.134	645145.488	1267.339
	63	457508.7	645145.357	1267.315
	64	457509.318	645145.321	1267.286
	65	457509.815	645145.51	1267.178
	66	457510.241	645145.598	1267.23
	67	457510.867	645145.595	1267.122
	68	457511.439	645145.805	1267.038
	69	457511.936	645146.003	1266.894
	70	457512.491	645146.374	1266.624
	71	457512.952	645146.59	1266.313
	72	457513.468	645146.878	1265.969
	73	457513.785	645147.436	1265.521
	74	457514.445	645147.394	1265.303
	75	457514.776	645147.673	1265.155
	76	457515.226	645148.125	1264.864
	77	457515.767	645148.475	1264.562
	78	457516.549	645148.556	1264.194
	79	457517.267	645148.575	1264.052
	80	457517.651	645148.288	1264.115
	81	457517.861	645148.074	1264.113
2	82	457488.359	645150.408	1267.63
	83	457487.763	645150.177	1267.886
	84	457487.171	645150.003	1267.883
	85	457486.601	645150.058	1267.931
	86	457486.162	645150.063	1267.995
	87	457485.719	645150.245	1268.119
	88	457485.118	645150.383	1268.112
	89	457484.496	645150.64	1268.135
	90	457483.929	645151.003	1268.065
	91	457482.65	645151.304	1267.728
	92	457481.667	645151.484	1267.481
	93	457480.638	645151.762	1267.246
	94	457479.845	645151.882	1267.144
	95	457479.068	645151.972	1267.038
	96	457478.253	645152.128	1266.936
	97	457477.417	645152.425	1266.783
	98	457476.339	645152.745	1266.591
	99	457475.2	645153.118	1266.48
	100	457474.156	645153.393	1266.377
	101	457473.429	645153.585	1266.252
	102	457472.71	645153.962	1266.083
	103	457472.159	645154.42	1265.904
	104	457472.099	645155.003	1265.772
	105	457472.259	645155.526	1265.408
	106	457472.936	645155.419	1265.5
	107	457473.851	645155.314	1265.613
	108	457474.062	645155.005	1265.714
	109	457474.896	645154.66	1265.962
	110	457475.216	645154.127	1266.219
	111	457475.736	645153.791	1266.296
	112	457476.614	645153.536	1266.498
	113	457477.256	645153.378	1266.567
	114	457477.925	645153.072	1266.722
	115	457478.613	645152.945	1266.789
	116	457479.266	645152.688	1266.948
	117	457479.938	645152.558	1267.031

	118	457480.456	645152.763	1267.062
	119	457481.559	645153.326	1267.012
	120	457482.464	645153.822	1266.939
	121	457482.966	645154.06	1266.821
	122	457483.837	645154.001	1266.926
	123	457484.597	645154.191	1266.793
	124	457485.711	645154.134	1266.998
	125	457486.621	645153.928	1267.101
	126	457487.358	645153.627	1267.286
	127	457487.719	645152.959	1267.366
	128	457487.977	645152.285	1267.514
	129	457488.206	645151.733	1267.646
	130	457488.332	645151.252	1267.726
	131	457488.411	645150.84	1267.687
3	132	457471.26	645155.26	1265.785
	133	457470.774	645155.006	1265.928
	134	457470.16	645154.912	1266.043
	135	457469.434	645154.885	1266.122
	136	457468.846	645154.831	1266.083
	137	457468.216	645154.478	1266.142
	138	457467.767	645154.449	1266.116
	139	457467.19	645154.691	1265.974
	140	457466.482	645154.988	1265.792
	141	457465.937	645155.245	1265.744
	142	457465.306	645155.492	1265.654
	143	457464.886	645155.714	1265.61
	144	457464.432	645155.85	1265.514
	145	457464.051	645155.846	1265.62
	146	457463.705	645155.643	1265.849
	147	457463.288	645155.541	1265.957
	148	457462.841	645155.396	1266.105
	149	457462.402	645155.404	1266.116
	150	457461.883	645155.229	1266.155
	151	457461.356	645155.078	1266.205
	152	457460.661	645155.345	1266.101
	153	457460.018	645155.635	1266.003
	154	457459.557	645156.048	1265.786
	155	457459.365	645156.333	1265.636
	156	457459.507	645156.776	1265.318
	157	457460.249	645156.728	1265.29
	158	457460.922	645156.837	1265.131
	159	457461.729	645156.823	1265.087
	160	457462.392	645157.166	1264.925
	161	457463.125	645157.059	1265.001
	162	457463.804	645157.034	1264.94
	163	457464.435	645156.647	1265.158
	164	457464.911	645156.268	1265.097
	165	457465.562	645156.09	1265.146
	166	457466.528	645155.832	1265.247
	167	457467.295	645155.699	1265.291
	168	457468.068	645155.444	1265.615
	169	457468.877	645155.642	1265.531
	170	457469.318	645155.932	1265.275
	171	457469.847	645156.119	1265.189
	172	457470.276	645156.249	1265.097
	173	457470.921	645156.297	1265.133
	174	457471.236	645156.118	1265.183
	175	457471.326	645155.606	1265.521
	176	457471.281	645155.185	1265.785
4	177	457453.467	645160.594	1264.357

	178	457453.006	645160.239	1264.6
	179	457452.107	645159.822	1264.943
	180	457451.439	645159.25	1265.099
	181	457450.666	645159.074	1265.319
	182	457449.71	645158.87	1265.48
	183	457448.988	645158.725	1265.635
	184	457448.385	645158.648	1265.658
	185	457447.739	645158.698	1265.576
	186	457447.043	645158.879	1265.531
	187	457446.563	645159.285	1265.34
	188	457446.167	645159.53	1265.146
	189	457446.012	645159.995	1264.822
	190	457446.444	645160.285	1264.6
	191	457447.228	645159.931	1264.87
	192	457448.02	645159.721	1265.074
	193	457448.464	645159.59	1265.186
	194	457449.057	645159.49	1265.182
	195	457449.741	645160.005	1264.849
	196	457450.258	645160.291	1264.617
	197	457450.707	645160.355	1264.579
	198	457451.205	645160.631	1264.375
	199	457451.646	645160.913	1264.222
	200	457452.275	645161.068	1264.164
	201	457452.874	645161.068	1264.169
	202	457453.384	645160.741	1264.253

Injectite 14				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	205	457244.484	645364.187	1239.423
	206	457244.291	645363.699	1239.689
	207	457243.968	645363.435	1239.968
	208	457243.912	645363.07	1240.195
	209	457243.537	645362.533	1240.548
	210	457243.137	645362.134	1240.904
	211	457243.199	645361.596	1241.029
	212	457242.905	645361.3	1241.228
	213	457242.632	645360.764	1241.421
	214	457242.586	645360.303	1241.646
	215	457242.641	645359.78	1241.778
	216	457242.344	645359.277	1242.131
	217	457241.8	645358.784	1242.555
	218	457241.617	645358.423	1242.663
	219	457241.412	645357.984	1242.813
	220	457241.06	645357.592	1243.039
	221	457240.414	645357.142	1243.476
	222	457240.468	645357.559	1243.388
	223	457240.373	645357.996	1243.374
	224	457240.779	645358.417	1243.208
	225	457240.818	645359.021	1242.976
	226	457240.955	645359.501	1242.626
	227	457241.32	645359.998	1242.356
	228	457241.686	645360.314	1242.175
	229	457241.777	645360.902	1241.799
	230	457242.038	645361.324	1241.509
	231	457242.359	645361.678	1241.267
	232	457242.555	645362.275	1240.876
	233	457242.988	645362.74	1240.543
	234	457243.373	645363.232	1240.237
	235	457243.608	645363.73	1240.016

	236	457243.769	645364.099	1239.749
	237	457244.101	645364.185	1239.542
2	238	457238.979	645357.853	1243.639
	239	457239.044	645357.38	1243.83
	240	457238.49	645356.852	1244.242
	241	457238.254	645356.544	1244.463
	242	457238.084	645356.29	1244.542
	243	457237.524	645355.94	1244.883
	244	457237.132	645355.99	1245.039
	245	457237.031	645356.42	1244.83
	246	457237.349	645356.598	1244.651
	247	457237.877	645356.952	1244.359
	248	457238.291	645357.233	1244.193
	249	457238.501	645357.609	1243.934
	250	457238.731	645357.838	1243.619
	251	457238.973	645357.851	1243.632
3	252	457235.14	645356.426	1245.195
	253	457235.065	645356.098	1245.358
	254	457234.917	645355.766	1245.756
	255	457234.89	645355.546	1245.838
	256	457235.029	645355.384	1245.87
	257	457234.925	645355.102	1246.089
	258	457234.568	645354.844	1246.249
	259	457234.285	645354.607	1246.369
	260	457234.048	645354.247	1246.618
	261	457233.892	645353.964	1246.741
	262	457233.567	645353.49	1247.026
	263	457233.451	645353.563	1247.065
	264	457233.369	645353.785	1247.025
	265	457233.607	645354.282	1246.674
	266	457233.904	645354.577	1246.506
	267	457234.253	645354.762	1246.287
	268	457234.528	645355.115	1246.164
	269	457234.572	645355.583	1246.03
	270	457234.429	645356.026	1245.679
	271	457234.63	645356.37	1245.35
	272	457234.939	645356.454	1245.255
4	273	457230.243	645354.994	1247.249
	274	457230.375	645354.616	1247.459
	275	457230.296	645354.131	1247.681
	276	457230.116	645353.794	1247.941
	277	457229.796	645353.447	1248.234
	278	457229.6	645353.219	1248.43
	279	457229.457	645352.817	1248.672
	280	457228.848	645352.372	1249.001
	281	457228.533	645351.902	1249.269
	282	457228.353	645351.378	1249.508
	283	457228.053	645350.947	1249.837
	284	457227.554	645350.804	1250.052
	285	457226.93	645350.773	1250.238
	286	457226.616	645350.873	1250.278
	287	457226.612	645351.123	1249.95
	288	457227.311	645351.329	1249.737
	289	457227.793	645351.217	1249.712
	290	457228.107	645351.595	1249.509
	291	457227.976	645351.956	1249.414
	292	457228.075	645352.346	1249.16
	293	457228.512	645352.83	1248.894
	294	457228.964	645353.108	1248.718

	295	457229.177	645353.446	1248.461
	296	457229.46	645353.925	1248.071
	297	457229.703	645354.392	1247.759
	298	457230.027	645354.783	1247.461
5	299	457225.34	645350.901	1250.236
	300	457225.478	645350.566	1250.446
	301	457225.431	645350.193	1250.652
	302	457225.381	645349.895	1250.845
	303	457225.097	645350.068	1250.806
	304	457225.12	645350.29	1250.664
	305	457225.148	645350.66	1250.396
	306	457225.283	645350.841	1250.29
6	307	457228.801	645347.02	1251.366
	308	457228.842	645346.61	1251.674
	309	457228.83	645346.266	1251.986
	310	457228.746	645345.872	1252.204
	311	457228.618	645345.509	1252.41
	312	457228.373	645345.145	1252.732
	313	457228.164	645344.737	1252.981
	314	457227.978	645344.335	1253.295
	315	457227.743	645343.986	1253.495
	316	457227.272	645343.194	1253.653
	317	457226.83	645342.587	1253.874
	318	457226.327	645342.144	1254.117
	319	457226.087	645341.918	1254.438
	320	457225.793	645341.588	1254.36
	321	457225.303	645341.374	1254.411
	322	457224.939	645341.09	1254.445
	323	457224.645	645340.801	1254.515
	324	457224.529	645340.285	1254.525
	325	457224.592	645339.63	1254.43
	326	457224.513	645339.112	1254.36
	327	457224.295	645338.805	1254.295
	328	457224.278	645339.403	1254.368
	329	457224.028	645339.805	1254.331
	330	457223.82	645340.27	1254.264
	331	457223.796	645340.89	1254.265
	332	457224.322	645341.335	1254.264
	333	457224.737	645341.674	1254.265
	334	457225.353	645341.935	1254.25
	335	457225.612	645342.311	1254.266
	336	457226.042	645342.821	1254.041
	337	457226.627	645343.406	1253.729
	338	457227.192	645343.91	1253.669
	339	457227.394	645344.21	1253.527
	340	457227.645	645344.546	1253.319
	341	457227.894	645344.808	1253.064
	342	457228.058	645345.177	1252.833
	343	457228.315	645345.477	1252.614
	344	457228.479	645345.943	1252.287
	345	457228.561	645346.355	1252.093
	346	457228.651	645346.675	1251.726
7	347	457228.205	645335.919	1254.476
	348	457228.027	645335.542	1254.643
	349	457227.691	645335.39	1254.8
	350	457227.424	645335.138	1254.732
	351	457227.057	645334.838	1254.662
	352	457226.519	645334.484	1254.411
	353	457226.04	645334.208	1254.226

	354	457225.637	645334.081	1254.099
	355	457225.282	645334.22	1254.045
	356	457224.932	645334.028	1253.98
	357	457224.463	645333.843	1253.878
	358	457223.966	645333.73	1253.857
	359	457223.806	645333.984	1254.033
	360	457224.002	645334.195	1254.353
	361	457224.335	645334.24	1254.63
	362	457224.61	645334.31	1254.738
	363	457224.964	645334.527	1254.844
	364	457225.393	645334.692	1255.009
	365	457225.796	645334.947	1255.129
	366	457226.377	645335.119	1254.986
	367	457226.752	645335.188	1255.075
	368	457227.092	645335.469	1255.1
	369	457227.451	645335.508	1255.074
	370	457227.694	645335.771	1254.876
8	371	457216.528	645335.244	1253.878
	372	457216.424	645334.852	1253.994
	373	457215.924	645334.678	1254.149
	374	457215.694	645334.551	1254.201
	375	457215.674	645334.383	1254.189
	376	457216.028	645334.259	1254.125
	377	457216.042	645333.925	1254.164
	378	457215.833	645333.458	1254.29
	379	457215.538	645333.157	1254.428
	380	457215.306	645332.865	1254.538
	381	457215.227	645332.545	1254.63
	382	457215.182	645332.221	1254.72
	383	457215.289	645332.372	1254.66
	384	457215.454	645332.634	1254.505
	385	457215.411	645332.302	1254.616
	386	457215.377	645332.134	1254.51
	387	457215.281	645331.897	1254.535
	388	457214.972	645331.683	1254.717
	389	457214.653	645331.463	1254.837
	390	457214.262	645331.189	1254.928
	391	457214.08	645330.787	1254.98
	392	457214.112	645330.422	1254.94
	393	457213.768	645329.973	1254.919
	394	457213.45	645329.478	1255.139
	395	457213.234	645329.077	1255.022
	396	457212.588	645328.839	1255.091
	397	457212.388	645328.609	1255.082
	398	457212.021	645328.323	1255.111
	399	457211.606	645328.263	1255.183
	400	457211.204	645328.225	1255.254
	401	457211.021	645327.764	1255.247
	402	457210.823	645327.317	1255.15
	403	457210.534	645327.072	1255.111
	404	457210.187	645326.962	1255.116
	405	457209.606	645326.5	1255.009
	406	457209.29	645326.454	1255.052
	407	457209.436	645326.822	1255.147
	408	457209.882	645327.289	1255.132
	409	457210.34	645327.55	1255.323
	410	457210.582	645327.853	1255.312
	411	457210.791	645328.089	1255.249
	412	457210.886	645328.387	1255.16
	413	457211.219	645328.784	1255.152
	414	457211.55	645329.005	1255.154

	415	457211.73	645328.921	1255.23
	416	457211.882	645328.956	1255.251
	417	457212.341	645329.426	1255.306
	418	457212.74	645329.815	1255.261
	419	457212.991	645330.251	1255.063
	420	457213.398	645330.477	1255.066
	421	457213.826	645330.735	1255.059
	422	457213.871	645331.143	1254.906
	423	457213.985	645331.526	1254.807
	424	457214.308	645331.83	1254.836
	425	457214.67	645332.162	1254.779
	426	457214.708	645332.621	1254.618
	427	457214.847	645333.074	1254.481
	428	457215.046	645333.382	1254.414
	429	457215.377	645333.685	1254.304
	430	457215.683	645333.798	1254.311
	431	457215.717	645334.038	1254.256
	432	457215.261	645334.076	1254.17
	433	457215.223	645334.382	1254.062
	434	457215.424	645334.789	1253.984
	435	457215.708	645335.103	1253.846
	436	457216.005	645335.301	1253.825
	437	457216.282	645335.372	1253.818
9	438	457208.054	645327.032	1255.035
	439	457207.962	645326.586	1255.127
	440	457207.927	645326.038	1255.129
	441	457207.975	645325.637	1255.053
	442	457207.724	645325.272	1254.893
	443	457207.299	645324.972	1254.881
	444	457206.874	645325.04	1254.862
	445	457206.535	645324.783	1254.853
	446	457206.24	645324.362	1254.78
	447	457206.035	645324.113	1254.716
	448	457206.115	645324.635	1254.798
	449	457206.3	645325.155	1254.815
	450	457206.504	645325.549	1254.862
	451	457206.979	645326.117	1254.963
	452	457207.191	645326.46	1254.997
	453	457207.356	645326.731	1254.964
	454	457207.612	645327.16	1254.865
	455	457207.947	645327.185	1254.927
10	456	457204.651	645318.966	1255.053
	457	457204.643	645318.582	1255.151
	458	457204.565	645317.997	1255.3
	459	457204.4	645317.464	1255.34
	460	457204.346	645316.93	1255.433
	461	457204.217	645316.513	1255.456
	462	457203.809	645316.509	1255.489
	463	457203.839	645316.965	1255.479
	464	457203.819	645317.437	1255.536
	465	457203.892	645317.753	1255.473
	466	457204.058	645318.267	1255.317
	467	457204.348	645318.848	1255.152

Injectite #15				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	1	452616.269	648513.613	1206.639

	2	452615.855	648513.049	1206.95
	3	452615.493	648512.83	1207.149
	4	452615.219	648512.383	1207.6
	5	452615.041	648512.101	1208.004
	6	452614.822	648511.832	1208.272
	7	452614.619	648511.59	1208.291
	8	452614.317	648511.713	1208.494
	9	452614.552	648512.271	1208.456
	10	452614.791	648512.665	1208.079
	11	452615.021	648513.088	1207.948
	12	452615.258	648513.355	1207.19
	13	452615.678	648513.828	1206.886
	14	452616.12	648513.994	1206.627
2	15	452614.416	648510.763	1208.287
	16	452614.444	648510.321	1208.263
	17	452614.192	648509.969	1208.437
	18	452613.836	648509.697	1208.78
	19	452613.379	648509.387	1209.029
	20	452612.943	648509.042	1209.38
	21	452612.865	648509.416	1209.509
	22	452613.214	648509.792	1209.327
	23	452613.609	648510.043	1209.162
	24	452614.011	648510.669	1208.62
	25	452614.255	648511.133	1208.471
3	26	452613.508	648508.585	1209.074
	27	452613.356	648508.269	1209.216
	28	452613.194	648508.115	1209.252
	29	452613.049	648507.854	1209.327
	30	452613.357	648507.633	1209.201
	31	452613.107	648507.331	1209.417
	32	452612.791	648507.333	1209.697
	33	452612.456	648507.218	1210.145
	34	452612.176	648506.824	1210.508
	35	452611.825	648506.382	1210.837
	36	452611.648	648506.183	1210.89
	37	452611.467	648506.348	1210.999
	38	452611.645	648506.677	1211.062
	39	452611.804	648506.978	1211.201
	40	452611.853	648507.178	1211.086
	41	452612.001	648507.393	1210.758
	42	452612.144	648507.52	1210.529
	43	452612.368	648507.647	1210.1
	44	452612.71	648507.779	1209.872
	45	452612.861	648507.902	1209.768
	46	452612.744	648507.903	1209.828
	47	452612.928	648508.283	1209.593
	48	452613.073	648508.539	1209.308
4	49	452611.356	648505.406	1210.924
	50	452611.014	648505	1211.247
	51	452610.413	648504.679	1211.838
	52	452610.307	648504.572	1211.922
	53	452610.177	648504.389	1212.034
	54	452609.964	648504.549	1212.233
	55	452610.142	648504.864	1212.21
	56	452610.364	648505.147	1211.855
	57	452610.653	648505.423	1211.469
	58	452611.052	648505.542	1211.109
	59	452611.277	648505.492	1211.042
5	60	452609.354	648502.898	1212.707

	61	452609.331	648502.745	1212.74
	62	452609.176	648502.415	1212.714
	63	452608.918	648502.108	1212.945
	64	452608.647	648501.854	1213.298
	65	452608.359	648501.528	1213.443
	66	452608.048	648501.193	1213.866
	67	452607.923	648501.106	1213.986
	68	452607.664	648501.121	1214.49
	69	452607.636	648501.344	1214.379
	70	452607.873	648501.691	1214.277
	71	452608.182	648502.027	1214.225
	72	452608.318	648502.174	1214.146
	73	452608.319	648502.251	1213.906
	74	452608.514	648502.468	1213.734
	75	452608.693	648502.675	1213.494
	76	452608.765	648502.775	1213.294
	77	452609.046	648503.043	1212.984
6	78	452607.633	648499.55	1214.198
	79	452607.27	648499.189	1214.434
	80	452606.99	648498.861	1214.803
	81	452606.899	648498.874	1214.8
	82	452606.612	648498.598	1215.006
	83	452606.506	648498.555	1215.052
	84	452606.329	648498.367	1215.112
	85	452606.174	648498.002	1215.444
	86	452605.897	648497.712	1215.611
	87	452605.587	648497.388	1215.844
	88	452605.677	648497.67	1216.082
	89	452605.389	648497.178	1216.018
	90	452605.042	648496.898	1216.284
	91	452604.83	648496.608	1216.502
	92	452604.544	648496.411	1216.825
	93	452604.212	648496.155	1217.137
	94	452603.987	648496.098	1217.404
	95	452603.793	648495.69	1217.504
	96	452603.333	648495.169	1217.706
	97	452602.91	648494.753	1217.939
	98	452602.587	648494.438	1218.171
	99	452602.505	648494.352	1218.248
	100	452602.223	648493.937	1218.481
	101	452601.884	648493.627	1218.719
	102	452601.534	648493.327	1218.977
	103	452601.229	648493.01	1219.291
	104	452600.984	648492.892	1219.56
	105	452600.701	648492.678	1219.736
	106	452600.369	648492.396	1220.004
	107	452600.058	648492.038	1220.271
	108	452599.879	648491.753	1220.46
	109	452599.56	648491.336	1220.743
	110	452599.316	648490.984	1220.883
	111	452599.162	648491.203	1220.975
	112	452599.533	648491.716	1220.629
	113	452599.828	648492.214	1220.395
	114	452600.25	648492.744	1220.158
	115	452600.624	648493.112	1219.889
	116	452601.161	648493.541	1219.666
	117	452601.521	648493.883	1219.506
	118	452601.941	648494.326	1219.327
	119	452602.144	648494.6	1219.117
	120	452602.473	648495.004	1218.833
	121	452602.799	648495.299	1218.551

	122	452603.063	648495.559	1218.385
	123	452603.21	648495.507	1218.414
	124	452603.278	648495.766	1218.255
	125	452603.498	648496.206	1217.935
	126	452603.821	648496.409	1217.759
	127	452604.01	648496.644	1217.702
	128	452604.239	648496.922	1217.55
	129	452604.497	648497.24	1217.276
	130	452604.791	648497.236	1217.202
	131	452604.923	648497.546	1217.049
	132	452605.112	648497.804	1216.782
	133	452605.308	648497.714	1216.828
	134	452605.397	648497.947	1216.636
	135	452605.638	648498.415	1216.24
	136	452605.826	648498.284	1216.299
	137	452605.87	648498.562	1216.151
	138	452606.149	648498.673	1216.017
	139	452606.174	648498.858	1215.936
	140	452606.438	648499.157	1215.511
	141	452606.561	648499.141	1215.563
	142	452606.678	648499.266	1215.323
	143	452606.983	648499.58	1215.038
	144	452607.108	648499.726	1214.816
	145	452607.041	648500.06	1214.813
	146	452607.306	648500.087	1214.511
	147	452607.429	648499.818	1214.348
	148	452607.363	648499.722	1214.407

Injectite #16				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	149	452611.504	648612.567	1219.159
	150	452611.478	648612.039	1219.318
	151	452611.122	648611.587	1219.72
	152	452610.794	648611.12	1220.009
	153	452610.517	648610.501	1220.064
	154	452610.103	648610.15	1220.462
	155	452609.712	648609.565	1221.012
	156	452609.361	648609.734	1221.383
	157	452609.125	648610.254	1221.403
	158	452609.561	648610.729	1221.052
	159	452610.01	648611.18	1220.549
	160	452610.436	648611.732	1220.154
	161	452610.918	648612.336	1219.704
	162	452611.25	648612.653	1219.256
2	163	452607.933	648607.054	1222.323
	164	452607.777	648606.626	1222.601
	165	452607.009	648606.166	1223.143
	166	452606.325	648605.46	1223.678
	167	452605.502	648604.779	1224.333
	168	452604.971	648604.137	1224.639
	169	452604.397	648603.473	1225.002
	170	452603.913	648603.014	1225.402
	171	452603.507	648602.495	1225.519
	172	452603.377	648601.985	1225.581
	173	452603.381	648601.624	1225.601
	174	452603.382	648601.339	1225.509
	175	452603.394	648600.995	1225.304
	176	452603.172	648600.812	1225.29

	177	452602.777	648600.285	1225.514
	178	452602.44	648599.978	1225.73
	179	452602.119	648599.525	1225.853
	180	452601.837	648599.057	1226.162
	181	452601.539	648598.718	1226.367
	182	452601.237	648598.67	1226.65
	183	452600.83	648598.839	1226.933
	184	452600.628	648598.425	1226.967
	185	452600.337	648597.904	1227.323
	186	452599.856	648597.659	1227.603
	187	452599.692	648597.871	1227.809
	188	452599.933	648598.378	1227.874
	189	452600.114	648598.964	1227.972
	190	452600.322	648599.656	1227.808
	191	452600.623	648600.192	1227.531
	192	452601.02	648600.7	1227.322
	193	452601.257	648601.222	1227.127
	194	452601.705	648601.246	1227.06
	195	452602.05	648601.398	1226.955
	196	452602.278	648601.873	1226.732
	197	452602.445	648602.292	1226.367
	198	452602.837	648602.942	1225.982
	199	452603.344	648603.482	1225.699
	200	452604.018	648604.378	1225.1
	201	452604.765	648605.132	1224.566
	202	452605.314	648605.688	1224.208
	203	452606.072	648606.178	1223.749
	204	452606.735	648606.614	1223.288
	205	452607.392	648607.069	1222.737
3	206	452594.099	648598.696	1229.395
	207	452594.493	648598.286	1229.67
	208	452594.546	648597.532	1230.069
	209	452594.638	648597.179	1230.107
	210	452594.414	648596.648	1230.338
	211	452594.141	648596.036	1230.502
	212	452593.772	648595.405	1230.805
	213	452593.32	648594.727	1230.612
	214	452592.672	648593.471	1230.614
	215	452592.489	648593.033	1230.576
	216	452592.143	648592.441	1230.409
	217	452591.8	648591.969	1230.335
	218	452591.695	648591.593	1230.225
	219	452591.385	648591.282	1230.058
	220	452591.195	648591.035	1229.923
	221	452591.114	648590.695	1229.719
	222	452591.068	648590.549	1229.737
	223	452591.296	648590.313	1229.434
	224	452591.038	648589.964	1229.107
	225	452590.892	648589.602	1228.948
	226	452590.55	648589.475	1228.879
	227	452590.209	648589.089	1228.731
	228	452589.911	648588.715	1228.61
	229	452589.638	648588.264	1228.382
	230	452589.229	648588.013	1228.218
	231	452589.119	648588.594	1228.571
	232	452589.292	648589.291	1228.962
	233	452589.733	648590.031	1229.296
	234	452589.993	648590.853	1229.594
	235	452590.147	648591.469	1229.706
	236	452590.329	648591.945	1229.77
	237	452590.577	648592.501	1229.924

	238	452590.997	648593.184	1230.127
	239	452591.369	648593.997	1230.22
	240	452591.959	648594.671	1230.431
	241	452592.514	648595.347	1230.417
	242	452592.823	648596.091	1230.366
	243	452593.158	648596.754	1230.149
	244	452593.166	648597.253	1229.847
	245	452593.37	648597.97	1229.649
	246	452593.32	648598.519	1229.371
	247	452593.641	648598.665	1229.365
4	248	452588.664	648584.073	1227.193
	249	452588.585	648583.56	1227.001
	250	452588.229	648583.141	1226.672
	251	452588.064	648582.907	1226.58
	252	452587.982	648582.628	1226.383
	253	452587.643	648582.668	1226.361
	254	452587.327	648582.717	1226.328
	255	452587.173	648582.385	1226.097
	256	452586.771	648581.994	1225.887
	257	452586.237	648581.678	1225.695
	258	452585.844	648581.403	1225.344
	259	452585.242	648581.102	1225.08
	260	452584.718	648581.315	1224.981
	261	452584.401	648581.124	1224.853
	262	452584.413	648580.897	1224.755
	263	452584.397	648580.648	1224.651
	264	452584.006	648580.348	1224.274
	265	452583.585	648580.042	1224.012
	266	452583.39	648580.018	1223.95
	267	452582.915	648579.998	1223.656
	268	452582.913	648580.403	1223.67
	269	452583.323	648580.886	1223.949
	270	452583.142	648581.244	1223.99
	271	452583.071	648581.659	1224.14
	272	452583.248	648581.871	1224.406
	273	452583.722	648582.03	1224.636
	274	452584.115	648582.245	1224.911
	275	452584.612	648582.65	1225.244
	276	452585.078	648582.975	1225.562
	277	452585.537	648583.253	1225.852
	278	452586.007	648583.615	1226.221
	279	452586.353	648583.604	1226.531
	280	452586.591	648583.604	1226.623
	281	452586.953	648583.698	1226.758
	282	452587.126	648584.051	1226.892
	283	452587.672	648584.254	1227.164
	284	452588.215	648584.476	1227.324
	285	452588.538	648584.303	1227.288
5	286	452589.516	648581.37	1225.745
	287	452589.148	648581.173	1225.635
	288	452588.611	648581.132	1225.713
	289	452588.204	648581.009	1225.628
	290	452587.814	648581.399	1225.799
	291	452587.677	648581.788	1225.959
	292	452588.228	648581.952	1226.292
	293	452588.843	648582.087	1226.274
	294	452589.451	648582.063	1226.153
6	295	452588.594	648579.892	1225.103
	296	452588.647	648579.509	1224.721

	297	452588.485	648579.046	1224.439
	298	452588.262	648578.894	1224.335
	299	452588.166	648578.63	1224.048
	300	452587.457	648578.76	1224.235
	301	452587.172	648579.223	1224.708
	302	452587.337	648579.717	1225.043
	303	452587.918	648579.791	1225.245
	304	452588.4	648579.947	1225.208
7	305	452580.548	648576.867	1221.566
	306	452580.443	648576.45	1221.147
	307	452579.904	648576.138	1220.758
	308	452579.376	648575.826	1220.454
	309	452578.859	648575.602	1220.324
	310	452578.72	648575.138	1220.138
	311	452578.653	648574.651	1219.93
	312	452578.407	648574.224	1219.608
	313	452577.97	648573.996	1219.358
	314	452577.622	648573.664	1219.079
	315	452577.283	648573.428	1218.83
	316	452576.928	648573.014	1218.51
	317	452576.675	648572.435	1218.204
	318	452576.43	648571.957	1217.879
	319	452576.175	648571.479	1217.665
	320	452575.897	648570.918	1217.401
	321	452575.416	648570.577	1217.164
	322	452575.086	648570.114	1216.819
	323	452575.1	648569.88	1216.585
	324	452574.782	648569.563	1216.407
	325	452574.394	648569.19	1216.148
	326	452574.058	648568.989	1216.121
	327	452573.829	648568.56	1216.026
	328	452573.564	648567.803	1215.989
	329	452573.501	648567.369	1215.437
	330	452573.561	648567.129	1215.371
	331	452573.726	648567.032	1215.292
	332	452573.709	648566.851	1214.933
	333	452573.54	648566.758	1214.81
	334	452573.342	648566.398	1214.684
	335	452573.244	648566.043	1214.531
	336	452573.392	648565.712	1214.449
	337	452573.152	648565.105	1213.851
	338	452572.817	648564.565	1213.605
	339	452572.546	648564.191	1213.397
	340	452572.25	648563.794	1213.304
	341	452571.965	648563.351	1213.066
	342	452571.667	648562.943	1212.998
	343	452571.378	648562.606	1212.821
	344	452571.166	648562.145	1212.722
	345	452570.864	648561.793	1212.657
	346	452570.68	648561.555	1212.611
	347	452570.344	648561.109	1212.392
	348	452570.304	648560.678	1212.202
	349	452570.361	648560.295	1212.064
	350	452570.28	648559.705	1211.666
	351	452570.405	648559.311	1211.698
	352	452570.473	648558.906	1211.769
	353	452570.047	648558.386	1212.626
	354	452569.773	648558.19	1212.987
	355	452569.462	648557.824	1213.351
	356	452568.867	648557.589	1214.084
	357	452568.386	648557.446	1214.518

	358	452567.946	648557.204	1214.769
	359	452567.122	648556.863	1215.298
	360	452566.512	648556.907	1215.987
	361	452566.263	648557.349	1216.142
	362	452565.61	648557.542	1216.448
	363	452565.444	648557.054	1216.4
	364	452565.378	648556.524	1216.584
	365	452565.427	648556.103	1216.555
	366	452565.758	648555.44	1216.658
	367	452565.551	648555.048	1216.857
	368	452565.579	648554.416	1217.202
	369	452565.566	648553.852	1217.551
	370	452565.808	648553.388	1217.776
	371	452565.715	648552.992	1218.061
	372	452565.489	648552.428	1218.081
	373	452565.443	648551.789	1217.862
	374	452565.197	648550.99	1217.845
	375	452565.003	648550.586	1218.087
	376	452564.79	648550.196	1218.062
	377	452564.88	648549.446	1218.364
	378	452564.443	648548.767	1218.742
	379	452564.279	648548.322	1218.864
	380	452564.019	648547.874	1219.058
	381	452563.735	648547.484	1219.284
	382	452563.764	648546.874	1219.265
	383	452563.3	648546.53	1219.4
	384	452562.905	648546.312	1219.543
	385	452562.41	648545.999	1219.811
	386	452561.688	648545.691	1219.916
	387	452560.826	648545.486	1219.782
	388	452560.278	648545.564	1219.649
	389	452560.6	648546.263	1219.489
	390	452561.06	648546.84	1219.251
	391	452561.631	648547.334	1219.23
	392	452562.385	648547.921	1219.09
	393	452563.048	648548.469	1219.076
	394	452563.357	648548.905	1219.034
	395	452563.476	648549.502	1219.052
	396	452563.654	648550.266	1219.051
	397	452563.982	648551.153	1218.835
	398	452563.794	648551.689	1218.829
	399	452563.338	648552.105	1218.501
	400	452563.182	648552.503	1218.32
	401	452563.499	648553.165	1218.146
	402	452563.478	648553.861	1217.858
	403	452563.61	648554.111	1217.813
	404	452563.749	648554.852	1217.6
	405	452564.049	648555.296	1217.624
	406	452564.576	648555.709	1217.65
	407	452563.97	648556.289	1217.214
	408	452563.875	648556.695	1217.051
	409	452563.948	648557.419	1216.846
	410	452563.752	648557.869	1216.573
	411	452563.881	648558.469	1216.297
	412	452564.155	648558.948	1216.014
	413	452564.123	648559.163	1215.923
	414	452564.735	648559.425	1215.509
	415	452565.375	648559.419	1215.169
	416	452566.013	648559.544	1215.023
	417	452566.532	648559.635	1214.887
	418	452567.377	648559.952	1214.228
	419	452567.786	648560.256	1213.947

	420	452568.17	648560.376	1213.833
	421	452568.33	648560.995	1213.517
	422	452568.874	648561.661	1213.082
	423	452569.457	648562.083	1213.154
	424	452569.72	648562.69	1213.237
	425	452570.188	648563.083	1213.381
	426	452570.347	648563.687	1213.477
	427	452570.446	648564.343	1213.452
	428	452570.9	648565.226	1213.704
	429	452571.239	648566.109	1213.995
	430	452571.744	648567.226	1214.393
	431	452572.156	648568.108	1214.721
	432	452572.56	648568.87	1215.244
	433	452572.93	648569.32	1215.579
	434	452573.425	648569.976	1216.1
	435	452573.823	648570.226	1216.325
	436	452574.18	648570.712	1216.617
	437	452574.462	648571.208	1217.032
	438	452574.755	648571.749	1217.229
	439	452574.781	648572.166	1217.29
	440	452575.122	648572.692	1217.564
	441	452575.543	648572.973	1217.844
	442	452576.117	648573.328	1218.242
	443	452576.452	648573.861	1218.49
	444	452576.706	648574.394	1218.893
	445	452576.977	648574.924	1219.158
	446	452577.2	648575.364	1219.347
	447	452577.718	648575.793	1219.891
	448	452578.295	648575.93	1220.186
	449	452578.818	648576.135	1220.427
	450	452579.196	648576.479	1220.686
	451	452579.576	648577.017	1221.116
	452	452580.133	648577.209	1221.46

Injectite #17				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	1	461063.315	639911.151	1372.083
	2	461063.953	639912.585	1371.757
	3	461064.538	639913.903	1371.439
	4	461065.351	639915.986	1370.972
	5	461065.85	639917.665	1370.755
	6	461066.903	639920.386	1370.391
	7	461067.756	639922.388	1369.826
	8	461069.004	639925.387	1369.051
	9	461069.919	639928.101	1368.524
	10	461070.595	639930.621	1368.176
	11	461071.688	639933.223	1368.061
	12	461072.767	639936.442	1367.591
	13	461073.172	639937.793	1367.246
	14	461074.133	639940.64	1366.746
	15	461074.423	639942.868	1365.963
	16	461075.467	639944.868	1365.395
	17	461076.173	639946.482	1364.664
	18	461076.491	639946.209	1364.72
	19	461076.031	639944.706	1365.435
	20	461075.296	639942.478	1366.356
	21	461074.69	639940.226	1366.959
	22	461073.827	639937.78	1367.458
	23	461073.115	639935.139	1367.897

	24	461071.91	639931.544	1368.348
	25	461071.187	639929.59	1368.453
	26	461070.36	639927.76	1368.657
	27	461069.784	639926.129	1368.796
	28	461069.054	639924.075	1369.147
	29	461068.102	639922.403	1369.759
	30	461067.335	639920.503	1370.304
	31	461067.048	639919.657	1370.525
	32	461066.422	639918.523	1370.63
	33	461066.069	639917.054	1370.811
	34	461065.963	639916.15	1370.877
	35	461065.156	639914.771	1371.105
	36	461064.604	639913.32	1371.594
	37	461063.996	639911.969	1371.899
	38	461063.8	639911.181	1372.074
	39	461063.458	639911.096	1372.087
2	40	461077.774	639950.384	1363.322
	41	461077.894	639951.076	1363.064
	42	461078.342	639951.947	1362.776
	43	461078.701	639953.093	1362.74
	44	461079.085	639954.216	1362.601
	45	461079.551	639955.55	1362.419
	46	461080.082	639957.127	1361.797
	47	461080.765	639959.132	1361.352
	48	461081.24	639960.924	1361.053
	49	461081.476	639962.134	1360.723
	50	461081.846	639963.495	1360.563
	51	461082.315	639965.172	1360.325
	52	461082.872	639966.771	1360.267
	53	461083.337	639968.025	1360.304
	54	461083.683	639969.528	1360.234
	55	461084.289	639970.38	1360.345
	56	461084.713	639971.429	1360.424
	57	461085.059	639972.651	1360.46
	58	461085.459	639973.931	1360.41
	59	461085.906	639975.252	1360.356
	60	461086.195	639976.857	1360.173
	61	461086.603	639978.063	1360.087
	62	461087.201	639979.544	1359.905
	63	461087.254	639980.641	1359.708
	64	461087.618	639981.479	1359.591
	65	461088.159	639982.937	1359.312
	66	461088.478	639984.272	1359.013
	67	461089.026	639985.702	1358.616
	68	461089.171	639986.808	1358.339
	69	461089.921	639988.342	1357.751
	70	461090.493	639989.63	1357.403
	71	461090.793	639990.371	1357.188
	72	461091.237	639989.831	1357.172
	73	461090.807	639988.939	1357.462
	74	461090.386	639987.854	1357.769
	75	461090.014	639986.486	1358.223
	76	461089.488	639984.837	1358.682
	77	461089.902	639983.972	1358.621
	78	461090.519	639983.7	1358.196
	79	461090.513	639982.754	1358.194
	80	461089.836	639981.511	1358.635
	81	461089.339	639980.277	1358.783
	82	461088.796	639979.476	1359.142
	83	461088.675	639979.002	1359.188
	84	461088.12	639978.777	1359.554

	85	461087.617	639978.321	1359.736
	86	461087.556	639976.836	1359.739
	87	461087.051	639976.092	1360.001
	88	461086.372	639974.7	1360.365
	89	461085.745	639973.17	1360.596
	90	461085.489	639971.636	1360.467
	91	461085.079	639970.576	1360.363
	92	461084.497	639969.366	1360.219
	93	461083.896	639967.848	1360.161
	94	461083.406	639966.379	1360.169
	95	461083.028	639965.282	1360.301
	96	461082.486	639963.533	1360.587
	97	461081.891	639961.722	1360.798
	98	461081.447	639960.642	1361.191
	99	461080.961	639959.054	1361.509
	100	461080.457	639957.582	1361.786
	101	461080.15	639956.178	1362.06
	102	461079.842	639955.409	1362.282
	103	461079.612	639954.639	1362.603
	104	461079.246	639953.694	1362.659
	105	461078.902	639952.755	1362.634
	106	461078.452	639951.858	1362.764
	107	461078.215	639951.13	1362.96
	108	461077.948	639950.549	1363.281
3	109	461094.224	639987.285	1356.17
	110	461094.425	639987.979	1356.163
	111	461094.767	639988.787	1356.16
	112	461095.086	639989.752	1355.984
	113	461095.346	639990.404	1355.905
	114	461095.68	639991.116	1355.663
	115	461095.964	639991.847	1355.494
	116	461096.39	639993.003	1355.364
	117	461096.796	639994.041	1355.132
	118	461096.996	639994.678	1354.866
	119	461097.342	639995.69	1354.481
	120	461097.489	639996.518	1354.067
	121	461097.603	639997.071	1353.817
	122	461097.634	639997.635	1353.562
	123	461097.857	639997.911	1353.262
	124	461098.17	639998.246	1352.971
	125	461098.304	639998.956	1352.639
	126	461098.343	639999.37	1352.269
	127	461098.48	639999.915	1351.93
	128	461098.69	640000.677	1351.538
	129	461099.046	640001.021	1351.213
	130	461098.86	640000.209	1351.722
	131	461098.64	639999.247	1352.058
	132	461098.39	639998.117	1352.911
	133	461098.128	639997.526	1353.243
	134	461097.92	639996.568	1353.775
	135	461097.725	639995.553	1354.146
	136	461097.776	639994.764	1354.272
	137	461097.15	639994.212	1354.729
	138	461096.713	639992.904	1355.047
	139	461096.267	639991.69	1355.276
	140	461095.836	639990.659	1355.358
	141	461095.253	639989.468	1355.694
	142	461095.089	639988.654	1355.632
	143	461094.829	639988.088	1355.761
	144	461094.621	639987.737	1355.946
	145	461094.307	639987.075	1356.13

3.5	146	461099.275	640008.825	1348.863
	147	461099.315	640009.049	1348.639
	148	461099.422	640009.247	1348.37
	149	461099.571	640009.599	1348.275
	150	461099.723	640009.413	1348.332
	151	461099.651	640009.133	1348.369
	152	461099.548	640008.847	1348.487
	153	461099.449	640008.698	1348.788
4	154	461099.771	640007.536	1349.227
	155	461099.907	640007.952	1348.774
	156	461100.343	640008.354	1348.557
	157	461100.746	640008.915	1348.564
	158	461100.656	640009.268	1348.612
	159	461100.835	640009.813	1349.052
	160	461101.075	640010.596	1349.588
	161	461101.345	640011.27	1350.049
	162	461101.318	640012.566	1350.472
	163	461101.343	640012.976	1350.795
	164	461101.867	640013.516	1351.212
	165	461102.129	640014.453	1351.424
	166	461102.483	640015.117	1351.591
	167	461102.665	640015.502	1352.049
	168	461102.927	640015.926	1352.157
	169	461103.169	640016.45	1352.045
	170	461103.386	640016.97	1351.936
	171	461103.635	640017.613	1351.898
	172	461103.769	640017.593	1351.955
	173	461103.456	640016.835	1351.966
	174	461103.352	640016.388	1352.068
	175	461103.047	640015.871	1352.133
	176	461102.784	640015.238	1352.064
	177	461102.5	640014.563	1351.77
	178	461102.237	640013.881	1351.696
	179	461102.103	640013.22	1351.514
	180	461101.966	640012.774	1351.343
	181	461101.823	640012.031	1350.693
	182	461101.64	640011.074	1350.456
	183	461101.424	640010.66	1350.085
	184	461101.036	640009.511	1349.5
	185	461101.027	640009.157	1349.24
	186	461101.001	640008.831	1348.848
	187	461100.793	640008.476	1348.839
	188	461100.279	640007.935	1349.086
	189	461099.824	640007.436	1349.333
5	190	461101.465	640025.187	1353.593
	191	461101.458	640025.67	1353.881
	192	461101.684	640026.463	1354.072
	193	461101.841	640027.298	1354.302
	194	461102.026	640028.131	1354.483
	195	461102.069	640029.039	1354.466
	196	461102.188	640029.817	1354.595
	197	461102.216	640030.3	1354.594
	198	461102.257	640030.863	1354.546
	199	461102.408	640031.581	1354.618
	200	461102.56	640032.198	1354.623
	201	461102.711	640032.785	1354.498
	202	461102.852	640033.474	1354.476
	203	461102.986	640034.047	1354.418
	204	461103.192	640034.928	1354.296

	205	461103.364	640035.542	1354.167
	206	461103.591	640036.387	1353.952
	207	461103.82	640037.188	1353.782
	208	461104.061	640037.96	1353.554
	209	461104.345	640038.662	1353.292
	210	461104.58	640039.331	1353.015
	211	461104.887	640039.825	1352.804
	212	461105.199	640040.616	1352.46
	213	461105.437	640041.307	1352.2
	214	461105.691	640041.888	1351.943
	215	461105.891	640042.617	1351.574
	216	461106.217	640043.135	1351.404
	217	461106.307	640043.73	1351.154
	218	461106.428	640044.265	1350.87
	219	461106.77	640044.935	1350.6
	220	461107.039	640045.446	1350.405
	221	461107.098	640045.76	1350.237
	222	461107.467	640046.202	1350.119
	223	461107.749	640046.887	1349.822
	224	461107.975	640047.358	1349.671
	225	461108.192	640047.871	1349.391
	226	461108.408	640048.163	1349.224
	227	461108.683	640048.606	1349.007
	228	461109.085	640049.739	1348.721
	229	461109.075	640050.215	1348.664
	230	461109.239	640050.931	1348.488
	231	461109.498	640051.613	1348.288
	232	461109.679	640051.973	1348.135
	233	461110.014	640052.849	1347.879
	234	461110.401	640053.791	1347.497
	235	461110.89	640054.978	1347.284
	236	461110.879	640055.788	1347.123
	237	461110.831	640056.636	1346.921
	238	461111.129	640057.138	1346.834
	239	461111.415	640057.961	1346.638
	240	461111.617	640058.842	1346.472
	241	461111.952	640059.778	1346.216
	242	461112.365	640060.775	1346.123
	243	461112.83	640061.859	1345.868
	244	461113.072	640063.042	1345.512
	245	461113.574	640063.771	1345.35
	246	461113.902	640064.473	1345.156
	247	461114.257	640065.111	1344.886
	248	461114.239	640066.091	1344.387
	249	461114.648	640066.81	1344.271
	250	461114.957	640067.654	1343.95
	251	461115.154	640068.348	1343.574
	252	461115.47	640069.18	1343.212
	253	461115.804	640070.267	1342.838
	254	461116.099	640071.139	1342.413
	255	461116.409	640072.039	1341.925
	256	461116.668	640072.703	1341.575
	257	461117.056	640073.52	1341.133
	258	461117.188	640074.546	1340.672
	259	461117.488	640075.623	1340.107
	260	461117.8	640076.493	1339.702
	261	461118.146	640077.465	1339.175
	262	461118.493	640078.326	1338.758
	263	461118.74	640079.221	1338.3
	264	461118.853	640079.845	1338.021
	265	461119.047	640080.276	1337.731
	266	461119.167	640080.873	1337.438

	267	461119.473	640081.418	1337.039
	268	461119.734	640082.062	1336.605
	269	461120.006	640082.833	1336.262
	270	461120.387	640082.416	1336.344
	271	461120.137	640081.393	1336.999
	272	461119.932	640080.851	1337.272
	273	461119.574	640080.305	1337.672
	274	461119.344	640079.485	1338.037
	275	461119.326	640078.016	1338.719
	276	461118.879	640077.193	1339.172
	277	461118.266	640076.309	1339.737
	278	461117.793	640075.03	1340.358
	279	461117.474	640073.72	1340.918
	280	461117.145	640072.788	1341.392
	281	461116.883	640071.862	1341.918
	282	461116.347	640070.657	1342.605
	283	461116.043	640069.559	1343.119
	284	461115.731	640068.59	1343.535
	285	461115.354	640067.722	1343.982
	286	461115.081	640066.655	1344.4
	287	461114.598	640065.258	1344.952
	288	461114.208	640064.322	1345.224
	289	461113.813	640063.343	1345.532
	290	461113.389	640062.481	1345.779
	291	461113.135	640062.185	1345.821
	292	461113.281	640061.702	1345.836
	293	461113.073	640060.998	1346.021
	294	461112.659	640060.252	1346.277
	295	461112.241	640059.474	1346.435
	296	461111.928	640058.705	1346.612
	297	461111.582	640057.683	1346.867
	298	461111.352	640056.792	1347.014
	299	461111.302	640056.186	1346.977
	300	461111.087	640055.488	1347.162
	301	461111.002	640054.541	1347.278
	302	461110.588	640053.693	1347.513
	303	461110.213	640052.68	1347.868
	304	461109.901	640051.974	1348.134
	305	461109.625	640050.97	1348.478
	306	461109.425	640050.054	1348.646
	307	461109.211	640049.758	1348.689
	308	461108.693	640048.474	1349.038
	309	461108.438	640047.465	1349.478
	310	461108.189	640046.794	1349.764
	311	461107.614	640045.765	1350.237
	312	461107.357	640045.001	1350.578
	313	461107.21	640044.081	1350.971
	314	461106.981	640043.504	1351.226
	315	461106.633	640042.717	1351.499
	316	461106.317	640041.888	1351.848
	317	461105.928	640040.852	1352.232
	318	461105.635	640039.779	1352.58
	319	461105.273	640038.785	1352.975
	320	461104.979	640037.829	1353.271
	321	461104.666	640036.699	1353.552
	322	461104.383	640036.037	1353.827
	323	461104.016	640034.91	1354.092
	324	461103.691	640033.528	1354.324
	325	461103.458	640032.668	1354.461
	326	461103.296	640031.729	1354.565
	327	461102.97	640030.921	1354.683
	328	461102.765	640029.883	1354.831

	329	461102.923	640029.53	1354.687
	330	461102.693	640028.969	1354.807
	331	461102.557	640028.313	1354.9
	332	461102.417	640027.627	1354.655
	333	461102.263	640026.976	1354.38
	334	461102.173	640026.199	1354.211
	335	461101.929	640025.592	1354.02
	336	461101.706	640025.16	1353.702
6	337	461131.191	640119.537	1347.784
	338	461131.238	640118.741	1347.562
	339	461131.201	640118.062	1347.454
	340	461131.019	640117.527	1347.439
	341	461130.909	640117.451	1347.471
	342	461130.751	640117.077	1347.422
	343	461130.601	640116.553	1347.363
	344	461130.417	640115.962	1347.253
	345	461130.184	640115.824	1347.2
	346	461130.136	640115.439	1347.109
	347	461130.073	640115.05	1347.017
	348	461129.956	640114.545	1346.731
	349	461129.862	640114.14	1346.602
	350	461129.8	640113.541	1346.543
	351	461129.454	640113.12	1346.602
	352	461129.261	640112.519	1346.55
	353	461129.082	640112.109	1346.254
	354	461128.958	640111.637	1346.013
	355	461128.787	640110.951	1345.7
	356	461128.587	640110.886	1345.669
	357	461128.549	640110.459	1345.503
	358	461128.341	640109.714	1345.301
	359	461128.179	640108.95	1345.009
	360	461127.915	640108.071	1344.819
	361	461127.634	640107.347	1344.708
	362	461127.374	640107.151	1344.627
	363	461127.229	640106.586	1344.561
	364	461127.121	640105.937	1344.455
	365	461126.999	640105.579	1344.447
	366	461126.841	640105.543	1344.387
	367	461126.595	640105.337	1344.42
	368	461126.508	640104.729	1344.273
	369	461126.377	640104.236	1344.009
	370	461126.333	640103.71	1343.862
	371	461126.275	640103.318	1343.575
	372	461126.039	640102.754	1343.141
	373	461125.941	640102.22	1343.009
	374	461125.941	640101.779	1342.937
	375	461125.564	640101.25	1342.764
	376	461125.409	640100.593	1342.565
	377	461125.263	640099.918	1342.238
	378	461124.977	640099.304	1341.888
	379	461124.719	640098.848	1341.727
	380	461124.447	640096.69	1340.947
	381	461123.996	640095.555	1340.564
	382	461123.542	640093.803	1339.914
	383	461122.862	640091.656	1338.493
	384	461122.281	640090.032	1337.546
	385	461121.89	640088.521	1336.713
	386	461121.631	640088.907	1337.101
	387	461121.68	640089.933	1337.704
	388	461122.182	640091.145	1338.403
	389	461122.759	640093.296	1339.436

	390	461123.243	640095.053	1340.258
	391	461123.699	640096.578	1340.775
	392	461123.977	640097.702	1341.012
	393	461124.117	640098.834	1341.588
	394	461124.538	640100.049	1342.06
	395	461124.822	640101.185	1342.505
	396	461125.356	640102.692	1343.069
	397	461125.824	640103.987	1343.709
	398	461126.332	640105.655	1344.229
	399	461126.714	640106.925	1344.648
	400	461127.163	640108.293	1345.144
	401	461127.827	640110.287	1345.451
	402	461128.417	640112.047	1345.955
	403	461128.976	640113.566	1346.697
	404	461129.557	640115.305	1347.047
	405	461129.857	640115.338	1347.08
	406	461130.068	640116.504	1347.439
	407	461130.431	640117.766	1347.708
	408	461130.8	640118.945	1347.871
	409	461131.073	640119.76	1347.846

Injectite #18				
Segment #	GPS Point #	Northings (m)	Eastings (m)	Elevation (m)
1	18	464924.955	640849.702	1249.065
	19	464924.881	640849.313	1249.254
	20	464924.66	640848.777	1249.39
	21	464924.373	640848.345	1249.585
	22	464924.044	640848.206	1249.796
	23	464923.698	640847.985	1249.907
	24	464923.884	640848.364	1249.777
	25	464924.158	640848.559	1249.611
	26	464924.403	640849.061	1249.461
	27	464924.63	640849.476	1249.239
	28	464924.959	640849.71	1249.066
2	29	464921.243	640849.334	1249.824
	30	464920.837	640849.315	1249.909
	31	464920.456	640849.13	1249.926
	32	464920.031	640848.756	1250.125
	33	464920.012	640848.305	1250.415
	34	464920.355	640847.932	1250.539
	35	464920.775	640847.373	1250.672
	36	464920.902	640846.986	1250.794
	37	464921.723	640846.518	1250.706
	38	464922.101	640846.654	1250.585
	39	464922.621	640846.963	1250.397
	40	464922.33	640847.389	1250.313
	41	464921.96	640847.086	1250.494
	42	464921.596	640846.904	1250.587
	43	464921.549	640847.216	1250.526
	44	464921.685	640847.64	1250.316
	45	464921.679	640848.103	1250.315
	46	464921.408	640848.546	1250.222
	47	464921.649	640848.946	1250.012
	48	464921.338	640849.263	1249.853
3	49	464926.173	640846.036	1249.378
	50	464925.553	640845.768	1249.803
	51	464924.327	640844.692	1250.606

	52	464923.598	640844.504	1250.787
	53	464923.061	640844.152	1251.089
	54	464921.97	640843.327	1251.361
	55	464921.248	640842.894	1251.609
	56	464920.67	640842.423	1251.769
	57	464919.909	640841.897	1251.98
	58	464919.31	640841.401	1252.043
	59	464918.944	640840.848	1252.163
	60	464919.339	640840.282	1252.176
	61	464920.28	640840.611	1251.966
	62	464921.399	640841.235	1251.768
	63	464922.021	640841.896	1251.579
	64	464923.054	640842.949	1251.145
	65	464923.753	640843.911	1250.876
	66	464924.3	640844.006	1250.723
	67	464924.966	640844.208	1250.489
	68	464925.579	640844.681	1250.042
	69	464926.153	640845.236	1249.619
	70	464926.289	640845.781	1249.34
4	71	464920.202	640839.499	1251.948
	72	464918.95	640839.91	1252.267
	73	464917.313	640840.35	1252.495
	74	464916.103	640840.219	1252.958
	75	464915.292	640839.598	1253.335
	76	464914.05	640838.778	1253.717
	77	464911.934	640837.834	1254.343
	78	464910.161	640836.901	1254.446
	79	464908.792	640835.892	1254.658
	80	464907.697	640834.737	1255.207
	81	464906.952	640833.758	1255.33
	82	464906.256	640832.846	1255.54
	83	464905.661	640832.67	1255.609
	84	464904.445	640832.843	1255.372
	85	464902.659	640831.607	1255.761
	86	464901.695	640830.597	1255.919
	87	464901.059	640829.29	1256.098
	88	464900.137	640827.884	1255.995
	89	464898.823	640826.822	1255.811
	90	464897.465	640825.297	1255.513
	91	464896.141	640824.106	1255.237
	92	464895.163	640822.959	1254.772
	93	464893.789	640821.89	1254.312
	94	464893.282	640821.121	1254.052
	95	464892.661	640820.604	1253.983
	96	464891.953	640820.247	1254.22
	97	464891.561	640819.436	1254.161
	98	464889.986	640818.129	1254.264
	99	464889.077	640817.97	1254.604
	100	464888.424	640817.324	1254.824
	101	464887.843	640816.848	1254.814
	102	464888.202	640816.309	1254.589
	103	464888.685	640816.4	1254.421
	104	464889.118	640816.987	1254.417
	105	464889.696	640817.578	1254.257
	106	464889.901	640818.072	1254.279
	107	464891.701	640819.188	1254.117
	108	464892.445	640819.466	1253.949
	109	464892.779	640820.657	1253.98
	110	464893.823	640821.225	1254.102
	111	464894.733	640821.051	1253.84
	112	464895.599	640821.363	1253.904

	113	464896.268	640821.731	1253.936
	114	464897.081	640822.115	1254.038
	115	464897.678	640822.673	1254.224
	116	464897.997	640823.257	1254.457
	117	464898.718	640824.286	1254.899
	118	464899.501	640825.564	1255.392
	119	464900.547	640825.725	1255.131
	120	464901.519	640826.224	1255.005
	121	464901.965	640826.897	1255.152
	122	464902.445	640827.692	1255.342
	123	464902.683	640828.208	1255.479
	124	464902.884	640829.043	1255.829
	125	464903.347	640830.009	1256.13
	126	464904.123	640830.748	1256.063
	127	464905.525	640831.518	1255.83
	128	464907.346	640832.16	1255.654
	129	464908.877	640833.013	1255.564
	130	464910.479	640834.17	1255.141
	131	464911.626	640834.98	1254.924
	132	464912.528	640835.423	1254.792
	133	464914.182	640836.527	1253.907
	134	464915.61	640837.213	1253.457
	135	464916.935	640837.516	1252.972
	136	464917.975	640837.506	1252.613
	137	464918.659	640837.79	1252.246
	138	464919.508	640838.129	1251.995
	139	464919.947	640838.913	1251.903

Injectite #1									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
0	173	74	291	84	216	76			
	338	82	313	67					
	266	48	312	64					
	280	56							
1	204	76	301	50	205	65	216	71	
	182	83	313	74			161	89	
			315	65					
			305	55			211	64	
			290	59			174	70	
2	212	54	305	39	25	85	242	59	
	201	64					175	80	
							245	55	
							185	77	
							30	87	
3			299	45	205	79	235	70	
							5	81	
4	11	80	295	45	206	90	185	80	
							220	65	
5	23	80	287	36	26	84	359	64	
			291	43	25	80	204	70	
					75	49	215	69	
6	190	85	330	47	50	76			
	199	79	335	26					
	186	90	294	36	85	50			
					91	65			
					194	73			
					203	75			
					188	67			
			310	30	75	76			
					61	74			
					75	79			
					67	72			
					160	84			

					168	68			
					160	64			
					177	84			
8	215	43	308	45	70	60			
10	70	81							
	76	80							
11	211	75	315	70	60	76	201	46	
	235	70			243	80	10	77	
12	212	75	145	47	200	76			
13			119	50					
			300	46					
17			286	75					
18	106	90	284	71					
19	175	81	275	79	200	90	325	66	61 SE
	160	78					175	56	65 S
23	158	74	161	73	106	85	182	65	42 SW
					40	38	179	61	65 SW
25	200	40	118	62					
26	345	7	135	76					
			138	75					
27	355	28	342	55	66	90	358	55	60 NW
							190	86	70 NE
30/31			110	86					
			82	55					
			0	58					
			315	64					
33			340	55			350	68	85 SE
			336	55			153	29	
34			152	50	270	60			
					30	48			

42	14	60	146	30	9	66	290	18	
					97	88	1	50	

Injectite #2									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
2	274	83	151	39					
5	262	70	174	18	244	87			
			149	28					
			145	46					
			145	24					
			140	23					
6	261	82	119	16					
12	79	89	140	23	342	72	245	27	
	85	82			267	85	246	48	
	79	88			325	62	244	36	
	252	68			245	60	261	88	
	266	84					73	88	
14			145	29			238	65	65 SW
			26	14					
			65	20					
			69	14					
22							136	61	
							146	54	
							261	68	
24	273	55							
25			135	27			74	23	
			128	26			98	26	
							49	80	
							55	68	
29							73	47	

Injectite #3									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1			290	40	49	76			
					121	50			
					44	76			
					130	60			
					45	74			
					120	58			
2	35	73	318	43	49	77	219	80	
			284	36	84	67	5	44	
			295	39	84	55			
					40	75			
3	43	90	304	58			235	68	
							29	70	
							11	43	54 NE
4	25	79	3304	58			242	78	
							12	60	
5	42	86					10	58	
							65	83	

Injectite #4									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	289	29	289	29	50	72	303	79	
	117	62	286	28	133	70	302	74	70 NW
	123	70			40	74			
2	291	9	291	9	125	70	145	52	
			294	31	125	69			

			310	30	130	69			
			270	10	33	80			
			276	9	50	85			
					45	87			
3	320	83	310	33	143	58	102	16	
			295	57	123	54	46	58	
					204	78			
4	135	89	302	33	110	65	306	63	
			99	36			140	58	
			323	28					
5							144	43	75 SE
13	308	86					291	54	
							127	86	
16	125	82					302	68	80 NW
							130	42	

Injectite #5									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	128	89	152	45	36	71	133	61	72 SE
	314	65	151	40			138	80	75 SE
			134	66					
2	137	66	165	40	54	79	265	49	40 E
					21	34			
3	35	35	163	75			232	6	10 SW
4	301	56	156	41	47	85	285	18	58 SE
					340	49			

Injectite #6				
Segment #	Dike Contact	Peay Bedding	Mowry Joints	Deformation Bands

	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	132	84	175	60			123	75 SW	72 SE
							284	70 NE	
	309	79					116	60 SW	90
							315	21 NE	90
							285	40 NE	60 SE

Injectite #7									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	290	68	155	38	255	84	266	41	45 E
							303	86	65 SE
2	292	72	135	51	336	61	242	42	
	301	83			310	72	310	86	
					258	77			
3	295	55	150	46	300	69	128	68	
					56	61	280	61	
4	289	60					290	86	
							271	36	
							150	55	
6	302	67					134	74	
							283	45	61 SE
10	302	65	190	85			321	81	
12	273	53	172	45			220	45	
13	260	73							

Injectite #8				
Segment #	Dike Contact	Mowry Bedding	Mowry Joints	Deformation Bands

	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
2	327	66	142	64			345	80	10 SE
	330	73	140	71			343	87	
3			131	71					
			132	55					
5	20	80	129	25			46	45	
	14	68	135	32			336	90	
6	20	82	137	41	322	60	5	81	
	33	45	127	37	240	87	34	30	
7			152	35	327	50	170	86	
					267	79	30	50	
			148	53	284	67			
8	6	66	145	45	315	48	155	85	60 NW
					252	72	130	15	30 NW
							176	66	
							203	51	
							22	68	
10	10	52	140	43	233	65	35	25	34 NE
	3	56	147	55	353	52	350	60	75 N
							346	59	63 NW
11	345	50	128	35	260	63	338	82	80 NW
	358	72			335	70	4	28	69 NE
			124	33	324	50			
					255	74			
12	12	87	143	55			2	73	55 NE
							334	40	
13	15	42					30	25	39 NE
							349	68	
14	2	65	161	56	244	76	359	74	
	14	66			2	60	32	44	

Injectite #9									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
2							273	74	
							240	71	
3							112	40	
							100	73	
4	53	78					70	74	
7			135	35	220	76	47	80	
					316	75			
8			140	48	235	80	70	70	
					330	38			
9							57	49	

Injectite #10									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	238	80	148	50	259	71	206	52	35 NE
	245	75			351	60	80	71	47 NE
	239	82					82	86	48 NE
							78	88	48 NE
							67	81	50 NE
							241	84	45 NE
							239	87	40 NE
							59	85	50 NE
							76	74	49 NE
							232	87	47 NE
							79	80	50 NE
							70	75	40 NE
							89	70	50 E
							83	78	49 NE

Injectite #11									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	19	69							
2	339	52	139	63	19	78	321	84	90
	347	58					134	45	
3			139	40	62	74			
					300	39			
					305	40			

Injectite #12									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	269	50	140	70			255	60	
	264	42					113	72	
2	351	86	91	45			17	61	60 NE
3	345	80	136	56	5	90			
4			161	51			280	40	
5	292	60	134	20	244	89			
					315	78			
7	152	70	141	50			143	52	
							157	70	
							143	50	70 NW
8	46	74	144	46					
9	61	44							
	31	39							

	216	31							
	155	47							
11							241	46	
							80	85	

Injectite #13									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1			134	38	48	71	326	39	
			137	59	267	70	30	19	35 NE
							28	26	40 NE
2	339	37					336	72	
							24	19	50 NE
							0	29	

Injectite #14									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	68	41	161	54					
			155	58					
2			169	60	160	70	205	71	
							55	68	
							210	61	
3	54	60	185	37	68	58	94	55	
	(Mini) 60	62			320	65			
4	192	56	158	45	267	50	234	41	50 SW
			144	28	326	41			
6	50	55	149	38	49	57			
			153	51	328	36			
			152	60	61	80			
					62	73			

7	60	53	146	58	256	68			
	56	51			245	84			
8	230	86	151	62			71	80	28 NE
	219	88	158	40			60	69	
	234	88							
9	48	72							

Injectite #15									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	325	68	140	41	1	64			
	232	88	145	40	265	68			
					305	59			
2	56	87	133	42	342	61			
	238	88			2	66			
3	54	89	147	46	337	68	213	79	58 NE
					331	52	222	68	45 NE
4	224	65	139	32	9	70			
5	234	87	123	50	347	60	220	71	48 NE
					347	66			
					269	53			
6	225	81	128	34			214	73	56 NE
	233	87					64	60	55 NE
							68	63	50 NE

Injectite #16									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1			160	26	26	71			

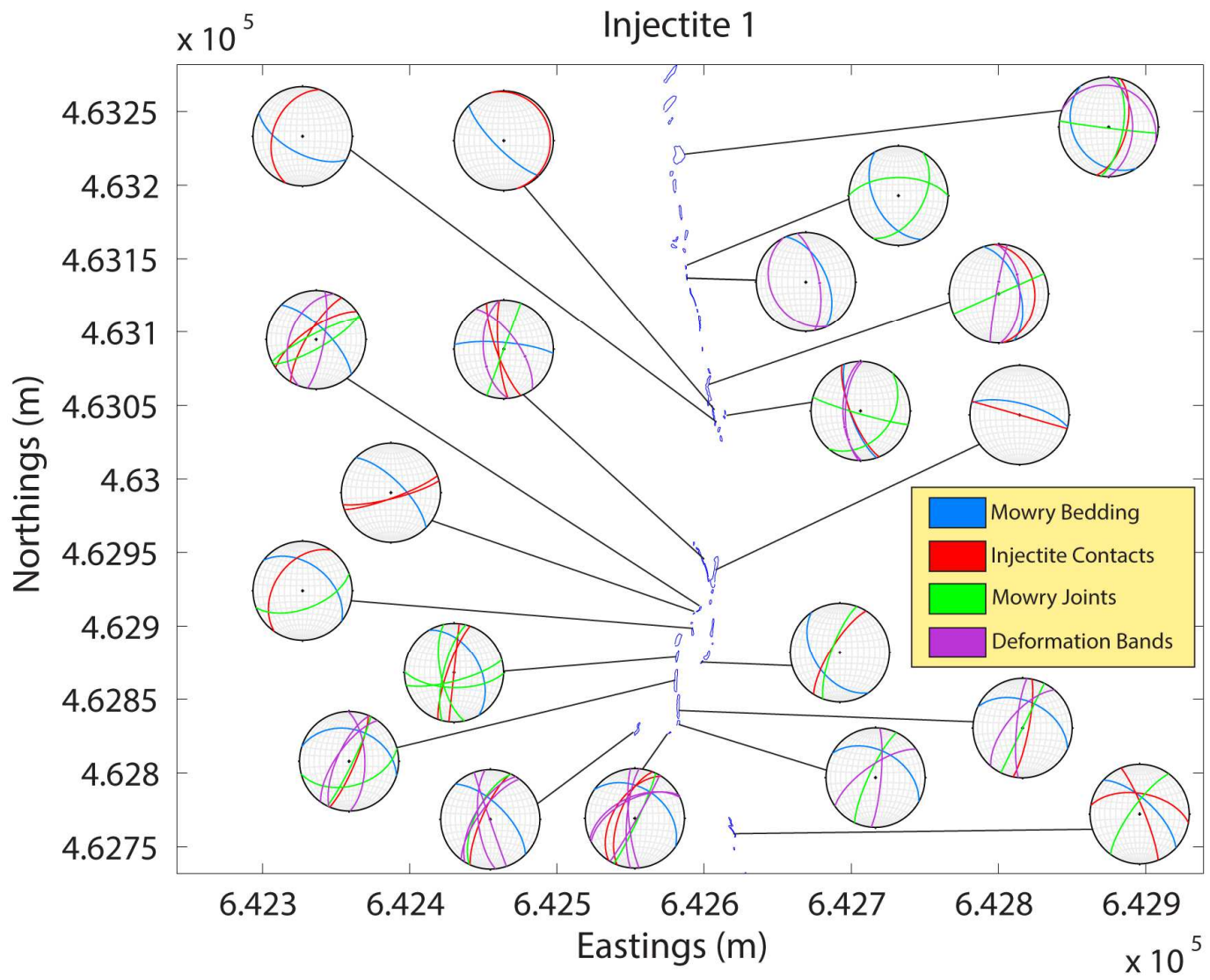
					317	63			
2							238	52	
							74	71	
3			133	30	2	88			
			136	54					
4	37	70	132	50			213	73	53 NE
			125	44					
5	64	81	144	37	355	56	231	56	
	91	90			268	55			

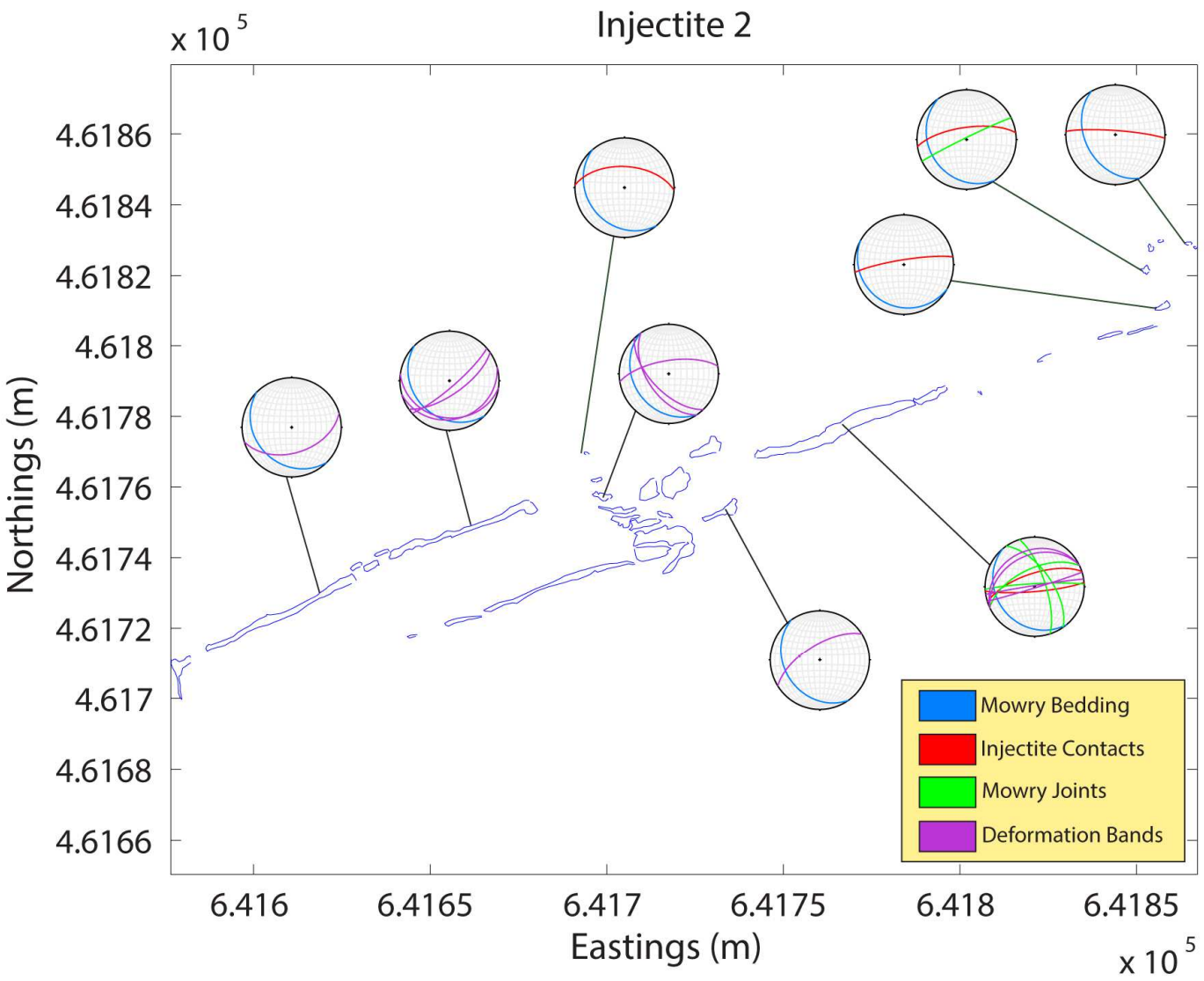
Injectite #17									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1	250	89	141	15	110	77			
			122	15	117	75			
					47	85			
2	247	89	124	24					
	71	86							
3	67	75							
	71	84							
4	237	78	331	10	76	90	257	56	
					164	89			
5	257	72	316	26	236	75			
	244	86	338	19	144	81			
6	258	85	346	18	98	75	239	76	
	256	87	349	37	208	60	51	51	60 SW
							259	64	66 NW

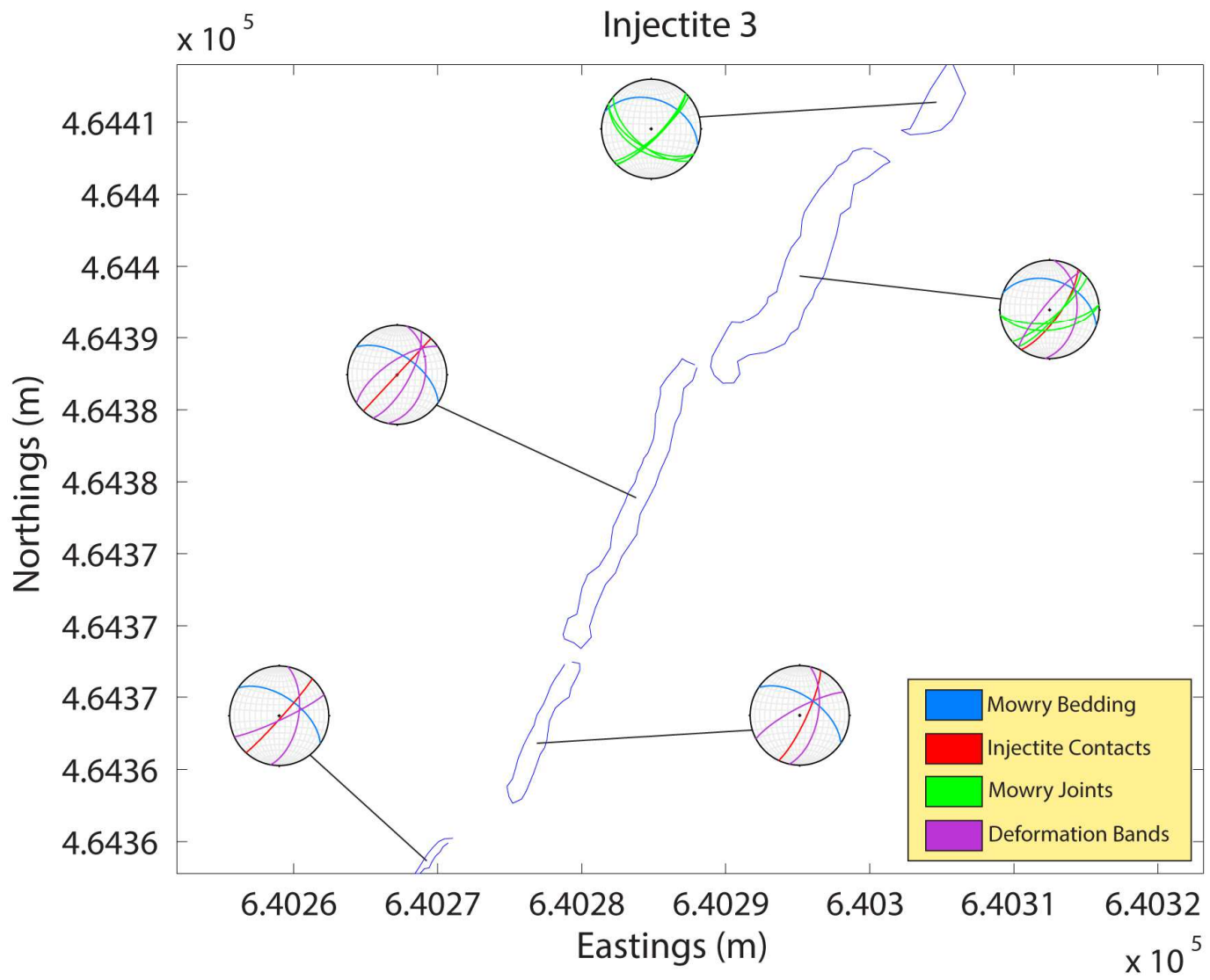
Injectite #18									
Segment #	Dike Contact		Mowry Bedding		Mowry Joints		Deformation Bands		
	Strike	Dip	Strike	Dip	Strike	Dip	Strike	Dip	Rake
1							149	42	
							241	68	
3							263	81	
4			104	70	218	59	247	50	
							229	60	

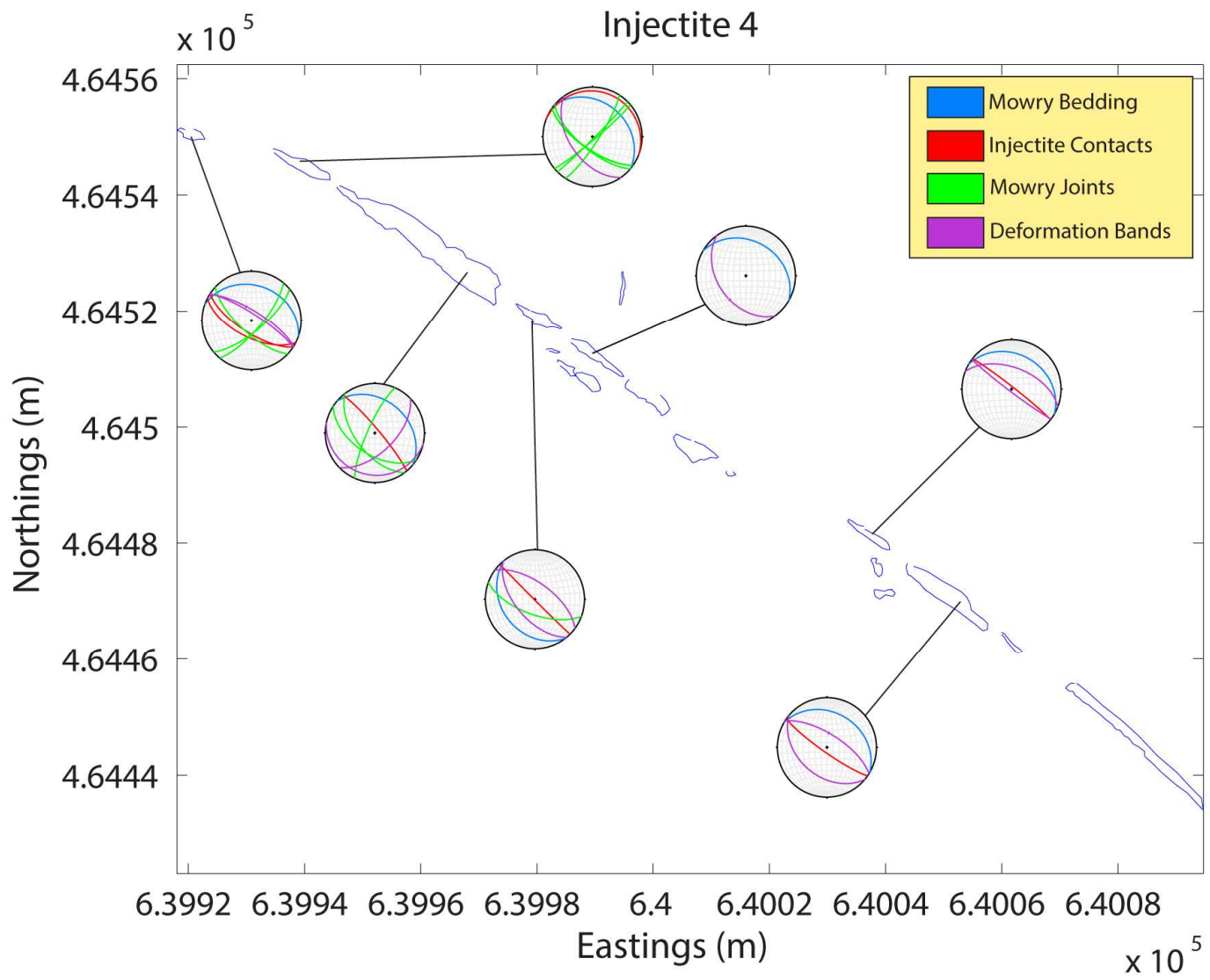
Appendix B

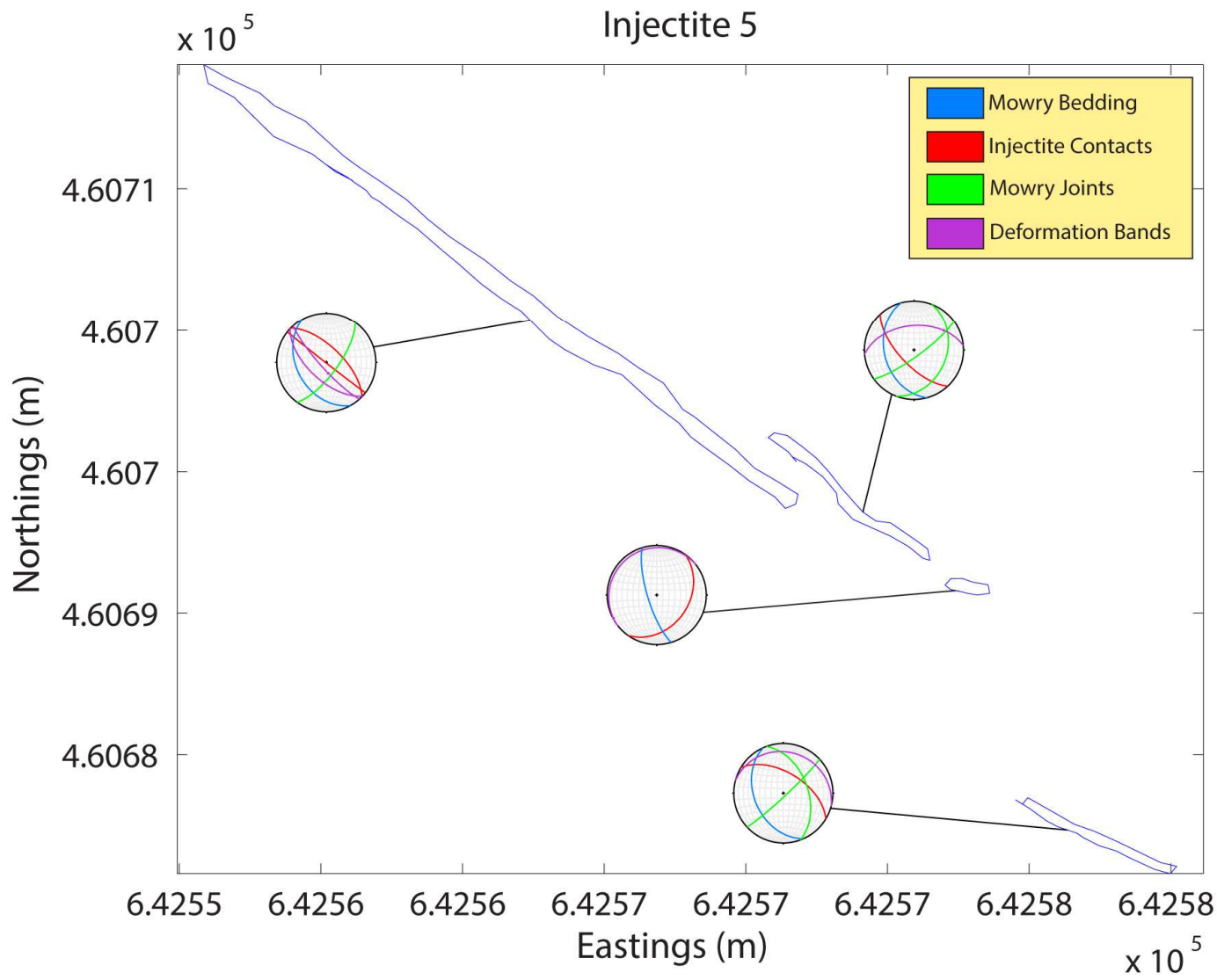
Maps of Injectites with Equal Area Projections

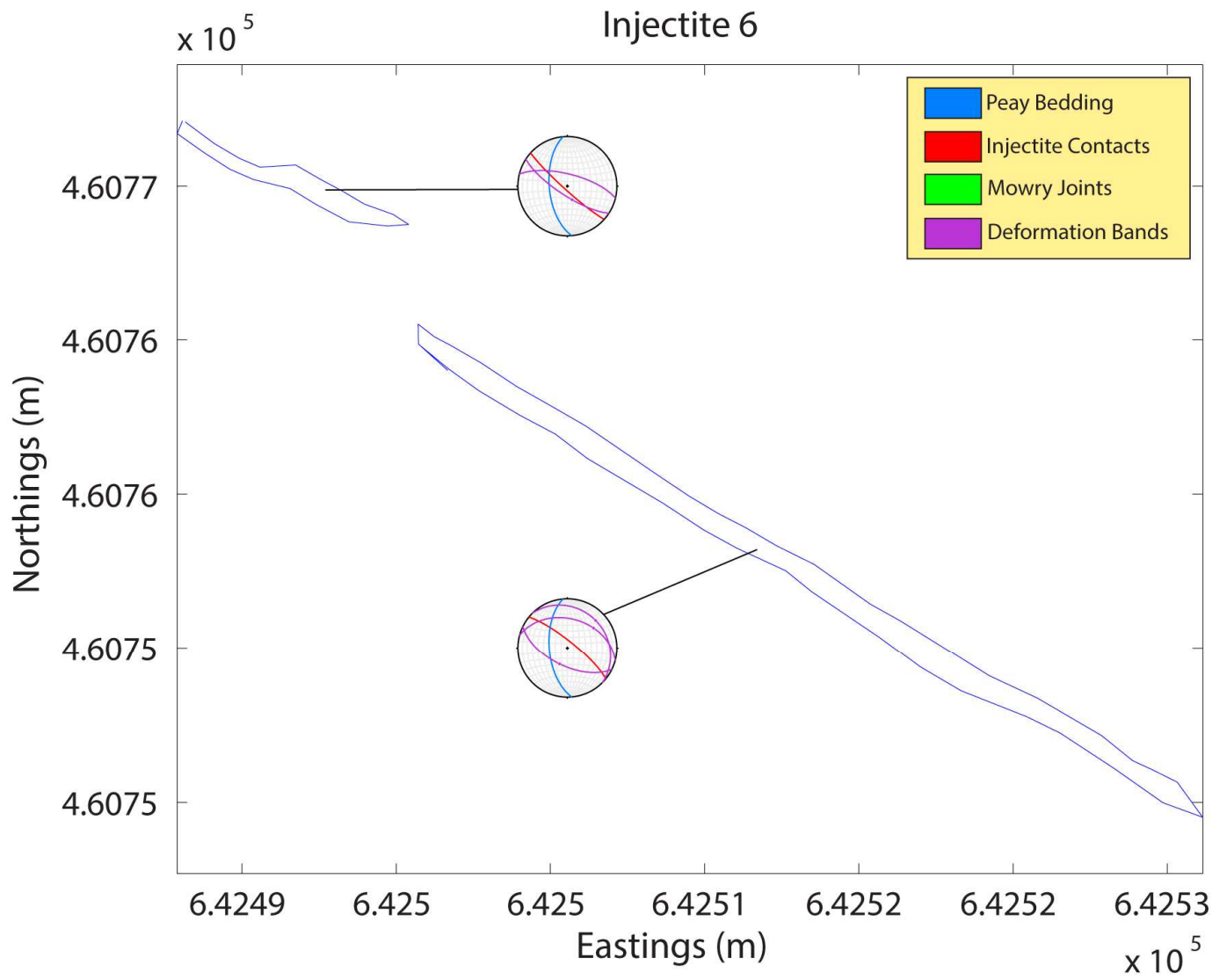

Injectite 1
x 10 5
4.6325
4.632
4.6315
4.631
4.6305
4.63
4.6295
4.629
4.6285
4.628
4.6275
Northings (m)
6.423
6.424
6.425
6.426
6.427
6.428
6.429
Eastings (m)
x 10 5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

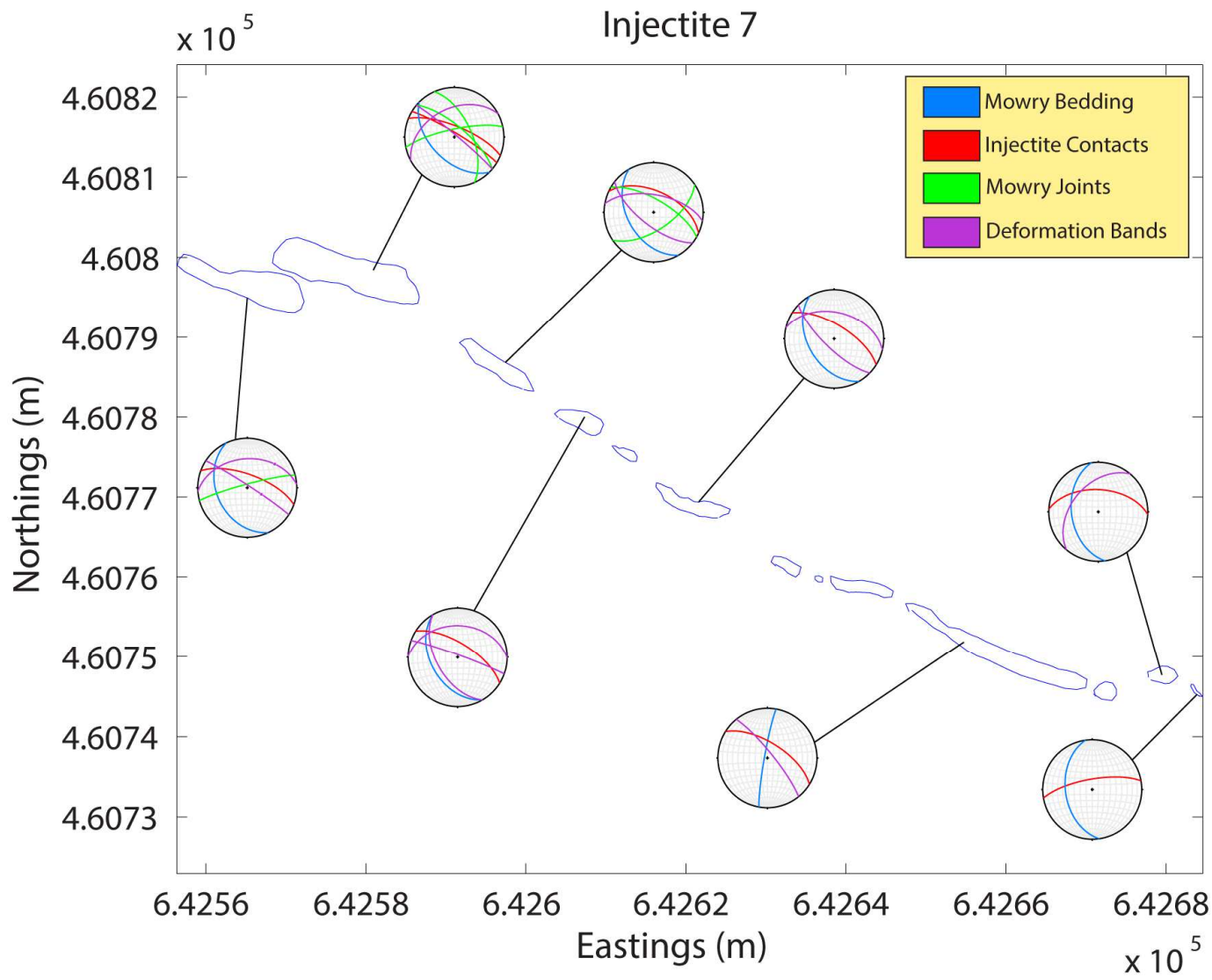

Injectite 2
x 10^5
4.6186
4.6184
4.6182
4.618
4.6178
4.6176
4.6174
4.6172
4.617
4.6168
4.6166
Northings (m)
6.416
6.4165
6.417
6.4175
6.418
6.4185
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

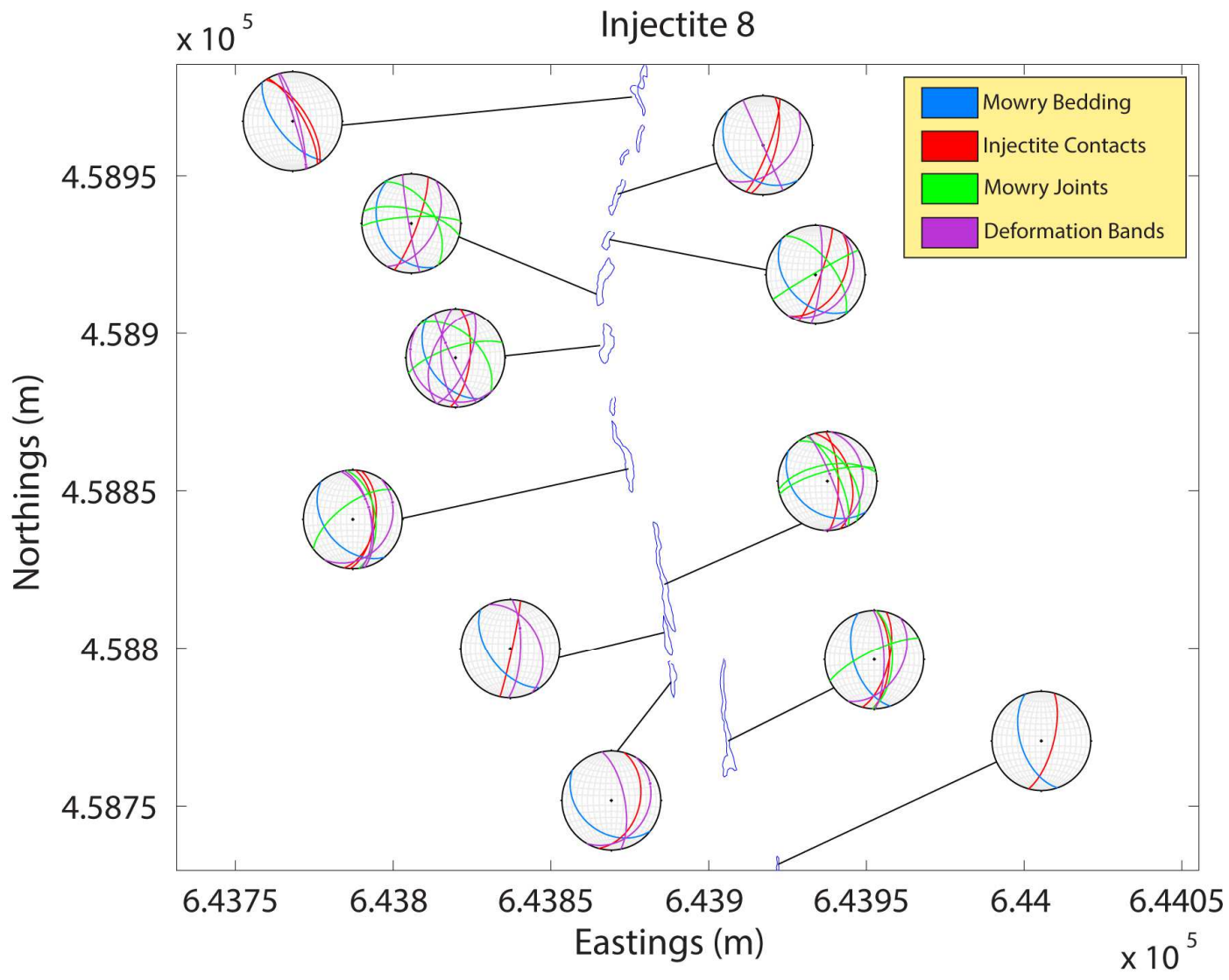

Injectite 3
x 10 5
4.6441
4.644
4.644
4.6439
4.6438
4.6438
4.6437
4.6437
4.6437
4.6436
4.6436
Northings (m)
6.4026
6.4027
6.4028
6.4029
6.403
6.4031
6.4032
Eastings (m)
x 10 5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

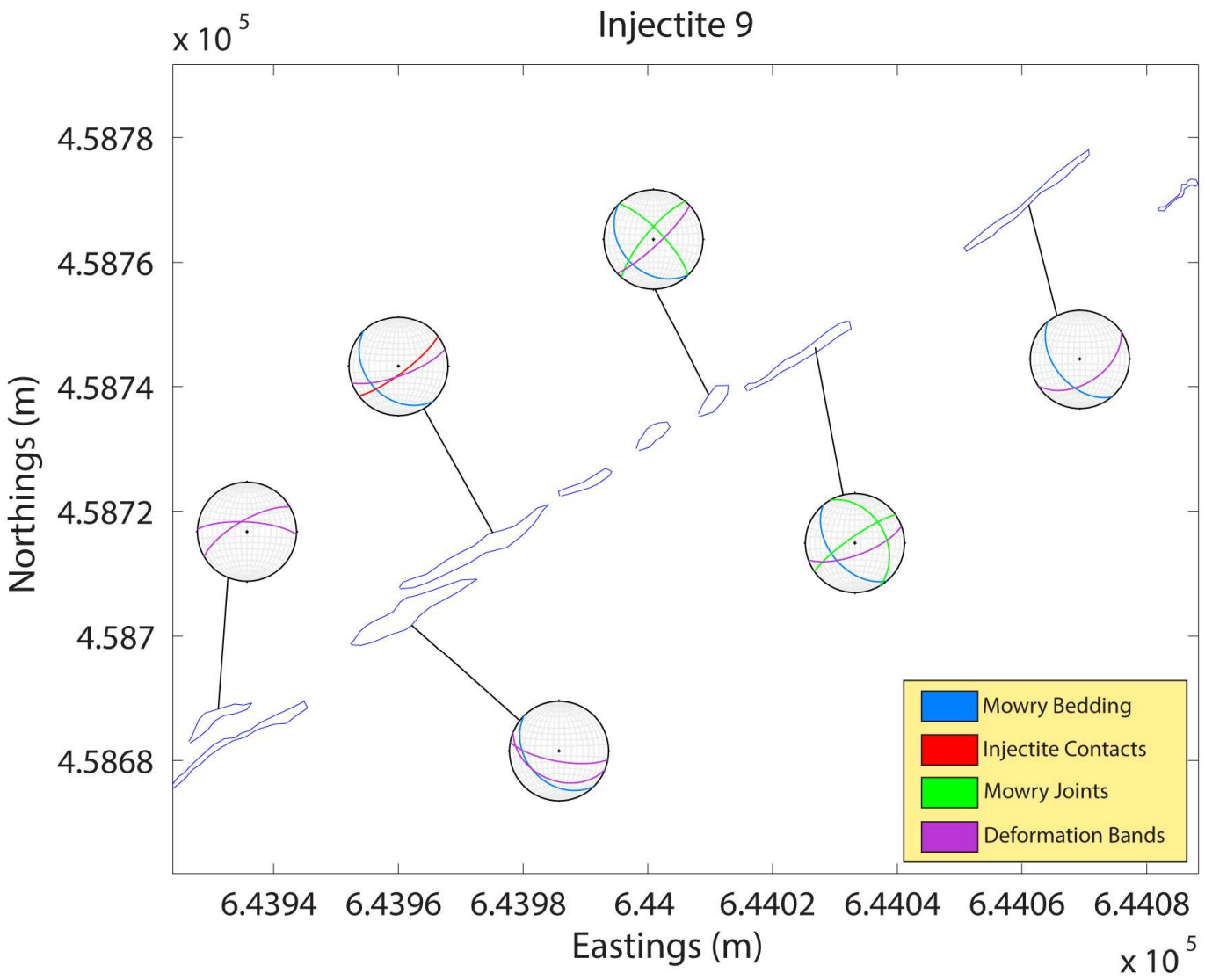

Injectite 4
x 10^5
4.6456
4.6454
4.6452
4.645
4.6448
4.6446
4.6444
Northings (m)
6.3992
6.3994
6.3996
6.3998
6.4
6.4002
6.4004
6.4006
6.4008
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

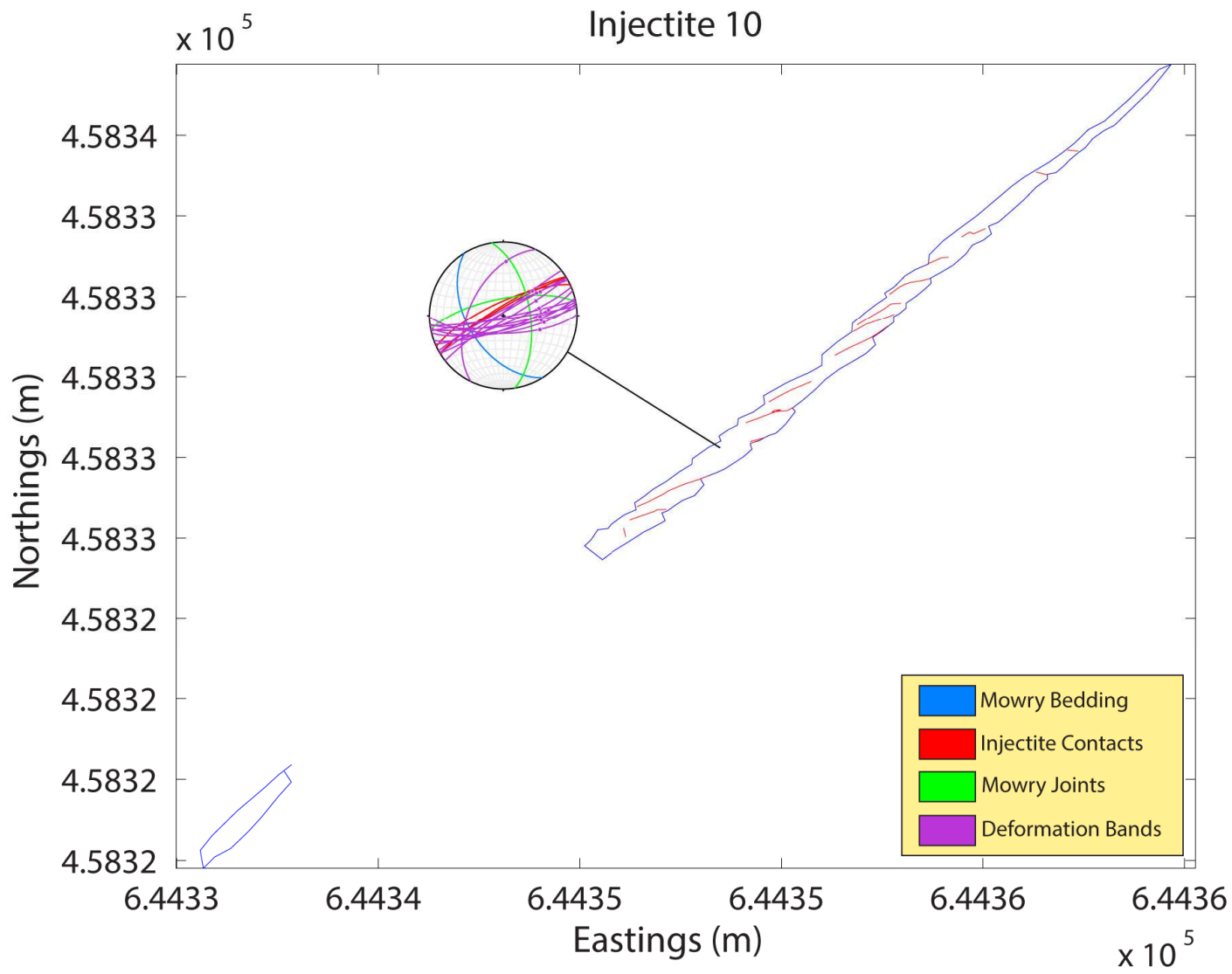

Injectite 5
x 10^5
4.6071
4.607
4.607
4.6069
4.6068
Northings (m)
6.4255
6.4256
6.4256
6.4257
6.4257
6.4257
6.4258
6.4258
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

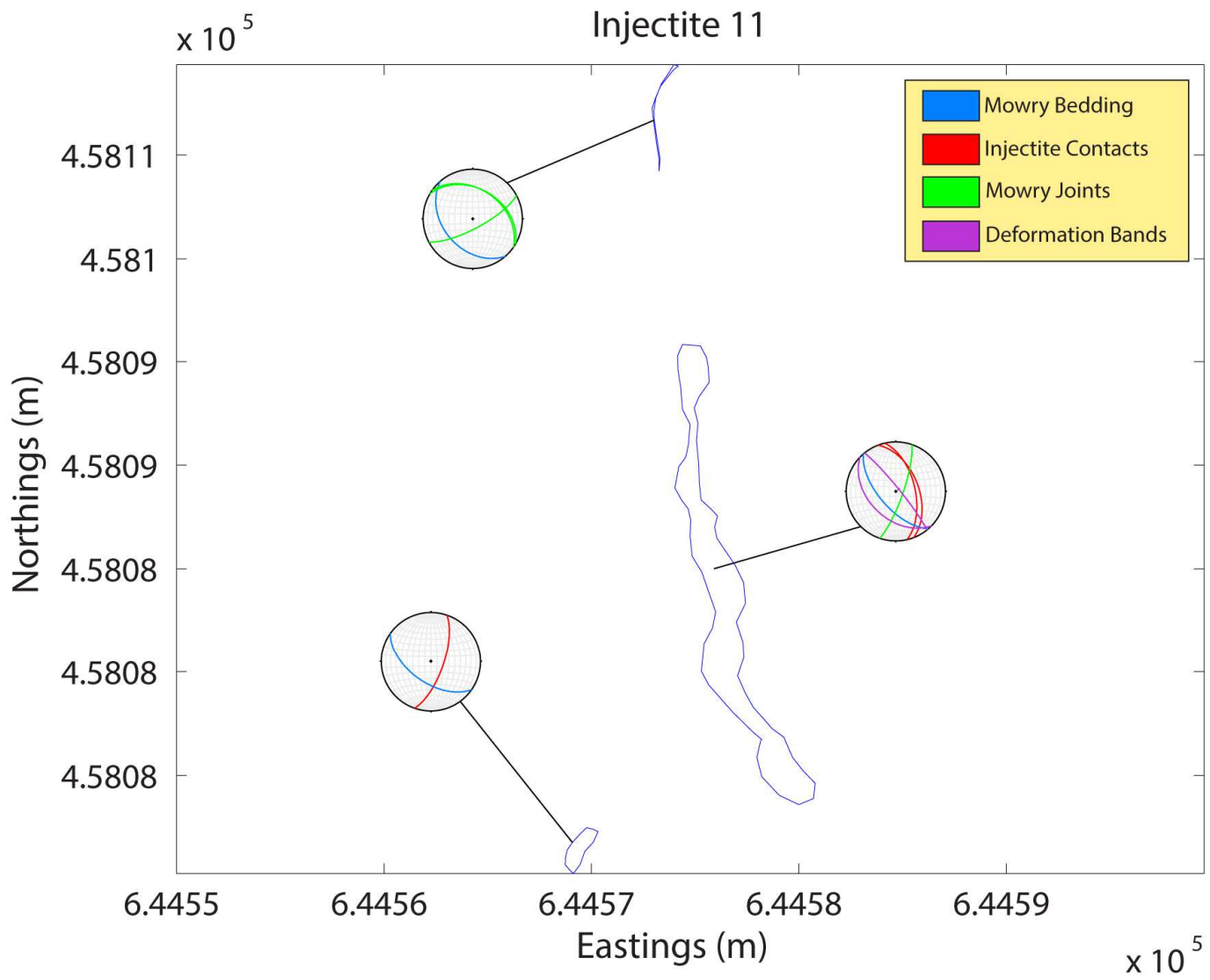

Injectite 6
x 10 5
Peay Bedding
Injectite Contacts
Mowry Joints
Deformation Bands
4.6077
4.6076
4.6076
4.6075
4.6075
Northings (m)
6.4249
6.425
6.425
6.4251
6.4252
6.4252
6.4253
Eastings (m)
x 10 5

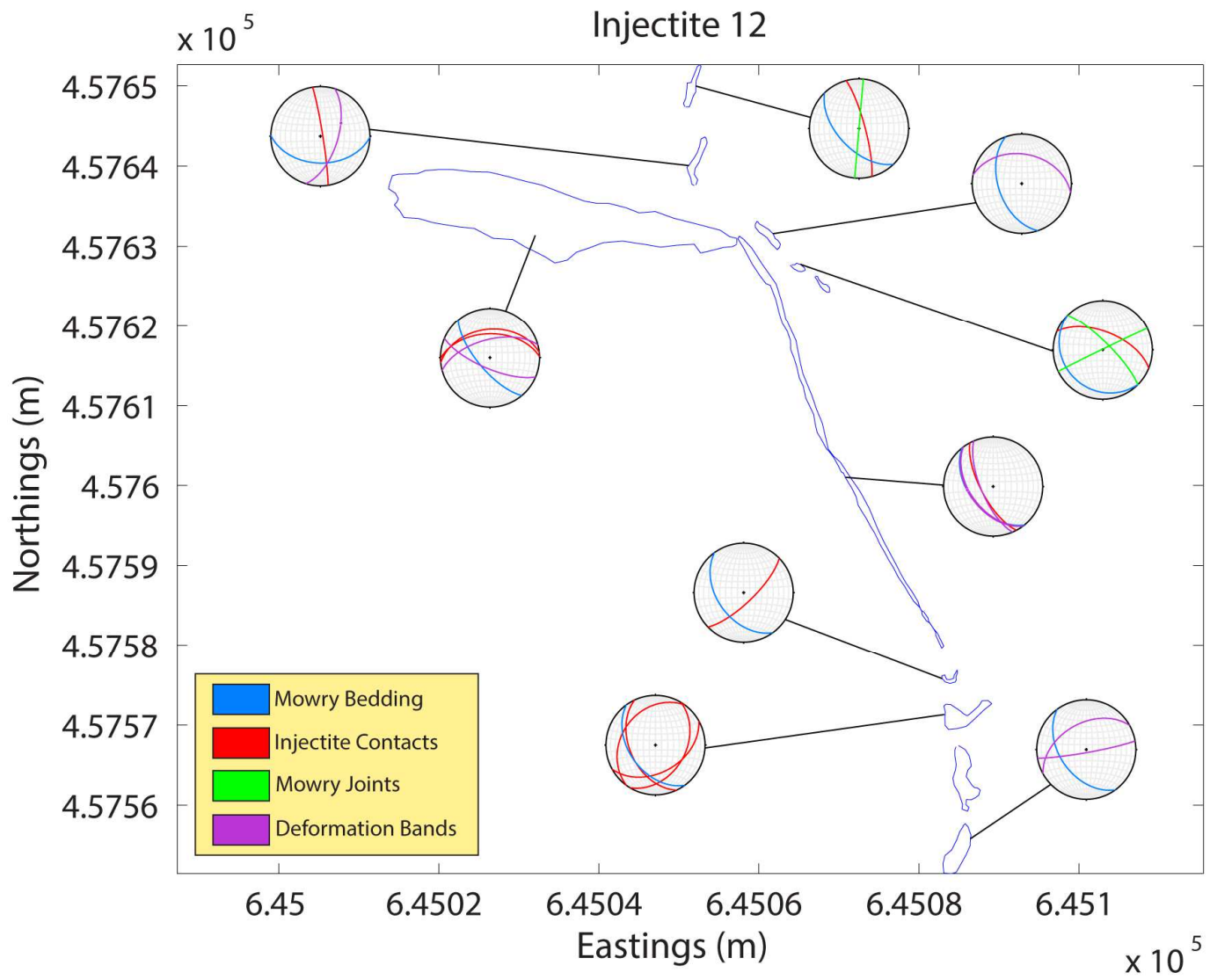

Injectite 7
x 10 5
4.6082
4.6081
4.608
4.6079
4.6078
4.6077
4.6076
4.6075
4.6074
4.6073
Northings (m)
6.4256
6.4258
6.426
6.4262
6.4264
6.4266
6.4268
Eastings (m)
x 10 5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

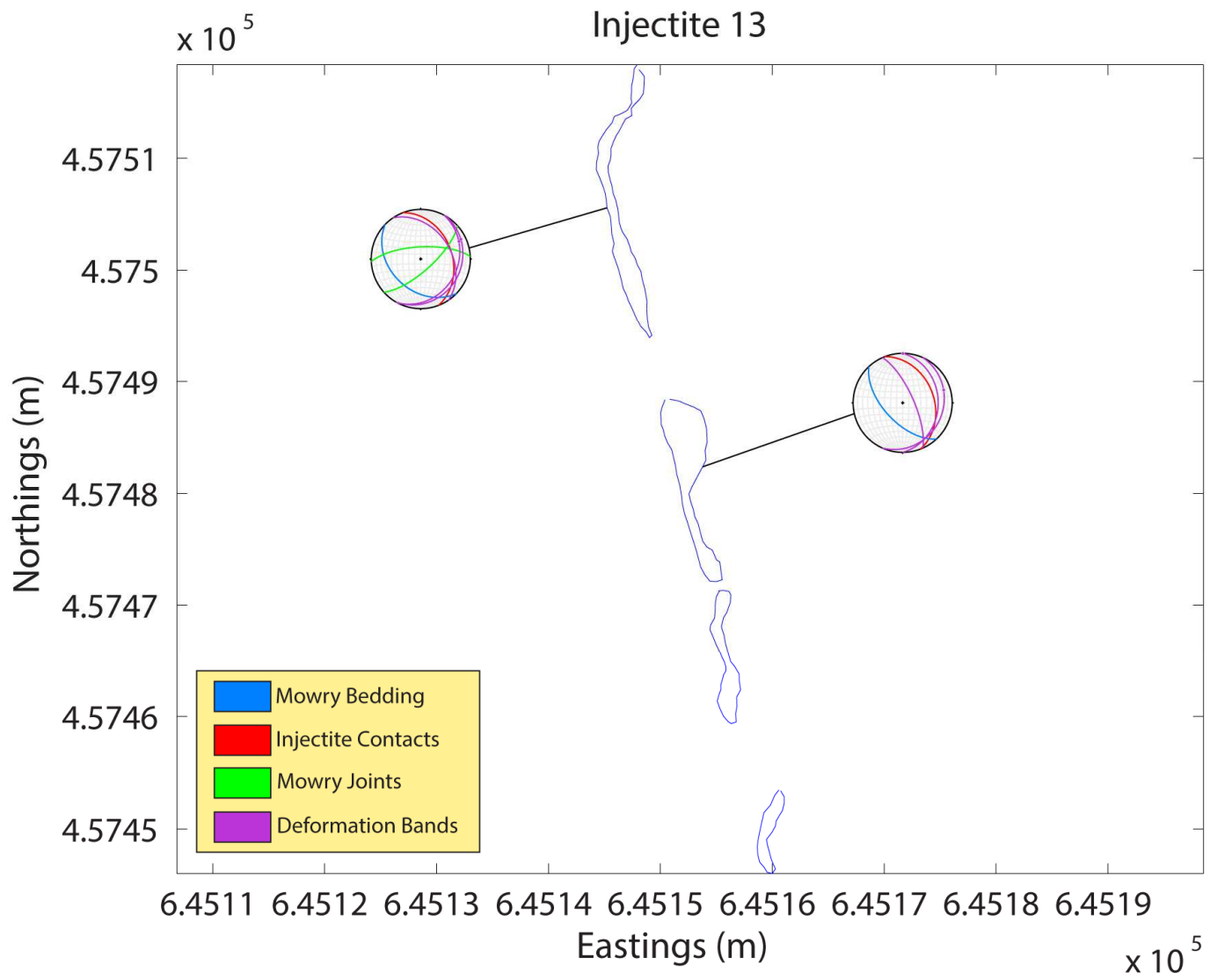

Injectite 8
x 10^5
Northings (m)
4.5895
4.589
4.5885
4.588
4.5875
6.4375
6.438
6.4385
6.439
6.4395
6.44
6.4405
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

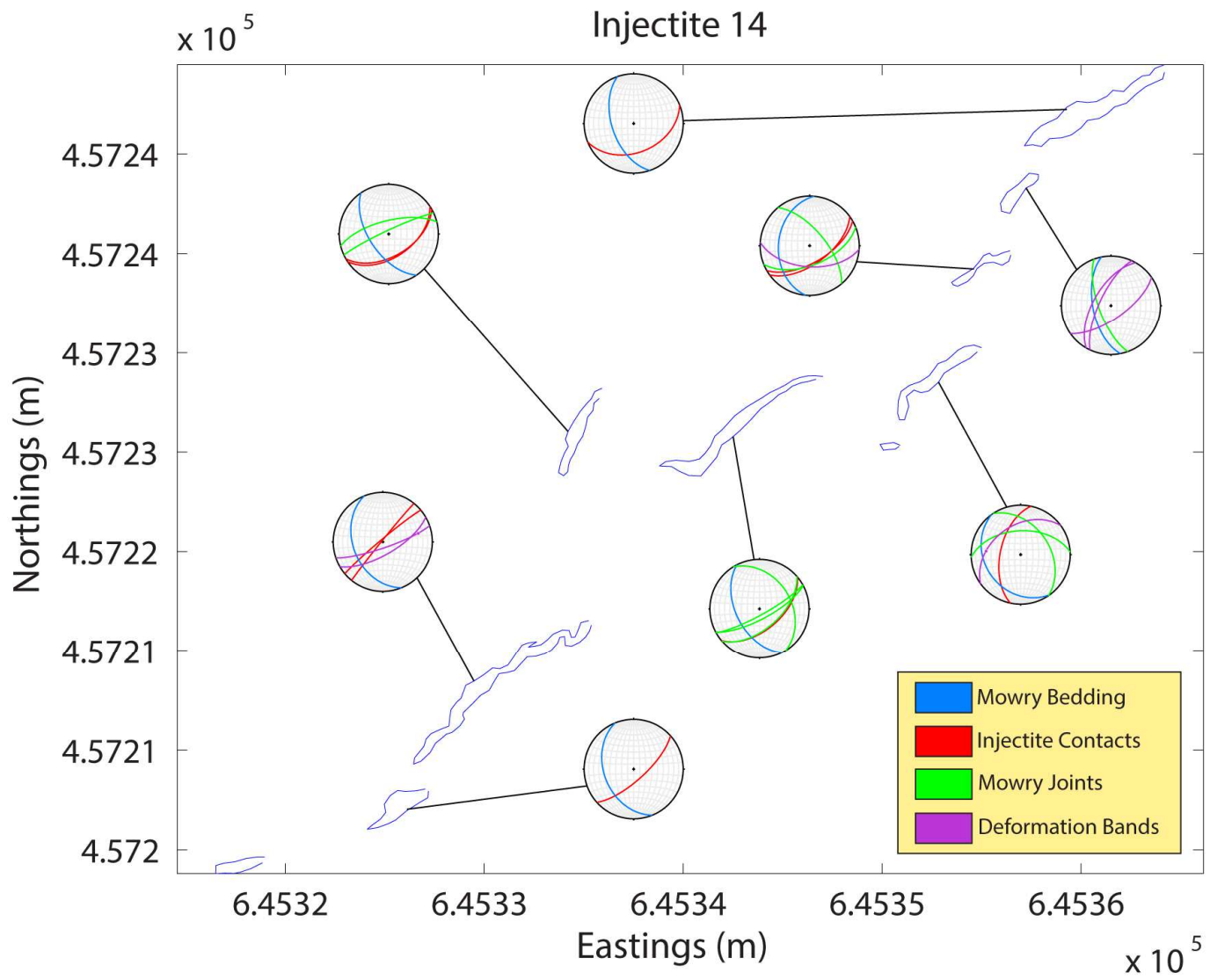

Injectite 9
x 10^5
4.5878
4.5876
4.5874
4.5872
4.587
4.5868
Northings (m)
6.4394
6.4396
6.4398
6.44
6.4402
6.4404
6.4406
6.4408
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

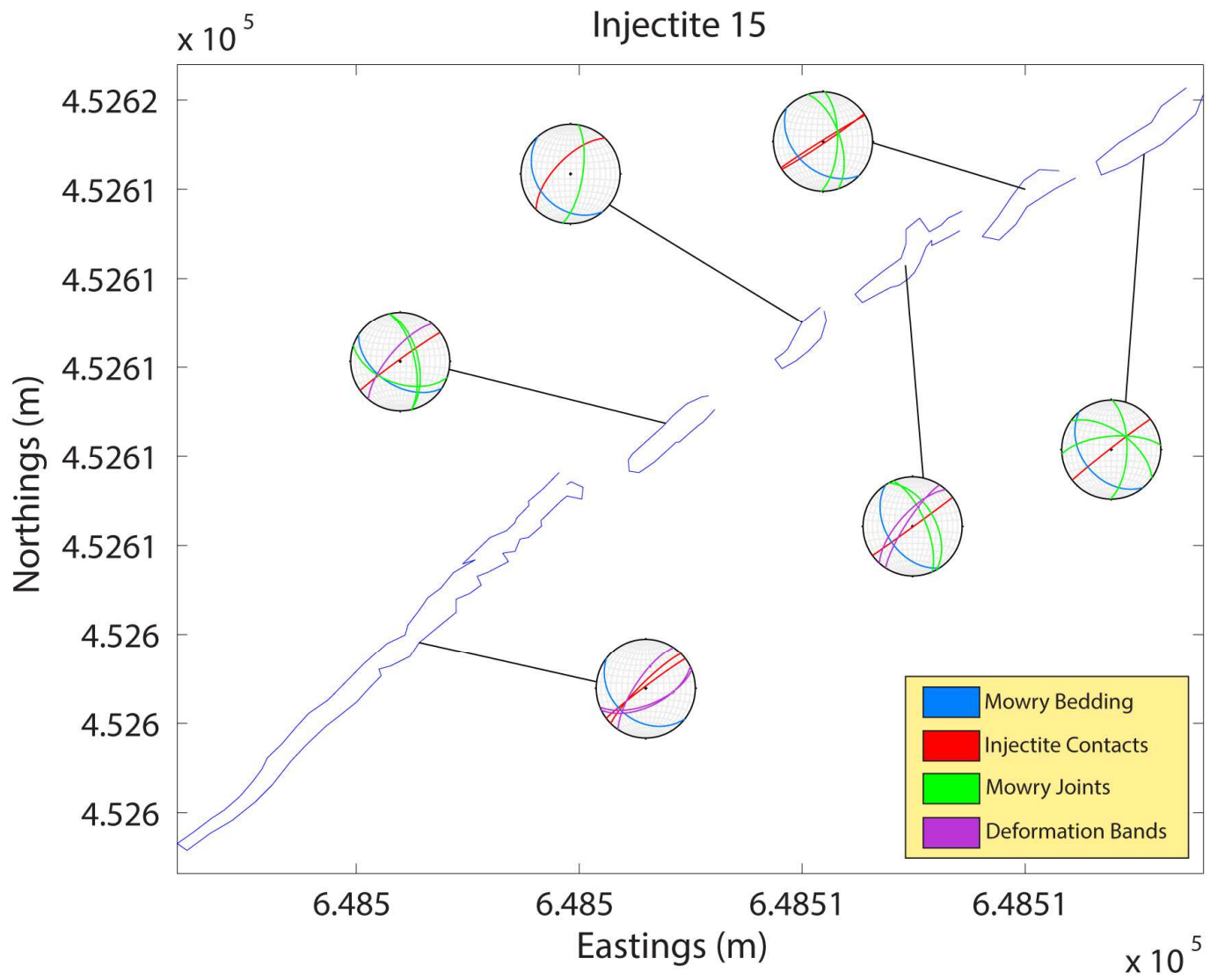

Injectite 10
x 10^5
4.5834
4.5833
4.5833
4.5833
4.5833
4.5833
4.5832
4.5832
4.5832
Northings (m)
6.4433
6.4434
6.4435
6.4435
6.4436
6.4436
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

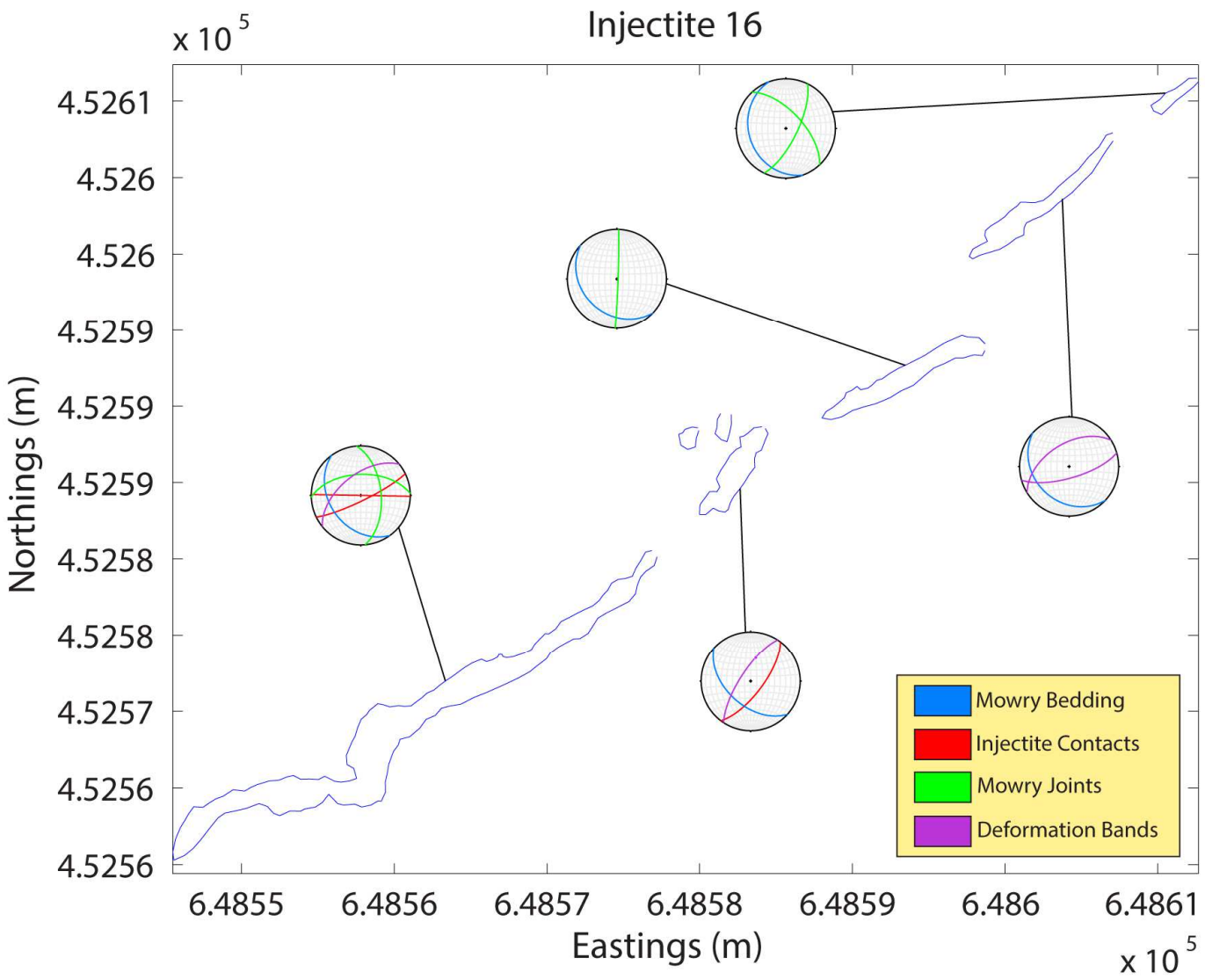

Injectite 11
x 10^5
4.5811
4.581
4.5809
4.5809
4.5808
4.5808
4.5808
Northings (m)
6.4455
6.4456
6.4457
6.4458
6.4459
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

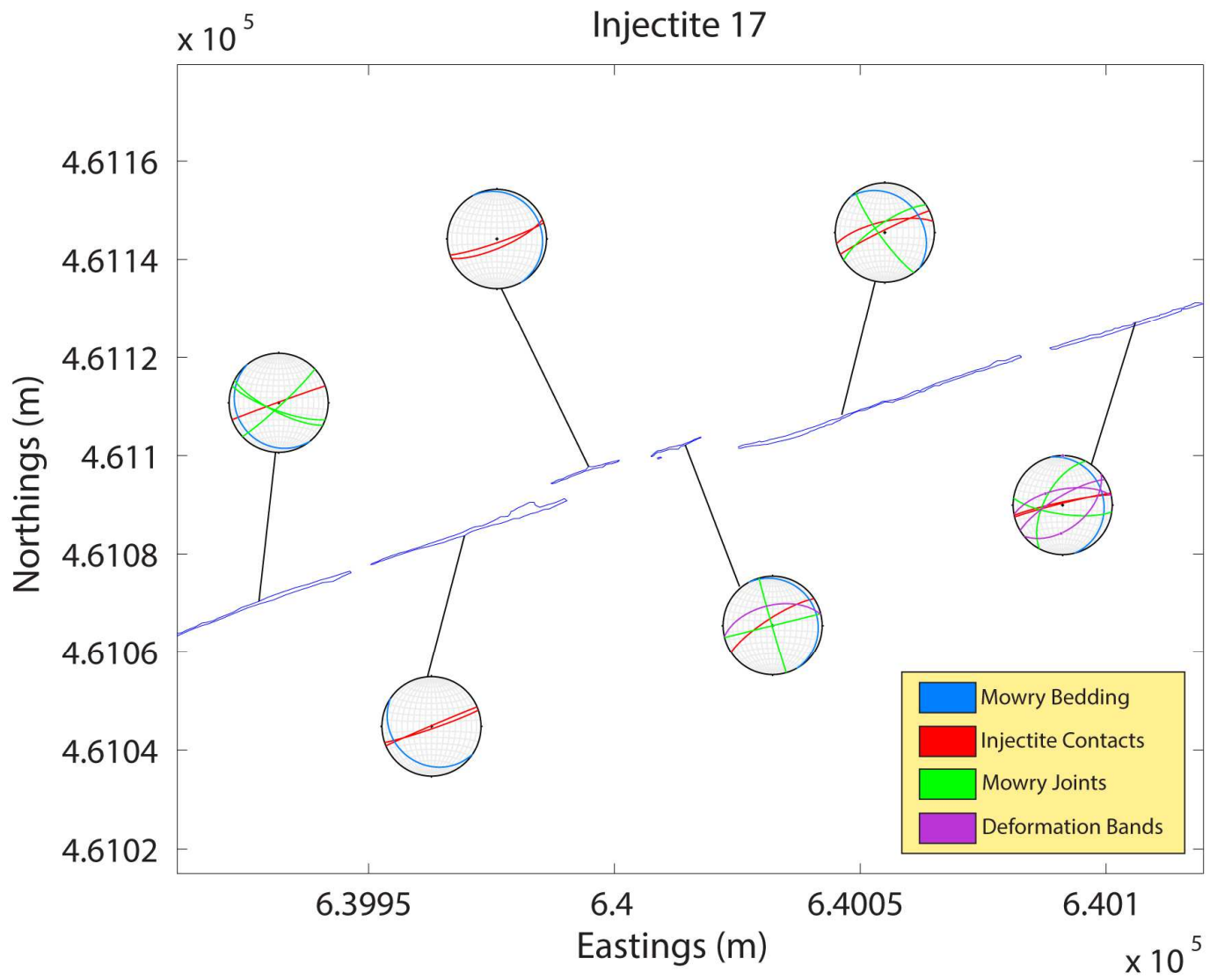

Injectite 12
x 10^5
4.5765
4.5764
4.5763
4.5762
4.5761
4.576
4.5759
4.5758
4.5757
4.5756
Northings (m)
6.45
6.4502
6.4504
6.4506
6.4508
6.451
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

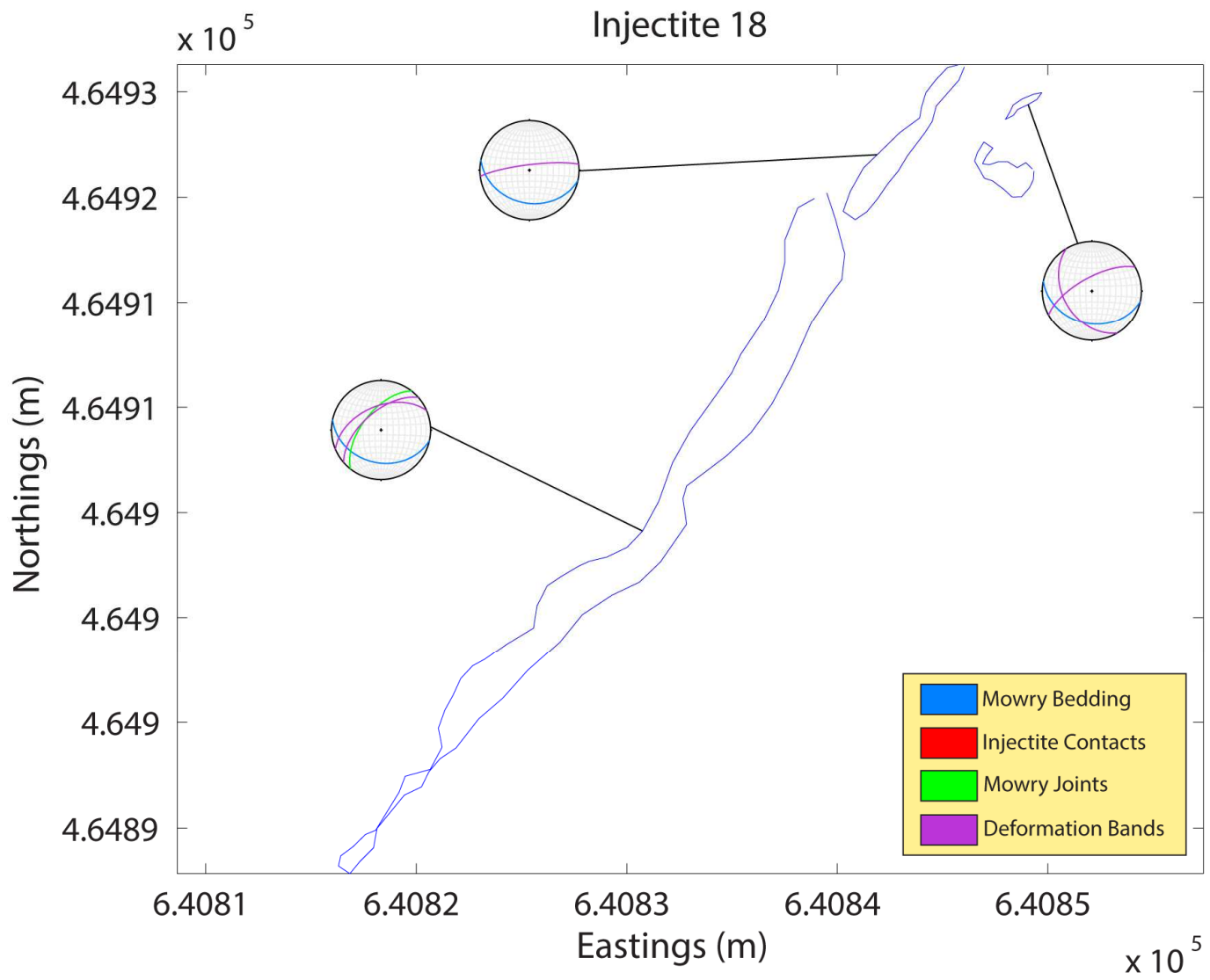

Injectite 13
x 10^5
4.5751
4.575
4.5749
4.5748
4.5747
4.5746
4.5745
Northings (m)
6.4511
6.4512
6.4513
6.4514
6.4515
6.4516
6.4517
6.4518
6.4519
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands


Injectite 14
x 10^5
4.5724
4.5724
4.5723
4.5723
4.5722
4.5721
4.5721
4.572
Northings (m)
6.4532
6.4533
6.4534
6.4535
6.4536
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands


Injectite 15
x 10^5
4.5262
4.5261
4.5261
4.5261
4.5261
4.5261
4.526
4.526
4.526
Northings (m)
6.485
6.485
6.4851
6.4851
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands


Injectite 16
x 10^5
4.5261
4.526
4.526
4.5259
4.5259
4.5259
4.5258
4.5258
4.5257
4.5256
4.5256
Northings (m)
6.4855
6.4856
6.4857
6.4858
6.4859
6.486
6.4861
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands


Injectite 17
x 10^5
4.6116
4.6114
4.6112
4.611
4.6108
4.6106
4.6104
4.6102
Northings (m)
6.3995
6.4
6.4005
6.401
Eastings (m)
x 10^5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands


Injectite 18
x 10 5
4.6493
4.6492
4.6491
4.6491
4.649
4.649
4.649
4.6489
Northings (m)
6.4081
6.4082
6.4083
6.4084
6.4085
Eastings (m)
x 10 5
Mowry Bedding
Injectite Contacts
Mowry Joints
Deformation Bands

References

Amrouch, Khalid, et al. "Stress and strain patterns, kinematics and deformation mechanisms in a basement-cored anticline: Sheep Mountain Anticline, Wyoming." *Tectonics* 29.1 (2010).

Aydin, Atilla, Ronaldo Borja, and Peter Eichhubl. "Geological and mathematical framework for failure modes in granular rock." *Journal of Structural Geology* 28.1 (2006): 83-98.

Aydin, Atilla. "Small faults formed as deformation bands in sandstone." *Pure and Applied Geophysics* 116.4-5 (1978): 913-930.

Aydin, Atilla, and Arvid Johnson. "Development of faults as zones of deformation bands and as slip surfaces in sandstone." *Rock Friction and Earthquake Prediction*. Birkhäuser Basel, 1978. 931-942.

Beaudoin, Nicolas, et al. "Structural and microstructural evolution of the Rattlesnake Mountain Anticline (Wyoming, USA): new insights into the Sevier and Laramide orogenic stress build-up in the Bighorn Basin." *Tectonophysics* 576 (2012): 20-45.

Bellahsen, Nicolas, Patricia Fiore, and David Pollard. "The role of fractures in the structural interpretation of Sheep Mountain Anticline, Wyoming." *Journal of Structural Geology* 28.5 (2006): 850-867.

Bourne, Stephen. "Contrast of elastic properties between rock layers as a mechanism for the initiation and orientation of tensile failure under uniform remote compression." *Journal of Geophysical Research: Solid Earth (1978–2012)* 108.B8 (2003).

Bourne, Stephen, and Emanuel Willemse. "Elastic stress control on the pattern of tensile fracturing around a small fault network at Nash Point, UK."*Journal of Structural Geology* 23.11 (2001): 1753-1770.

Bureau, D., R. Mourgues, and J. Cartwright. "Use of a new artificial cohesive material for physical modelling: Application to sandstone intrusions and associated fracture networks." *Journal of Structural Geology* 66 (2014): 223-236.

Byrd, John, Robert Smith, and John Geissman. "The Teton fault, Wyoming: Topographic signature, neotectonics, and mechanisms of deformation." *Journal of Geophysical Research: Solid Earth (1978–2012)*99.B10 (1994): 20095-20122.

Cooke, Michele, and Chad Underwood. "Fracture termination and step-over at bedding interfaces due to frictional slip and interface opening." *Journal of Structural Geology* 23.2 (2001): 223-238.

Cooke, Michele, and David Pollard, Fracture propagation paths under mixed mode loading within rectangular blocks of polymethyl methacrylate, *Journal of Geophysical Research,* 101 (1997): 3387-34000.

Cotterell, B., and JR. Rice. "Slightly curved or kinked cracks." *International Journal of Fracture* 16.2 (1980): 155-169.

Crowley, Peter, et al. "Laramide exhumation of the Bighorn Mountains, Wyoming: an apatite (U-Th)/He thermochronology study." *Geology* 30.1 (2002): 27-30.

Delaney, Paul. and David D. Pollard, USGS Professional Paper (1981)

Delaney, Paul, et al. "Field relations between dikes and joints: emplacement processes and paleostress analysis." *Journal of Geophysical Research: Solid Earth (1978–2012)* 91.B5 (1986): 4920-4938.

Dickinson, William, et al. "Paleogeographic and paleotectonic setting of Laramide sedimentary basins in the central Rocky Mountain region." *GSA Bulletin* 100.7 (1988): 1023-1039.

Duffield, Wendell, and John Sass. *Geothermal energy: Clean power from the earth's heat*. Vol. 1249. DIANE Publishing, 2003.

Fan, Majie, and Barbara Carrapa. "Late Cretaceous–early Eocene Laramide uplift, exhumation, and basin subsidence in Wyoming: Crustal responses to flat slab subduction." *Tectonics* 33.4 (2014): 509-529.

Fan, Majie, and David Dettman. "Late Paleocene high Laramide ranges in northeast Wyoming: Oxygen isotope study of ancient river water." *Earth and Planetary Science Letters* 286.1 (2009): 110-121.

Fanshawe, John. "Structural evolution of Big Horn basin." (1971): 35-37.

Finn, Thomas. "New source rock data for the Thermopolis and Mowry Shales in the Wyoming part of the Bighorn Basin." *US Geological Survey Digital Data Series DDS-69-V (16 pp.)* (2010).

Finn, Thomas. *Lower Cody Shale (Niobrara Equivalent) in the Bighorn Basin, Wyoming and Montana—Thickness, Distribution, and Source Rock Potential*. No. SIR-2013-5138. United States Geological Survey, 2014.

Finn, Thomas, Michael Lewan, and Mark Kirschbaum. *Burial history, thermal maturity, and oil and gas generation history of source rocks in the Bighorn Basin, Wyoming and Montana*. US Department of the Interior, US Geological Survey, 2008.

Fisher, Cassius. "Geology and water resources of the Bighorn Basin, Wyoming." (1906).

Forster, Astrid, Anton Irmen, and Carl Vondra. "Structural interpretation of Sheep Mountain Anticline, Bighorn Basin, Wyoming." *Wyoming Geological Association Guidebook* (1996): 239-251.

Gale, Julia, Robert Reed, and Jon Holder. "Natural fractures in the Barnett Shale and their importance for hydraulic fracture treatments." *AAPG bulletin* 91.4 (2007): 603-622.

Gercek, H. "Poisson's ratio values for rocks." *International Journal of Rock Mechanics and Mining Sciences* 44.1 (2007): 1-13.

Fossen, Haakon, et al. "Deformation bands in sandstone: a review." *Journal of the Geological Society* 164.4 (2007): 755-769.

Hennier, Jeffrey. “Structural analysis of the Sheep Mountain anticline, Bighorn basin, Wyoming.” MS thesis. Texas A&M University, 1984.

Hennier, Jeff, and John Spang. "Mechanisms for deformation of sedimentary strata at Sheep Mountain anticline, Bighorn Basin, Wyoming." *Wyoming Geological Association Guidebook* (1983): 96-111.

Hoy, Richard, and Kenneth Ridgway. "Structural and sedimentological development of footwall growth synclines along an intraforeland uplift, east-central Bighorn Mountains, Wyoming." *GSA Bulletin*109.8 (1997): 915-935.

Hurst, Andrew, and Joseph Cartwright. "Relevance of sand injectites in hydrocarbon exploration and production." *AAPG Special Volumes* (2007): 1-19.

Johnson, Gary, Larry Garside, and Albeht Warner. "A study of the structure and associated features of Sheep Mountain Anticline, Big Horn County, Wyoming." *Iowa Academy of Science*. Vol. 72. 1965.

Jolly, Richard, and Lidia Lonergan. "Mechanisms and controls on the formation of sand intrusions." *Journal of the Geological Society* 159.5 (2002): 605-617.

Kozimko, L. Michael. “Geology of the Greybull North Quadrangle, Wyoming.” Diss. Iowa State University, 1977.

Kunkle, Cody, and Ashley Griffith. "Deformation bands in large sandstone dikes near Sheep Mountain Anticline, North-central Wyoming." *GSA Abstracts with Programs* 43.1 (2011): 168.

Lorenz, John, Lawrence Teufel, and Norman Warpinski. "Regional Fractures I: A Mechanism for the Formation of Regional Fractures at Depth in Flat-Lying Reservoirs (1)." *AAPG Bulletin* 75.11 (1991): 1714-1737.

Love, J. "Cenozoic sedimentation and crustal movement in Wyoming."*American Journal of Science* 258 (1960): 204-214.

Maltman, Alex. *The geological deformation of sediments*. Springer, 1994.

Mair, Karen, Ian Main, and Stephen Elphick. "Sequential growth of deformation bands in the laboratory." *Journal of Structural Geology* 22.1 (2000): 25-42.

Mair, Karen, Stephen Elphick, and Ian Main. "Influence of confining pressure on the mechanical and structural evolution of laboratory deformation bands."*Geophysical Research Letters* 29.10 (2002): 49-1.

Marrett, Randall, and Richard Allmendinger. "Kinematic analysis of fault-slip data." *Journal of Structural Geology* 12.8 (1990): 973-986.

McMillan, Margaret, Paul Heller, and Scott Wing. "History and causes of post-Laramide relief in the Rocky Mountain orogenic plateau." *GSA Bulletin* 118.3-4 (2006): 393-405.

Merewether, E. A., W. A. Cobban, and Robert T. Ryder. "Lower Upper Cretaceous strata, Bighorn Basin, Wyoming and Montana." *Wyoming Geological Association Guidebook* (1975): 73-84.

Pollard, David, and Atilla Aydin. "Progress in understanding jointing over the past century." *GSA Bulletin* 100.8 (1988): 1181-1204.

Pollard, David, Paul Segall, & Paul Delaney. “Formation and interpretation of dilatant echelon cracks.” *GSA Bulletin* 93 (1982): 1291-1303.

Ray, R., and W. Keefer. "Wind River basin, central Wyoming." *Rocky Mountain Association of Geologists* (1985).

Rodrigues, N., P. Cobbold, and H. Løseth. "Physical modelling of sand injectites." *Tectonophysics* 474.3 (2009): 610-632.

Rubin, Allan. "Tensile fracture of rock at high confining pressure: implications for dike propagation." *Journal of Geophysical Research: Solid Earth (1978–2012)* 98.B9 (1993): 15919-15935.

Simonson, E., A. Abou-Sayed, and R. Clifton. "Containment of Massive Hydraulic Fractures." *Society of Petroleum Engineers Journal* 18.01 (1978): 27-32.

Stanton, Heather, and Eric Erslev. "Sheep Mountain: backlimb tightening and sequential deformation in the Bighorn Basin, Wyoming." *Wyoming Geological Association Guidebook* (2004): 75-87.

Sternlof, Kurt, et al. "Permeability effects of deformation band arrays in sandstone." *AAPG bulletin* 88.9 (2004): 1315-1329.

Sternlof, Kurt, John Rudnicki, and David Pollard. "Anticrack inclusion model for compaction bands in sandstone." *Journal of Geophysical Research: Solid Earth (1978–2012)* 110.B11 (2005).

Talbot, Christopher, and Victor von Brunn. "Melanges, intrusive and extrusive sediments, and hydraulic arcs." *Geology* 17.5 (1989): 446-448.

Thomas, Leonard. "Sedimentation and structural development of Big Horn basin." *AAPG Bulletin* 49.11 (1965): 1867-1877.

Tonnsen, John. "The Frontier Formation in northwestern Wyoming and adjacent areas." (1980): 173-184.

Vigorito, Mario, and Andrew Hurst. "Regional sand injectite architecture as a record of pore-pressure evolution and sand redistribution in the shallow crust: insights from the Panoche Giant Injection Complex, California." *Journal of the Geological Society* 167.5 (2010): 889-904.

Warner, Albert John. “The description and origin of the clastic dikes associated with Sheep Mountain Anticline in the Bighorn Basin, Wyoming.” Diss. Iowa State University, 1968.

Warpinski, N., and L. Teufel. "Influence of geologic discontinuities on hydraulic fracture propagation (includes associated papers 17011 and 17074)."*Journal of Petroleum Technology* 39.02 (1987): 209-220.

Biographical Information

Jennifer Beyer was born in Virginia Beach, VA, and she moved around the country as a child of a military parent. She began her undergraduate education at Louisiana State University. She transferred out to the University of Hawaii at Manoa in her junior year to gain hands-on experience in volcanology. During her two years there, she worked in an igneous petrology laboratory. She also received a fellowship through the Hawaii Space Grant Consortium where she participated in the search for exoplanets. Jennifer completed a senior thesis project studying the effects of ocean acidification on organisms with calcium carbonate tests. It was in senior year in Hawaii that she discovered her passion was for structural geology. Jennifer received her B.S. in Geology and Geophysics in May of 2012, and took a research assistant position at the University of Otago in Dunedin, New Zealand. During her time in New Zealand, Jennifer studied the microstructure of zircons from Fiordland to determine a method of separating the magmatic cores from the metamorphic rims.

Jennifer will be interning for Pioneer Natural Resources in the summer of 2015 to gain knowledge of the petroleum industry before pursuing a PhD at the University of Massachusetts, Amherst in the fall.