CURATION AND LITHIC TECHNOLOGICAL ORGANIZATION STUDIES ON THE OWYHEE RIVER: A CASE STUDY OF THE CHALK BASIN SITE (35ML143), MALHEUR COUNTY, OREGON

By

JENNIFER KEELING WILSON

A thesis submitted in partial fulfillment of
the requirements for the degree of

MASTERS OF ARTS IN ANTHROPOLOGY

WASHINGTON STATE UNIVERSITY
Department of Anthropology

May 2007

To the Faculty of Washington State University:

The members of the Committee appointed to examine the thesis of JENNIFER KEELING WILSON find it satisfactory and recommend that it be accepted.

Chair

ACKNOWLEDGMENT

I would like to thank my committee members; William Andrefsky, Andrew Duff, and Mary Collins for their helpful comments and critiques of my thesis. A special thanks is owed to ‘Dr. A’ for giving me an opportunity to excavate in the Owyhee River Canyon, helping me develop the ideas and research methods for this thesis project, and especially, for sharing his passion for archaeology with me. Additionally, I would like to faculty members: W. Lipe, J. Jones, T. Kohler, K. Lupo, and R. Ackerman for their guidance and support during my graduate education at Washington State University. I would also like to thank J. Knight, E. Futato, and R. Clouse from the University of Alabama who introduced me to archaeology and helped develop my career path.

I also owe thanks to my friends and fellow graduate students who have helped me in and out of the classroom. Specifically, I would like to thank N. Kornmeyer, A. Strauch, S. Freeman, D. Kornmeyer, N. Sudman, L. Centola, J. Mueller, M. Landt, P. Strauch, E. Scheuring, B. Horton, K. Blake, C. Harper, M. Glaude, B. Wazaney, E. Barrentine, N. Endicott, C. Meehan, S. Starkey, C. Nicholson, J. Ferris, D. Wallman, and C. Pouley. I would also like to thank my field crew, L. Centola, K. Hawsey, J. Thompson, and T. Wilson for hiking daily through a maze of rattlesnakes and riding countless hours in the truck through the Owyhee desert to help with my thesis project.

A special word of thanks is owed to my best friends, J. Thompson (‘JR’) and K. Hawsey, to whom which I am indebted to for their support and friendship through the years. Lastly, I thank my husband, T. Wilson, who worked as my ‘part-time archaeologist’ at Chalk Basin and for always making me laugh- *poco y poco*.

This thesis was made possible by the generous funding and logistical help of the Department of Interior, Bureau of Land Management (BLM), Vale District. I would personally like to thank Natalie Sudman and the River Rangers at the Rome, Oregon boat launch for all of their help and for sharing their knowledge about the area.

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Abstract

by Jennifer Keeling Wilson, M.A.
Washington State University
May 2007

Chair: William Andrefsky, Jr.

In lithic studies, the concept of curation has been defined as the relationship between a tool's potential utility and its actual usage. This concept has proven to be a valuable tool for understanding a group's mobility patterns and resource management strategies by examining the stone tools discarded at a site. This study will define curation and explore how it is commonly assessed through lithic retouch. In a controlled setting, a retouch index was developed and evaluated on an experimental assemblage of chert bifaces. It is shown that reduction activities on bifaces may create extensive amounts of retouch that are contingent upon a number of factors from both the production and resharpening events that must be taken into consideration before understanding the degree to which a biface has been curated. Drawing upon the results of the biface experiment and using a suite of other retouch indices, the concept of curation is studied in an archaeological context where the locations of raw material sources are known. The assemblage used in this analysis is from Chalk Basin, southeastern Oregon, which was used as a riverine campsite and as a place to acquire high quality raw material to replenish stone tool kits during the Middle and Late Archaic period in the northern Great Basin.

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This thesis is dedicated to my mother and father, Shirley and Joe, and my sister, Lana, and her family, David, Jessica, and Joshua, who have always given me unconditional love and support- even when I am 2,400 miles away.

Roll Tide!!

CHAPTER ONE

INTRODUCTION

Curation, defined as the relationship between a tool's potential utility and its actual usage, is analytically valuable in understanding mobility patterns and resource management strategies for past forager groups that made, used, resharpened, recycled, and discarded lithic tools (Andrefsky 2007a). Problems in using the curation concept are due to oversimplification and multiple definitions (Shott 1996) that do not "directly confront the fundamental issue of causation" (Torrence 1994:125) for inferring degrees of curation. Measuring stone tool retouch is one way archaeologists have attempted to infer degrees of curation (Clarkson 2002; Dibble 1997; Kuhn 1990). However, retouch patterns on stone tools are not created equally. For some stone tools, retouch can be observed during production as well as in subsequent resharpening episodes. Other stone tools only exhibit retouch after use. Moreover, retouch observed on stone tools does not necessarily correspond with curation. Since the 1970s, lithic analysts are still trying to find a method to effectively apply the concept of curation to archaeological artifact assemblages.

This thesis will explore and define curation and how it is commonly assessed through lithic retouch. In addition to defining curation, I build a curation index and apply it alongside other established retouch measures to interpret, or tell the story, of an artifact assemblage from a chert quarry site in southeastern Oregon.

Defining Retouch and Curation in the Archaeological Record

The inaugural application of the concept of curation to the archaeological record was by Binford in 1973, who defined it as the continual usage and transport of a tool or "maximizing the utility of tools by carrying them between successive settlements" (Shott 1989:24). Since then, the concept of curation has been considered to be a hunter-gatherer organizational strategy used to understand social and economic activities associated with issues of land-use, economy, and mobility (Carr 1994; Kelly 1992; Torrence 1989).

Since its debut, the concept of curation has been integrated into stone tool analysis in what has been termed lithic technological organization (Andrefsky 2006). Lithic technological organization includes the production, use, transport, maintenance and disposal of stone tools (Nelson 1991). In this manner, curation has been defined as the relationship between a tool's potential utility and its actual usage (Andrefsky 2005, 2006; Shott 1989, 1996; Shott and Sillitoe 2005). Another important term that often accompanies curation in the literature is tool uselife, defined as the actual amount of time a tool has been used or "simply the service life of objects" (Shott and Sillitoe 2005:654). These terms are sometimes used interchangeably but they refer to two distinct entities. As noted by Shott (1996) and Shott and Sillitoe (2005), tools can have a short uselife but be highly curated or can have a long uselife and be little curated. In other words, a tool can be in service for a short amount of time but be exhausted of further use or it can be in service for a long amount of time but still retain a large amount of future use potential.

The relationship between a tool's potential utility and its actual usage is the definition for curation that will be used throughout this thesis. Measuring curation on stone tools has been a formidable task, but new methods have prevailed in quantifying this variable. In using curation in this context, measuring or quantifying how much a tool has been used or retouched may be an indication of the degree to which a tool is curated (Andrefsky 2006).

However, assessing retouch amount on stone tools may not be as straightforward as one would think. Retouch in this thesis is defined as the deliberate modification of a stone tool edge created by either percussion or pressure flaking techniques (Andrefsky 2005). As such, retouch takes place in the beginning production stages of a tool as well as in the subsequent resharpening and reshaping episodes of a tool's cutting edge. Therefore, the amount of retouch is assumed to progressively increase throughout the production and the use-life of a tool.

Archaeologists have created numerous indices to quantify retouch amounts on a wide range of chipped stone tools (Andrefsky 2006; Barton 1988; Blades 2003; Clarkson 2002; Davis and Shea 1998; Dibble 1997; Kuhn 1992; Shott 1989, 1996). For example, Barton (1988) and Clarkson (2002) measure retouch on flake tools based upon progressive use of the original flake blank. Kuhn (1990) measured retouch on scraper edges. Andrefsky (2006) and Hoffman (1985) developed indices that measured retouch on hafted bifaces. In general these studies have concluded that tools that have been highly retouched (i.e., high index value) are considered to be heavily curated, which has further implications about a group's mobility patterns (Bamforth 1986, 1991; Shott 1989) and/or access to raw material (Andrefsky 1994).

Research Question

As stated above, curation in the context of stone tool analysis is often measured by the amount of retouch found on the stone tools. But if retouch is simply defined as flake removal along a tool's edge, retouch can occur at various times within a tool's life. For instance, a flake tool can be used without first modifying, or retouching, the cutting margin. Bifaces however, are different because they have to be retouched in order to first create an edge around the entire perimeter of the tool (which is the defining characteristic of a biface, see Andrefsky 2005) and second to modify the edge in order to maintain an effective cutting edge. Retouch observed on bifaces can be misleading when trying to infer the degree to which a tool has been curated because retouch occurs in both production and maintenance activities of the tool.

This relationship is best illustrated graphically. Figure 1.1 shows the theoretical relationships between different tool types' reduction events and degree of curation for different tool types. For flake tools (Figure 1.1, a), the tool can be used immediately and retouching after use will extend its use relative to its maximum potential use. The more a flake tool is used, the higher its degree of curation. Conversely, for end scrapers, hafted bifaces, and unhafted bifaces (Figure 1.1, b), all reduction events are not necessarily related to tool use. These kinds of tools undergo a production cycle separate from retouch after use. Since curation is defined as a tool's use relative to its total potential use, the retouch related to tool production is not associated with curation. The degree of curation remains at zero until the tool has been used and then resharpened. During resharpening, there is a one to one relationship between this type of retouch and the degree of curation. As long as the biface is being used, the degree of curation will rise until it is finally discarded.

This thesis explores the relationship of artifact curation to production and maintenance of bifaces (Figure 1.1, b). Researchers using bifaces to understand lithic technologies and human land use practices often deal with the degree to which bifaces are curated. I suggest that bifacial curation is not simply a matter of measuring retouch and will explore biface production and use to better understand how bifaces can measure curation. I do this by conducting controlled experiments on bifacial production and use and also by examining an excavated assemblage of lithic artifacts from western North America.

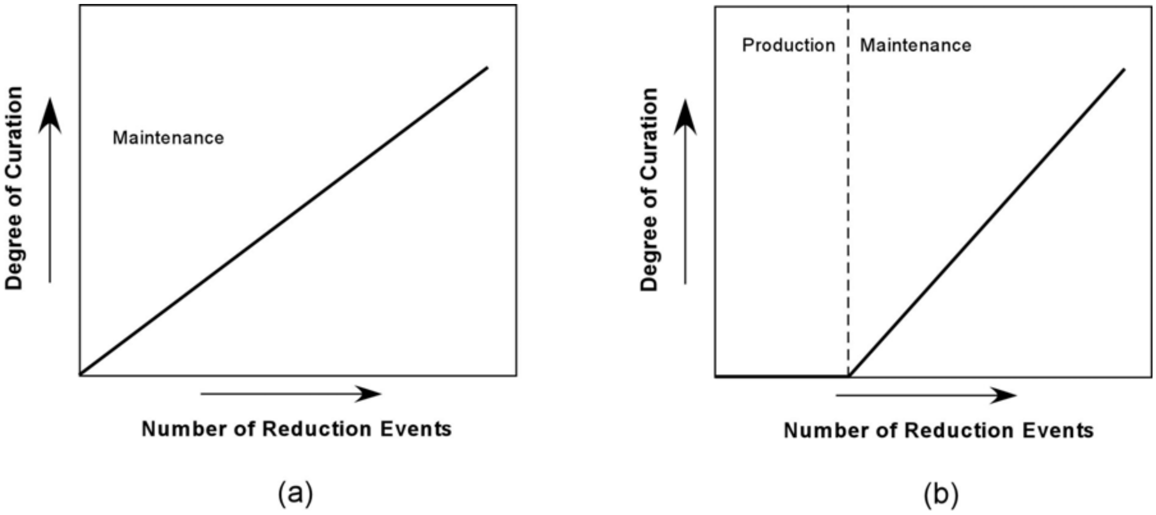


Figure 1.1. Theoretical relationship between reduction events and the degree of curation for flake tools (a) and for end scrapers, hafted bifaces, and unhafted bifaces (b). The dotted line indicates a shift in reduction activities from production (making the tool) to maintenance (resharpening the tool). Notice that on flake tools (a) there are no production phases, only maintenance events.

After exploring bifacial curation in an experimental setting, I then examine tool curation and technological organization in the archaeological record. Using a suite of retouch indices, the concept of curation is studied in an archaeological context where the locations of raw material sources are known. The assemblage used in this analysis is from Chalk Basin, southeastern Oregon, which was used as a riverine campsite and as a place to acquire high quality raw material to replenish stone tool kits. The site assemblage includes different types of stone tools (including hafted bifaces, flake tools, and unhafted bifaces) made from local and non-local materials. A series of expectations are tested that address the relationship between tool curation and different raw materials recovered from the site (i.e., local and non-local materials). Through a technological organization framework that incorporates tool curation, interpretations of possible activities that occurred at Chalk Basin during the Middle and Late Archaic are based on the artifact assemblage.

Thesis Organization

To explore the complex relationship between bifacial retouch and curation my thesis is organized into six chapters. Chapter Two provides a detailed review of the curation concept related to stone tool technology. This review provides the theoretical expectations for the kinds of retouch I would expect given different organizational contexts of tool use and production. Chapter Three documents a series of controlled bifacial replication experiments designed to better understand the nature of bifacial and debitage variability related to production and use. Analyses are conducted to determine how bifacial production and use can be discriminated in the stone tool assemblage.

Chapter Four provides background and contextual information on Chalk Basin to better understand how the stone tool assemblage relates to bifacial technology. This chapter contains a brief overview of the cultural history, geology, and past environment of the area. The rest of the chapter provides a site description of Chalk Basin, and includes a summary of the excavations conducted at the site and the artifact assemblage recovered.

In Chapter Five, I describe and discuss a series of expectations associated with stone tool technology at the Chalk Basin site. These expectations are derived from the controlled replication experiments and from review of curation and tool technological organization. This chapter describes the lithic analysis techniques used and applies them to the Chalk Basin assemblage. Finally, in Chapter Six, conclusions are presented, including discussion of the initial expectations, data, results, and interpretations for the occupation at Chalk Basin.

CHAPTER TWO

OVERVIEW OF CURATION AND LITHIC TECHNOLOGICAL ANALYSIS

This chapter provides an in-depth discussion of how the concept of curation has been integrated into a technological organization framework for lithic studies. This discussion will include how curation has been defined and applied to the archaeological record using different analytical methods. One of the analytical methods discussed includes the quantification of retouch to assess the degree of curation. As such, retouch will be further explored to understand its application and limitations for curation studies.

Applying the Concept of Curation

The concept of curation holds promise for understanding the lithic technological organization in which stone tools are embedded (Andrefsky 2007a; Carr 1994; Shott 1989). As previously stated, by recognizing the role of stone tools in the daily lives of past groups, inferences can be made about past lifeways in which stone tools were made, used, resharpened, recycled, and discarded. The social and environmental factors in which stone tools are used should be reflected in these different roles (Nelson 1991). For example, there should be differences in lithic technology for foraging groups that are close to a high quality tool stone material in comparison to foraging groups that are in an area of limited toolstone availability or in areas of poor quality, but abundant toolstone. Further differences may also be noted if groups were located in the same areas of raw material availability but had more sedentary lifestyles.

Curation was a popular concept used in lithic studies after its introduction in the 1970s. But as Shott (1996) noted, when Binford first introduced the concept he defined it simply as the transport of tools between sites. This ambiguous definition left ample room for multiple definitions and interpretations. For example, Bamforth (1986) discussed five aspects of a tool's life history (including production, multifunctionality, transport between sites, maintenance, and recycling) that could be identified as curation or covary with it (Shott 1996). Other researchers added their own spin to the concept (see Gamble 1986; Hayden 1993) and even recognized different kinds of curation (see Nash 1996; Tomka 1993).

In applying curation within a lithic technological framework, early studies identified curation of stone tools, and/or assemblages, as a state (Andrefsky 2007a; Shott 1996). This perspective describes curation as a continuum of a tool being curated or not curated (i.e., expedient) (Andrefsky 1994; Bamforth 1986; Bamforth and Becker 2000; Carr 1994; Kelly 1988; Kuhn 1992; Nash 1996; Nelson 1991; Parry and Kelly 1987; Soressi and Hays 2003). In this regard, a tool that is curated would have higher manufacturing costs and would be flexible in its design, meaning that it could be used for a variety of tasks. Expedient or non-curated tools are unstandardized in form and were made, used, and discarded all at one place (Nelson 1991) and over a short amount of time (Andrefsky 1994). Expedient tools are classified as 'situational gear' that was made in response to an event. This is in opposition to curated tools, which were made for anticipated use (Binford 1979) and to ensure that tools were available when needed, such as, in areas of low density and/or quality of toolstone (Carr 1994).

Inferences about past life ways viewed from this perspective have suggested that mobile, or forager, groups usually had more curated tools to minimize the number of tools requiring transport, while also maximizing the number of functions they could perform. Sedentary groups used more expedient tools because they can make tools as needed without having to worry about transportation costs (Andrefsky 2005; Carr 1994; Parry and Kelly 1987). This relationship has been further explored with raw material availability. In areas of abundant raw material, expedient or ‘informal’ tools would be favored because there is no reason to conserve material. However, in areas of low or poor quality raw material, ‘curated’ technologies should be employed in order to maximize the utility of a scarce resource (Andrefsky 1994:30).

Shott’s (1996) article “An Exegesis of the Curation Concept” encapsulated how the concept was born into lithic studies, adopted by researchers, and misused and/or misunderstood in some previous studies (see also Shott 1989:231). Shott’s article establishes what curation is and what it is not, and most importantly, it provided new insight for applying the concept to stone tools. He defined curation not as a state but as a relationship between a tool’s utility and its potential use. Therefore, curation is a continuous variable (not nominal or discrete- as a state), in which a tool can either have a high or low degree of curation. Moreover, if a tool is used, it is curated. Additionally, Shott (1996) acknowledged that the degree of curation for a tool is affected by a group’s mobility patterns and raw material availability.

With the reevaluation of the curation concept, researchers have been able to further understand the applicability of it to the archaeological record. By defining curation as the relationship between a tool’s potential utility and its actual usage, archaeologists began viewing it as a process (Andrefsky 2007a). In this manner, methods were developed to calculate the original size of the stone tool based upon attributes recorded from an artifact. These allometric methods were first explored by Dibble and

Whittaker (1981) and Dibble (1987) through controlled experiments with flake tools that showed promise in calculating the original blank size from the ratio of remaining flake area to platform area. Dibble (1987) showed that flake surface area was more affected by resharpening, or retouching, than platform area. By integrating these methods and creating similar ones, researchers were able to calculate the difference between the discarded flake tool and the original flake blank to determine the degree of curation (Blades 2003; Davis and Shea 1998; Dibble 1997; Dibble and Pelcin 1995; Eren et al. 2005; Shott 1989; Shott et al. 2000). In this manner, the realized and potential use of a tool can be calculated (Davis and Shea 1998).

Shott and Sillitoe (2004, 2005) furthered the study of curation as a process by comparing flake tool use lives to their degree of curation. By estimating original flake length combined with mathematical modeling (Weibull distribution and the Gompertz-Makeham *b* parameter, taken from a model of aging that is commonly used in demographic studies -see Shott and Sillitoe 2004:339-344, 2005:658 for further discussion) and ethnographic observation, they found that uselife-defined as a service life of a tool- and curation are independent of one another and that curation increases with the degree of reduction. They also show that curation varies by degree, ranging from high to low, and therefore cannot be viewed as a nominal attribute.

Potential weaknesses in using an allometric relationship to infer original blank size are in applying it to different tool types and acceptable range of error. Most studies rely on attributes of the flake that may remain unchanged throughout its uselife (i.e., proximal flake platform). How could this method be used for bifaces? Shott and Sillitoe (2005) try to answer this by estimating original tool size for bifaces from central tendency measures of attributes recorded from finished but unused artifacts in an assemblage. They cite assemblages (e.g., Morrow 1996) where there is a range of bifaces that extend from the early production phases to a discarded artifact that has been resharpened multiple times. In this context, they are able to determine an average original size of the biface for that assemblage and measure the degree to which a used biface was curated.

As Clarkson (2002) warns, there is a range of error associated with calculating the original flake blank size from a used tool in an experimental setting, noting that researchers should be wary of this when applying these methods to the archaeological record. He suggests that these methods may be better suited for assemblages that have "high degree of standardization in blank form" (Clarkson 2002:66). This is especially true for Shott and Sillitoe's work; they need assemblages that have a range of bifaces from different reduction events that were producing finished tools of the same size. Given these potential weaknesses however, these methods are valuable in understanding curation as they build upon each other to more accurately calculate the original flake size with new techniques.

Another approach in measuring curation is to quantify the degree to which a tool was retouched (Andrefsky 2006; Barton 1988; Clarkson 2002; Kuhn 1990; Morrow 1997; Weedman 2002). In this manner, curation is inferred by the amount of retouch that an objective piece has received during resharpening episodes. "Generating such a metrical index of stone tool reduction for each artifact in an assemblage would provide the necessary data for making comparisons of relative retouch intensity and tool curation" (Clarkson 2002:65).

Quantifying retouch has been done in a number of different ways. Barton (1988) used the length of the retouched margins and the depth of retouch (also see Close 1991). But, as Clarkson (2002) points out, these methods are hard to use for comparison between artifacts and assemblages because they are susceptible to variation in artifact size. Kuhn (1992) created a retouch index that is independent of artifact size and is expressed as the ratio (ranging from 0 to 1) between thickness at the termination of flake retouch (*'t'*) to the depth of retouch scars (*'D'*), angle of retouch (*'a'*), and the maximum flake thickness (*'T'*) (retouch equation $t/T=\sin a\ (D)/T$). This ratio begins at 0, where artifacts have no retouch, and ends at 1, where artifacts are retouched to the maximum point of thickness. Kuhn's method has been successful for unifacial scrapers (but see Eren et al. 2005), but does not work well with bifacially worked scrapers because it relies on original flake thickness (*'T'*) and edge angle (*'D'*). In bifacial flaking, these variables are constantly being altered at a significantly higher rate than that of unifacial flaking (Clarkson 2002).

With the need for examining retouch on bifacially flaked artifacts, Clarkson (2002) designed the index of invasiveness that examines retouch as it encroaches upon the midline of the artifact (on a scale from 0 to 1). By partitioning each side into eight segments, the entire tool surface is assessed and is represented by the average score of all segments. One of the downfalls to applying this method to all bifacially worked artifacts is that it does not discriminate between production and maintenance phases of the biface life history (Andrefsky 2006). For instance, bifaces are retouched during production and maintenance, as opposed to flake tools, which generally do not have a production phase. Therefore, retouch indices have to compensate for these different types of retouch when using it to assess the degree of curation. Andrefsky (2006) addresses this problem with his own index for hafted bifaces, which is sensitive to the objective piece being retouched during production and maintenance. The hafted biface retouch index (HRI) partitions the blade of the hafted biface into segments and scores each one as 0, 0.5, or 1.0. Like Clarkson's, the HRI is calculated for each segment and the average is calculated for the entire biface. To tease out retouch from production and maintenance (or resharpening episodes),

> A value of zero is also given to those segments where the original flake scars do no extend to the midline, but instead meet flake scars that originate from the opposite margin. Essentially both cases represent original tool trimming without resharpening and are given a value of zero (Andrefsky 2006:746).

The studies noted above have their strengths and weaknesses for inferring curation. It should be noted that there is no all-encompassing method that can be applied to all tool types to ascertain the amount that a tool has been used relative to its future utility. Therefore, researchers have to use a method that is appropriate for the research question and the tool type they are working with. In allometric studies, researchers are continuously refining their methods and decreasing the range of error, which in turn will make these methods more robust in the future (e.g., Eren et al. 2005). For the retouch indices, these methods are also being fine-tuned as more attention is being brought to tool production and maintenance with regards to amount of retouch.

Why Retouch?

The research questions posed in this analysis largely depend on assessing the amount of retouch found on different stone tool classes for inferring curation. As such, retouch as a variable needs closer examination. Retouch is defined as the deliberate modification of a tool's edge (Andrefsky 2005). As mentioned above, quantifying retouch is a common method for exploring the degree of curation present on stone tools in an assemblage. This association is possible because retouch occurs after the tool has been used and needs to be resharpened for future use. Therefore, retouch can reflect the amount of times a tool has been used relative to its potential for further use.

Yet, not all retouch is the same and for some tool types, it occurs in the production stages and in subsequent maintenance during a tool's life history. This is important when assessing retouch amount on hafted and unhafted bifaces because production retouch has no relationship to tool use and therefore has no curation value. If this aspect of retouch is ignored, retouch will provide spurious data for inferring curation and erroneous conclusions can be made about tool curation.

General Expectations

The implications for assessing curation from these studies are that curation can be measured by the amount in which a tool has been used relative to its overall potential utility. If we can reliably measure this characteristic, we can then begin using curation within a technological organization framework. For instance, as Shott notes (1989), groups that have a high mobility rate should have tool kits that have a low diversity of tool types, but are highly versatile and exhibit high degrees of curation. High rates of curation should also correlate with artifacts made from non-local raw materials. The further away a tool was made, the more opportunity it had of being used and resharpened.

In Clarkson's Australian test of his index of invasiveness (2002), he examined the index values of flake tools in relation to the distance from their recovery to the quarry location. As expected, the further away a tool is from its quarry location, the higher amount of retouch was observed, which implies a higher degree of curation. This also falls in line with Andrefsky's (2006) conclusions from his HRI study, in which hafted bifaces from distant sources exhibited higher HRI values, equated with high degrees of curation (Table 2.1). This implication is also supported by Gramly's (1980) study of a rhyolite quarry in the northeastern United States where there were complete hafted bifaces made from non-local toolstone that were discarded and exhibited multiple resharpening events (i.e., high degrees of curation). Gramly intuitively concludes that the presence of these artifacts at a quarry represents that the "miners" were discarding the highly curated tools for new tools that have little to no degree of curation.

Table 2.1. HRI Central Tendency Values Organized by Obsidian Source Distances from Andrefsky's study (2006:753). Note that the More Distant Obsidian Sources have Higher HRI Values.

Source Distance	N	Minimum	Maximum	Median	Mean	Standard Deviation
Far (76-130 km)	10	.593	.906	.708	.719	.098
Near (32-48 km)	18	.313	.313	.406	.399	.085

Summary

In sum, retouch from maintenance activities has been used to infer different degrees of curation for stone tools. From the case studies presented above, the distance to a toolstone quarry is an important factor for the degree of curation present on a stone tool. The general trend for highly mobile foragers is that locally procured toolstone should have lower degrees of curation than lithic raw materials originating from a distant source. As such, this trend should also be evident at the Chalk Basin site where there is a mixture of local and non-local toolstone. It is expected that stone tools made from locally available materials should have lower degrees of retouch when compared to non-local stone tools. These expectations will be tested with a series of retouch indices presented in Chapter Five.

CHAPTER THREE

BIFACE PRODUCTION EXPERIMENT

Biface replication experiments were conducted to gather information on production characteristics on bifaces and from debitage. The goals of the experiments were to assess differences between biface reduction activities associated with production and resharpening phases of bifacial reduction. Both metric and nominal scale data were recorded from biface and proximal flake attributes. An index was developed to quantify the amount of retouch present on the surface of the bifaces throughout the experiment. The results of the experiment are used to assess an assemblage of excavated materials from the Chalk Basin area discussed in Chapter Five.

The Experiment

The experiment involved the production of three “quarry bifaces” made from high-quality chert from Edward’s Plateau, Texas. Information on each biface was recorded after six arbitrary production and uselife events. The first two events were associated with biface production and the last four events were associated with resharpening the bifaces after use. The two production events were defined as arbitrary production stages (referred to as a “half life”) when the bifacial mass was reduced by approximately half its weight. There were only two production events or two “half-life” stages for each reduction experiment. Resharpening episodes occurred when the edges of the biface were retouched after use or after being dulled. The biface was retouched enough to allow it to be used as a tool with a cutting edge around the entire perimeter. The biface edges were dulled and resharpened in succession to create a series of resharpening episodes for each biface.

An experienced flintknapper performed all of the biface reduction over a drop cloth using either a hard hammer or soft hammer percussor. Each flake removed during production and resharpening activities was collected and numbered as it was detached. All production and resharpening was done with percussion flaking (no pressure flaking). Initially, all three bifaces were reduced using a quartzite hard hammer to remove most of the cortex from the objective piece. After the first half-life, a siltstone hard hammer and a soft hammer (i.e., antler billet) were used to shape and thin the bifaces. Gradually throughout the experiment, the percentage of hard hammer flakes decreased while the percentage of flakes made by a soft hammer increased.

The greatest number of flakes collected was from the first production event, which yielded an average of 29 flakes per biface. This makes intuitive sense because the biface was the largest during this part of the production cycle and its half-life resulted in the greatest mass removed during this first episode of reduction. The fewest amount of flakes were collected from the first resharpening event with an average of 12 flakes collected for each biface. The resharpening events had the greatest amount of variability with regard to flake removal count amongst all three bifaces. The average number of flakes collected for each biface, after the first resharpening event, was 19 flakes per event. However, one biface had about 20 more flakes removed from it during the experiment than the other two bifaces. This was due to the presence of material flaws that had to be removed in order to maintain an effective cutting tool.

The cores chosen for the experiment were all roughly the same shape and size (each weighing approximately 1000g) (Figures 3.1, 3.2a, and 3.2b and Table 3.1). At the beginning of the experiment, all of the cores were covered in cortex as shown in Figure 3.2a. As the experiment progressed, all of the bifaces continued to became smaller in weight and in maximum length, width, and thickness (Figure 3.1 and Table 3.1). The greatest change in all of the bifaces (in weight and in linear dimensions) occurred between uselife events 0 (core with no modification) and 1 (core reduced by half of its original weight). After each event, all of the shatter was collected and the bifaces were photographed and measured. All of the variables recorded from the proximal flakes and bifaces during the analysis are included as Appendix A.

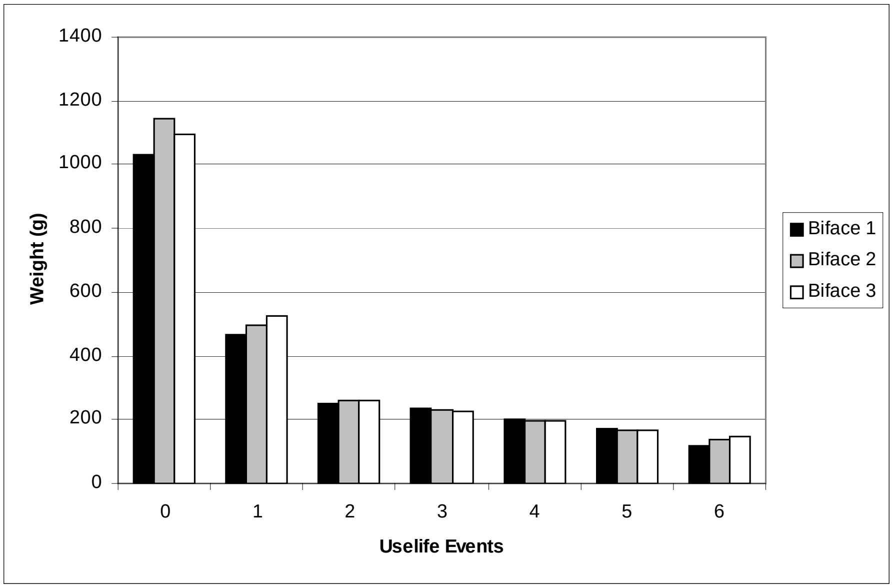


Figure 3.1. Chart showing the weight of the bifaces throughout the experiment.

Debitage Analysis

All of the platform bearing flakes (n=256) from the biface production and resharpening episodes were included in this analysis because of their sensitivity to hammer type and reduction activity (Andrefsky 2005; Whittaker 1994). A total of six metric attributes and two nominal attributes were recorded on all proximal flakes. Also, from the metric data, a width to thickness ratio and the platform area (maximum platform width multiplied by maximum platform thickness) was calculated for each flake. Overall, there were significant differences between flakes originating from the production stages and the resharpening episodes (boxplots for each variable are included in Appendix B).

Table 3.1. Maximum Length, Width, and Thickness for all of the Bifaces Throughout the Experiment.

Biface #	Uselife Event	Max Length (mm)	Max Width (mm)	Max Thickness (mm)
1	0	162	111	38
	1	140	95	31
	2	133.7	80	25.8
	3	133.6	76.5	24.4
	4	129	66.4	23.9
	5	123.5	63.1	22.3
	6	117.3	51.9	19.1
2	0	191	142	49
	1	153	100	33
	2	129.5	75.7	24.9
	3	123.3	71.1	23.6
	4	119	67.9	23.6
	5	113.2	65.9	23.1
	6	108.4	56.7	21
3	0	171	128	41
	1	151	97	35
	2	127.9	79.2	28.9
	3	126.8	74.6	25.1
	4	121	70.5	24.7
	5	113.4	67.4	23.4
	6	111.1	63.8	22

Metric variables sensitive to these different retouch activities (production and resharpening) include maximum length, width, thickness, weight, platform width, and platform thickness. All six variables were found to be significantly different between biface production and resharpening episodes, despite some overlap between the measurements. The SPSS (version 8.0) statistical program

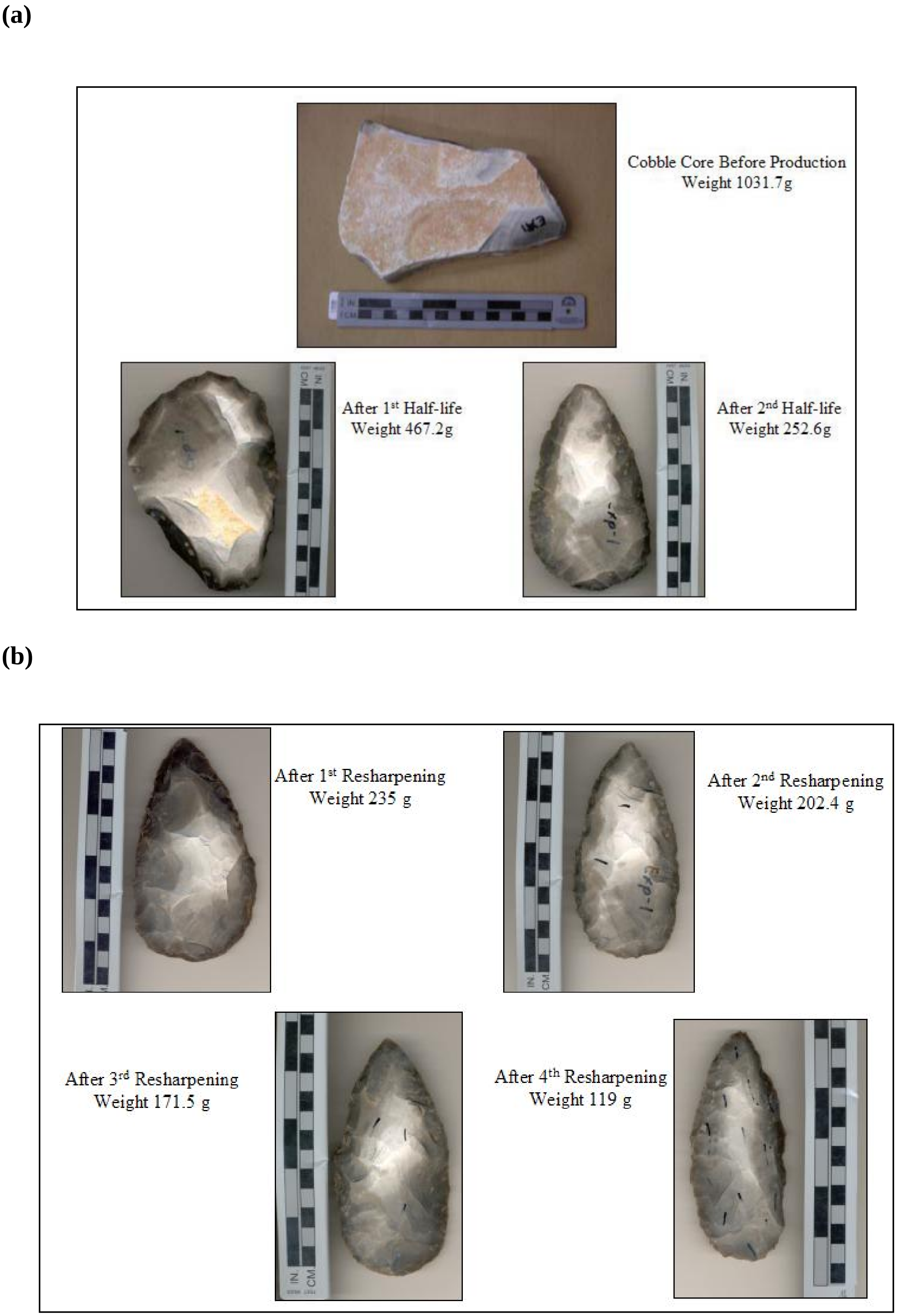


Figure 3.2. Series of photographs taken of Experimental Biface #1 through all of the production stages (a) and resharpening episodes (b).

was used to test the significance of the variables by performing $\log^{10}$ transformations to normalize the data and then analyzing the transformed data with the student's *t*-test (Table 3.2).

Table 3.2. Significance Test Results for Each Variable Recorded on the Proximal Flakes[a]. Note: Significance Tests were Run on Log^{10} Transformed Data Comparing Production and Resharpening Flake Variables.

Variable:	***t*-Test Value and Significance:**
Thickness	t=21.363, df=255, p<0.0005
Width	t=16.777,df=255, p<0.0005
Length	t=11.07, df=255, p<0.0005
Weight	t=19.089, df=255, p<0.0005
Platform Thickness	t=16.888, df=255, p<0.0005
Platform Width	t=13.268, df=255, p<0.005
Platform Area	t=16.574, df=255, p<0.005

[a]Note: significance tests run on $\log^{10}$ transformed data.

A complete list of the range, mean, and the standard deviations for the debitage generated from production and maintenance activities is included in Table 3.3. Overall, proximal flakes produced during the resharpening episodes had smaller metric attributes in all the variables when compared to production flakes. Flakes produced from resharpening activities were found to be thinner than production debitage. Flake length and width for the production flakes were almost double the size of resharpening flakes. The weight range for resharpening flakes was very small when compared to production flakes, in which there was a mixture of light and heavy weight flakes.

With regard to platform variables, the same pattern is evident; resharpening flakes have a smaller platform width and platform thickness than production flakes. From the resharpening episodes, platform thickness and width ranges were smaller in comparison to production flakes. Both platform width (after $\log^{10}$ transformation: t=16.888, df=255, p<0.0005) and platform thickness (after $\log^{10}$ transformation: t=13.268, df=255, p<0.0005) were significantly different between production and resharpening.

Table 3.3. Comparison of Attributes Recorded from Proximal Flakes.

	Attribute	Min	Max	Mean	Std. Deviation
Production:	Weight (g)	0.7	99.5	12.784	15.935
	Width (mm)	1.5	93.8	41.245	16.635
	Length (mm)	4.6	113.1	42.132	17.916
	Thickness (mm)	2.8	26.9	7.870	4.222
	Platform Width (mm)	7.4	58.8	19.499	10.622
	Platform Thickness (mm)	1.0	16.1	5.852	3.085
	Platform Area (mm)	7.4	946.7	133.822	138.801
	Width to Thickness (mm)	0.48	15.37	5.8859	2.5206
Resharpening:	Weight (g)	5.3	5.3	1.193	1.054
	Width (mm)	7.2	44.4	18.736	7.054
	Length (mm)	8.5	65.2	24.315	11.237
	Thickness (mm)	0.7	7.5	2.308	.873
	Platform Width (mm)	2.1	20.5	8.363	3.729
	Platform Thickness (mm)	0.4	5.3	1.892	.852
	Platform Area (mm)	1.7	91.2	17.603	15.556
	Width to Thickness (mm)	3.85	22.50	8.6019	3.0650

Given the results of differences noted in the attribute analysis, we could expect to see a positive correlation between weight and platform area, and also between weight and width to thickness ratios. Intuitively, if the weight increases there should also be an increase in platform area given that bigger flakes usually have larger platforms and there should also be a decrease in the width to thickness ratio assuming that the more a flake weighs the larger it should be in size, which is expressed as a ratio. Figure 3.3 displays a scattergram that shows a strong and significant (R^2=0.4671, F= 94.979, p<0.001) relationship between increasing flake weights and platform area with production flakes. From the resharpening episodes, flakes clustered together around the lower weights and smaller platform areas. This relationship was not as strong (Pearson’s r= 0.336) as with production flakes but was still statistically significant (R^2=0.1151, F=18.027, p<0.0005).

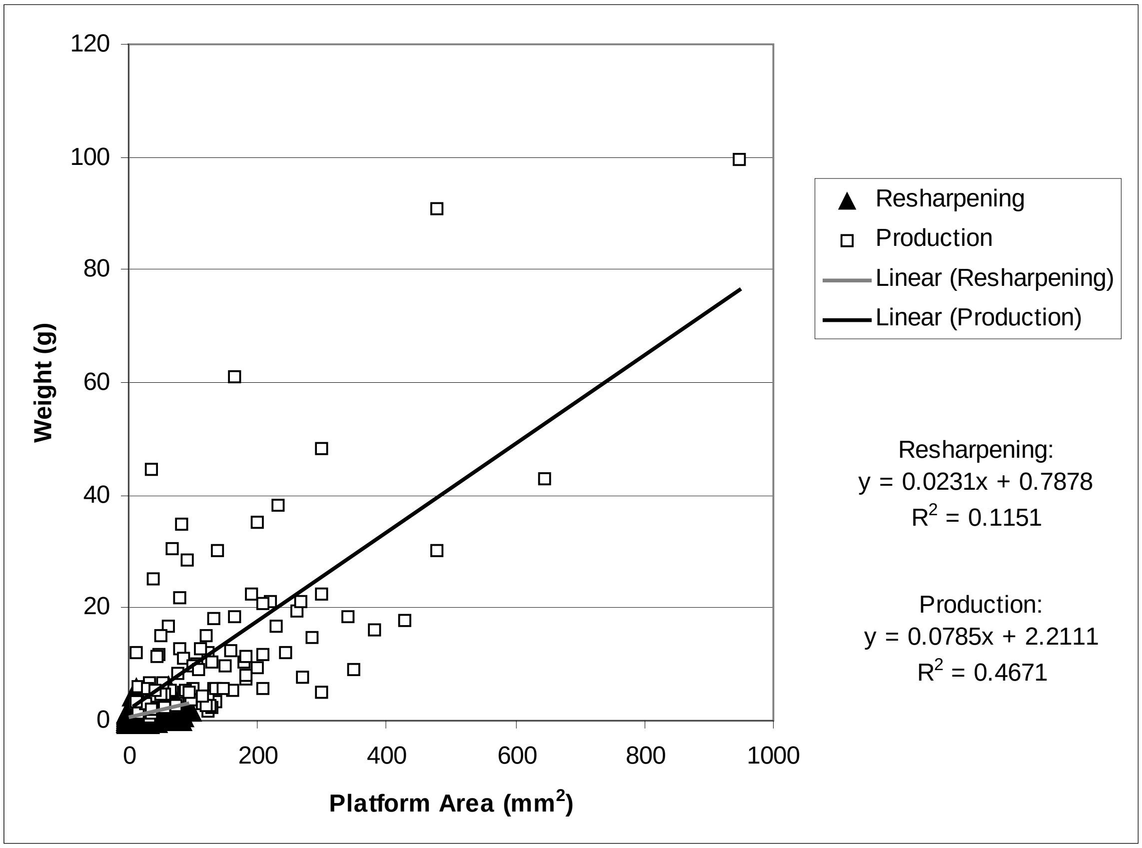


Figure 3.3. Platform area of proximal flakes plotted against their weight.

When flake weights were plotted against the width to thickness ratio, it appeared that the weight of the flake increased as the ratio began to decrease (Figure 3.4). On closer examination, however, this was a significant (R^2=0.0403, F= 6.781, p=0.010) but weak correlation for resharpening flakes. For the production events, there was an insignificant relationship between the variables where only 0.7% of the variance could be explained (R^2= 0.0074, F=0.880, p=0.350). These correlations have shed light on how the weights of production and resharpening flakes relate to platform area and width to thickness ratios. There is more variation between the groups in regards to size (width to thickness) and weight, in comparison to the stronger correlation with weight and platform area (i.e., as the weight of the flake increases so does the platform area for production and resharpening events).

Nominal attributes that were sensitive to retouch activities were platform type and presence of cortex. As expected, the presence of cortex on flakes was high during the production phases, with two-thirds of all flakes having some amount of dorsal cortex. During the resharpening episodes, cortex is only present on 6% of all proximal flakes. Using platform types previously defined (Andrefsky 2005), flakes made during biface production were found to be statistically different from those produced in resharpening episodes with the chi-square test (x^2=69.458, df=5, $p<0.0005$, Cramer's V= 0.522, $p<0.0005$) (Figure 3.5). In the production phase of the experiment, flat platforms were observed on 38% of the flakes, abraded platforms were found on 35%, and cortical platforms were on 16% of the flakes. These types of platforms are usually associated with the manufacturing stage, consistent with the results of this experiment (Odell 1989). From the resharpening episodes, abraded platforms constituted 63% and complex platforms were the second most common comprising 27% of the flake platforms.

Conclusions from Debitage Study

The experiment provides empirical data to support the idea that there are significant differences between flakes produced during biface production and those produced during resharpening activities. The variables sensitive to these reduction activities include maximum length, width, thickness, weight, and platform area. The nominal attributes that were sensitive to reduction strategy were platform type and presence of cortex. It was found that flakes made from production activities should exhibit more flat or cortical platforms, have cortex on most flakes, and also have a smaller width to thickness ratio, greater weight, and larger platform area. In contrast, flakes that are the by-products of resharpening episodes tend to have more complex platforms, with little or no cortex. Flakes produced from resharpening weigh less, have a smaller platform area and a larger width to thickness ratio. Even though the two comparative groups in this study did have some overlap, the average size of both groups were significantly different. It was also found that a strong relationship exists between flake weight and platform size, in which heavier production and resharpening flakes also have a larger platform size. However, this relationship is weak within the analysis groups when correlating weight with overall flake size.

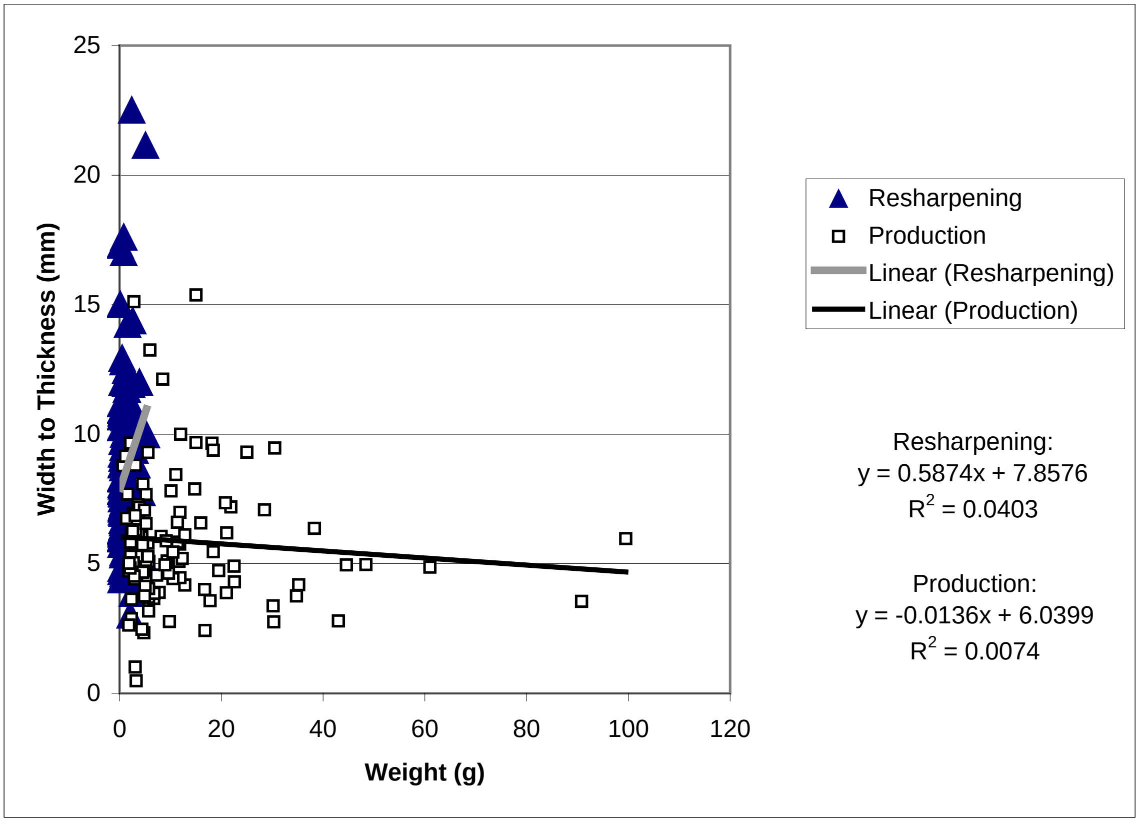


Figure 3.4. Width to thickness ratio of proximal flakes plotted against their weight.

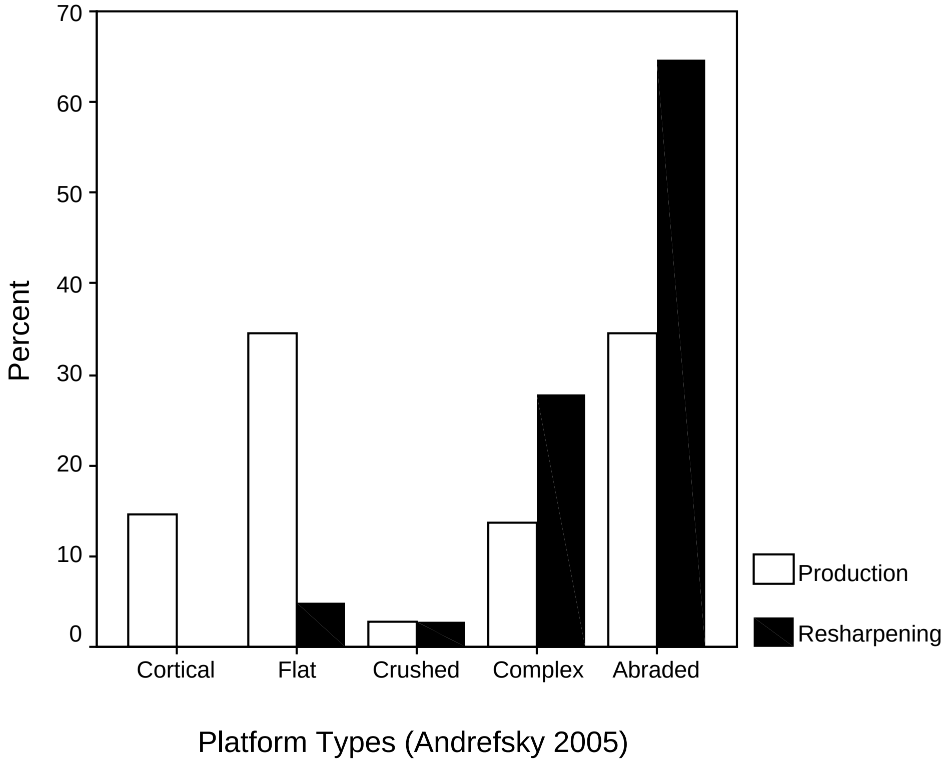


Figure 3.5. Platform types identified on the experimental proximal flakes.

Biface Attributes

Based upon results gathered from the debitage study, I expected that biface size, shape, and flake removal patterns would also reveal differences between retouch associated with production and retouch associated with resharpening. When graphed, it is apparent that all three bifaces show a continual decrease in both surface area and weight throughout the reduction events (Figures 3.6 and 3.7). This is what would be expected given the fact that the reduction events result in progressively smaller bifaces. However, these data also suggest that the biface reduction events 1 and 2 are responsible for the greatest amount of size reduction and that biface size reduction is significantly less during resharpening events (3-6).

This pattern is clear when the amount of surface area lost is graphed during each reduction event. Even though total surface area of bifaces progressively

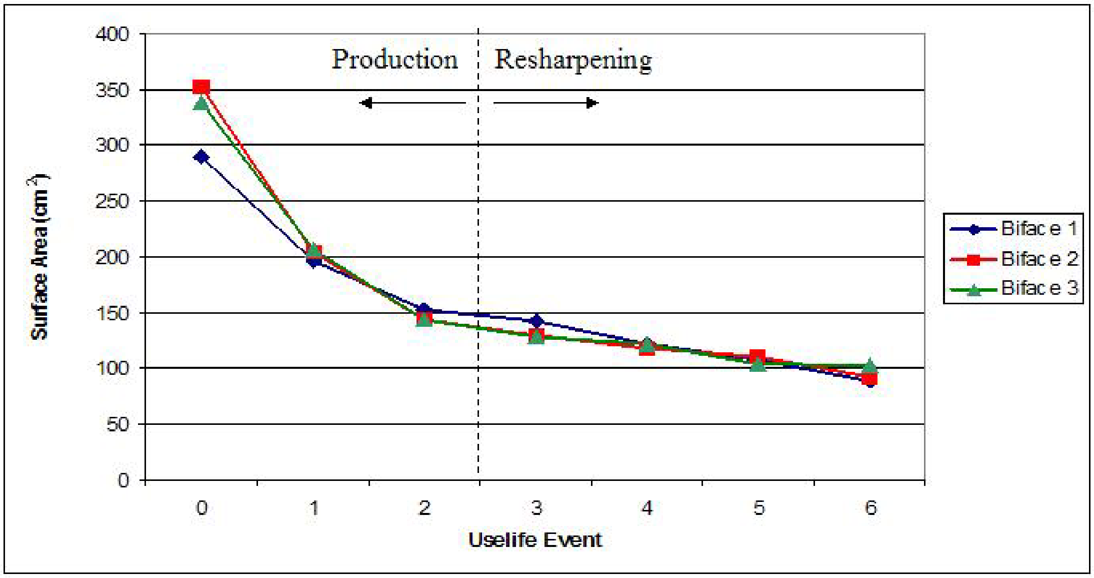


Figure 3.6. Total surface area of the bifaces throughout the experiment

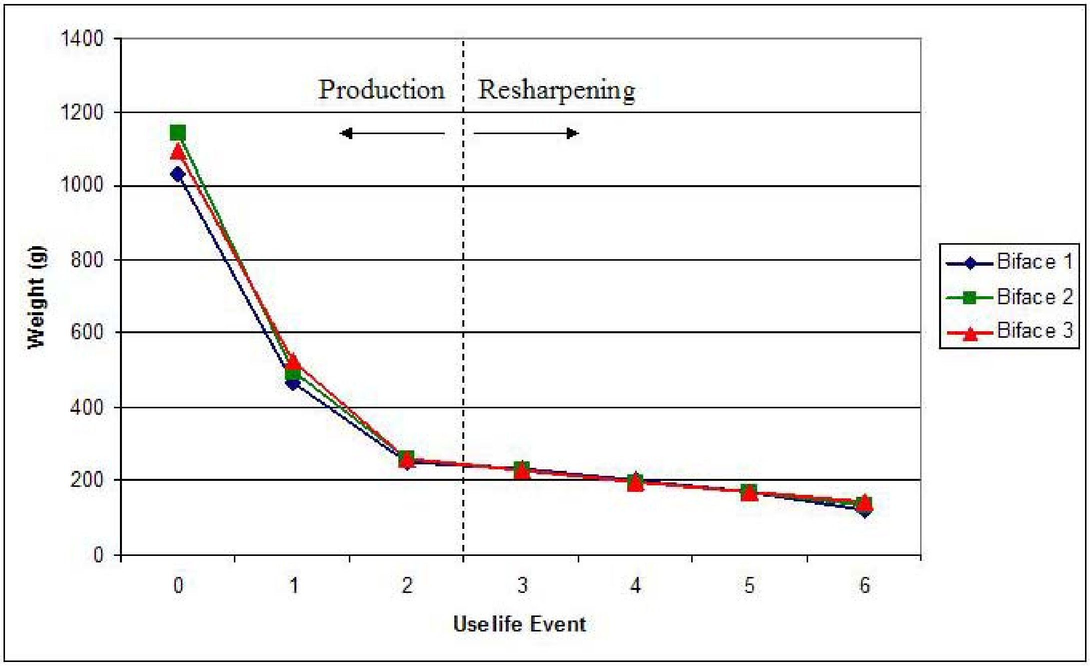


Figure 3.7. Weight of each biface after each event throughout the experiment.

decreased during all reduction events, the amount of surface area lost stabilizes after production events 1 and 2 (Figure 3.8). Essentially, the resharpening events (3-6) result in very little lost surface area, roughly 50 cm^2 compared to about 200 cm^2 lost during production. This pattern also suggests that there may be some observable differences between biface production and resharpening events.

However, lost surface area is only effective for discriminating such events in a controlled experimental setting. It is not possible to effectively use such a measure on excavated assemblages since surface area lost can only be calculated based upon knowing the original size of the biface. However, like the change in debitage attributes, it does suggest that other biface characteristics might help assess differences between production and resharpening events.

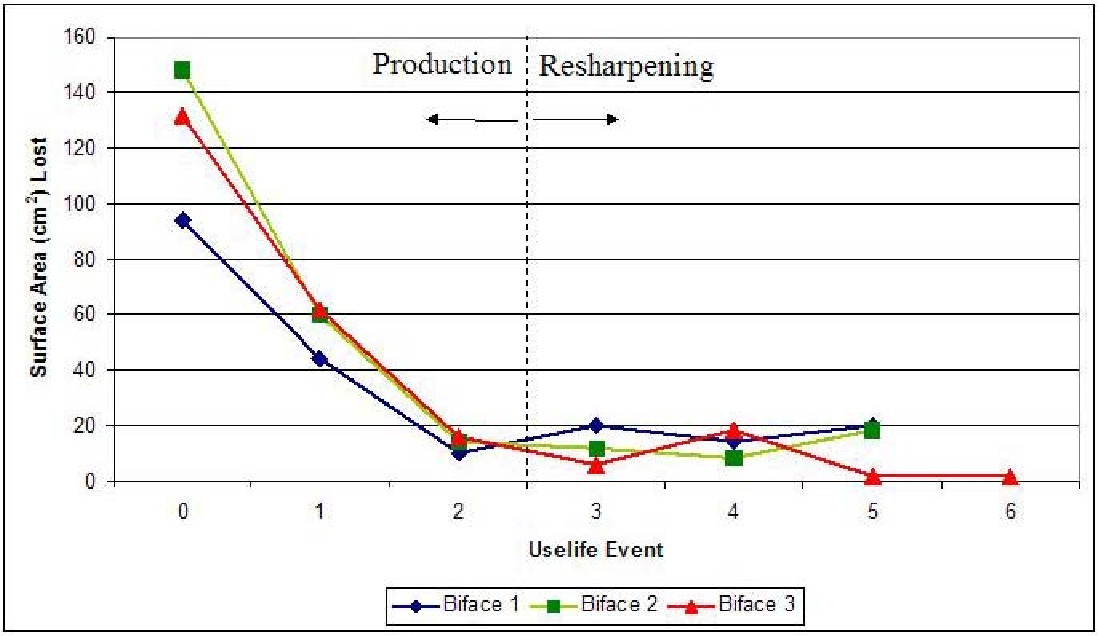


Figure 3.8. Surface area lost for each biface throughout the reduction sequence.

Creating a Biface Index

Data from each biface was collected after each reduction event, including weight, maximum length, width, thickness, and flake ridge count. The flake ridges were recorded in a systematic way that involved scanning the biface at a high resolution (600 dpi) and then sampling the bifacial surface image using Deneba's Canvas 8 drafting program. The analysis of each biface image was partitioned using Chris Clarkson's grid for evaluating retouch invasiveness (2002), which partitioned each side of the biface into eight segments (Figure 3.9). Once the grid was digitally superimposed on the biface, six 1x1 cm squares were drawn on the biface and positioned in the same randomly selected location after each uselife event. Three 1x1 cm squares were sampled on each face of the specimen. By using a standardized size (1x1 cm) box, the same amount of surface area was evaluated from the beginning production episodes through the usage and resharpening episodes, regardless of biface shape.

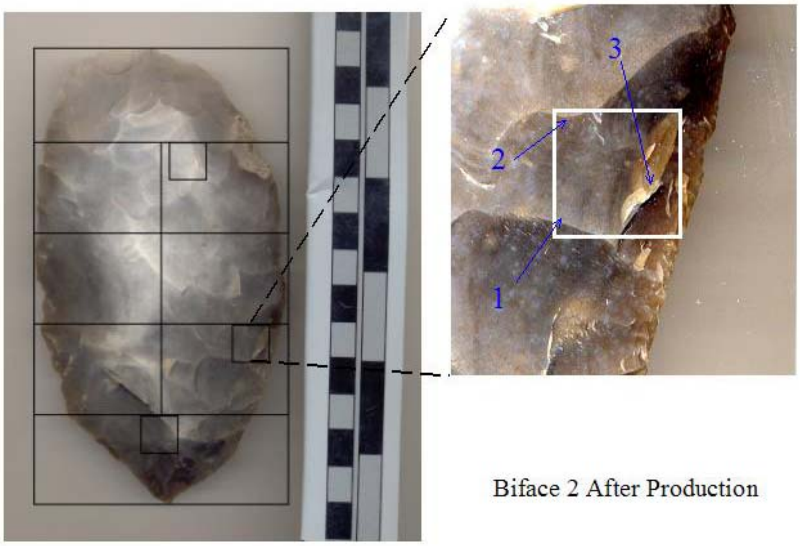


Figure 3.9. Image of one of the analysis squares from one of the experimental bifaces showing how flake ridges were counted.

Dorsal flake ridges, or arises, were counted in each of the sampled boxes. Dorsal ridges were defined as the raised area that forms between the intersections of flakes that were removed from the biface. Flake ridges that form as a result of platform preparation, which were present around the biface edge, were not included in this analysis. Flake ridges were identified with the aid of a Loupe magnification lens (16x) and by examining the scanned image of the biface. By having the scanned image of the biface to supplement the analysis, it was easier to determine the number of ridges present in the sampled squares by focusing in on a particular grid and by adjusting the brightness and contrast of the image. Since the biface surface is not smooth, changing the brightness and contrast levels of the image allowed for particular ridges to become more pronounced with different combinations of light and contrast. The ridges identified on the scanned image were checked on the actual biface to ensure that the lines observed were not biface fissures or ripple marks but actual flake ridges. Once the number of ridges for each square was confirmed, all six ridge counts were summed up and divided by the total number of sampled squares (n=6). This produced an average ridge count for each biface after each reduction event.

Applying the Retouch Index

This retouch index was applied to the assemblage of replicated bifaces with expectations that there would be significant differences between production and retouch reduction events as seen in the debitage data (discussed above) and in the amount of surface area lost on the experimental bifaces. The average ridge count associated with each experimentally produced biface reduction event illustrates that the ridge counts increase throughout all of the reduction events before dropping at reduction event five during resharpening (Figure 3.10). This pattern reveals some interesting aspects of biface production and resharpening after use. First, the ridge count measure seems to work as an effective tool to assess reduction events from the beginning of the production cycle through the fourth reduction event and retouch seems to increase as each reduction event increases. However, this progressive pattern ends at reduction event 5 where there is a drop in the retouch index. Also note that the ridge count progression is not markedly different between biface production and biface resharpening as noted in the debitage data.

Since this was not expected, exploration of the experimental data was conducted to determine what might account for the ridge count drop at uselife event five. One immediate pattern discovered was that the type of hammer used during the replication experiments gradually changed from hard hammer percussion to soft hammer percussion as the bifaces were progressively retouched. Other studies also suggest that hammer type and density can be important for flake removal patterns (Andrefsky 2007b; Cotterell and

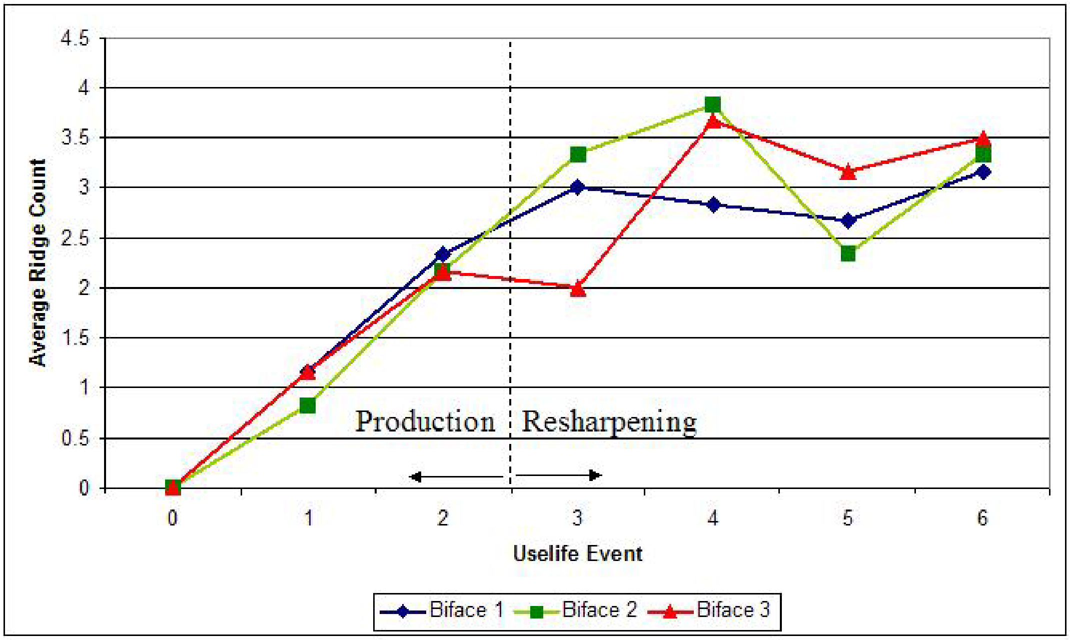


Figure 3.10. Average ridge count for each biface throughout the experiment.

Kamminga 1987; Dibble and Pelcin 1995; Hayden and Hutchings 1989). Figure 3.11 charts the experimentally derived uselife events against the relative proportion of hard and soft hammer used to remove flakes. The first three events are primarily composed of hard hammer percussion; this changes to approximately 42% during event 4 and down to 2% during event 5, and then it goes back up to approximately 30% during event 6. The steep drop in hard hammer percussion from events 3 through 5 and the subsequent rise at event 6 mirrors the ridge count pattern, and suggests that the ridge count index is sensitive to the type of hammer used in biface production and resharpening technology.

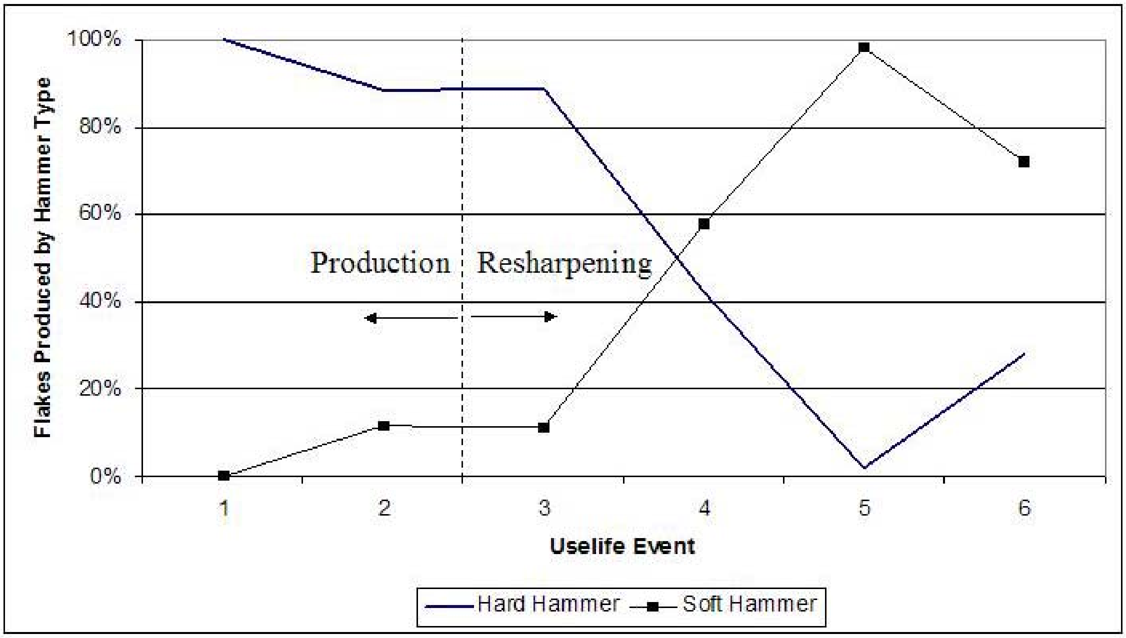


Figure 3.11. Graph of the percentage of flakes produced by either soft or hard hammer percussion.

To explore this relationship, the ridge count index and hammer type was plotted with the uselife events (Figure 3.12). The ridge count for reduction events 4-6 is indeed similar to the relative percentages of hard hammer percussion. However, it is also apparent that the ridge count index is sensitive to previous flake removals on the biface. For instance, uselife events 1-3 have high values for hard hammer percussion yet the ridge count index shows a steady increase from less than 1.0 to over 3.3. Essentially, the ridge count is increasing as the original nodule is being progressively worked even though the there is minimal change in the percussion technology.

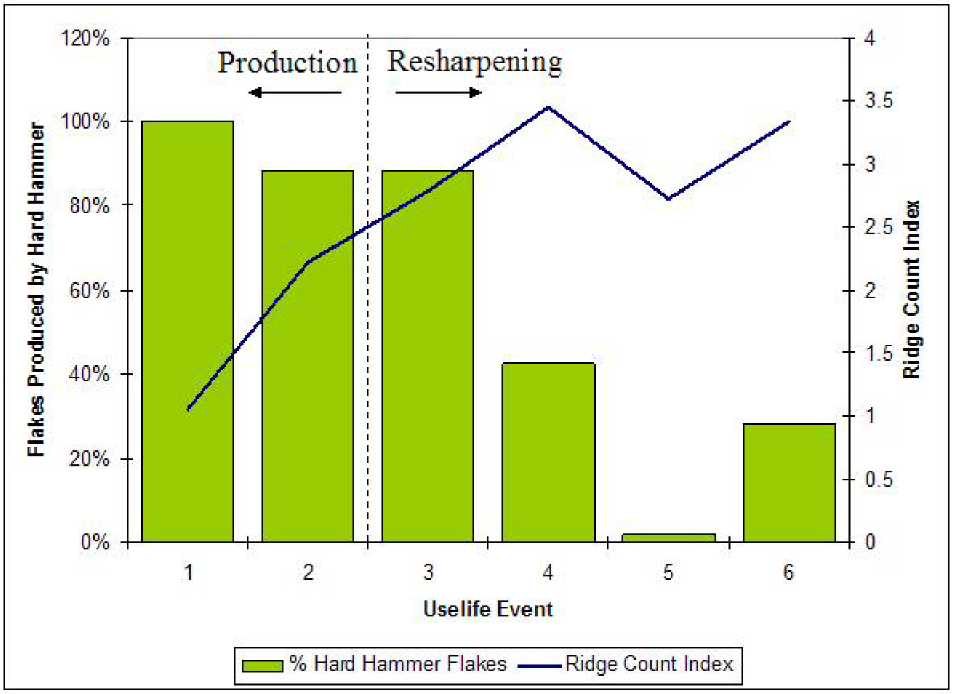


Figure 3.12. Graph of both the average ridge count and percentage of flakes made from hard hammer percussion.

However, the ridge count index is related to the existing flake removal pattern on the biface and not solely associated with the type of percussion technology used. For example, Biface 2 in event 5 and Biface 3 in event 3 both have steep drops in the average ridge count (see Figure 3.10). During these particular times of the experiment, these bifaces had irregular flaws in the material that had to be removed in order to continue to the use the biface for the production and maintenance experiments. In so doing, a large portion of the biface surface was removed including the previous flake ridges, which may have greatly affected the number of flake ridges for particular analysis grids.

Conclusions from Biface Study

Quantifying the ridge count pattern on the bifaces throughout the experiments revealed that flake removal amount might be a good indicator of the reduction events for bifaces. Flake removal patterns of biface surfaces tended to increase as the bifaces were progressively used and resharpened. However, flake removal amount was also sensitive to changes in hammer type and material flaws. As hammer types change so did the relative proportion of flake shapes and sizes, which influenced the flake removal pattern found on the bifaces, i.e., raw material flaws or ‘problem areas’. The hammer type used, soft hammer vs. hard hammer, is an idiosyncratic choice that is not a constant. Depending on the skill and technique of the flintknapper, different types of hammers will be used to address or reduce the objective piece into the desired form. The goal of the various flintknappers may be the same, but the technique/method will vary from person to person and possibly from stone tool to stone tool, even when making the same type of stone tool. This means that flake removal patterns on bifacial surfaces may be effective for interpreting reduction only if hammer type is held constant or can be accounted for in some other way.

Summary

This chapter has demonstrated that with biface reduction, different retouch patterns occur between production and resharpening. In the debitage study, both nominal and metric level data show that proximal flakes from resharpening activities exhibit specific types of platforms and are smaller overall than flakes generated from biface production activities. From the biface analysis, it was shown that the greatest amount of size reduction occurred during production. When quantifying retouch, differences between biface production and resharpening were apparent, but with a caveat. As the experiment progressed the amount of retouch got progressively higher until the type of hammer used to remove flakes was altered. When the bifaces began to be reduced with a soft hammer instead of a hard hammer, retouch patterns changed and the number of flake ridges dropped but still remained relatively high in comparison to the production uselives.

The results from this experiment will be used to interpret the lithic artifact assemblage from the chert quarry site at Chalk Basin. From the artifacts recovered at the site, it is apparent that large bifaces (similar to the ones made for the experiment) were being manufactured and might prove useful to infer the types of reduction activities at the site.

CHAPTER FOUR

THE CONTEXT AND CONTENT OF CHALK BASIN

This chapter provides an in-depth discussion of the Chalk Basin site, which includes description of the site, regional environmental and cultural context, site sampling strategies, stratigraphic profiles, and artifacts. Information presented in this chapter is important for understanding the lithic technological organization and stone tool curation for highly mobile groups that traveled to different locations to procure seasonally available resources in a high desert environment.

General Site Description

Chalk Basin (35ML143) is located about 48 km (30 mi) north of Rome, Oregon in Malheur County (Figure 4.1). The average elevation for the site area is 914 m (3000 ft) AMSL and it is situated on a river terrace overlooking the Owyhee River. This area is considered to be the middle section of the Owyhee River in southeastern Oregon. Chalk Basin and almost the entire Owyhee River corridor are managed by the Department of Interior, Bureau of Land Management (BLM). Reg Pullen, BLM archaeologist, originally recorded Chalk Basin during his 1976 survey of the Owyhee River. Pullen did not collect any artifacts from the site; instead he did a pedestrian walk over of the area and noted that the high-density site included a camp area close to the river with a chert quarry located on a second river terrace. Since Reg Pullen recorded the site, subsequent visits to the site have been limited to monitoring surveys under the direction of the BLM (Huntley 1986; Sudman 1993).

Figure 4.1. The location of the Chalk Basin site in southeastern Oregon on the Owyhee River.

The most recent archaeological investigations at the site were for this project under the auspices of both Washington State University and the Bureau of Land Management. In 2004 and 2005, small groups of Washington State University graduate students completed subsurface testing and systematic surface collections of the camp area and portions of the quarry area.

Environmental Background

Geology

The past environment of the area, including the underlying geology, is important for understanding how prehistoric groups utilized the local environment for raw material sources (i.e., toolstone) and how it could have played a role in migration routes around the landscape. The Owyhee River canyon is considered to be a part of the Owyhee

Plateau of the Basin and Range physiographic province (Baldwin 1976; Kittleman 1973; Orr et al. 1999). The Owyhee Plateau is characterized by a deeply dissected canyon and is externally drained through a network of tributaries into the Snake River, which eventually drains into the Columbia River (Orr et al. 1999).

During the Miocene Epoch, about 15 million years ago, volcanic activity outside of the region blew in ash that formed what is known as the Sucker (or Succor) Creek Formation (Kittleman 1973). Sucker Creek serves as the underlying formation for the Owyhee River Canyon and is composed of beds of sandstone with grains of quartz, feldspars, and pebbles of granite (Kittleman 1973:5). Through a series of fissure eruptions of basaltic lava in the late Miocene, the Owyhee Basalts eventually formed over the Sucker Creek Formation (Baldwin 1976; Kittleman 1973). Since the end of Pliocene times, around 5 million year ago, the Owyhee River has carved down into the Owyhee Basalts and in some areas has exposed portions of the Sucker Creek Formation along the canyon (Baldwin 1976; Kittleman 1973; Orr et al. 1999).

The underlying geology at the site in the camp area (on the first river terrace) is considered to be part of the Neogene Sedimentary Rocks stratigraphic unit that was created during the late Miocene and Pliocene (11.2 million to 1.8 million years old) (Ferns et al. 1993). These rocks are considered to be tuffaceous sedimentary rocks that were deposited in ancient streams and lakes (Ferns et al. 1993). The chert quarry (second river terrace), approximately 66 m (219 ft) above the main camp area, is also composed of Neogene Sedimentary Rocks as well as two other stratigraphic units. These include the Quaternary surficial deposits and the High Lava Plains Volcanic Province. Alluvium, colluvium, and landslide deposits that have formed over the last 1.8 million years created the former unit. The latter unit is composed of olivine basalt and andesite lava flows that erupted from vents in the northern Basin and Range Province (Fern et al. 1993).

<u>Climate</u>

The past climate of the study area has been reconstructed through pollen records taken from core samples from various lakes and woodrat middens. From Mehringer's (1985) analysis of the pollen records of the Interior Pacific Northwest and Northern Great Basin, it seems that the Holocene had three distinct climatic periods. These would include a "cool-moist early Holocene, a xeric middle period (Altithermal), and a return to cool-moist conditions" (Mehringer 1985:173-174).

In the early Holocene about 13,000 years B.P., glaciers were beginning to recede in this area and were completely melted by 9,500 years B.P. (Aikens 1993; Mehringer 1985; Wigand 1987). These moist conditions begin to decline after this time and an increase in the abundance of sagebrush pollen in relation to grass pollen at Fish Lake (dating between 8,700 B.P. and 4,700 years B.P.) suggests a climate with low moisture. Many Great Basin lakes, including Lake Lahontan, began to shrink and disappear between 7,000 to 4,500 years B.P. Mehringer summarizes that sagebrush and juniper grasslands characteristic of xeric shadscale vegetation flourished during this time (Mehringer 1977, 1985, 1986). This period of increased aridity lasted until approximately 3,200 B.P. when pollen grains from Wildhorse Lake show an increase in grass pollen grains in relation to sagebrush, which suggests the end of increased temperatures and reduced snow pack (Mehringer 1985).

Peter Wigand's study (Table 4.1) at Diamond Pond correlates closely with Mehringer's study of the same region. He found that *Sarcobatus* and other salt bushes comprised 75% of the pollen record, which indicated drought and that saline soils dominated this area between 6,000 and 5,400 years B.P. The rise of sagebrush in this area at Diamond Pond, around 5,300 years B.P. indicates the "first in a series of wet periods that herald the end of mid-Holocene drought" (Wigand 1987:452). Wigand does note that this wet period could be impacted by the fall of pumice around 5,460 years B.P. He suggests, the pumice could have acted as a mulch and contributed to the spread of sagebrush in the area. At 5,000 years B.P., greasewood began to retreat as saltbrushes, sagebrush, and grass began to flourish in an increasing moisture environment until about 3,800 years B.P.

Between 3,750 and 2,050 years B.P., there was a rise in grass and juniper pollen that reflects the spread of these plants into sagebrush and shadscale communities, which represents an increase in moisture. This increase in moisture starts to decline around 2,845 years B.P. with the increase of greasewood pollen at Diamond Pond. The drought period ends approximately around 900 years B.P. and juniper and grass begin to intrude into the shadscale and sagebrush communities.

Table 4.1. Summary Table of Wigand's (1987) Work modified from *Archaeology of Oregon* (Aikens 1993).

Date (years B.P.)	**Climate**	**Pollen Types**
300-150	Greater Effective Moisture	abundant juniper and grass
1,400-900	Drought	increased greasewood and saltbrush
2,000-1,400	Greater Effective Moisture	numerous grass
4,000-2,000	Reduced Effective Moisture	abundant juniper and grass
5,400-4,000	Increasing Effective Moisture	increased sagebrush
6,000-5,400	Drought	greasewood and saltbrush dominate

Flora and Flora

The flora and fauna in this region fluctuated with the ever-changing climate cycles of moist and drought conditions. During the late Pliestocene, boreal and alpine forests (Aikens 1993) were thriving at lower elevations and large, now extinct, fauna, including species of camel (the genus *Camelops*), horse (the genus *Equus*), and mastodons (the genus *Mammuthus*) inhabited this area (for a more complete list, see Grayson 1993:64, 156-157).

With the drier conditions of the Holocene, different fauna and flora have adapted and thrived (for comprehensive lists, see Fowler 1986:64-97), including mule deer (*Odocoileus heminous*), pronghorn antelope (*Antilocapra americana*), bison (*Bison bison*), mountain sheep (*Ovis canadensis*), yellow-bellied marmot (*Marmota flaviventris*), badger (*Tazidea taxus*), coyote (*Canis latrans*), and muskrat (*Ondatra zibethicus*) (Fowler 1986; Plew 2000). Flora identified at the site by BLM archaeologist Natalie Sudman includes greasewood (Chenopodiaceae sp.), needle and thread grass (*Stipa* sp.), Great Basin wild rye (*Echinochloa cinereus*), sagebrush (*Artemisia*), squirreltail grass (*Sitanium hystrix*), spiny horsebrush (*Tetradymia* sp.), hopsage (*Grayia spinosa*), Indian rice grass (*Oryzopsis hymenoides*), wheatgrass (*Agropyron spicatum*), pepperweed (*Lepidium* sp.), desert globemallow (*Sphaeralcea ambigua*), buckwheat (*Polygonaceae* sp.), desert paintbrush (*Castilleja chromosa*), and hawksbeard (*Crepis runcinata*). The most dominant flora at the site is cheatgrass or downy brome (*Bromus tectorum*), which is an invasive species that has depleted perennial and annual native grasses (further discussion see Grayson 1993:301-302).

Prehistoric Cultural History

Building a cultural chronology for southeastern Oregon has been burdened by a lack of carefully excavated sites and because it is located within a convergent zone between Great Basin, Columbia Plateau, and Western Snake Plain cultures (see Aikens 1993; Andrefsky et al. 2003; Andrefsky 2004; Butler 1986; Centola 2004; Cowan 2006; Grayson 1993; Hanes 1988; Jenkins and Connolly 1990; Leonhardy and Rice 1970; Meatte 1990; Plager et al. 2003; Plew 2000; Wallace 2004). Some nearby sites, like Birch Creek, share similarities with all three cultural zones, such as pit houses, wikiup structures, and projectile point styles (Andrefsky et al. 2003) (Figure 4.2).

Because the location of the site is close to multiple culture areas with different cultural historical sequences, this chapter will focus on the general cultural history from sites that are close to Chalk Basin and provide a context for understanding the life ways of past inhabitants. Most of the information contained here is drawn from archaeological work conducted along the Owyhee River and its tributaries, area to the east of the Steens Mountains in southern Oregon, and the western plain of the Snake River in Idaho. Located approximately 150 km west of Chalk Basin is Dietz Site, one of the earliest known sites in the study area, located near the former Pleistocene Lake Alkali near Wagontire, Oregon (Figure 4.2). The Dietz site contains a surface scatter of whole fluted points and fragments, Western stemmed points (including Windust; Leonhardy and Rice 1970), and crescents. No radiocarbon (C^{14}) samples were recovered from the site, but Aikens (1993:25) suggests that the antiquity of the site is approximately 11,500 years B.P. based on the relative date of other Clovis points documented throughout the Plains and the Southwest.

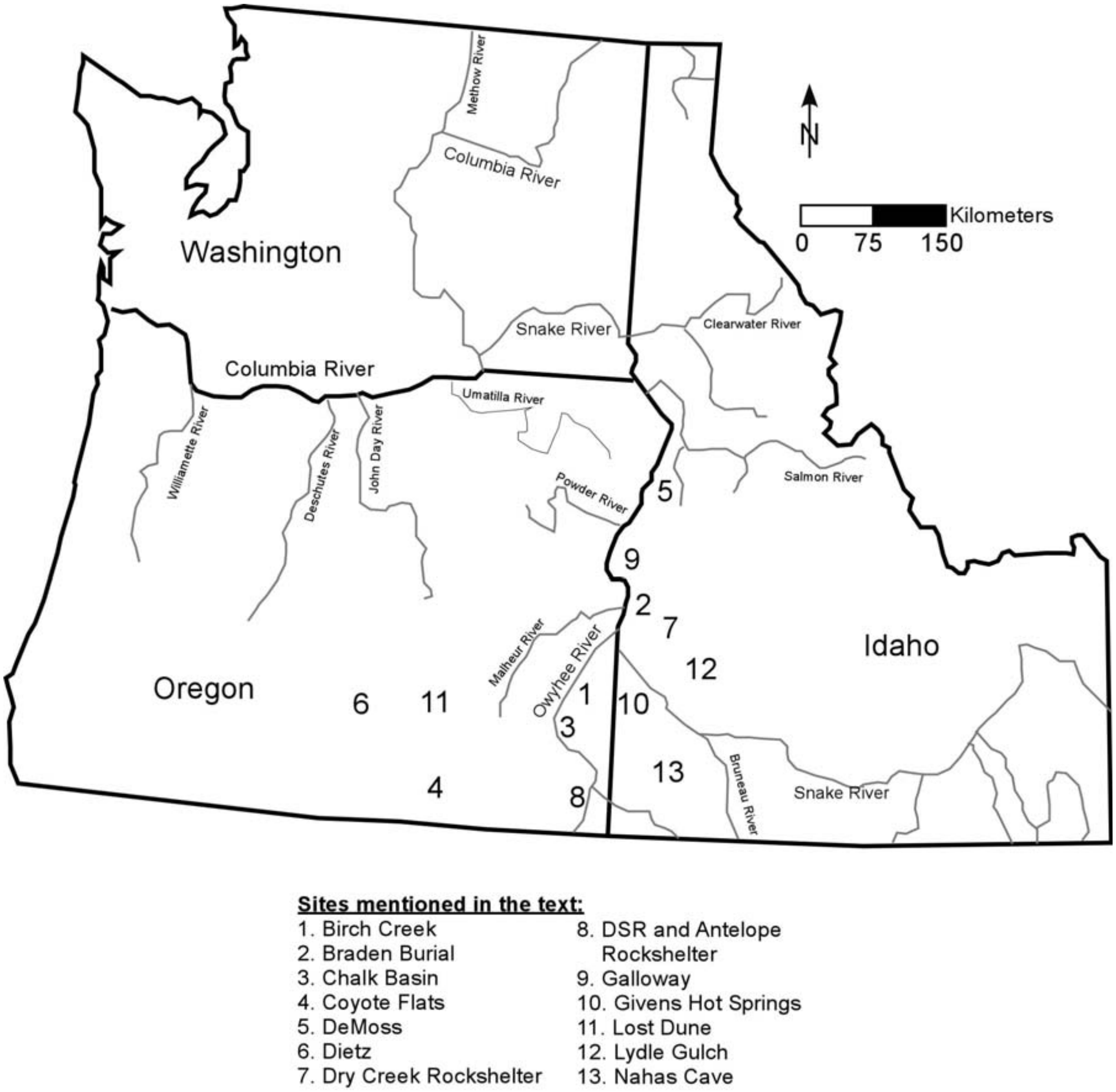


Figure 4.2. Map of sites located close to Chalk Basin that are mentioned throughout the text.

Other isolated fluted points include a surface collection including both Clovis and Folsom points from the Coyote Flats site near Coyote Lake in southern Oregon (Butler 1970) (Figure 4.2). At the Antelope Rockshelter, located directly south of Chalk Basin on Antelope Creek, Gus Roos reportedly found a Clovis point base and a Folsom lanceolate base from the bottom layer in a test probe (Plager et al. 2003) (Figure 4.2). Unfortunately, when Robert Butler returned the following year to excavate the shelter it had been heavily looted by collectors and no other fluted points were recovered in controlled excavations (Plager et al. 2003). Isolated fluted points have also been recovered throughout the western Snake River Plain from surface collections, but none have been recovered from intact subsurface deposits (Meatte 1990).

It should be noted that not all researchers are comfortable associating a Clovis occupation with the Great Basin or the Columbia Plateau. These researchers have instead referred to these points as either the fluted point tradition (Andrefsky 2004) or Great Basin fluted points (Beck and Jones 1997; Grayson 1993:236). The reservation about labeling these as Clovis points are due to the wide range of variability in the fluted points recovered (see Grayson 1993) and the lack of a systematic study from these areas in comparison to those found from ‘true’ Clovis sites in the Plains, Southwest, and Eastern United States areas.

Likewise, the Western Stemmed points and the Windust points recovered from the Dietz site have also been assigned a relative date that falls between 10,800 and 7,500 years B.P. (Aikens 1993:25). Since the Dietz site and other early sites provide poor contextual information (i.e., surface scatters or disturbed subsurface deposits), additional assemblages from controlled excavations are needed to fully understand this early occupation in the area. One such site that offers such information from this early period is the Dirty Shame Rockshelter (DSR) (Figure 4.2). DSR is located in southeastern Oregon on Antelope Creek, is a second order stream that empties into the Owyhee River (Aikens et al. 1977). This site contains a long sequence of cultural history from thousands of years of occupation (Aikens et al. 1977; Aikens 1993; Hanes 1988; Meatte 1990).

The early phase at DSR, arbitrarily referred to as Early Archaic Occupational Phase and dates from 9,500 to 6,800 years B.P. (Hanes 1988) and occurs during a period of increased aridity around 8,000 years B.P. (Mehringer 1986). The lithic assemblage at DSR includes scrapers, knives, lanceolate projectile points with concave bases, and stemmed point varieties (i.e., Western Stemmed, Windust, and Plano). The combination of the chipped stone, groundstone, and perishable materials recovered and the lack of cultural features from DSR suggest that the site was sparingly used as a foraging camp (Hanes 1988).

Towards the end of the Early Archaic at DSR, new point styles were found in a stratum that has been dated to approximately 7,900 and 6,800 years B.P. (Hanes 1988:159). This projectile transition includes the appearance of Northern Side-Notched, Elko series (eared and corner-notched), Pinto, and Humboldt types (Hanes 1988:151) that represent a change in technology. In this area, lanceolate points are more commonly associated with big game hunting and were used on the distal end of long spears. With these new point styles appearing, archaeologists have inferred that groups began to use them as dart points for an atlatl (Butler 1978, 1986; Hanes 1988; Plew 2000). West of the Owyhee River Canyon, Fagan (1974) also identified these projectile point styles at 10 different sites and a limited number of ‘milling stones’. He also notes the assemblages of these sites are more consistent with a hunting camp rather than a plant/root processing camp (Fagan 1974:103).

The next phase identified at DSR is the Mid Archaic Occupational Phase (6800-5,900 years B.P.) characterized by a more intensive occupation than the Early Archaic although population levels were still low (Hanes 1988). Occupations at DSR are evident throughout this time period until around 5,900 years B.P., when there is an unexplained hiatus at the site for the next 3,000 years (Hanes 1988:151).

The Middle Archaic marks a ‘completed’ transition from a lanceolate stemmed point to notched and barbed projectile point styles as noted above. A major event occurred during this period that has since served as an important relative date marker. This event is the explosive eruption of Mount Mazama (now Crater Lake) that has been dated to 6,700 years B.P. (Andrefsky 2004). Archaeologists have seen evidence of this ash fall in stratigraphic profiles throughout the Columbia Plateau and Great Basin (Aikens 1993; Andrefsky et al. 2003).

The middle Archaic is often referred to as the middle Holocene (7,500 to 4,500 years B.P., Grayson 1993) or Altithermal (Antevs 1955) and represents a change in climate and in artifact assemblages. The middle Holocene implies a transition to a much drier climate than before and numerous sites from this period have groundstone. Hanes (1988) and Grayson (1993) state that this drier climate may have caused groups to increase their food diversity to include more seasonally available resources from different environmental zones and to develop food storage techniques. Grayson (1993) paints a picture of a ‘poorer world’ during this time that required people to switch to a ‘more expensive’ technology, such as the use of groundstone (e.g., manos, metates, mortars, etc…). Pulling from O’Connell’s work from the Alyawara in Central Australia, Grayson makes the case that seed processing is a high investment activity that yields little caloric return, therefore accessing this food source would be out of necessity to survive (as an example, 1 kilogram or 2.2 pounds of seeds took about five hours to process, which returned approximately 500-750 kilocalories per hour) (Grayson 1993:245).

The same notched and barbed projectile point styles (i.e., Northern Side Notched, Elko Series, Pinto, and Humboldt) found earlier are also noted during the Middle Archaic on the Western Snake River Plain. Plew (2000) states that during this time the earliest Elko series during this time is more prominent in southern Idaho and becomes more common later on the Western Snake River Plain. Elko series and Humboldt types were recovered during Plew's (1986) excavations at Nahas Cave and from Dry Creek Rockshelter (Webster 1978) (Figure 4.2). The points from Nahas were recovered from a stratigraphic zone (Zone III) that was dated from 3,000 to years 400 B.P.

On the Owyhee River, the earliest occupation at the Birch Creek site has been dated back to the Middle Archaic. The earliest occupation at the site has been excavated from a stratigraphic layer overlain by Mt. Mazama ash (Andrefsky et al. 2003). Above the Mazama ash deposit and below the earliest housepit identified at the site, a "Turkey Tail" biface was recovered. These point styles are usually absent from most Great Basin assemblages but are common on the Snake River Plain with occupations that have been dated to approximately 5,000 to 6,000 years B.P. (Andrefsky et al. 2003; Plew 2000). The upper components at the site consist of a pithouse that contains Northern Side Notched, Gatecliff, Elko and Humboldt series projectile points (Andrefsky et al. 2003).

The deepest housepit excavated at Birch Creek has been dated between 4,540 and 4,240 years B.P. (Andrefsky et al. 2003). This date overlap with a housepit excavated at Givens Hot Springs in western Idaho that was occupied between 4,620 and 3,000 years B.P. (Plew 2000) (Figure 4.2). These occurrences of semi-subterranean housepits have also been documented throughout the Great Basin and the Plateau (see Plew 2000:69). As Plew noted, housepits have been used to argue for a more sedentary population but he suggests that they could still reflect a highly mobile population that chose to "diversify settlement strategies on a seasonal basis" (2000:69).

Along with pithouses along the Western Snake River Plain, Pavesic (1985) suggests a more complex culture, or hunter-gatherer social differation (Plew 2000:73), in what he calls the Western Idaho Burial Complex. Sites that support this social complexity include, the Braden Burial and Galloway Street site near Weiser, Idaho, and the DeMoss site near New Meadows, Idaho (Plew 2000) (Figure 4.2). The range of dates for the occupation at Braden is 5,790 ± 170 years B.P. and at DeMoss 5,965 ± 60 years B.P., which suggest a close affinity to the Middle Archaic (Plew 2000:73). These are burial sites in which individuals were positioned in a flexed or semi-flexed fashion with caches of 'exotic' grave goods. Some of these grave goods include large unused 'Turkey Tail' bifaces, *olivella* shell beads, dog burials, red ochre, polished stone gorgets, bone beads, and bone awls (Pavesic 1985; Plew 1985).

The late Holocene (4,500 years B.P. to present), as defined by Grayson, marks the change to a cooler and moister climate from the more arid middle Holocene. Significant cultural changes during this time include the incorporation of wikiup structures, and later (~2,000 to 1,000 years B.P.) the introduction of the bow and arrow and Great Basin-like ceramics (Aikens 1993; Hanes 1988; Plew 2000). This period also marks a possible population decline or a change in settlement strategies. At a number of excavated sites (Aikens 1993; Hanes 1988; Plew 1986), there appears to be a drop in the intensity of site occupation and artifact diversity and artifact assemblages become smaller around 800 years B.P.

Around 2,700 years B.P., groups once again used DSR in what Hanes (1988) identified as the Late Archaic Occupational Phase (2,700 to 400 years B.P.). During this phase at DSR, small wikiup-like structures appear that are very similar to those documented in the Great Basin ethnographically (Steward 1938; Stewart 1941). On the Snake River Plain, wikiup structures are documented later in the archaeological record around 1,000 years B.P. (Green 1993). However, the appearance of wikiup structures has not been documented in the Columbia Plateau suggesting that these ephemeral structures were the result of cultural contact with groups in the Northern Great Basin.

The adoption of the bow and arrow appears to have occurred at DSR around 2,000 to 2,545 years B.P. (Hanes 1988). This switch in technology is supported by the appearance of small, narrow-necked Rosegate arrow points that were recovered from DSR in house fill just above burned posts that had radiocarbon dates between 2,005 ± 75 and 2,545 ± 80 years B.P. This is one of the earliest adoptions of the bow and arrow technology in the surrounding cultural area and possibly in the lower half of North America (Blitz 1988). Widespread adoption of the bow and arrow occurs throughout the area (including Northern Great Basin, Western Snake River Plain, and Southern Columbia Plateau) between 2,000 and 1,500 B.P. (Green 1982; Jenkins and Connolly 1990; Plew 1986; Webster 1978). Even with the advent of the bow and arrow, dart points were still used, but in lesser numbers, in this area until around 800 years B.P. (Heizer and Hester 1978). For example, at DSR, Elko and Pinto dart points were recovered in the latest occupation at the shelter suggesting an overlap between the two technologies, or perhaps different groups utilizing the rockshelter over time (Aikens 1993; Hanes 1988).

Although limited in number, ceramics make their appearance in the archaeological record at a handful of sites in the area. Sherds of Intermountain Ware have been recovered from the Lost Dune Site (Aikens 1993; Lyons et al. 2001) (Figure 4.2) and on the Owyhee Uplands along Bogus Creek (Ferguson and Andrefsky 1996). At the Lydle Gulch site, ceramic sherds of Intermountain Ware and Southern Idaho Plain Ware were recovered along with a zoomorphic clay figurine in an occupation stratum that has been dated to 1,100 and 800 years B.P. (Sappington 1981) (Figure 4.2).

Another important event during the late Holocene is the ‘fanlike migration’ of peoples from southeastern California into the Great Basin, Snake River, and the Rocky Mountains (Bettinger and Baumhoff 1982; Madsen and Rhode 1994). This migration of language, peoples, and culture is referred to as the Numic spread and includes three subgroups that are further divided into two different languages, including the Western group- Mono and Northern Pauite, Central group-Panamint and Shoshoni, and Southern group- Ute and Kawaisu (Figure 4.3).

A major question regarding the Numic spread is when it occurred in time. Currently, there are four competing theories (i.e., Traditionalist, Basinist, Early Spread, and Periphalist) that hypothesize that the migration occurred as far back as 5,000 years and as early as 1,000 years ago (see Madsen and Rhode 1994, but also Bettinger and Baumhoff 1982; McGuire and Hildebrandt 2005). The more commonly accepted date of the migration is within the last 1,000 years based on ethnographic and linguistic data.

Field Methods

Field excavations at Chalk Basin occurred in the summers of 2004 and 2005 (Figure 4.4). The first field season at the site identified the site boundaries and the areas of high artifact concentration through pedestrian survey and systematic surface collection. Using 10 m^2 collection areas, artifact concentrations were noted along the river terrace and used to determine the location of three 1 by 2 m test units to expose buried cultural deposits. With the exception of one, all of the test units were

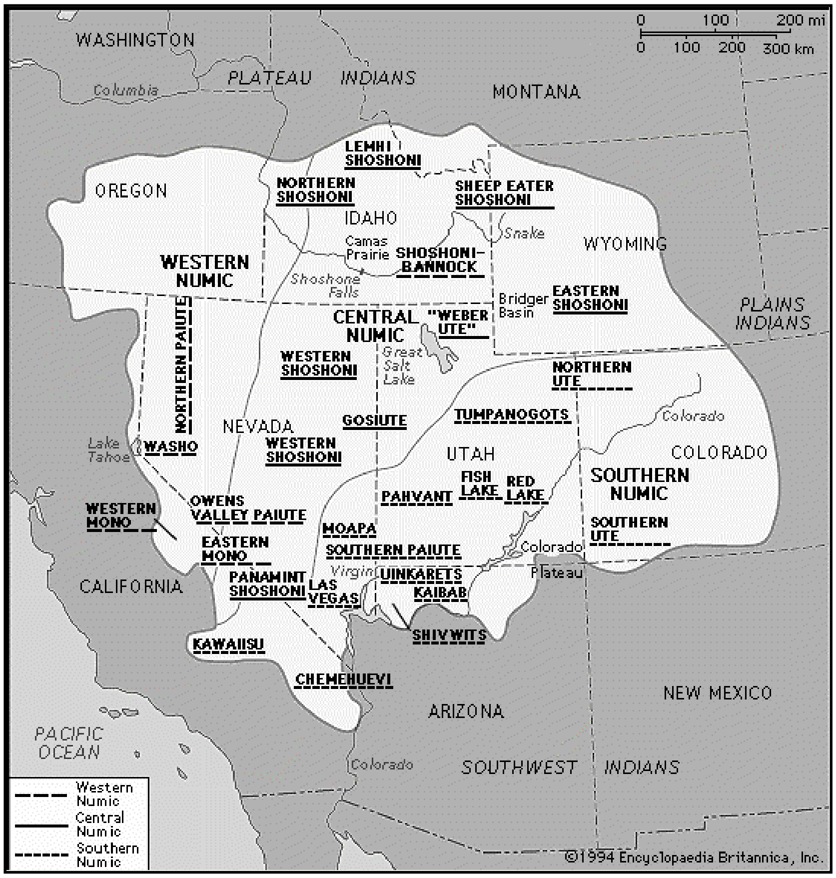


Figure 4.3. Map of the Numic Spread with the three main language subgroups mentioned in the text. Map source: Encyclopedia Britannica On-Line.

excavated down to approximately 30 to 40 cm below surface. The other test unit (Test Unit 2) was only excavated down to 20 cm below surface because it had a very low artifact concentration and contained a layer of “desert pavement” that made excavation almost impossible with a shovel and trowel. Also, during the test unit excavations soil samples were taken at the beginning of each level from the northwest corner of the test unit. Portions of these samples were later used for pollen analysis and sediment description for the site.

In 2005, a team of two Washington State University graduate students returned to the site to excavate another 1 by 2 m test unit. This test unit had a high density of

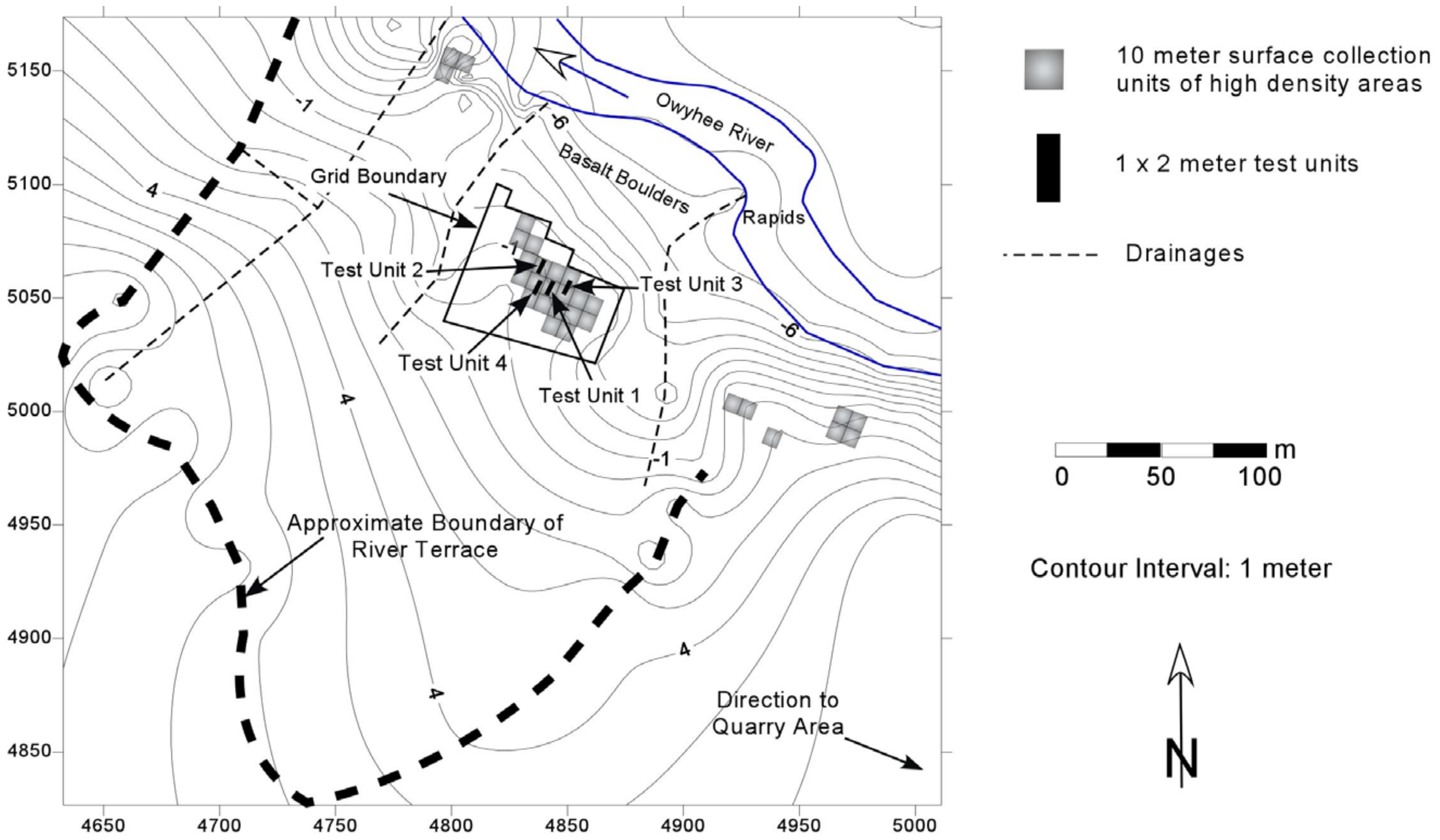


Figure 4.4. Site map of Chalk Basin showing the location of the surface collection squares and the test units.

artifacts in the upper levels and progressively dropped as the excavation continued. At a depth of 1 meter below the surface, a shovel probe was excavated in the south side of the unit. This probe revealed a high energy-flooding event that was composed of a mixture of large cobbles to pea size gravels. Excavation stopped here and no other buried cultural component was found at the site. This season also revealed pieces of groundstone (hopper mortars, etc.) found throughout the occupation that had not been recorded in the previous season. The groundstone was tabulated and photographed in 5 m clusters (results included in Appendix C). All of the artifacts and samples collected in the field were brought back to Washington State University, Department of Anthropology for processing and curation. More information about the site excavations and methods is included in Appendix D.

Stratigraphy of Chalk Basin

This section focuses on the test unit stratigraphic profiles observed during the 2004 and 2005 field seasons. Test Units 1 through 3 were excavated in 2004 and Test Unit 4 was excavated in 2005. Sediment profiles were recorded from the western wall of Test Units 1,3, and 4 on the last day of each field season. Due to the combination of low artifact recovery, hard sediments, and a lack of time, no sediment profile was drawn for Test Unit 2. However, sediment descriptions (i.e., texture and color) of all arbitrary levels excavated were included on the level forms during excavations. The profiles included the natural stratigraphy as well as rocks, artifacts, krotovina disturbances, and root disturbances. In addition to drawing the test unit profiles, photographs were taken of the profile walls with a Pentax 35 mm camera and/or a Kodak Easy Share Digital camera.

Generally, the average profile of these test units was composed of three different sediment strata (Figure 4.5). The transition between each stratum was gradual as each

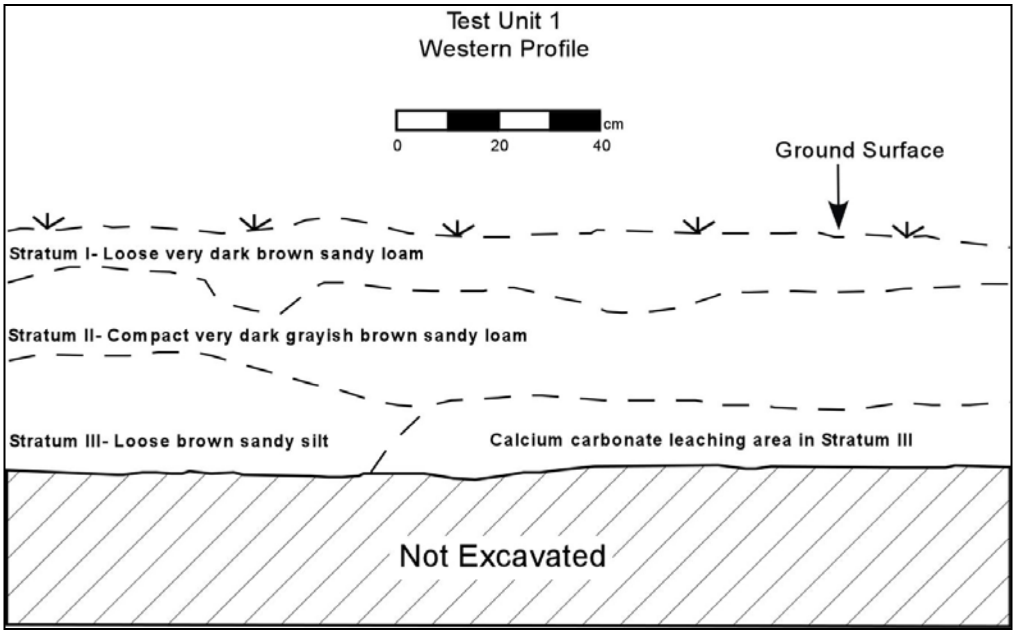


Figure 4.5. Profile drawing illustrating the different layers of sediment at the site. The dotted lines indicate the approximate boundary between sediment layers.

one intermixed with the underlying one. The top sediment stratum was composed of very dark brown (Munsell Color 10YR2/2) sandy loam with an average thickness ranging from 5 to 40 cm in the test units. The majority of the artifacts recovered in subsurface testing were from this surface sand layer. Underlying this stratum was more compact very dark grayish brown sandy loam (Munsell Color 10YR3/2) that was very similar in color and texture to Stratum I. The top of this stratum yielded few artifacts that were probably pushed down by roots and/or krotovina activity from the upper zone. The third stratum identified was brown sandy silt (Munsell Color 7.5YR4/2) and was not as compact as Stratum II. Also, a high level of calcium carbonate was observed in this stratum as a white residue that would begin to appear as the sediment was exposed to air. In Test Units 1 and 3, a couple of flakes were recovered, probably also the result of krotovina activities and root disturbances. All three sediment changes were identified based on compaction and texture, as they were all very similar in color.

Test Unit 4 was excavated the deepest and also had high artifact concentrations in Stratum I. At the bottom of the stratum, however, a marked decrease in artifacts was observed and progressively tapered off to only a couple of flakes per arbitrary level. The presence of these flakes in these lower levels can be attributed to root and/or krotovina activity that pushed the flakes downward through the sediments. This interpretation is based on the number of root stains and krotovina (recognized by a uniform shape of different grain size of sediment) that were found throughout the excavations.

Test Unit 4 revealed that no earlier occupation occurred at the site. Below the upper cultural occupation, the sediments remained homogenous until about 1 m from the surface when the grain size became larger. This sediment change was overlying a flood episode that deposited large cobbles across the site. Underlying this flood event were microstrata of smaller, lower energy flood events that deposited layers of sediments across the river terrace.

During the excavations at Chalk Basin, very few bone fragments and no cultural features (e.g., hearths, pits, structures, etc.) and/or charcoal were encountered. This was surprising for a site with a relatively high overall artifact concentration. One badly degraded bison tooth was sent to an accelerator mass spectrometer (AMS) laboratory for dating, but because it had low collagen levels in the sample, a date could not be obtained.

A series of soil samples collected from the 2004 season (for details on the samples and the pollen analysis see Appendix E) were processed to test the pH levels and to collect pollen grains from the sediments. The results of these tests were no surprise; the sediments at Chalk Basin are detrimental to organics and their survival over a period of time is almost impossible. In the pollen study, the numbers of pollen grains found in the samples, rapidly declined with depth (as shown with the lower numbers of pollen concentration and the escalating numbers of tracer spores in Table 4.2) and were biased towards the more durable pollen types that have been found to survive in the most inhospitable conditions (i.e., *Artemesia* and Chenopodiaceae sp., also known as Cheno-Ams) (Table 4.2).

The pH levels were measured from some of the soil samples to test the acidity of the soils (Table 4.2). These levels ranged from 8.37 to 9.78 and progressively got higher with depth below surface. It should be noted that the highest documented study of pollen grains to survive in acidic conditions were in soils with a pH level of 8.9 taken from the American Southwest (Bryant 1969, Hall 1981, 1991; Martin 1963); the sediments at Chalk Basin are higher than 8.9 and further illustrate the durability of some pollen types.

Table 4.2. Plant Taxa Identified, Concentration Values, and pH Values for the Samples From the Chalk Basin Excavations.

Type	**TU1-10cm**	**TU1-20cm**	**TU1-30cm**	**TU1-40cm**	**TU1-50cm**	**TU3-40cm**	**TOTALS**
Pinus	20(10.0%)	18(9.0%)	14(7.0%)	4(2.0%)	9(4.5%)	5(2.5%)	**70(5.8%)**
TCT	8(4.0%)	16(8.0%)	19(9.5%)	6(3.0%)	21(10.5%)	24(12.0%)	**94(7.8%)**
Artemesia	78(39.0%)	70(35.0%)	50(25.0%)	77(38.5%)	39(19.5%)	34(17.0%)	**348(29.0%)**
Cheno-Am	72(36.0%)	72(36.0%)	70(35.0%)	66(33.0%)	67(33.5%)	101(50.5%)	**448(37.3%)**
Liguliflore ae	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	7(3.5%)	0(0.0%)	**7(0.6%)**
L.S. Asteraceae	8(4.0%)	6(3.0%)	11(5.5%)	12(6.0%)	17(8.5%)	9(4.5%)	**63(5.3%)**
Onagraceae	0(0.0%)	0(0.0%)	1(0.5%)	0(0.0%)	0(0.0%)	0(0.0%)	**1(0.1%)**
Poaceae	6(3.0%)	2(1.0%)	6(3.0%)	0(0.0%)	4(2.0%)	5(2.5%)	**23(1.9%)**
Sarcobatus	2(1.0%)	8(4.0%)	5(2.5%)	3(1.5%)	5(2.5%)	8(4.0%)	**31(2.6%)**
Indeterminate	6(3.0%)	8(4.0%)	24(12.0%)	32(16.0%)	31(15.5%)	14(7.0%)	**115(9.6%)**
TOTALS	**200**	**200**	**200**	**200**	**200**	**200**	**1200**
Lycopodium (tracer)	105	434	432	245	289	919	
Concentration Values	4778	1156	1161	2047.7	1735.9	545.9	
pH Values	8.5	8.83	9	NA	8.37	9.78	

Laboratory Methods for Artifact Classification

All materials recovered from all of the field seasons were inventoried and classified. Categories included shell (SH), bone (BN), ground stone (GS), unmodified rock (UR), and chipped stone (CS). The chipped stone category included hafted bifaces (HB), unhafted bifaces (UB), flake tools (FT), core tools (CT), proximal flakes (PF), flake shatter (FS), and angular shatter (AS) (see Appendix F for artifact definitions and photographs). Artifacts were counted and weighed with an Ohaus Portable Plus digital scale to the nearest tenth of a gram then bagged individually and assigned a bag specimen number. All artifacts (i.e., chipped stone and non-chipped stone) were entered into a Microsoft Excel Worksheet for organization and for a number of data analyses. Additional quantitative analyses were also carried out using SPSS 8.0 for Windows.

Chipped stone artifacts were assigned to one of these categories based on definitions from Andrefsky's (2005) nominal typology (Figure 4.6). This typology is based on the morphology of artifacts that categorizes them to either a tool or debitage category. Once assigned to a category, raw material type for each artifact was recorded and ranged from local White Chert (WC), obsidian (OB), Other Chert (OC), basalt (BA), quartzite (QU), and argillite (AR). In addition to category and raw material, the presence of cortex was noted as present or absent (Y or N) on all chipped stone tools. With a couple of exceptions noted below, all chipped stone artifacts were bagged individually and given a bag specimen number.

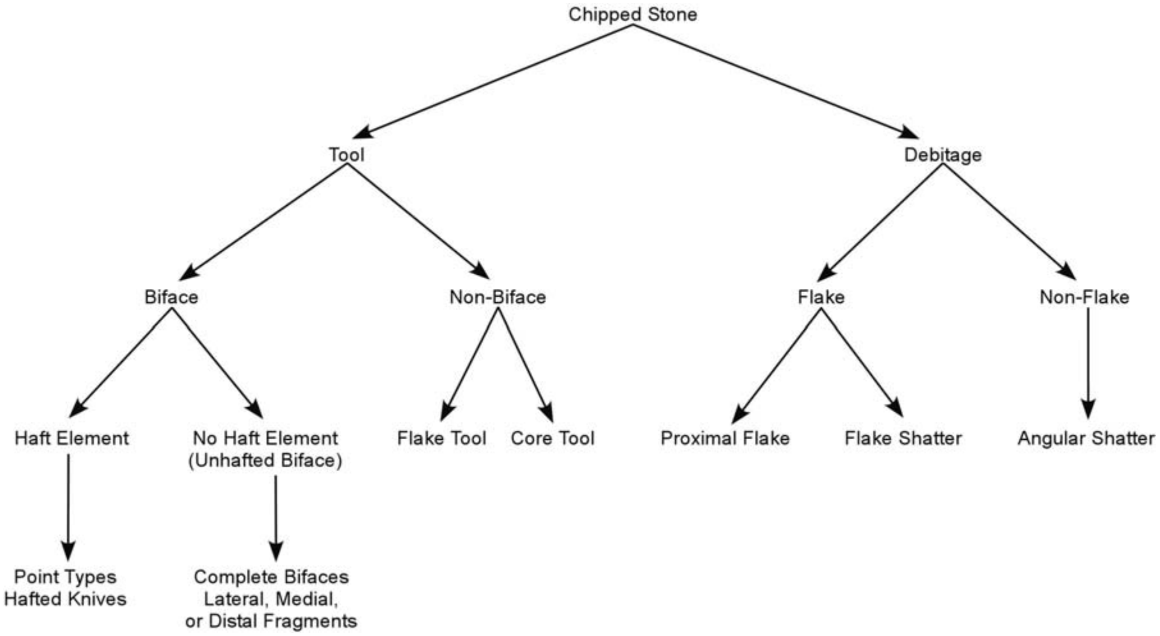


Figure 4.6. Chipped stone flow chart used for the Chalk Basin analysis. Modified from Andrefsky (2005).

With the exclusion of a sample of proximal flakes (used in a later analysis- see Chapter Five), all proximal flakes were counted and weighed together as a group (i.e., all PF made of White Chert and no cortex were counted and weighed and bagged collectively). For flake and angular shatter, individual counts were not recorded; instead all pieces were sorted into groups based on raw material type and presence/absence of cortex, then weighed together. The proximal flakes and shatter were handled in this manner to expedite the analysis of these large artifact categories.

In addition to weight, maximum width, length, and thickness measurements were recorded for all tools (i.e., hafted bifaces, unhafted bifaces, and flake tools) using sliding digital calipers. For core tools, only the maximum linear dimension was recorded. Hafted bifaces were classified using a regional typology to determine chronology (an age range during which the site was inhabited). With the lack of organics, this was the only dating method that could be used and provides only a broad range of time for possible site occupation.

Results of the Artifact Analysis

This section provides a general description of the artifacts recovered from field excavations and surface collections conducted at Chalk Basin. A complete artifact inventory list is provided as Appendix G. From Chalk Basin, 65% (n=2101) of the artifact assemblage (excluding angular and flake shatter) was gathered from the surface collections and 35% (n=1155) from the test unit excavations. In this chapter, all of the artifacts from the surface collection and test unit excavations are examined and described collectively. Certain artifact categories, including hafted bifaces, flake tools, unhafted bifaces, and a sample of proximal flakes, were included in additional analyses that are presented in detail in Chapter Five.

The largest artifact class in number, excluding angular and flake shatter categories, are proximal flakes, followed by core tools, flake tools, unhafted bifaces, bone, fire cracked rock, shell, hafted bifaces, unmodified rock and groundstone (Table 4.3). By weight, the heaviest artifacts (including angular and flake shatter) recovered from Chalk Basin were the chipped stone artifacts including core tools, flake shatter, proximal flakes, angular shatter, flake tools, unhafted bifaces, and hafted bifaces (Table 4.4).

Non-Chipped Stone Artifacts

The non-chipped stone artifacts represented 1.9% (by count tabulated from Table 4.3) of the total assemblage, excluding angular and flake shatter. Almost all of the bone and shell recovered from Chalk Basin is in poor condition and easily breaks apart.
As mentioned earlier, fragments of a bison tooth were recovered at the site and submitted (unsuccessfully) for AMS dating. The tooth pieces collected in the field yielded seven

Table 4.3. Artifact Count and Percentage by Category, Excluding Angular and Flake Shatter.

Category	Count	%
Bone	21	0.6%
Core Tools	147	4.5%
Fire Cracked Rock	16	0.5%
Flake Tools	134	4.1%
Groundstone	5	0.2%
Hafted Bifaces	13	0.4%
Proximal Flakes	2834	86.9%
Shell	11	0.3%
Unhafted Bifaces	71	2.2%
Unmodified Rock	9	0.3%
Total	**3256**	

different fragments weighing 5.1 g. A faunal expert from Washington State University (Dr. Karen Lupo) helped identify the fragments as an erupted lower molar of a subadult *Bison bison* based on the occlusal surface patterns. Another type of bone artifact collected was a polished bone tube that weighs 5.3 grams (Figure 4.7). The dimensions of the bone tube are 48.6 mm in length, 9.2 mm diameter, and 1.2 mm in thickness, with no cutmarks. The tube appears to be similar to those recovered from a mixed stratigraphic sequence at Antelope Rockshelter. The bone tubes from Antelope

Table 4.4. Artifact Weight and Total Percentage by Category.

Category	Weight (g)	%
Angular Shatter	5084.2	11.6%
Bone	58.5	0.1%
Core Tools	16695.4	38.1%
Fire Cracked Rock	704.3	1.6%
Flake Shatter	9948.1	22.7%
Flake Tools	1920.8	4.4%
Groundstone	1117.9	2.6%
Hafted Bifaces	27	0.1%
Proximal Flakes	6032.3	13.8%
Shell	8.2	0.02%
Unhafted Bifaces	2047	4.7%
Unmodified Rock	322.8	0.7%
Total	**43772**	

Rockshelter are made from small mammalian and/or avian bone and some of them have cut marks (Plager et al. 2003).


(a) (b)

Figure 4.7. Bone tube (specimen # 56-022) recovered from field excavations in 2005 showing the cut and polished smooth end (a) and the length of the artifact (b). Each black and white square on the scale at the bottom of the photographs represents one centimeter.

The number of groundstone artifacts identified in the laboratory analysis is low and does not include the 32 clusters of groundstone that were identified across the surface of the site during the 2005 field season (see Appendix C). The groundstone pieces identified in each cluster were classified into three broad categories, which included whole and fragmented pieces of pestles (n=34), mortars (or grindingstones) (n=39), and hopper mortars (n=3). Because of the weight of these artifacts, groundstone observed on the surface was not collected but was photographed, tabulated, and mapped with a global position system (gps) receiver in the field (Appendix C). Groundstone pieces recovered during test unit excavations were collected because they were fragments of larger pieces and smaller in comparison to those identified in surface collections and were fragments of larger pieces. As fragments, they could not be confidently assigned to an artifact category.

Chipped Stone Artifacts

Proximal flakes made up 87% of the entire assemblage and 89% of the chipped stone artifacts recovered from Chalk Basin (Tables 4.3 and 4.5). Of the 2,834 proximal flakes, 641 (23%) of them had dorsal cortex (Table 4.6). The largest number of cortical flakes was from White Chert (n=348) followed by Other Chert (n=230), argillite (n=52), obsidian (n=9), basalt (n=1), and quartzite (n=1). With the source of White Chert being on site, it is no surprise that so many White Chert proximal flakes (23%) have cortex on them (Table 4.6). This is probably the result of initial reduction activities taking place on site to make tools and/or portable cores of raw material.

Table 4.5. The Chipped Stone Artifact Assemblage by Category and Raw Material Type (not including flake and angular shatter).

	Artifact Category					Grand Total
Raw Material	**Core Tools**	**Flake Tools**	**Hafted Bifaces**	**Proximal Flakes**	**Unhafted Bifaces**	
Argillite	11	11	0	77	1	**100 (3.1%)**
Basalt	0	0	0	3	0	**3 (0.1%)**
Obsidian	5	5	7	216	7	**240 (7.5%)**
Other Chert	54	44	5	1004	20	**1123 (35.2%)**
Quartzite	0	0	0	3	0	**3 (0.1%)**
White Chert	77	74	1	1531	43	**1726 (54.0%)**
Grand Total	**147 (4.6%)**	**134 (4.2%)**	**13 (0.4%)**	**2834 (88.6%)**	**71 (2.2%)**	**3199**

The second most abundant chipped stone class was core tools, which also accounted for the majority of artifact weight Table 4.7. A total of 123 (or 5% of the chipped stone assemblage) artifacts were classified as core tools because they exhibited evidence of flake removal from the surface (Table 4.5). These cores were classified as multidirectional (see Andrefsky 2005) because flakes have been removed from several different directions. Of the 147 core tools recovered from the site, 84% of them still have dorsal cortex (Table 4.6). The most abundant raw material used for core tools was White Chert (54%) with Other Chert (35%) as the second most common material (Table 4.5). The smallest core tools were those made from distant raw material sources, such as obsidian. The obsidian core tools were relatively small and had an average weight of only 8.0 g. The weight of core tools and the high number of local material cores found across the site suggest that people came to Chalk Basin for its high quality raw material. It appears that one of the main activities of the site was raw material procurement and initial core reduction to replenish stone toolkits.

Table 4.6. Chipped Stone Artifacts with Cortex Listed by Category and Raw Material Type. Percentages Listed are from the Total Number of Artifacts with Cortex (n=848).

	Artifact Category				Grand Total
Raw Material	**Core Tools**	**Flake Tools**	**Hafted Bifaces**	**Proximal Flakes**	
Argillite	11	8	52	1	**72 (8.49%)**
Basalt	0	0	1	0	**1 (0.12%)**
Obsidian	2	1	9	0	**12 (1.42%)**
Other Chert	45	19	230	10	**304 (38.85%**
Quartzite	0	0	1	0	**1 (0.12%)**
White Chert	65	31	348	14	**458 (54.01%)**
Grand Total	**123(14.50%)**	**59 (6.96%)**	**641 (75.59%)**	**25 (2.95%)**	**848**

Table 4.7. Mean, Minimum, and Maximum values for Core Tool Maximum Linear (MLD) and Weight.

	MLD (mm)			Weight (g)		
Raw Material	**Mean**	**Maximum**	**Minimum**	**Mean**	**Maximum**	**Minimum**
Argillite	210.2	457.2	27.8	210.2	457.2	27.8
Obsidian	8.0	13.4	1.4	8.0	13.4	1.4
Other Chert	110.7	871.1	3.5	110.7	871.1	3.5
White Chert	108.7	756.4	2.3	108.7	756.4	2.3
Group	109.4	871.1	1.4	109.4	871.1	1.4

Flake tools made up 4.2% of the chipped stone assemblage and the majority were made from White Chert (55.22%) (Table 4.5). The different types of flake tools included unimarginal (modified on either the dorsal or ventral side) and bimarginal (modified on both the dorsal or ventral side) wear patterns, or a combination of the two (i.e., one bimarginally worked edge and one unimarginally worked edge on the same tool) (see Andrefsky 2005). Flakes that had not been intentionally retouched, but had edge wear from use were classified as flake tools. The type of wear pattern (i.e., unimarginal, bimarginal, and combination flake tool) was not recorded for each flake tool during initial sorting. However, this group of artifacts was included in another analysis presented in more detail in Chapter Five.

Hafted bifaces and unhafted bifaces and are analyzed and discussed in more detail in Chapter Five. Unhafted bifaces accounted for 2.2% of the assemblage, the majority of which were made from White Chert (Table 4.5). Only 25 (2.2%) of the 70 unhafted bifaces still had dorsal cortex (Table 4.6). This artifact group included whole unhafted bifaces and unhafted biface fragments, categorized as either complete, distal, medial, or lateral (Table 4.8). Most of the unhafted bifaces from Chalk Basin were biface distal fragments (49.3%) and only six intact (8.5%) unhafted bifaces were collected.

Table 4.8. Biface Artifacts by Raw Material Type.

	Biface Portions				
Raw Material	**Complete**	**Distal**	**Medial**	**Lateral**	**Grand Total**
Argillite	0	1	0	0	**1**
Obsidian	0	4	1	2	**7**
Other Chert	3	11	3	3	**20**
White Chert	3	19	6	15	**43**
Grand Total	**6**	**35**	**10**	**20**	**71**

Only 13 hafted bifaces were recovered from Chalk Basin, including whole and fragmented tools. The dominant raw material type for this group is obsidian (70%) followed by Other Chert (20%) then White Chert (10%). None of these artifacts had dorsal cortex. The fragments included in the hafted biface category are proximal fragments (from the hafting element). Distal fragments from hafted bifaces are probably present in the assemblage but are classified as an unhafted biface distal fragment.

A total of 5,073.7 grams of angular shatter and 9,083.9 grams of flake shatter were collected during surface collections and test unit excavations (Table 4.9). Both of these shatter groups were dominated by raw materials from White Chert (53.2%) and Other Chert (30.4%). Angular shatter 71.8% of all angular shatter by weight had dorsal cortex compared to only 50.4% of cortical flake shatter.

Table 4.9. The Weight of Angular and Flake Shatter Organized by the Presence of Dorsal Cortex and Raw Material Type.

	Angular Shatter		**Total**	**Flake Shatter**		**Total**	**Grand Total**
Raw Material	**Cortex- No**	**Cortex- Yes**		**Cortex- No**	**Cortex- Yes**		
Argillite	37.4	675.9	713.3	114.1	1243	1357.1	**2070.4**
Basalt	0.7	0	0.7	3.4	12.8	16.2	**16.9**
Obsidian	16.2	7.5	23.7	93.2	2.8	96	**119.7**
Other Chert	398.7	1038.6	1437.3	1464.6	1399.7	2864.3	**4301.6**
Quartzite	14.5	52.1	66.6	23.7	22.3	46	**112.6**
White Chert	965.4	1866.7	2832.1	2809.9	1894.4	4704.3	**7536.4**
Grand Total	**1432.9**	**3640.8**	**5073.7**	**4508.9**	**4575**	**9083.9**	**14157.6**

Chipped Stone Raw Material Types

This section provides a brief overview of the raw material types present at the site. As noted in multiple chipped stone categories above, the dominant raw material at the site is White Chert (Figure 4.8). This durable high-quality is found in the site area. With the outcrop at the site, it is no surprise that 54.0% of the White Chert in the artifact assemblage (Table 4.5) and 50.0% of all shatter weight (angular and flake) have dorsal cortex (Table 4.9). This suggests that groups visiting Chalk Basin were exploiting this raw material resource and conducting, at least, initial tool reduction on-site.

The Other Chert category contained unknown chert types that have overlapping texture, color, and luster. Unfortunately, a systematic survey has not been done in the Owyhee River Valley that has successfully identified Other Chert sources. Therefore, the origin of these Other Chert types is not known but, because of the abundance (35.2% of the chipped stone artifacts) of some of these materials, it is probable that the source is close to Chalk Basin (Figure 4.8).

Collectively, argillite, basalt, and quartzite make up only 3.31% of the chipped stone artifacts by count (not including shatter). Outcrops of these materials have not been recorded, but given the volcanic geology of the area, it is believed that they occur naturally in dispersed pockets across the river valley.

The last raw material type to be discussed is obsidian. Obsidian, or natural glass, is a desirable material for flintknapping because of it can be easily worked and has predictable flaking properties. There are no known outcrops of obsidian near Chalk Basin and therefore any present at the site has been transported from a distant source. With the technology of x-ray florescence (XRF) sourcing, obsidian pieces can be chemically matched to their genesis lava flow. From the site collection, 25 obsidian samples were submitted for XRF analysis at the Northwest Research Obsidian Studies Laboratory to identify where the pieces originated (Skinner 2006-report in Appendix H). A mixture of obsidian flake tools, proximal flakes, flake shatter, angular shatter, hafted bifaces, and core tools were submitted from the test unit excavations and the surface collections. Most of the obsidian originated from Barren Valley (n=14) and Indian Creek Valley (including a piece from Indian Creek Valley A; n=7) but pieces also came from Coyote Wells (n=1), Sourdough Mountain (n=2), and Skull Springs (n=1) (Figure 4.9). Only one piece of flake shatter was found to be from an unknown source location.

In terms of location, Barren Valley (approximately 25 kilometers away) is the closest source followed by Indian Creek Valley (approximately 44 kilometers away), both of these sources are located northwest of Chalk Basin (Figure 4.10). These two sources make up over half of the obsidian sources represented in the artifact sample

(Figure 4.9). Conversely, the more distant sources included Skull Springs (approximately 48 kilometers away), Coyote Wells (approximately 56 kilometers away), Sourdough Mountain (approximately 56 kilometers away), and accounted for the smallest number of sources represented in the XRF sample (Figure 4.10). From this analysis it appears that people living at Chalk Basin were traveling west and north as part of their seasonal migration. Wallace (2004) provides a more thorough discussion of obsidian sources and their use through time in the area. Interestingly, the inhabitants of the Birch Creek Site, located approximately 30 kilometers downstream, used the same obsidian sources.

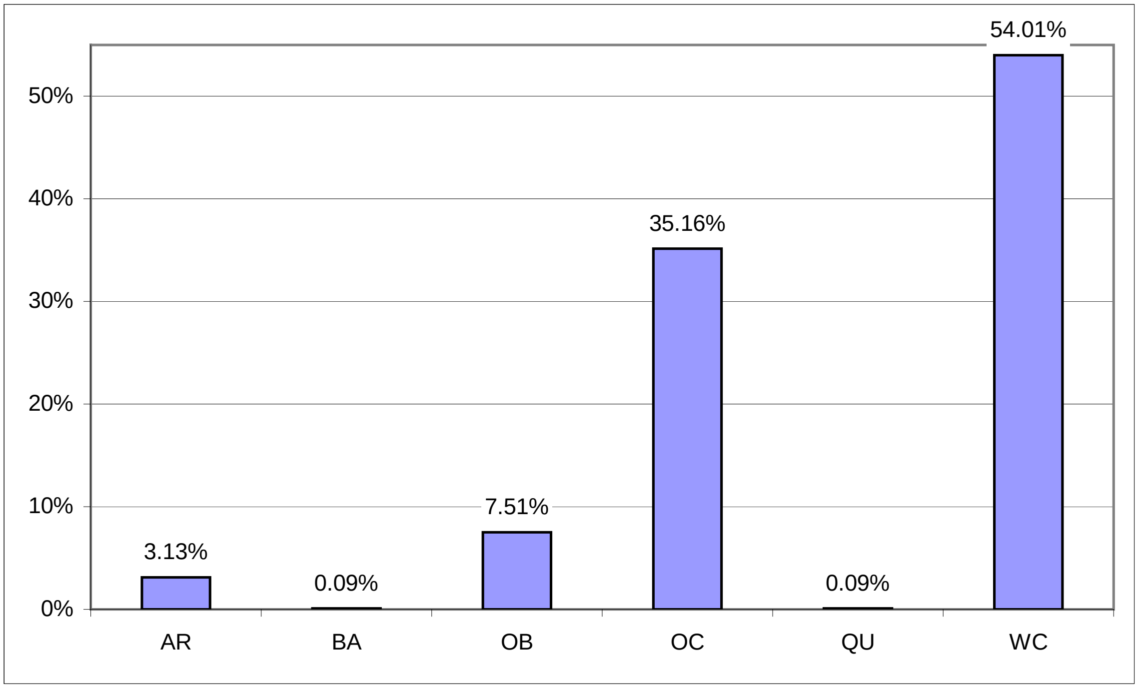


Figure 4.8. Chart showing the percentage of raw material type present in the chipped stone artifact assemblage. Abbreviations used on the chart include: AR=argillite, BA=basalt, OB=obsidian, OC= Other Chert, QU=quartzite, WC=White Chert.

Dating Chalk Basin

Obtaining an absolute date (via radiocarbon or AMS dating methods) for the occupation periods at Chalk Basin is hampered by a lack of organics. Therefore, relative dating using projectile point cross dating was used to assess the occupation period at Chalk Basin. As mentioned above, 10-hafted bifaces were recovered from the site but only 6 had diagnostic haft elements that could be assigned to a temporal range, which included one Elko corner notched, two Elko eared, one Humboldt point, and two Rosespring points. The earliest occupation at the site is based on the presence of the Elko and Humboldt points that were found within the top stratum of the test unit excavations. These points have been identified as dart points for use with an atlatl, which suggests a Middle Archaic occupation that spans 6,800 to 5,900 years B.P. (Hanes 1988). Others noted that Elko points from the region date from 7,000 to 1,400 years B.P. and Humboldt points date from 6,800 to 2,700 years B.P. (Wallace 2004:62). Rosespring points were all found on the surface of the site and have been identified as arrow points (because of their narrow neck on the hafting element) and are characteristic of a Late Archaic occupation that dates from 2,700 to 400 years B.P. (Hanes 1988).

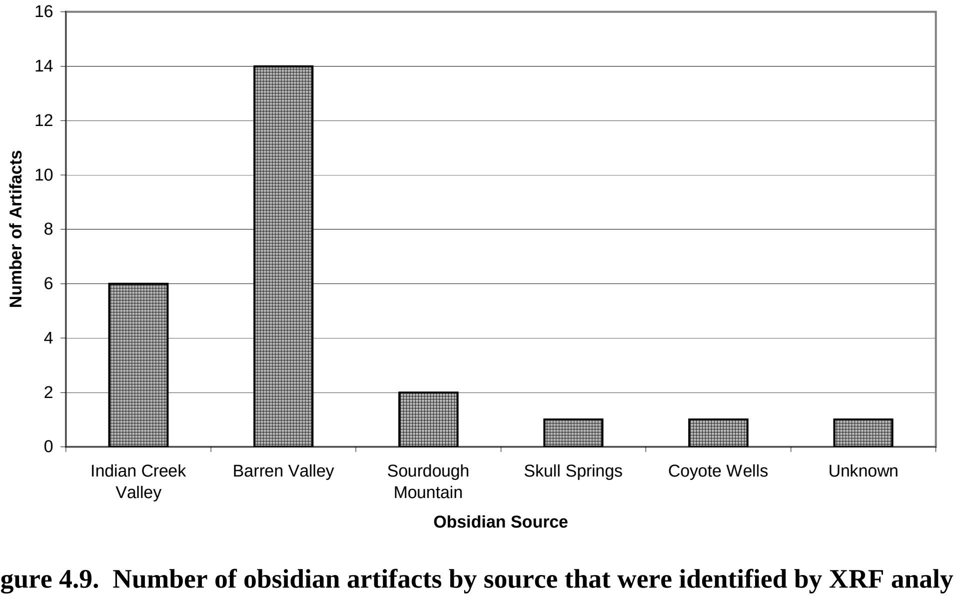


Figure 4.9. Number of obsidian artifacts by source that were identified by XRF analysis.

From the relative dating of hafted bifaces, two different occupations at Chalk Basin could have occurred in the Middle and Late Archaic. This classification is based on the presence of hafted bifaces in the test unit excavations (Humboldt and Elko series) and the surface collections (Rosespring arrow point). At a glance, it should be easy to state that the surface collections are from the Late Archaic and the test unit excavations are from the Middle Archaic occupations. But this line cannot be drawn because of the poorly defined stratigraphy at the site. The majority of the artifacts were recovered from the ground surface and/or the top stratum in all of the test units. Therefore, it is impossible to confidently delineate a boundary between the Middle Archaic and the Late Archaic occupation at the site because there is no clear ‘cultural break’ in the sediment

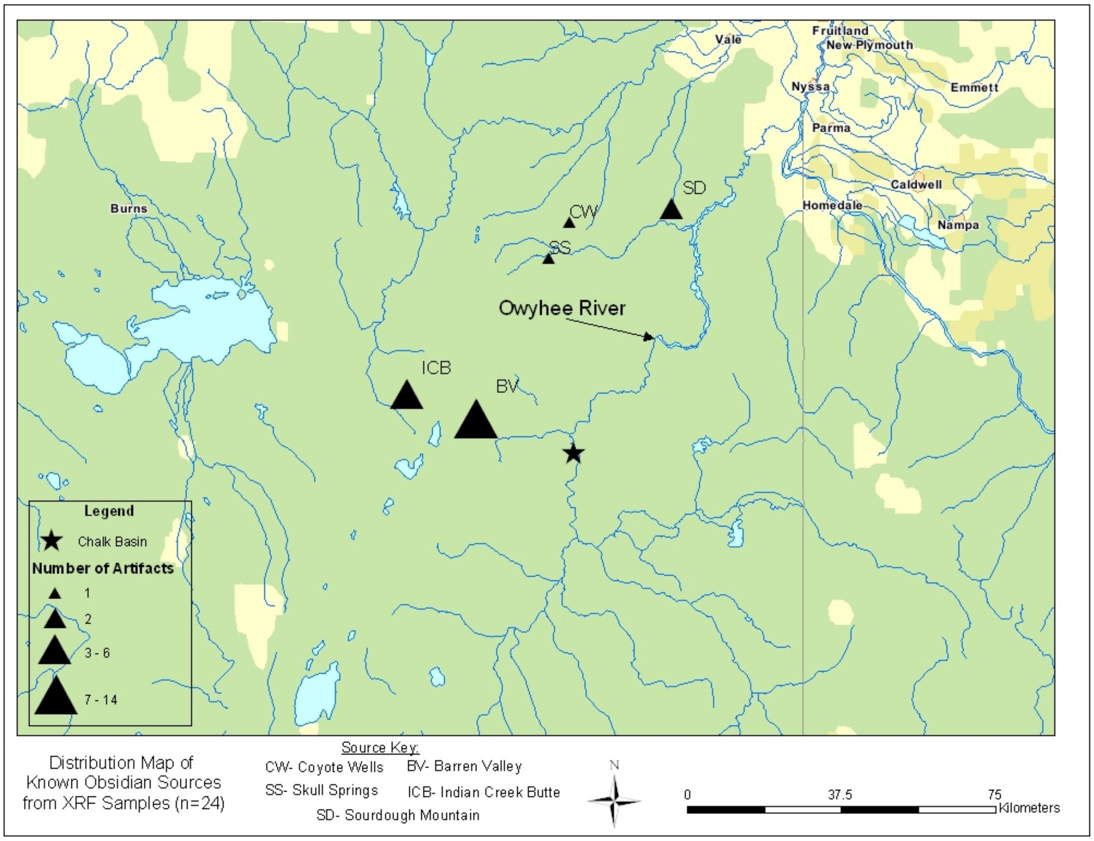


Figure 4.10. Location and distribution map of obsidian sources found at Chalk Basin. The obsidian source locations included on the map are taken from a central point within the entire recorded location. Source location information obtained from Northwest Research Obsidian Studies Laboratory website, base map provided by ESRI ArcMap 9.

profiles. The obsidian source locations mirror the Middle Archaic component found at the Birch Creek Site (Andrefsky et al. 2003; Andrefsky 2006; Wallace 2004). A Late Archaic Rosespring component recently excavated at the Birch Creek site suggests that the Late Archaic occupants used very few of the Middle Archaic obsidian sources (William Andrefsky, personal communication 2007). At DSR, Hanes (1988) noted an overall decline in the number of obsidian sources that were used by Late Archaic groups in comparison to earlier groups. This suggests that the Middle and the Late Archaic components at Chalk Basin are arbitrarily mixed within the surface assemblage.

Summary

In sum, lithic artifacts dominate the Chalk Basin assemblage, which includes flake tools, hafted and unhafted bifaces, and core tools made from White Chert, Other Chert, and obsidian raw materials. The site is located in a cultural convergent zone of southern Columbia Plateau, Western Snake River Plain, and northern Great Basin. Based on the hafted biface types recovered from the site, Chalk Basin appears to have a closer affiliation with the northern Great Basin cultural groups. Moreover, Elko eared and Humboldt atlatl dart point styles and Rosespring arrow point styles suggest that the site was occupied during the Middle Archaic (approximately 7,000 to 2,700 years B.P. see Hanes 1988;Wallace 2004) and Late Archaic (approximately 2,700 to 400 years B.P. see Hanes 1988) periods. During this time in the northern Great Basin, groups moved frequently in order to take advantage of seasonally available resources. From the XRF analysis of Chalk Basin obsidian artifacts, occupants of the site were traveling west and north as part of their seasonal mobility migration patterns ranging from 25 km up to 56 km in distance.

CHAPTER FIVE

RESEARCH QUESTION AND ANALYSIS

This study is focused upon understanding and identifying the degree of curation found on chipped stone artifacts and within chipped stone assemblages to better understand the place of those artifacts and assemblages in the land-use practices of aboriginal stone toolmakers and users at Chalk Basin. Many researchers have used the amount of retouch on stone tools as a proxy measure of curation since curation is specifically associated with tool use and tool resharpening (Andrefsky 2005; Shott 1989, 1996). Retouch is not only associated with tool use and resharpening, it is also associated with tool production. In Chapter Three, I explored this with a series of bifacial reduction experiments. This experiment demonstrated of production and maintenance retouch produce significantly different proximal flake and biface attributes. I also found that retouch patterns on the experimental bifaces exhibited different retouch patterns depending on the bifacial production continuum from production to resharpening. However, it was also shown that bifacial indices were sensitive to changes in hammer type (hard versus soft) within the biface retouch cycle.

Based upon the results gathered from my experiments I have derived a number of expectations for excavated assemblages at Chalk Basin based upon production and resharpening differences. Examining artifacts from a site like Chalk Basin offers an opportunity to observe how immediate access to raw material affects in tool curation strategies for foragers. In this case, the inhabitants of Chalk Basin were probably moving frequently to procure seasonally available resources and accordingly, ‘geared up’ with new stone tools at raw material locations when anticipating a move (Andrefsky 2006;

Bettinger and Baumhoff 1982). From the assemblage, there is a mixture of local chert from the quarry, non-local cherts (referred to as Other Cherts) from unknown locations, and obsidian. Some of the artifacts made from obsidian have been chemically sourced using XRF analysis and their genesis locations have been identified. Therefore, curation can be studied from a perspective of known local and non-local lithic raw materials.

Aside from retouch patterns, raw material may be one of the most important variables in lithic technological organization (Andrefsky 1994). In order to infer the degree of curation, archaeologists have developed and employed a number of retouch indices, which can be influenced by raw material availability, abundance, and package form. Therefore, at Chalk Basin some expectations can be made about the degrees of curation that should be present on artifacts made from local and non-local raw materials. The results of the analyses are interpreted from a lithic technological organization framework to draw inferences about the occupants of Chalk Basin.

High quality lithic material that does not occur locally (i.e., obsidian) should exhibit higher degrees of curation than tools made from local cherts (Andrefsky 2006; Bamforth 1986). If a tool is made from an obsidian source 70 km away, then it has probably been used and resharpened more times than a tool made from a local source. A tool made from a local raw material should exhibit low amounts of curation because its actual usage is low in comparison to its overall potential utility. Tools, like unhafted and hafted bifaces, made from cherts available on site should also exhibit retouch patterns that are more consistent with production activities than from resharpening events. Not only should this be true of the stone tools, but also of proximal flakes. If tools were being made from local raw material, then flakes of the same material should be similar to the production flakes discussed in Chapter Three.

Expectations of Retouch Indices

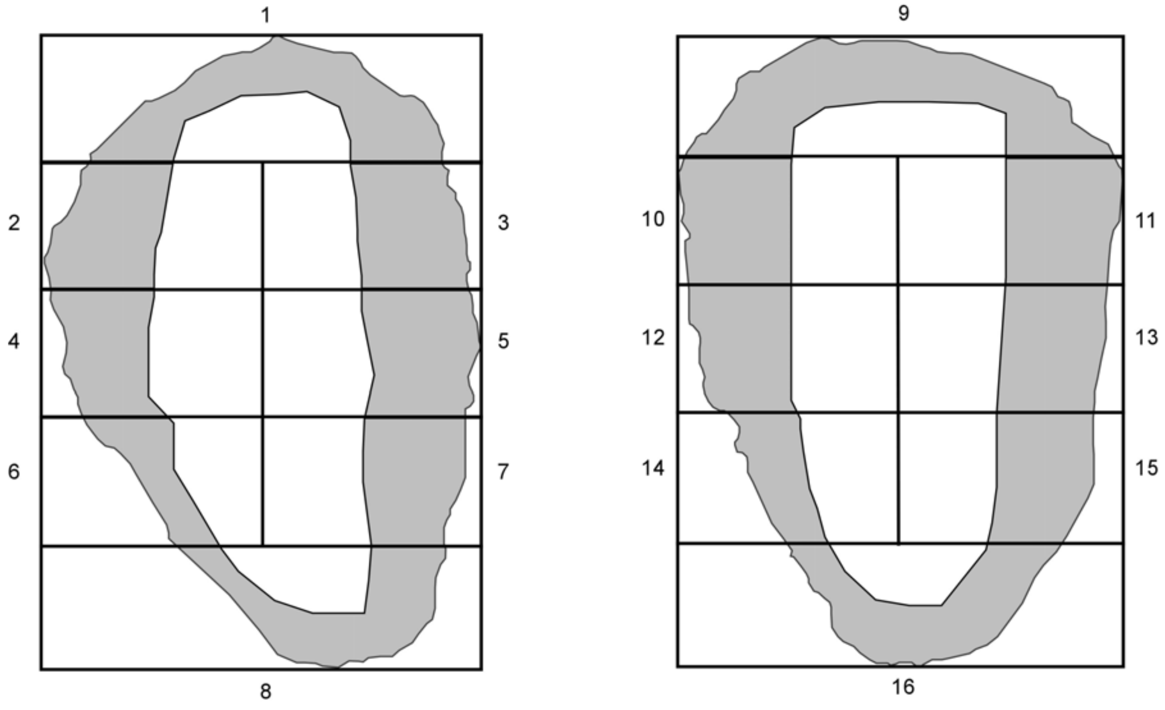
Expectation #1: Flake Tools

If the results of my experiments are a true indication of the way stone tool makers organized their lithic technology, than I would expect that flake tools from Chalk Basin made from local raw material should exhibit low degrees of curation. With the availability of high quality raw material on site, I would not expect a toolmaker to continually resharpen a dulled cutting edge on a flake tool when it is just as easy to detach another flake for use as a cutting tool. In this regard, it would be of no surprise if the ‘retouch’ observed on locally available raw materials in flake tool form was not deliberate but rather it is incidental from use. With the material outcropping at the site, there is no need to conserve the local material by rejuvenating the cutting edge. In regards to the non-local obsidian flake tools, I expect few to be discarded at the site and they should exhibit high degrees of curation.

To test this expectation, the retouch on flake tools was quantified. An effective measure for this is Chris Clarkson’s index of invasiveness (2002). His index scores flake removal scars on a scale of 1 (highest amount of retouch) to 0 (lowest amount) from the edge of the tool to its midpoint. Therefore, flake tools that have been heavily retouched should have scores closer to 1, which tools with little or no retouch should have scores closer to 0. For the Chalk Basin assemblage, it is expected that flake tools made from local material should have invasiveness scores closer to 0 and obsidian flake tool scores should be closer 1.

Methods:

Each side of the flake tool was subdivided into 8 analysis segments for a total of 16 segments per tool (Figure 5.1). Each side is first divided into horizontal segments that represent 20% of its total length. The inner segments (i.e., segments 2-7 on the dorsal side and 10-15 on the ventral side) are further divided along the midline of the artifact. This division results in the ends of the tool (i.e., segments 1 and 8 on the dorsal side and 9 and 16 on the ventral side) representing 40% of the analysis area and the inner zones partitioned into 10% of the surface area for each side. The inner zones were also divided into "invasiveness zones" defined as the midpoint between the centerline of the artifact and the lateral margins. In Figure 5.1, this zone boundary is illustrated by the transition of colors from gray to white.



Dorsal Side

Ventral Side

Figure 5.1. The conceptual grid that was superimposed over each flake tool for Clarkson's (2002) index of invasiveness. Values of 0.5 were given to segments in which retouch scars were contained within the gray areas. Segments scored a 1.0 if retouch scars extended into the inner white zone of the artifact. The segments that had no retouch scars were given a 0.0. (Source: Clarkson 2002:67)

Segment scores were determined on the extent of retouch scars from the lateral margins towards the centerline. If a segment did not have any retouch scars present, it received a score of 0.0. If retouch scars from the lateral margin were present in a segment but did not extend into the central portion of the artifact (shown as the white zone in Figure 5.1), they were given a score of 0.5. Segments that received a 1.0 had retouch scars that began from the lateral margins and extended into the central portion of the tool. All of the indexes of invasiveness scores were input into a Microsoft Excel spreadsheet to calculate the average score for each tool. The underlying formula for this method is:

$$\text{Index of Invasiveness} = \frac{\text{Total segment scores}}{\text{Total number of segments}}$$

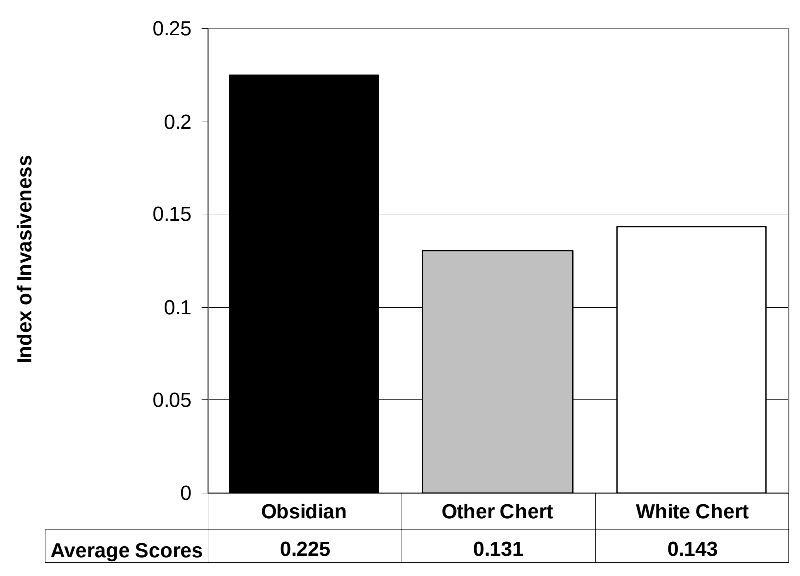
To expedite the analysis, two perpendicular lines (with tic marks at every centimeter) were printed onto a transparency sheet. Each flake tool was centered on the intersection of the two lines and the invasiveness scores were then determined starting with the dorsal side first then the ventral side. Some of the tools had other scars from previous flake removals while attached to the original objective piece (not related to retouch) on the dorsal side. These flake removals were very large when compared to typical retouch flaking. These flake scars were not scored and only retouch flake scars that were obvious were evaluated. A 16x hand lens was also used to assess the flake scars.

Data Set:

A total of 124 flake tools were identified from Chalk Basin. Flake tools were defined as a flake blank (or flake shatter blank- see Andrefsky 2005) that had evidence of being used. Some of the White Chert and Other Chert flake tools were fragments of larger tools and were excluded from this analysis. The resulting data set included 33 local chert flake tools, 5 obsidian flake tools, and 17 Other Chert flake tools.

Results:

The results of the index of invasiveness on the flake tool assemblage show that local materials have lower amounts of retouch than non-local materials. With 0 representing no retouch and 1 representing fully retouched, the Chalk Basin assemblage has an overall low average (0.143) index of invasiveness (Figure 5.2). Generally speaking, flake tools present at the site are not being heavily used relative to their potential use. It was expected that the obsidian flake tools would exhibit higher degrees of curation than tools made from the local White Chert. This trend was supported by this analysis. Obsidian flake tools had an average index of invasiveness score of 0.23. This average was higher than the White (local) and Other Chert flake tools recovered at the site. The average score for flake tools made from local White Chert was 0.143 and 0.131



	Obsidian	Other Chert	White Chert
Average Scores	0.225	0.131	0.143

Figure 5.2. Average index of invasiveness scores for the Chalk Basin flake tool assemblage.

for the Other Chert. If we can assume that on the scale of 0 to 1, 0.5 represents half of the tool's realized utility, then it would seem that the flake tools discarded at Chalk Basin still have over half of their utility remaining. This included obsidian as well as chert flake tools, even though obsidian flake tools are more highly curated.

Expectation #2: Hafted Bifaces

Since hafted bifaces made from obsidian were brought to Chalk Basin from production and use at another location, I expected them to show signs of greater curation than hafted bifaces made from locally available cherts. All obsidian sources identified by XRF show obsidian originating from 25 to 56 km distant, again attesting to a potentially longer life history of distantly manufactured hafted bifaces. If an obsidian hafted biface was discarded at the site, it may be because it could no longer be a serviceable tool or it had been used to a point where there was little potential for future use.

Hafted bifaces made from local materials should exhibit some retouch but at lower levels as discussed in the review of the technological literature. If they were made of a local stone, then it was probably more recently made and potentially would not have been used as much as a tool made from a source 25 to 56 km away, such as obsidian.

To measure the amount of curation on hafted bifaces, Andrefsky's (2006) hafted biface retouch index (HRI) was used. The HRI does not include the part of the tool that would have been in the shaft but rather focuses on the retouch patterns found along the hafted biface's blade. The blade element of each biface is partitioned into a grid and is scored on a scale from 0 (no retouch) to 1 (completely retouched). From the retouch scores, the HRI is calculated by taking the average of all the squares. This has been shown to be an effective measure for curation because it measures how much a tool has been resharpened for future use. In Andrefsky's (2006) analysis, obsidian points were sourced using XRF analysis and their HRI was calculated. It was shown that the longer the more distant toolstone source, the higher its HRI index score (closer to 1). The same result should be expected in the Chalk Basin assemblage. In this case, obsidian from distant sources should have higher HRI scores in comparison to those made from local cherts.

Methods:

As briefly mentioned in Chapter One, hafted biface is a category of stone tools that can go through multiple production and maintenance stages. During these stages, the hafted biface is being retouched to either produce or resharpen an edge for an effective tool. As such, when trying to infer how much a tool has been used in relation to potential use, these retouch types have to be distinguished.

Another important factor in calculating the degree of curation for a hafted biface is whether or not to include the haft element of the tool. The haft element is an essential part of this tool category; hence *hafted* bifaces, but including the haft in a retouch measure may cause problems because of its function. When tools are mounted into a shaft, the haft element usually undergoes minimal retouch after it has been made (Andrefsky 2006). This is because the hafted biface remains in the haft element during retouch. This results in a situation where the blade element is transformed by retouch to resharpen it and the haft element retains in its original shape. Therefore, the haft element will be retouched during production and the blade element will be retouched during production and maintenance stages. For curation studies, only the blade element should be included in the analysis because it is a better indicator of total use relative to total potential use.

The HRI is sensitive to the distinction between location of retouch on hafted bifaces. The haft element of a tool is covered and completely omitted from the analysis. Once the blade element has been distinguished from the haft, the blade is divided into eight analysis areas (with four squares on either side the centerline) on each side of the artifact. Similar to Clarkson's (2002) analysis, the total number of analysis areas is 16 and the entire surface of the blade element is included in the analysis.

After gridding the biface blade in the manner noted above, each grid or analytical area is scored based on the retouch patterns present within them. Scores of 0, 0.5, or 1 are given to each grid based on the type of retouch present. For example, squares that have flake scars originating from the lateral edge and extending to the centerline are given a score of 0. This type of retouch is typical in cases of tool production and not resharpening. Therefore, a score of 0 reflects that no resharpening retouch has occurred in that grid. Scores of one are given to squares "where the entire edge contains resharpening flake scars or flake scars that do not extend to the midline or to flake scars originating from the opposite lateral margin" (Andrefsky 2006:746). Analysis of squares that contain about an equal amount of retouch flake scars and flake scars that extend to the centerline are given a score of 0.5. After a retouch score has been given to all 16 squares, the HRI is calculated as:

$$\mathrm{HRI} = \sum S_i/n$$

In this equation, HRI represents the hafted biface retouch index, $\sum S_i$ is the sum of all analysis squares, and n is the total amount of squares analyzed. All of the HRI scores were entered into a Microsoft Excel spreadsheet to calculate the average score for each tool.

For this analysis, the grid was superimposed on the artifact using Deneba's Canvas 8 drafting program. After all of the hafted bifaces were scanned at 600 dpi resolution, the image was opened in Canvas and a grid was drawn over each side of the biface. One advantage of using a drafting program such as Canvas is creating an accurate grid on a biface regardless of its shape. A potential downside to using Canvas for calculating the HRI is the amount of time it takes to scan the biface image and draw the analysis grid. Given the relatively small number of hafted bifaces recovered at Chalk Basin, time was not a major concern.

Data Set:

A total of 13-hafted bifaces (whole and fragmented) were recovered from Chalk Basin and were considered for inclusion in this study. Seven of the hafted bifaces were made from a distant source (~40 km away) of obsidian, one was made from the local White chert, and five were made from chert procured from an unknown location (Other Chert). Because of the condition and size, some of the hafted bifaces had to be omitted. For example, the assemblage included a hafted 'drill' (or knife), in which the blade element had been reduced to a degree that made it hard to distinguish between resharpening and production retouch patterns. Also, in Andrefsky's (2006) experimental analysis, he concluded that bifaces approaching a diamond shaped cross-section with a thickness to width blade ratio value of 1.0 or greater still increase in HRI but at a much lower rate. In other words, there is a threshold (around the 1.0 thickness:width for the blade element) for hafted bifaces in which the HRI becomes less informative and less sensitive to the degree of retouch.

As such, the first step in selecting artifacts for this analysis was to check the thickness-to-width ratio on all of the blade elements. The width and thickness of blades were taken at the midpoints of each specimen. Hafted bifaces that had a ratio of less than 1.0 were included and those missing their blade element were excluded from this analysis. This unfortunately excluded all the hafted bifaces made from the local White Chert. In all, two obsidian and two Other Chert hafted bifaces were used to calculate the HRI for the study of curation.

Results:

The results of the HRI support the expectation that more distant sources will have a higher HRI. For the Chalk Basin hafted bifaces made from distant sources of obsidian, the HRI ranged from 0.688 to 0.781 (Figure 5.3). The two obsidian bifaces used in this analysis were from the Skull Springs and the Indian Creek Butte sources. The most distant source of obsidian represented in the sample is from Skull Springs, which is 48 km away and had the highest HRI of 0.781. The second highest HRI (0.688) was sourced to Indian Creek Buttes, which is located 43 km from Chalk Basin (see Figure 4.10). The Other Chert hafted bifaces had HRI scores of 0.375 and 0.40625 and were made of chert from an unknown location. Based on Andrefsky's study, as the distance to sources increased, the HRI also increased. Intuitively, based on Andrefsky's HRI research and the results from the flake tool analysis presented above, the source for the Other Chert should be closer to Chalk Basin than the obsidian sources (within 40 km). The results of this study suggest that the obsidian hafted bifaces were used more heavily retouched than the bifaces from a probable closer source (Other Chert). Therefore, the degrees of curation for these tools are higher and were discarded at the site with a smaller amount of potential usage remaining when compared to ones made from nearby Other Chert sources. Even though the sample size of hafted bifaces is small (n=4) and even though no locally available White Chert was used in this analysis, it does appear that the obsidian specimens met expectations and did have greater degrees of retouch and subsequently greater amounts of artifact curation. This study also suggests (as does the flake tool analysis) that the "Other Chert" was probably gathered and made into hafted bifaces from a source, relatively close probably within 35 km.

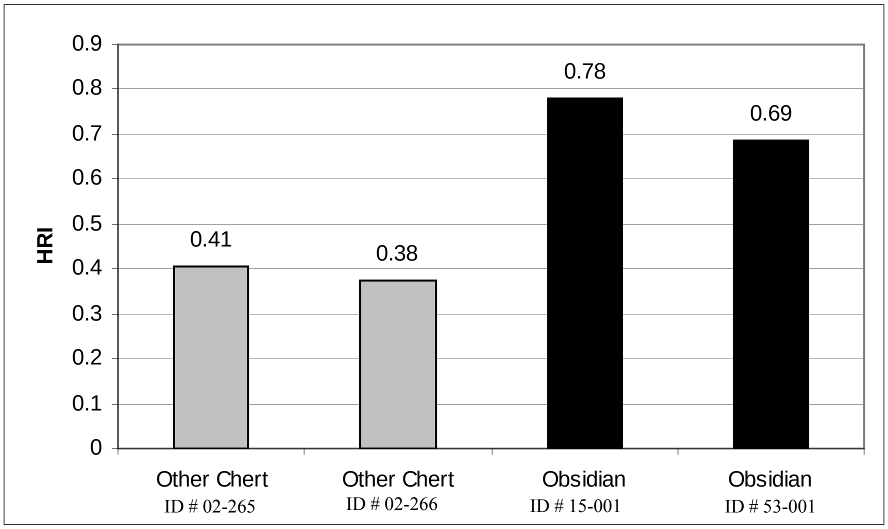


Figure 5.3. Results of the HRI analysis of the Chalk Basin hafted biface assemblage. The artifact identification number is given under the raw material type for each hafted biface.

Expectation #3: Unhafted Bifaces

A number of unhafted bifaces and biface fragments were recovered from the excavated and surface assemblages made from both local and non-local raw materials. Given the proximity to a chert source, it is assumed that bifaces made from the local material will exhibit more production retouch than maintenance retouch (Bamforth 1986). Bifaces made from more distant sources, including obsidian, should exhibit retouch patterns that are similar to retouch from maintenance activities, because they were not produced on site and have been brought to Chalk Basin. Also, these Other Chert bifaces have longer uselives, which gives them more opportunities to be used and resharpened.

To test this expectation, biface retouch from local White Chert and Other Chert raw material were analyzed using the results of the experiment outlined in Chapter Three. It is expected that local bifaces will have the same amount of flake scars as the experimental bifaces during production, while non-local bifaces should have more retouch from maintenance activities similar to the amount from the experimental resharpening episodes (use life events 4-6). If this is true, then local bifaces are not effective for inferring curation because they were more than likely made at another location and brought to Chalk Basin where they were used to some extent. Curation on non-local bifaces, however, should be measurable because they have been used. As such, the retouch patterns on these bifaces should be from maintenance activities and should resemble those observed on the experimental bifaces from resharpening.

Methods:

The analysis of each biface (whole and fragmented) was partitioned using the gridding technique discussed in Chapter Three. Each complete biface was partitioned into eight segments on each side. For this analysis, a 1x1 cm box was printed on a small sheet of transparent paper and placed within each analysis square. A total of six 1x1 cm squares was examined in the same relative position for each complete biface; three squares on each side, as discussed previously.

Bifaces fragments were analyzed in a slightly different manner. All of the fragments were categorized by morphological type including lateral, distal, and medial groups. The lateral group consisted of fragments only from an edge of a biface while the medial group includes fragments with two parallel edges plus the central portion between them. Fragments assigned to the distal category were very thin (in width and thickness) and were probably a projectile tip (from an arrow or dart point). Because these were fragments, a 1x1 cm box was printed on a small sheet of transparent paper and placed in an area that was large enough to fit the entire analysis box. This was done on both sides of each fragmentary specimen. If the 1x1 cm box did not fit on the biface fragment, it was not included in the analysis.

Dorsal flake ridges, or arises, were counted in each of the sampled boxes. Dorsal ridges were defined as the raised area that forms between the intersections of flakes that were removed from the biface. Flake ridges that form as a result of platform preparation, which were present around the biface edge, were not included in this analysis. Flake ridges were identified with the aid of a Loupe magnification lens (16x). Once the number of ridges for each square was recorded, all the ridge counts were summed and divided by the total number of sampled squares (six squares for the complete bifaces and two squares for the biface fragments).

Data Set:

A total 70 unhafted bifaces (whole and fragments) were recovered from Chalk Basin (Table 5.1) with the majority of them made from White Chert (61%), followed by Other Chert (29%) and obsidian (10%). Of all the unhafted bifaces and fragments, the most common morphological shape found were distal fragments (49%), then lateral fragments (29%) and medial fragments (14%). The smallest group in number was the complete unhafted bifaces composing only 9% of the total artifact category. Some of the bifaces recovered from Chalk Basin were not included in the flake ridge analysis because of their small size and included mostly biface distal fragments. A total of 11 biface fragments were excluded because the entire 1x1 cm analysis square could not be completely placed on the biface surface.

Table 5.1. Summary Table of Biface Portion by Raw Material Type Recovered from Chalk Basin.

	Biface Portion				
Raw Material	**Complete**	**Distal**	**Medial**	**Lateral**	**Total**
Obsidian	0	4	1	2	**7**
Other Chert	3	11	3	3	**20**
White Chert	3	19	6	15	**43**
Total	**6**	**34**	**10**	**20**	**70**

Results:

The average number of flake ridges on unhafted bifaces supports the original expectation. The highest number of flake ridges were found on bifaces (whole and fragmented) made from obsidian (Figure 5.4). The second highest were bifaces made from Other Chert flake ridges and the lowest were the White Chert bifaces. This makes intuitive sense because the average number of flake ridges coincides with the distance from which the raw materials were procured.

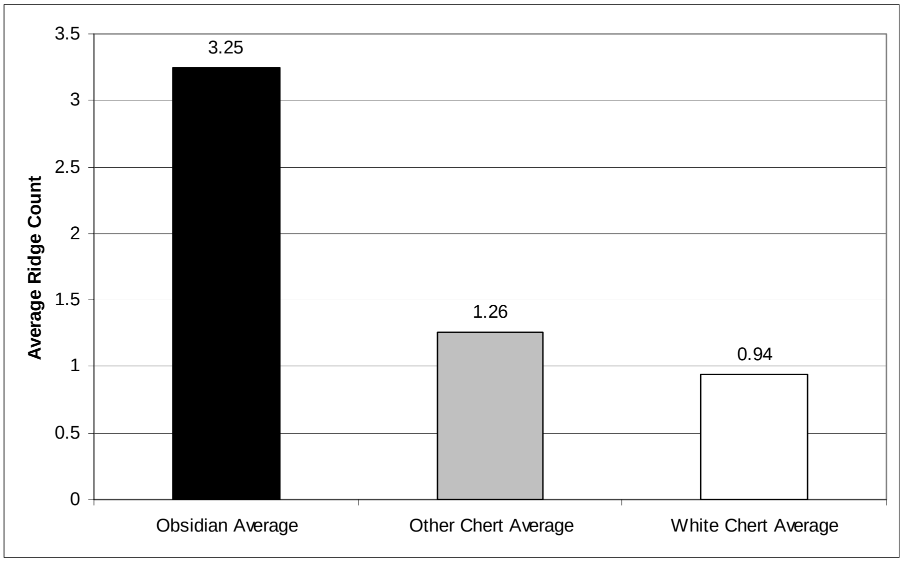


Figure 5.4. The average ridge count from complete bifaces and biface fragments.

Expectation #4: Proximal Flakes

From the experimental data presented in Chapter Three, it was found that biface production produces significantly different types of flakes than those resulting from resharpening activities. In general, biface production flakes should be larger in size and have bigger platforms than flakes made from resharpening. Also, it was found that resharpening flakes usually have more complex platforms and production flakes have more flat and cortical platforms.

Empirical data from Chapter Three will be used to help interpret activities at Chalk Basin where biface production using local material is expected. I expect local cherts to have low degrees of curation because in all likelihood, more tools (like bifaces) are being made at the site rather than being used at the site relative to nonlocal raw material types. If production activities are occurring at the site, there should be a greater amount of production flakes of local chert. In contrast, obsidian and Other Cherts are being brought into Chalk Basin and therefore those tools have had a longer uselife with a greater chance of being used and resharpened compared to those being produced at Chalk Basin. Furthermore, these materials may be coming into the site in finished tool form, thus production activities on these materials should be minimal.

Methods:

In Chapter Three, a series of statistical tests was used to demonstrate significant differences between flakes resulting from production and resharpening activities. Some of the same techniques are applied to flakes collected from Chalk Basin. A sample of platform bearing flakes was selected for analysis, for which six metric attributes and two nominal attributes were recorded. These included maximum length, width, thickness, weight, platform width, and platform thickness. Nominal variables recorded from each flake were platform type (from Andrefsky 2005) and presence of cortex (yes or no). All metric and nominal attributes were input into Microsoft Word and later converted into an SPSS (version 8.0) file. The suite of statistics presented below was chosen to identify discriminating variables from the experimental flakes (in order to select variables to record for the Chalk Basin analysis).

Data Set:

The sample chosen for this analysis included all of the proximal flakes from the biface experiment (detailed in Chapter Three) and samples chosen from the field excavations and surface collections. The archaeological assemblage was chosen from the densest test unit level and surface collection square because of the higher probability of having flakes from the same reduction activity/episode. In choosing flakes from multiple locations, there is a greater risk of having multiple activities mixed together. Although not foolproof, it should help the chances of having flakes resulting from the same activity.

Obsidian, Other Chert, and local White Chert proximal flakes were chosen for the analysis. For the entire site assemblage, proximal flakes were the largest artifact group by count. A sample of each material group representing 10% of the Other Chert and White Chert and 23% of the obsidian was chosen. This means that 150 White Chert, 100 Other Chert, and 50 obsidian flakes were used for the flake study (Table 5.2). The obsidian sample was increased to bring up the total number of flakes analyzed since obsidian flakes were rare relative to the chert types. Also, as shown in Table 5.2, most of the flakes selected for this sample do not have dorsal cortex. As stated above, proximal flakes from entire levels or collection squares were randomly selected for inclusion in this analysis. The only criterion for a proximal flake to be chosen from the designated square/test unit was that it was made from obsidian, Other Chert, or White Chert.

Table 5.2. Number of Proximal Flakes in the Sample Listed by Raw Material Type and the Presence of Dorsal Cortex.

MATERIAL	Cortex	Frequency	Percent
Obsidian	No	45	90.0
	Yes	5	10.0
	Total	**50**	**100.0**
Other Chert	No	73	73.0
	Yes	27	27.0
	Total	**100**	**100.0**
White Chert	No	130	86.7
	Yes	20	13.3
	Total	**150**	**100.0**

Results:

Flake platforms were recorded for each flake and classified as cortical, flat, crushed, complex, or abraded (for definitions see Andrefsky 2005). Figure 5.6, shows that 40% of all platforms from the sample were complex followed by flat, abraded, crushed, and cortical. Table 5.3 contains the frequencies for each raw material and platform type. Obsidian flakes had the highest number of crushed and abraded platforms, while the Other Chert flakes contained more complex platforms than the other two raw material types. From Figure 5.5 and Table 5.3, significant differences between the groups were confirmed by a chi-square test and Cramer's V was calculated as a measure of strength (x^2=29.101, df=8, p<0.0001; Cramer's V=0.220, p<0.001). In this case, the strength of the differences observed between raw material types and platform types is moderately strong.

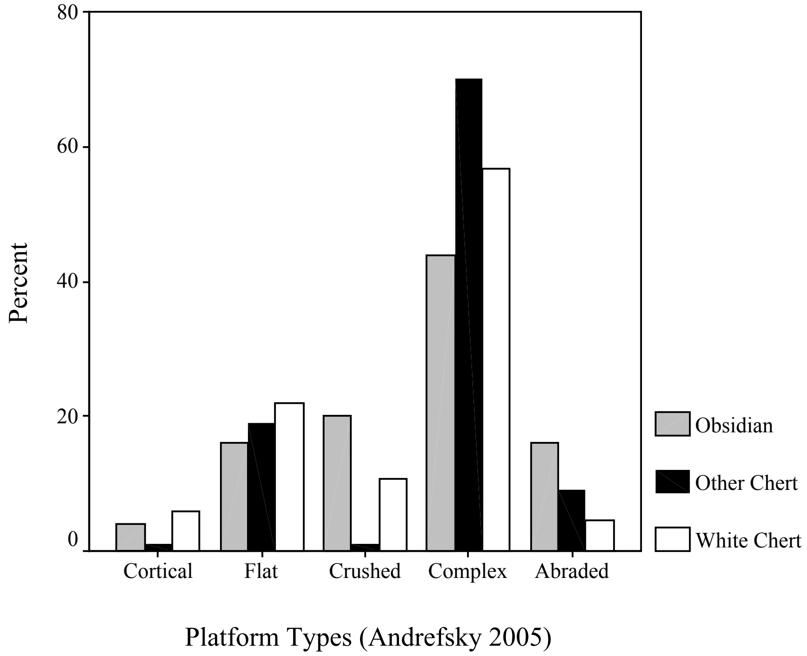


Figure 5.5. Percentage of platform types by raw material.

The metric variables recorded for proximal flakes are listed in Table 5.4 along with central tendency statistics for each variable. It should be noted that for the proximal flakes identified with a crushed platform (see Table 5.3), platform thickness and width measurements were not taken.

Table 5.3. Data Table for Proximal Flake Platform Types and Raw Material Types.

		MATERIAL			**Total**
		Obsidian	**Other Chert**	**White Chert**	
Platform Type	**Cortical**	2	1	9	**12**
	Flat	8	19	33	**60**
	Crushed	10	0	16	**27**
	Complex	22	71	85	**177**
	Abraded	8	9	7	**24**
Total		**50**	**100**	**150**	**300**

Table 5.4. Descriptive Statistics of the Metric Variables Recorded on the Proximal Flakes from the Archaeological Samples.

Raw Material	**Statistic**	**Weight (g)**	**Length (mm)**	**Width (mm)**	**Thickness (mm)**	**Platform Thickness (mm)**	**Platform Width (mm)**
Obsidian	**N**	50	50	50	50	39	39
	Mean	.2640	11.1840	9.2600	1.6860	1.2385	5.6769
	Median	.1000	10.1000	7.8000	1.3000	1.0000	4.6000
	Mode	.10	10.90	7.10	.90	.90	3.70
	Std. Deviation	.3613	4.9417	4.4816	1.1532	.9104	2.9115
	Minimum	.10	5.30	4.10	.20	.30	2.20
	Maximum	1.90	29.50	27.30	6.70	5.80	15.40
Other Chert	**N**	100	100	100	100	100	100
	Mean	1.1470	17.7810	17.1840	3.7010	2.1200	9.0720
	Median	.6000	17.4000	15.2500	2.5000	1.8000	7.9500
	Mode	.10	17.40	11.90	2.00	1.10	4.70
	Std. Deviation	1.2812	8.0756	7.7247	6.3505	1.2576	4.5545
	Minimum	.10	5.80	6.10	.70	.40	2.80
	Maximum	4.80	45.80	39.50	57.00	7.30	28.00
White Chert	**N**	150	150	150	150	139	139
	Mean	1.2453	18.4553	18.4380	3.3687	2.2230	8.7863
	Median	.9000	17.5500	17.3000	2.7000	1.8000	7.8000
	Mode	.10	15.00	15.30	1.60	1.30	4.90
	Std. Deviation	1.2799	7.4768	6.4337	3.0317	1.5204	4.2479
	Minimum	.10	5.00	7.90	.50	.30	2.10
	Maximum	6.30	42.30	44.40	26.10	10.20	25.60

For all of the variables recorded, obsidian had the smallest metric measurements for flake weight, length, width, thickness, platform thickness, and platform width. For the same variables White Chert flakes had the largest measurements, with the exception of platform width for which Other Chert flakes were larger. To test the significance of these observations for all the variables between raw material groups, an analysis of variance, or ANOVA (and in some cases, Welch Robust Test), was calculated with the Post Hoc analysis Tukey HSD (honestly significant difference) Range test (or Games-Howell test when appropriate) for the comparison between each variable using SPSS 8.0

and 15.0 for Windows software (Field 2000). ANOVA assumes (1) normality of the data, (2) independent scale or ratio variables, and (3) homogeneity of variances. In the first case, log^{10} transformations were performed on all the variables included in the analysis to normalize the variables. The second assumption is valid with the measurements of each independent variable. The homogeneity of variances was tested with Levene's statistic, in which all of the variables were approximately equal except for flake width and weight (results listed in Appendix I). For these variables, Welch's test of equality of means was run to test for significant differences because it does not assume homogeneity of variances. A violation of homogeneity of variances is not fatal to the ANOVA test unless the sample sizes are unequal. In this case, the sample sizes are unequal and the Welch statistic was more

Table 5.5. Results Table for the Significance Tests of the Log^{10} Transformed Linear Variables for the Archaeological Analysis Groups. The Significance of the First Four Variables were Tested with ANOVA and the Last Two (Platform Width and Weight) were Tested with the Welch Statistic.

Variable		Sum of Squares	df	Mean Square	F	Welch Statistic	df 1	df 2	Sig.
Length (log 10) ANOVA	**Between Groups**	1.523	2	.761	21.907				<.0005
	Within Groups	10.322	297	3.475E-02					
	Total	11.845	299						
Thickness (log 10) ANOVA	**Between Groups**	2.557	2	1.278	18.680				<.0005
	Within Groups	20.325	297	6.843E-02					
	Total	22.882	299						
Width (log 10) ANOVA	**Between Groups**	3.417	2	1.709	59.682				<.0005
	Within Groups	8.503	297	2.863E-02					
	Total	11.920	299						
Platform Thickness (log 10) ANOVA	**Between Groups**	1.592	2	.796	13.257				<.0005
	Within Groups	16.514	275	6.005E-02					
	Total	18.106	277						
Platform Width (log 10) Welch						52.094	2	126.223	<.0005
Weight (log 10) Welch						39.724	2	143.038	<.0005

appropriate because it does not assume equal variances or equal sample sizes. In Table 5.5 the results of the ANOVA and the Welch test are listed, in which all of the variables are significantly different ($p<0.0005$) between raw material types.

Next, the Tukey HSD and the Games-Howell test was used to determine which pairs of lithic raw material types are significantly different or similar based upon proximal flake characteristics. Because of the violation of homogeneity of variances for flake width and weight, the Games-Howell (does not assume equal variance) test was also used to identify significant relationships between the raw material groups for this variable. The results are listed in Table 5.6 and include the significance values from the appropriate Post Hoc comparison (i.e., Tukey HSD or Games-Howell) for each variable. Each analysis group (i.e., raw material type) was systematically compared to the other groups to test for significant differences or similarities between each pair. If the analysis group that was being compared was significantly ($p<0.05$ level) different from another analysis group, then the pairing would be marked with an asterisk in the mean difference column. If the pairings were not found to be significantly different ($p>0.05$) then they are highlighted with bold type. For example, for length (log ^{10}) the first group being compared to obsidian and the White Chert is the "Other Chert". From Tukey's HSD test, there are significant differences between Other Chert and obsidian (noted by asterisk) ($p<0.0005$) but not between Other Chert and White Chert (in bold; $p<0.527$). When obsidian is being compared to Other Chert and White Chert, both of these pairings are found to be significantly different and are marked by an asterisk ($p<0.0005$). When White Chert is compared to the other two groups, obsidian is found to be significantly different ($p<0.0005$) and the Other Chert pairing is significantly similar ($p<0.527$). In sum, it is evident that White Chert and Other Chert flakes are not significantly different with regard to proximal flake characteristics, while obsidian is significantly different from the other two raw material types.

For every variable, the mean values of obsidian were always significantly different than Other Chert and White Chert. The results of these tests show that the obsidian proximal flakes were always significantly smaller than Other Chert and White Chert flakes. Moreover, the White Chert and the Other Chert flakes are grouped together because they are similar in size and weight.

Statistical tests have supported expectations about differences in the use of raw materials at Chalk Basin through the examination of proximal flakes. In trying to understand these differences, proximal flakes from the biface experiment (flakes made from production and resharpening activities) were compared with the archaeological samples (Table 5.7). By examining the range and mean of the variables, it appears that differences do occur between raw material types and experimental flakes. ANOVA and Welch's test was also used to test the significance of the variables between study groups. Levene's statistic for all the log ^{10} transformed variables (for normality) revealed that some of the groups did not have equal variances (Appendix I). For these variables, which included length (log ^{10}), thickness (log ^{10}), weight (log ^{10}), and width (log ^{10}), the Welch statistic was used as a test for significance. The results of both the ANOVA and Welch's statistic are listed in Table 5.8 and were found to be statistically significant between the analysis groups.

Boxplots of all the variables in Figure 5.6 provide a visual picture of the differences and similarities between the archaeological and the experimental flakes.

These groupings were statistically compared with the Tukey HSD and Games-Howell Post-Hoc tests. Table 5.9 lists the results form these tests and reveals significant relationships among the analytical groups. Overall, there are five different analytical groups (including obsidian, Other Chert, White Chert, production flakes, and resharpening flakes), therefore, there can be as many as five groupings (no analysis groups are similar) or as little as one grouping (all groups are similar) that are significantly similar to one another. The maximum number of groups formed from the analysis groups was four and the minimum number was three for the variables recorded (Table 5.9).

The groupings discussed below are all based on the significant relationships revealed on Table 5.9. As before, each analytical group (raw material type or experimental stage) was systematically compared to all other groups to test for significant differences or similarities between each pair based upon attribute measurements. Significantly different pairs (at the 0.05 level; $p<0.05$) were marked with an asterisk in the mean difference column. Insignificant pairings ($p>0.05$) were highlighted with bold type.

In regards to flake width (Table 5.9), three groups were found to be significantly similar including Other Chert, White Chert, and resharpening flakes. Obsidian flakes and production flakes were significantly different from the other analysis groups. This pattern probably results from the fact that obsidian flakes are significantly smaller than the other groups and production flakes are significantly larger. These same groupings were also found to be significant for platform width, platform thickness, and weight. Four groupings were formed for thickness and included obsidian flakes in one group, resharpening flakes in another group, Other Chert and White Chert flakes in a third group, and finally, production flakes in a single group. For length, group memberships change up a little bit and Other Chert and White Chert flakes form a group and resharpening flakes are in their own group.

Table 5.6. Data Table Results for the Tukey HSD and Games-Howell Comparisons for the Variables Recorded in the Archaeological Sample. The Significance Value (at the 0.05 level) for Each Subset Signifies that the Pairing is Significantly Different (marked by an asterisk) or Similar (p>0.05, highlighted in bold font).

				Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
Dependent Variable	**Significance Test Used**	**(I) Raw Material**	**(J)Raw Material**				**Lower Bound**	**Upper Bound**
Length (log 10)	Tukey HSD	**Other Chert**	Obsidian	.1669*	.032	.000	9.257E-02	.2412
			White Chert	**-2.6342E-02**	**.024**	**.526**	-8.3450E-02	3.077E-02
		Obsidian	Other Chert	-.1669*	.032	.000	-.2412	-9.2568E-02
			White Chert	-.1932*	.030	.000	-.2626	-.1239
		White Chert	**Other Chert**	**2.634E-02**	**.024**	**.526**	-3.0765E-02	8.345E-02
			Obsidian	.1932*	.030	.000	.1239	.2626
Platform Thickness (log 10)	Tukey HSD	**Other Chert**	Obsidian	.2003*	.045	.000	9.489E-02	.3057
			White Chert	**-1.3992E-02**	**.033**	**.903**	-9.0209E-02	6.222E-02
		Obsidian	Other Chert	-.2003*	.045	.000	-.3057	-9.4893E-02
			White Chert	-.2143*	.043	.000	-.3145	-.1141
		White Chert	**Other Chert**	**1.399E-02**	**.033**	**.903**	-6.2225E-02	9.021E-02
			Obsidian	.2143*	.043	.000	.1141	.3145
Platform Width (log 10)	Tukey HSD	**Other Chert**	Obsidian	.1613*	.037	.000	7.522E-02	.2474
			White Chert	**5.466E-03**	**.027**	**.977**	-5.6805E-02	6.774E-02
		Obsidian	Other Chert	-.1613*	.037	.000	-.2474	-7.5216E-02
			White Chert	-.1559*	.035	.000	-.2377	-7.3973E-02
		White Chert	**Other Chert**	**-5.4665E-03**	**.027**	**.977**	-6.7738E-02	5.681E-02
			Obsidian	.1559*	.035	.000	7.397E-02	.2377
Thickness (log 10)	Tukey HSD	**Other Chert**	Obsidian	.2203*	.044	.000	.1160	.3246
			White Chert	**-2.8996E-02**	**.034**	**.673**	-.1091	5.114E-02
		Obsidian	Other Chert	-.2203*	.044	.000	-.3246	-.1160
			White Chert	-.2493*	.042	.000	-.3466	-.1520
		White Chert	**Other Chert**	**2.900E-02**	**.034**	**.673**	-5.1140E-02	.1091
			Obsidian	.2493*	.042	.000	.1520	.3466
Width (log 10)	Games-Howell	**Other Chert**	Obsidian	.2436*	.029	.000	.1671	.3201
			White Chert	**-4.7263E-02**	**.022**	**.094**	-.1005	5.937E-03
		Obsidian	Other Chert	**-.2436***	.029	.000	-.3201	-.1671
			White Chert	-.2909*****	.027	.000	-.3588	-.2229
		White Chert	**Other Chert**	**4.726E-02**	**.022**	**.094**	-5.9368E-03	.1005
			Obsidian	.2909*****	.027	.000	.2229	.3588
Weight (log 10)	Games-Howell	**Other Chert**	Obsidian	.47674*	.07785	.000	.2867	.6667
			White Chert	**-.12015**	**.06573**	**.163**	-.2661	.0258
		Obsidian	Other Chert	-.47674*	.081	.000	-.6667	-.2867
			White Chert	**-.59689**	**.07785**	**.000**	-.7741	-.4196
		White Chert	**Other Chert**	**.12015**	**.06573**	**.163**	-.0258	.2661
			Obsidian	.59689*	.06725	.000	.4196	.7741

In sum, some differences between raw material types are visually evident in Figure 5.6 and were found to be significant from ANOVA/Welch's and Tukey HSD/Games-Howell tests. Obsidian flakes were statistically different than Other Chert and White Chert flakes. Obsidian is always in a group by itself and Other Chert and

White Chert flakes share similar attribute measurements with the experimental resharpening flakes for four of the six variables recorded. Experimental production flakes were significantly larger and heavier than all of the other flake groups included in the study.

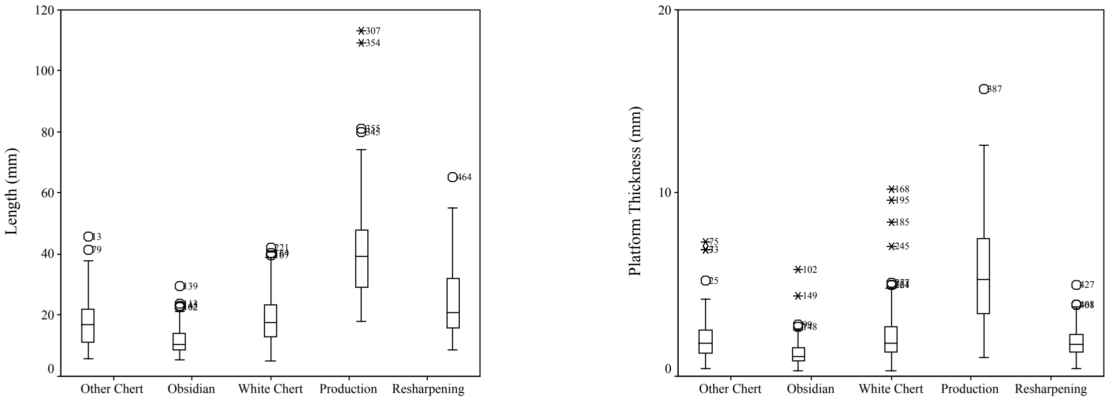
Table 5.7. Descriptive Statistics for the Raw Material and Experimental Analysis Groups.

Analysis Category	Variable	N	Minimum	Maximum	Mean	Std. Deviation
Other Chert	**Length**	96	5.80	45.80	17.6948	8.2274
	Width	96	6.10	39.50	17.1688	7.7921
	Thickness	96	.70	33.50	3.1760	3.4366
	Platform Thickness	96	.40	7.30	2.0969	1.2598
	Platform Width	96	2.80	28.00	8.9188	4.4670
	Weight	96	.10	4.80	1.1354	1.2892
Obsidian	**Length**	54	5.30	29.50	11.8259	5.2890
	Width	54	4.10	27.30	9.8741	5.0981
	Thickness	54	.20	57.00	2.7685	7.6051
	Platform Thickness	43	.30	5.80	1.3721	1.0178
	Platform Width	43	2.20	19.80	6.3349	3.7960
	Weight	54	.10	3.20	.3500	.5438
White Chert	**Length**	150	5.00	42.30	18.4553	7.4768
	Width	150	7.90	44.40	18.4380	6.4337
	Thickness	150	.50	26.10	3.3687	3.0317
	Platform Thickness	139	.30	10.20	2.2230	1.5204
	Platform Width	139	2.10	25.60	8.7863	4.2479
	Weight	150	.10	6.30	1.2453	1.2799
Production	**Length**	105	18.00	113.10	41.8971	17.3060
	Width	106	1.50	88.20	40.3255	15.5139
	Thickness	106	2.80	18.10	7.3434	3.1937
	Platform Thickness	106	1.00	15.70	5.6274	2.7802
	Platform Width	106	3.70	46.30	18.6481	9.5673
	Weight	106	.70	61.00	11.0358	11.0151
Resharpening	**Length**	141	8.50	65.20	24.2277	11.2896
	Width	142	7.20	44.40	18.5951	6.8947
	Thickness	142	.70	4.20	2.2535	.7309
	Platform Thickness	142	.40	5.00	1.8563	.7968
	Platform Width	142	2.10	20.50	8.2923	3.6791
	Weight	142	.10	5.30	1.1592	1.0128

The proximal flake experimental data were produced under known circumstances and can help interpret the excavated proximal flake assemblage. Many of the significant associations among experimental groups and excavated groups from Chalk Basin were unexpected. Obsidian flakes did not share any similarities with any other groups, which suggests that these flakes may have been made from a completely different reduction activity than what was explored in this experimental analysis (experimental flakes were only made by soft and hard hammer percussor, no pressure flaking). Alternatively, obsidian might function differently than chert, which could also be responsible for the significant difference in flake attributes. Also it is possible that obsidian tools produced or resharpened at Chalk Basin were much smaller than the experimentally replicated tools- thus resulting in significantly different flake characteristics. Given the overall small artifact size of all the obsidian stone tools and the distance to known quarry locations, it is plausible to think that the proximal flakes recovered from Chalk Basin were the result of resharpening smaller stone tools (relative to the other raw materials and to the experimental populations) by using a more precise and conservative method- pressure flaking. Pressure flaking may have been the preferred reduction method for obsidian in order to conserve an “expensive” high quality raw material.

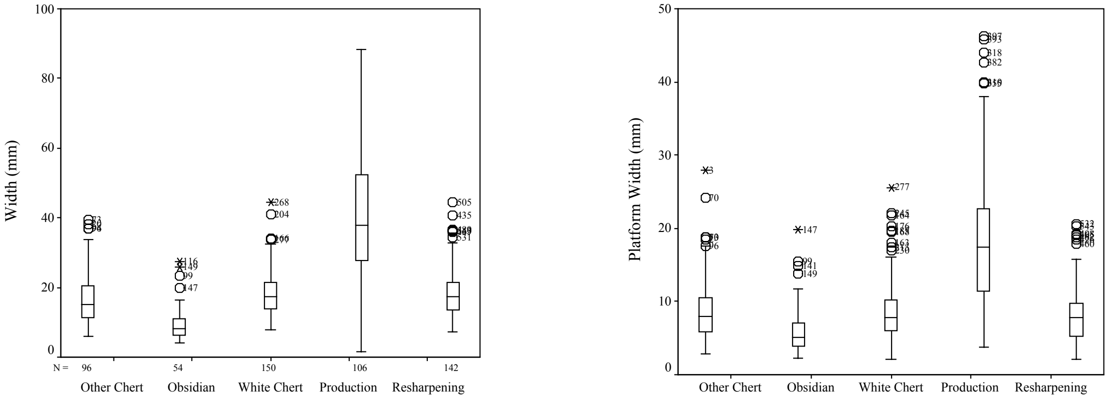
Table 5.8. Welch’s Statistic and ANOVA Results for the Variables Recorded from the Archaeological and Experimental Samples.

Variable		Sum of Squares	df	Mean Square	F	Welch’s Statistic	df1	df2	Sig.
Length (log 10) Welch						127.126	4	222.436	.000
Thickness (log 10) Welch						139.380	4	209.486	.000
Width (log 10) Welch						93.449	4	213.470	.000
Weight (log 10) Welch						166.482	4	218.879	.000
Platform Width (log 10) ANOVA	**Between Groups**	10.536	4	2.634	64.725				.000
	Within Groups	21.201	521	4.069E-02					
	Total	31.737	525						
Platform Thickness (log 10) ANOVA	**Between Groups**	**19.542**	4	4.886	90.354				.000
	Within Groups	**28.171**	521	5.407E-02					
	Total	**47.714**	525						



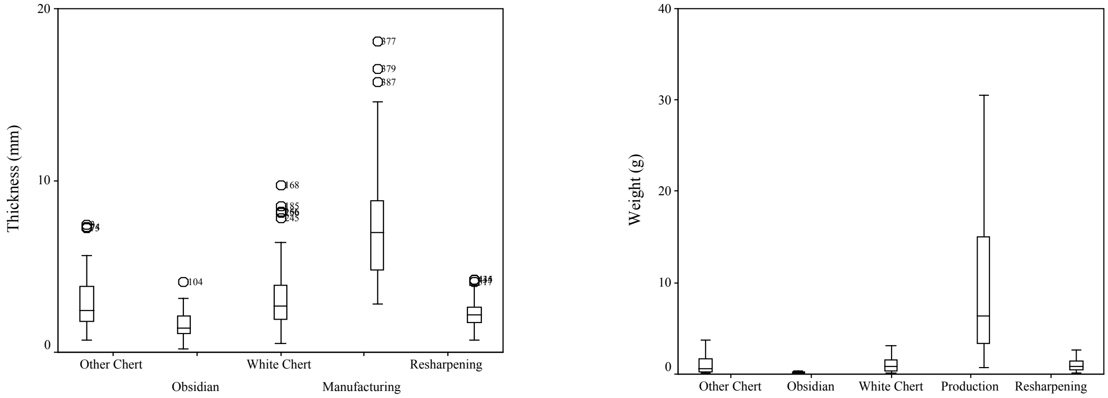
A) Length

D) Platform Thickness



B) Width

E) Platform Width



C) Thickness

F) Weight

Figure 5.6. Boxplots of all the variables comparing the archaeological and experimental analysis groups.

Table 5.9. Results for the Tukey HSD and Games-Howell Comparisons for the Archaeological and Experimental Samples. The Significance Value for Each Subset Signifies that the Pairing is Significantly Different (marked by an asterisk) or Similar (p>0.05, highlighted in bold font).

							95% Confidence Interval	
Dependent Variable	**Sig Test**	**(I) Raw Material**	**(J) Raw Material**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**Lower Bound**	**Upper Bound**
Length (log 10)	Games - Howell	Other Chert	Obsidian	.1669*	.031	.000	8.180E-02	.2520
			White Chert	**-2.6342E-02**	**.024**	**.833**	-9.4874E-02	4.219E-02
			Production	-.3879*	.026	.000	-.4576	-.3181
			Resharpening	-.1372*	.024	.000	-.2082	-6.6205E-02
		Obsidian	Other Chert	-.1669*	.031	.000	-.2520	-8.1800E-02
			White Chert	-.1932*	.029	.000	-.2712	-.1152
			Production	-.5547*	.031	.000	-.6338	-.4756
			Resharpening	-.3041*	.029	.000	-.3842	-.2240
		White Chert	**Other Chert**	**2.634E-02**	**.024**	**.833**	-4.2190E-02	9.487E-02
			Obsidian	.1932*	.029	.000	.1152	.2712
			Production	-.3615*	.023	.000	-.4206	-.3025
			Resharpening	-.1108*	.022	.000	-.1713	-5.0355E-02
		Production	Other Chert	.3879*	.026	.000	.3181	.4576
			Obsidian	.5547*	.031	.000	.4756	.6338
			White Chert	.3615*	.023	.000	.3025	.4206
			Resharpening	.2507*	.024	.000	.1888	.3126
		Resharpening	Other Chert	.1372*	.024	.000	6.620E-02	.2082
			Obsidian	.3041*	.029	.000	.2240	.3842
			White Chert	.1108*	.022	.000	5.036E-02	.1713
			Production	-.2507*	.024	.000	-.3126	-.1888
Platform Thickness (log 10)	Tukey HSD	Other Chert	Obsidian	.2003*	.043	.000	8.389E-02	.3167
			White Chert	**-1.3992E-02**	**.031**	**.991**	-9.8168E-02	7.018E-02
			Production	-.4336*	.033	.000	-.5229	-.3442
			Resharpening	**3.253E-02**	**.031**	**.828**	-5.1278E-02	.1163
		Obsidian	Other Chert	-.2003*	.043	.000	-.3167	-8.3888E-02
			White Chert	-.2143*	.041	.000	-.3250	-.1036
			Production	-.6338*	.042	.000	-.7485	-.5192
			Resharpening	-.1677*	.040	.000	-.2782	-5.7341E-02
		White Chert	**Other Chert**	**1.399E-02**	**.031**	**.991**	-7.0183E-02	9.817E-02
			Obsidian	.2143*	.041	.000	.1036	.3250
			Production	-.4196*	.030	.000	-.5014	-.3378
			Resharpening	**4.653E-02**	**.028**	**.448**	-2.9157E-02	.1222
		Production	Other Chert	.4336*	.033	.000	.3442	.5229
			Obsidian	.6338*	.042	.000	.5192	.7485
			White Chert	.4196*	.030	.000	.3378	.5014
			Resharpening	.4661*	.030	.000	.3847	.5475
		Resharpening	**Other Chert**	**-3.2534E-02**	**.031**	**.828**	-.1163	5.128E-02
			Obsidian	.1677*	.040	.000	5.734E-02	.2782
			White Chert	-4.6526E-02	.028	.448	-.1222	2.916E-02
			Production	-.4661*	.030	.000	-.5475	-.3847
Platform Width (log 10)	Tukey HSD	Other Chert	Obsidian	.1613*	.037	.000	6.035E-02	.2623
			White Chert	**5.466E-03**	**.027**	**1.000**	-6.7557E-02	7.849E-02
			Production	-.3104*	.028	.000	-.3880	-.2329
			Resharpening	**2.504E-02**	**.027**	**.882**	-4.7666E-02	9.775E-02
		Obsidian	Other Chert	-.1613*	.037	.000	-.2623	-6.0349E-02
			White Chert	-.1559*	.035	.000	-.2519	-5.9835E-02
			Production	-.4717*	.036	.000	-.5712	-.3723
			Resharpening	-.1363*	.035	.001	-.2321	-4.0500E-02
		White Chert	**Other Chert**	**-5.4665E-03**	**.027**	**1.000**	-7.8490E-02	6.756E-02
			Obsidian	.1559*	.035	.000	5.984E-02	.2519
			Production	-.3159*	.026	.000	-.3869	-.2449
			Resharpening	**1.958E-02**	**.024**	**.927**	-4.6081E-02	8.523E-02
		Production	Other Chert	.3104*	.028	.000	.2329	.3880
			Obsidian	.4717*	.036	.000	.3723	.5712
			White Chert	.3159*	.026	.000	.2449	.3869
			Resharpening	.3355*	.026	.000	.2648	.4061
		Resharpening	**Other Chert**	**-2.5042E-02**	**.027**	**.882**	-9.7750E-02	4.767E-02
			Obsidian	.1363*	.035	.001	4.050E-02	.2321
			White Chert	**-1.9575E-02**	**.024**	**.927**	-8.5231E-02	4.608E-02
			Production	-.3355*	.026	.000	-.4061	-.2648

Table 5.9 continued.

Thickness (log 10)	Games - Howell	Other Chert	Obsidian	.2203*	.038	.001	7.581E-02	.3648
			White Chert	**-2.8996E-02**	**.029**	**.889**	-.1150	5.700E-02
			Production	-.4101*	.032	.000	-.4927	-.3276
			Resharpening	8.883E-0*2	.030	.011	1.370E-02	.1640
		Obsidian	Other Chert	-.2203*	.038	.001	-.3648	-7.5810E-02
			White Chert	-.2493*	.035	.000	-.3888	-.1098
			Production	-.6304*	.037	.000	-.7679	-.4929
			Resharpening	-.1315	.036	.055	-.2649	1.956E-03
		White Chert	**Other Chert**	**2.900E-02**	**.029**	**.889**	-5.7003E-02	.1150
			Obsidian	.2493*	.035	.000	.1098	.3888
			Production	-.3811*	.028	.000	-.4543	-.3080
			Resharpening	.1178*	.026	.000	5.313E-02	.1825
		Production	Other Chert	.4101*	.032	.000	.3276	.4927
			Obsidian	.6304*	.037	.000	.4929	.7679
			White Chert	.3811*	.028	.000	.3080	.4543
			Resharpening	.4990*	.029	.000	.4390	.5590
		Resharpening	Other Chert	-8.8826E-02*	.030	.011	-.1640	-1.3700E-02
			Obsidian	**.1315**	**.036**	**.055**	-1.9564E-03	.2649
			White Chert	-.1178*	.026	.000	-.1825	-5.3128E-02
			Production	-.4990*	.029	.000	-.5590	-.4390
Weight (log 10)	Games - Howell	Other Chert	Obsidian	.4767*	.074	.000	.2644	.6891
			White Chert	**-.1202**	**.057**	**.357**	-.2995	5.916E-02
			Production	-1.0955*	.061	.000	-1.2781	-.9129
			Resharpening	**-.1595**	**.057**	**.074**	-.3281	9.050E-03
		Obsidian	Other Chert	-.4767*	.074	.000	-.6891	-.2644
			White Chert	-.5969*	.069	.000	-.7836	-.4102
			Production	-1.5722*	.072	.000	-1.7621	-1.3823
			Resharpening	-.6363*	.069	.000	-.8131	-.4595
		White Chert	**Other Chert**	**.1202**	**.057**	**.357**	-5.9157E-02	.2995
			Obsidian	.5969*	.069	.000	.4102	.7836
			Production	-.9753*	.055	.000	-1.1233	-.8274
			Resharpening	**-3.9399E-02**	**.051**	**.923**	-.1697	9.092E-02
		Production	Other Chert	1.0955*	.061	.000	.9129	1.2781
			Obsidian	1.5722*	.072	.000	1.3823	1.7621
			White Chert	.9753*	.055	.000	.8274	1.1233
			Resharpening	.9359*	.056	.000	.8012	1.0707
		Resharpening	**Other Chert**	**.1595**	**.057**	**.074**	-9.0504E-03	.3281
			Obsidian	.6363*	.069	.000	.4595	.8131
			White Chert	**3.940E-02**	**.051**	**.923**	-9.0915E-02	.1697
			Production	-.9359*	.056	.000	-1.0707	-.8012
Width (log 10)	Games - Howell	Other Chert	Obsidian	.2436*	.030	.000	.1543	.3329
			White Chert	**-4.7263E-02**	**.023**	**.228**	-.1092	1.465E-02
			Production	-.3725*	.025	.000	-.4497	-.2952
			Resharpening	**-4.8881E-02**	**.023**	**.212**	-.1118	1.406E-02
		Obsidian	Other Chert	-.2436*	.030	.000	-.3329	-.1543
			White Chert	-.2909*	.028	.000	-.3703	-.2115
			Production	-.6161*	.029	.000	-.7077	-.5244
			Resharpening	-.2925*	.028	.000	-.3727	-.2123
		White Chert	**Other Chert**	**4.726E-02**	**.023**	**.228**	-1.4655E-02	.1092
			Obsidian	.2909*	.028	.000	.2115	.3703
			Production	-.3252*	.022	.000	-.3905	-.2599
			Resharpening	**-1.6184E-03**	**.020**	**1.000**	-4.9232E-02	4.600E-02
		Production	Other Chert	.3725*	.025	.000	.2952	.4497
			Obsidian	.6161*	.029	.000	.5244	.7077
			White Chert	.3252*	.022	.000	.2599	.3905
			Resharpening	.3236*	.022	.000	.2573	.3899
		Resharpening	**Other Chert**	**4.888E-02**	**.023**	**.212**	-1.4056E-02	.1118
			Obsidian	.2925*	.028	.000	.2123	.3727
			White Chert	**1.618E-03**	**.020**	**1.000**	-4.5995E-02	4.923E-02
			Production	-.3236*	.022	.000	-.3899	-.2573

* The mean difference is significant at the .05 level.

The proximal flake analysis shows that Other Chert and White Chert were used in a similar manner. From the abundance and the size of proximal flakes produced it appears that no effort was made to conserve Other Chert, which further supports the speculation that its source must be close to Chalk Basin.

Through comparison of the archaeological and experimental assemblage, it seems doubtful that occupants at Chalk Basin were conducting initial production activities in the occupation areas included in the study. From the Tukey HSD/Games-Howell, it was apparent that the experimental production flakes were significantly different than flakes produced from Other Chert and local White Chert. It is assumed that initial reduction was taking place at Chalk Basin because of the nearby quarry area. But from this analysis, it appears that some of that material was being brought to the main camp area in a ‘roughed out’ form (otherwise known as a preform or biface blank). The experimentally produced bifaces all began as cortical cobbles. The results of this analysis suggests that the Other Chert and local White Chert were brought on to the site area after having been initially worked. There was very little cortex found on chert proximal flakes, including Other Chert and White Chert (Table 5.2). In fact, chert flakes were very similar to obsidian flakes with regard to cortex representations. Given the similarity of Other Chert and local White Chert to the experimental population related to resharpening, it appears the cherts were formed into tools at the quarry area and brought down to the site for use and resharpening as needed. This would explain the lack of cortex on the chert proximal flakes and the close match between the excavated chert flakes and the experimental flake from resharpening.

In terms of degree of curation, it is probable that the obsidian flakes were detached from highly curated artifacts (i.e., flake tools, hafted bifaces, and unhafted bifaces). In every case examined in this proximal flake study, obsidian is always significantly smaller in size and weight than the other raw materials and the experimental resharpening flakes (which were smaller than the production flakes). Obsidian has the highest degree of inferred curation and this is pattern is supported with the proximal flakes. The Other Chert flakes and the local White Chert flakes show only slight differences in the degree of curation. Given this information and the fact that obsidian proximal flakes are consistently smaller than the excavated flakes as well as the experimental ones, it seems likely that the Other Chert and White Chert proximal flakes were made from tools that had low degrees of curation (in comparison to obsidian).

Summary

By using a suite of analytical methods, degrees of curation were established from retouch patterns on flake tools, hafted bifaces, and unhafted bifaces that were recovered from Chalk Basin. As expected in a mixed context of local and non-local lithic raw material, locally procured toolstone exhibited lower degrees of curation than those originating from a distant source. This makes intuitive sense because the non-local stone tools have been in service longer and have had more opportunities to be used and resharpened; especially when compared to local tools made at the site. From the proximal flake study, it was shown that the sample of chert flakes from Chalk Basin was similar to the experimental flakes produced from maintenance activities by soft hammer percussion (i.e., antler billet). This suggests that occupants of Chalk Basin were bringing finished tools to the riverine campsite area to use for a task(s) and resharpened them as needed. Given the overall low amounts of retouch on the local chert tools, it is probable that these flakes were detached from tools that had low degrees of curation. Conversely, the non-local obsidian flakes were significantly smaller than the chert flakes and were made by a different reduction method (e.g., pressure flaking) from highly curated tools.

CHAPTER SIX

CONCLUSIONS

The aim of this study was to examine how retouch patterns on chipped stone artifacts have been used to infer the degree of curation in stone tool assemblages, and specifically to explain patterns of stone tool production and use at Chalk Basin. When curation is defined as a tool's actual usage relative to its potential utility, tools have no curation value until they have actually been used for a task. Therefore, retouch must be considered in both the context of tool production and of tool use and resharpening before accurate assessments of curation can be derived from stone tools.

This relationship of tool production and tool maintenance was explored with a series of replication experiments to better understand the conditions under which specific attributes of bifaces and bifacial debitage change. My study discovered that bifacial characteristics were not only sensitive to their production and maintenance phases, but that hammer type played a significant role in the pattern and density of flake removal scars on bifaces. Furthermore, it was shown that proximal flakes removed during biface production significantly differed from those removed during bifacial maintenance activities. Moreover, proximal flakes were found to be better indicators of reduction activity than retouch patterns on bifaces. The observations gathered from the experimental study were used in addition to other curation studies to derive a set of expectations about the lithic technological organization at an excavated site in southeastern Oregon called Chalk Basin. As expected, it was shown that stone tools made from locally available materials had lower degrees of curation when compared to non-local stone tools.

In the Owyhee River area, there is a long history of highly mobile groups moving around the landscape to take advantage of seasonally available resources. From ethnographic research (Steward 1941; Grayson 1993), it has been suggested that groups in this area camped by the river during the winter months for protection from the cold weather and because of available food resources. Because of Chalk Basin's location below the canyon rim by the Owyhee River, it may have been a destination for winter groups as a food resource (e.g., fish from the river) and/or a raw material source. With the obsidian sources located at least 25 to 56 km away, Chalk Basin could have been a winter source of lithic raw materials for groups that were traveling within the river corridor that did not want to risk traveling long distances above the canyon rim during the cold months. This same winter encampment pattern may is also evident at other sites in the Owyhee River canyon, including the riverine site Birch Creek that was contemporaneous with the Middle and Late Archaic occupations at Chalk Basin. Birch Creek is also situated below the canyon rim and offers high-quality chert materials for producing stone tools. With its excellent organic preservation, the Birch Creek site also provides additional information about house structures and potential food sources (i.e., faunal remains, including fish bones) and activities (i.e., bone grease extraction) that could have taken place during the winter months on the Owyhee River. Perhaps with better organic preservation, these same cultural features and artifacts would also be present in the archaeological record at Chalk Basin.

From a lithic technological organization perspective, the following interpretations for Chalk Basin are offered for an assemblage that is dominated by chipped stone tools, with little to no organic remains and/or cultural features present. The three most abundant lithic raw material types are White Chert, Other Chert, and obsidian. From field investigations, it is apparent that the White Chert occurs naturally on a terrace above the river. Some of the source locations of obsidian have been established through XRF analysis, but no known sources of other chert have yet been identified. From the suite of curation indices and the proximal flake study, I think that the source of Other Chert is close to Chalk Basin because in all of the analyses the results were very similar to the local White Chert artifacts.

For instance, the Other Chert invasiveness score for flake tools was actually lower than White Chert score. For unhafted bifaces, Other Chert bifaces had an average flake ridge count that was slightly higher than the White Chert unhafted bifaces. In the proximal flake study, for every variable examined (including flake weight, length, width, thickness, platform width, and platform thickness), the Other Chert flakes were always paired with White Chert flakes because they were so similar in size and shape. In the hafted biface study, no White Chert artifacts were examined but the Other Chert hafted bifaces scored a lower HRI than the obsidian bifaces. All of these results suggest that the source of Other Chert was close enough to Chalk Basin that its usage was almost identical to that of the known local raw material, White Chert.

With regards to activity areas across the site, the results of the proximal flake study (including the experimental and archaeological flake assemblages) suggest that occupants at Chalk Basin were not bringing back large chert nodules to the main camp area for initial reduction. Instead, it appears that the initial reduction and production of these tools was taking place at the quarry and large biface/core tools, where most of the cortex was removed, and were then being transported down to the main campsite area by the river. Moreover, the chert flakes (White and Other Chert) from Chalk Basin shared similar attributes with the resharpening flakes from experiment, which supports the conclusion that they were both produced from the same reduction activity- resharpening a dull stone tool. It may be the case that at the main camp area, chert tools were being used and resharpened for a task that required large durable bifaces.

Obsidian at the site is represented with small and heavily used stone tools. Obsidian proximal flakes were significantly smaller than any other analytical group (i.e., chert flakes and the experimental flakes) and may have been formed by a different reduction technology (i.e., pressure flaking). This would suggest that obsidian flakes were being taken off of a highly curated artifact with a low amount of potential usage. With the smaller size artifacts, it is probable that obsidian was reserved for different activities that required sharper stone tools. With the lack of larger obsidian tools and the low amount of cortex on obsidian artifacts, it is apparent that this raw material was transported to the site as highly curated, finished tools that were not being produced at Chalk Basin.

In sum, occupants of Chalk Basin may have visited the site during their seasonal rounds to take advantage of the access to riverine resources, including fish and plants/seeds (as evidenced by the presence of groundstone at the site). Also, Chalk Basin would have been a desirable place for groups to replenish their stone toolkits during the winter months when traveling to the more distant obsidian sources would have been more difficult. While at the site, people were producing stone tools at the actual White Chert and Other Chert outcrops and bringing down finished tools to use at the main campsite located by the river. Given the location of both of these lithic raw material sources, it is no surprise that these tools were not heavily used and did not have high degrees of curation. In contrast, the non-local obsidian artifacts were lower in numbers with little to no dorsal cortex on them and arrived at Chalk Basin in a highly curated tool form. As foragers, these tools were probably made to be versatile for a number of tasks and were continually resharpened to further utilize the tool's potential, which explains the higher degree of curation for obsidian tools at the site.

Future Research

In order to further understand the lithic technological organization at Chalk Basin, future research at the site should focus on finding the outcrop of Other Cherts and an intensive surface collection and mapping of the White Chert quarry area. Through the identification of the source of Other Chert, it would prove or disprove its proposed location being in close proximity to Chalk Basin. Also, it would be beneficial in tracking the movement of the chert throughout the area to other sites. In regards to further examining the quarry area at Chalk Basin, additional information can be collected about where the initial reduction of White Chert tools was taking place. This study would also test the applicability of experimental data to archaeological data. In theory, the place of initial reduction for large bifaces at Chalk Basin should have proximal flakes that are similar in size to those made during the experiment from biface production.

In closing, this study has offered interpretations about a site that could have been labeled as a 'dense lithic scatter' with no further regard to what activities were actually occurring there. Information learned from Chalk Basin adds to the growing body of knowledge of the seasonal mobility patterns and activities for the Middle and Late Archaic occupations in the northern Great Basin.

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APPENDIX A

ANALYSIS SHEETS FROM BIFACE EXPERIMENT

Table 1. Data Recorded From Bifaces during the Experiment.

Biface #	Event #	Weight (g)	Length (mm)	Width (mm)	Thickness (mm)	Analysis Square						Ridge Avg	Width:Thick	SA	SA lost
						2i	5o	15o	16i	4o	11i				
1	0	1031.7	162	111	38	0	0	0	0	0	0	0	2.92105263	290	94
1	1	467.2	140	95	31	0	1	2	2	1	1	1.1666667	3.06451613	196	44
1	2	252.6	133.7	80	25.8	3	1	3	2	3	2	2.3333333	3.10077519	152	10
1	3	235	133.6	76.5	24.4	4	3	5	3	2	1	3	3.1352459	142	20
1	4	202.4	129	66.4	23.9	4	4	3	1	2	3	2.8333333	2.77824268	122	14
1	5	171.5	123.5	63.1	22.3	2	3	4	2	2	3	2.6666667	2.82959641	108	20
1	6	119	117.3	51.9	19.1	4	3	3	5	2	2	3.1666667	2.71727749	88	
2	0	1143	191	142	49	0	0	0	0	0	0	0	2.89795918	352	148
2	1	497.1	153	100	33	0	1	1	2	1	0	0.8333333	3.03030303	204	60
2	2	260.4	129.5	75.7	24.9	2	2	3	5	1	0	2.1666667	3.04016064	144	14
2	3	230.5	123.3	71.1	23.6	4	3	4	5	2	2	3.3333333	3.01271186	130	12
2	4	197.6	119	67.9	23.6	5	5	5	4	3	1	3.8333333	2.87711864	118	8
2	5	169	113.2	65.9	23.1	2	4	3	2	1	2	2.3333333	2.85281385	110	18
2	6	135.7	108.4	56.7	21	3	5	4	1	4	3	3.3333333	2.7	92	
3	0	1093.3	171	128	41	0	0	0	0	0	0	0	3.12195122	338	132
3	1	526.1	151	97	35	1	1	1	1	2	1	1.1666667	2.77142857	206	62
3	2	261.4	127.9	79.2	28.9	0	4	0	4	4	1	2.1666667	2.74048443	144	16
3	3	228.1	126.8	74.6	25.1	2	2	2	1	3	2	2	2.97211155	128	6
3	4	196.7	121	70.5	24.7	6	5	4	1	4	2	3.6666667	2.85425101	122	18
3	5	168.6	113.4	67.4	23.4	3	6	2	3	3	2	3.1666667	2.88034188	104	2
3	6	145.4	111.1	63.8	22	3	4	3	6	2	3	3.5	2.9	102	2

<u>Key:</u>

Biface #: Specimen ID
Event #: Reduction Event- 0-2= manufacturing
3-6= resharpening
Weight: weight of biface in g
Length, Width, and Thickness: maximum dimensions in mm

Analysis Square: location of area analyzed based on Figure 5.1, i= inside the gray zone; o= outside of the gray zone
Ridge Avg: Mean number of flake ridges per event
Width:Thick: Ratio of biface maximum width to maximum thickness
SA: Surface area of biface per event
SA Lost: Surface area of biface lost per event

Table 2. Data Recorded from Proximal Flakes during the Experiment.

Biface #	Flake #	Event #	Length	Width	Thick	Cortex	Plat	Term	Weight	Plat_Wid	Pl_Thic	Pl_Area
1	1-001	1	22.7	27.8	4.8	y	fl	s	5.6	19.7	5	98.5
1	1-002	1	18	21.3	7.4	y	co	s	2.3	12.1	5.7	68.97
1	1-003	1	38	31.8	8.7	y	fl	f	6.7	31.3	1	31.3
1	1-004	1	41.6	61.7	7.9	y	fl	f	10.1	14.1	7.5	105.75
1	1-005	1	25.7	30.9	6.4	n	cr	f	3.8	13	7.3	94.9
1	1-006	1	69.8	78.9	12.4	y	fl	s	38.3	18.9	12.2	230.58
1	1-007	1	113.1	31.9	8.5	y	ab	h	34.8	15.4	5.3	81.62
1	1-008	1	27	20.8	8.9	y	fl	s	4.8	10.1	4.3	43.43
1	1-009	1	63.4	44.5	9.4	y	ab	s	19.5	27.8	9.4	261.32
1	1-010	1	44.2	59.9	7.6	y	fl	h	14.8	39.9	7.1	283.29
1	1-011	1	30.3	41.8	10	y	ab	f	12.8	15.2	5.2	79.04
1	1-012	1	27	25	5.3	n	cr	f	1.8	23.5	5.2	122.2
1	1-013	1	39.8	63.4	22.7	y	cx	h	43	44.8	14.4	645.12
1	1-014	1	74.4	58.9	6.1	y	ab	f	18.2	21.9	6	131.4
1	1-015	1	31.6	38.7	7.6	y	fl	h	5.8	8.2	6.8	55.76
1	1-016	1	38.2	37.8	4.3	y	ab	f	0.7	12	2.8	33.6
1	1-017	1	62.7	28.7	12.2	y	ab	s	17.5	na		na
1	1-018	1	34.5	33.9	8.7	y	fl	f	7.8	29.1	9.3	270.63
1	1-019	1	32.6	30.7	6.5	y	fl	f	4.9	12	7.2	86.4
1	1-020	1	52.3	63.8	6.8	y	fl	f	18.4	44	7.7	338.8
1	1-021	1	67.3	32	11.5	y	na	f	15.7	na		na
1	1-022	1	40.5	53.3	12.4	y	fl	s	22.6	18.1	10.5	190.05
1	1-023	1	73.2	58.7	6.2	y	fl	h	30.5	12.7	5.4	68.58
1	1-024	1	39.6	25.1	4.9	n	ab	f	5.2	15.5	4.2	65.1
1	1-025	1	38.1	34.3	4.5	n	cr	f	4.2	na		na
1	1-026	1	4.6	27.2	26.9	y	ab	f	3.1	25.3	4.5	113.85
1	1-027	1	26.5	30	8.1	n	na	h	5.7	21.7	6.1	132.37
1	1-028	1	51.2	61.1	8.5	y	fl	f	21.9	9.9	8	79.2
1	1-029	1	23.2	51.4	3.4	n	ab	f	2.8	24.7	3	74.1
1	1-030	1	42.2	53.8	7.7	y	fl	s	11.9	32.8	7.4	242.72
1	1-031	2	33	21.9	2.4	n	na	h	2.1	na		na
1	1-032	2	63.5	35.6	6	y	ab	h	10.9	na		na
1	1-033	2	65.3	41	4.1	n	ab	h	12	8	1.5	12
1	1-034	2	38	20.3	4.6	n	fl	h	3	10.1	1.6	16.16
1	1-035	2	25.2	27.1	3.9	n	ab	s	2.7	8.6	2.8	24.08
1	1-036	2	28.6	52.9	10.4	n	fl	s	11.7	12.3	3.9	47.97
1	1-037	2	25.4	49.9	6.5	n	fl	h	5.2	15.7	5.6	87.92
1	1-038	2	44.3	36	7.9	n	cx	h	7.3	25.8	7	180.6
1	1-039	2	21.9	32.3	6.1	n	fl	h	3.4	20.9	6.5	135.85
1	1-040	2	44.6	47.7	3.6	n	ab	f	6	6	2.4	14.4
1	1-041	2	43.9	24	3.5	n	ab	f	3.1	na		na
1	1-042	2	57	45.3	8.3	n	ab	f	18.4	19.4	8.5	164.9
1	1-043	2	29.6	37	3.1	n	cr	h	3.3	na		na
1	1-044	2	41.3	35.4	3.6	n	cr	h	4.6	na		na
1	1-045	2	29.4	26.9	3.5	n	fl	f	1.6	8.5	3	25.5
1	1-046	2	33.1	53	5.7	n	ab	f	5.6	8.1	3.8	30.78

Biface #	Flake #	Event #	Length	Width	Thick	Cortex	Plat	Term	Weight	Plat_Wid	Pl_Thic	Pl_Area
1	1-048	2	44.3	33.1	4.5	n	na	f	3.5	na		na
1	1-049	2	26	34.4	5.7	y	ab	f	4.4	21.3	5.8	123.54
1	1-050	2	32.8	33.7	5	n	ab	f	3.2	12.3	1.1	13.53
1	1-051	2	35.2	21.7	4.1	n	ab	f	2.2	6	3	18
1	1-052	2	27.1	21.6	3.7	y	ab	f	2.2	7.8	3.1	24.18
1	1-053	2	50.4	34.4	3.2	n	fl	f	4	na		na
1	1-054	2	33	44.9	6.4	n	na	f	7.9	na		na
1	1-055	3	13.4	18.3	3	n	cr	h	0.6	na		na
1	1-056	3	14.2	19.4	2.5	n	ab	h	0.6	7.7	1.7	13.09
1	1-057	3	12.6	17.4	1.7	n	na	f	0.3	na		na
1	1-058	3	36	17.2	2.2	y	na	f	1.2	na		na
1	1-059	3	18.1	14.7	2.6	n	ab	h	0.5	na		na
1	1-060	3	15	21.4	3	n	fl	h	0.7	19.2	3.9	74.88
1	1-061	3	24.9	18.5	2.2	n	ab	h	1.1	7	1.2	8.4
1	1-062	3	17	20.3	2.4	n	fl	h	0.8	14	2.5	35
1	1-063	4	13.2	14.1	1.6	n	ab	s	0.4	9.5	1.3	12.35
1	1-064	4	39.6	14	2.6	n	cx	f	1	6.5	1.7	11.05
1	1-065	4	25.9	27.2	1.6	y	ab	f	0.8	7.1	0.9	6.39
1	1-066	4	14.9	36.4	2.7	n	cr	h	1.2	na		na
1	1-067	4	14.4	18.2	2.2	n	ab	f	0.4	9.2	2.3	21.16
1	1-068	4	14.7	13.9	0.6	n	na	h	0.3	na		na
1	1-069	4	11.8	13.5	2.8	n	cx	h	0.3	6.8	1.6	10.88
1	1-070	4	12.9	11.9	1.9	n	ab	h	0.2	7.2	1.7	12.24
1	1-071	4	13.4	17.3	1.6	n	ab	h	0.3	9.7	1.1	10.67
1	1-072	4	16.8	17.1	2.2	n	cr	h	0.6	na		na
1	1-073	4	12.2	12	1.1	n	ab	h	0.2	4.6	0.8	3.68
1	1-074	4	18.6	19.8	2.5	n	cx	s	0.7	9	1.8	16.2
1	1-075	4	33.6	27.2	2.7	n	ab	f	2.6	13.4	1.8	24.12
1	1-076	4	16.8	19.9	2.1	n	ab	f	0.7	9.7	1.7	16.49
1	1-077	4	17.5	20.4	2.1	n	cx	f	0.5	6.5	1.4	9.1
1	1-078	4	32	31	3.2	y	cr	f	1.9	na		na
1	1-079	4	15.6	21.5	1.4	n	cr	f	0.4	na		na
1	1-080	4	19.8	14.6	1.5	n	cr	f	0.7	na		na
1	1-081	4	18.9	10.9	1.4	n	na	f	0.2	6	1	6
1	1-082	4	16.8	9.6	0.9	n	ab	f	0.2	3.8	1.5	5.7
1	1-083	4	14.4	12	0.8	n	ab	f	0.1	7.2	0.8	5.76
1	1-084	4	19	20.9	1.9	n	cx	f	0.7	7.6	1.5	11.4
1	1-085	4	15.5	13.2	2.2	n	na	f	0.3	na		na
1	1-086	4	15.9	20.6	2.6	n	cr	f	0.7	na		na
1	1-087	4	19.8	18.5	1.3	n	na	h	0.6	na		na
1	1-088	5	24.8	27.9	3	y	na	h	1.7	na		na
1	1-089	5	13.4	13.3	1.4	n	na	f	0.5	na		na
1	1-090	5	37.4	32.4	2.7	y	cx	h	3.9	18.4	3.6	66.24
1	1-091	5	31.4	10.8	1	n	na	h	0.9	na		na
1	1-092	5	20	13.1	3.2	n	na	s	1	na		na
1	1-093	5	20.2	20.5	1.1	n	na	h	0.8	na		na
1	1-094	5	18.9	17.6	2.6	n	cx	h	1.2	15.8	5	79

Biface #	Flake #	Event #	Length	Width	Thick	Cortex	Plat	Term	Weight	Plat_Wid	Pl_Thic	Pl_Area
1	1-095	5	19.4	13.6	1.4	n	ab	s	0.9	8.7	1.5	13.05
1	1-096	5	18.6	9.6	1.1	n	cr	h	0.2	na		na
1	1-097	5	30.8	29.5	3	n	ab	h	2.6	13.1	2	26.2
1	1-098	5	24.3	27.5	2.3	n	cx	h	1.2	8.8	2	17.6
1	1-099	5	26.8	17.6	1.8	n	ab	h	0.9	7.3	2.6	18.98
1	1-100	5	21.8	22	2.7	n	na	s	1.2	na		na
1	1-101	5	26.1	11.4	1.6	n	ab	s	0.4	4	0.5	2
1	1-102	5	27.8	22.5	3.4	n	na	h	1.9	na		na
1	1-103	5	32.3	14.2	2.1	n	cx	f	1	10.3	1.7	17.51
1	1-104	5	28.5	12.5	2.8	n	na	h	1	na		na
1	1-105	6	10.5	12.3	1.6	n	cr	f	0.5	4.4	0.7	3.08
1	1-106	6	19	40.6	4.2	n	cx	h	2.1	10.5	2	21
1	1-107	6	16.4	8.4	0.7	n	cr	h	0.5	3.9	0.8	3.12
1	1-108	6	18.2	13	1.6	n	ab	h	0.5	6.9	1.2	8.28
1	1-109	6	8.5	10.5	2.4	n	cx	f	0.3	9.7	2.6	25.22
1	1-110	6	19.6	15.1	2	n	ab	f	0.6	9.3	1.7	15.81
1	1-111	6	14.7	7.2	1.2	n	ab	f	0.5	5.2	1.7	8.84
1	1-112	6	31.8	20.2	2.3	n	ab	f	1.5	9.3	1.3	12.09
1	1-113	6	33.1	17.7	2.6	n	cx	h	1.4	11.2	2.6	29.12
1	1-114	6	21.2	16.6	3.4	n	cx	s	1.1	14.1	2.5	35.25
1	1-115	6	13.7	47.5	13.3	n	cr	h	4.6	na		na
1	1-116	6	28.3	39	7.5	n	cx	f	4.7	9.6	3.5	33.6
1	1-117	6	47	32.5	4.2	y	fl	f	4.4	9.5	2.2	20.9
1	1-118	6	12.9	21.2	2.3	n	ab	s	0.6	5.5	1.8	9.9
1	1-119	6	11.1	16.9	2.7	n	ab	h	0.5	8.4	1.8	15.12
1	1-120	6	54	16.7	3.7	n	ab	f	2.8	4.5	2.2	9.9
1	1-121	6	19.3	11.5	1.8	n	na	f	0.4	na		na
1	1-122	6	19.9	20.7	2.2	n	cr	f	0.8	na		na
1	1-123	6	13.1	12	2.6	n	cx	h	0.7	7.7	1.9	14.63
1	1-125	6	16.3	25.3	8.4	n	na	f	2.1			0
1	1-126	6	30.9	29.9	2.1	n	ab	f	1.6	4.9	0.7	3.43
1	1-127	6	18.4	11.3	1.2	n	na	f	0.6	na		na
1	1-128	6	16.9	21.3	2.8	n	cx	f	1	13.8	2.5	34.5
1	1-129	6	10.3	11.9	2.4	n	cr	f	1.6	na		na
1	1-130	6	19.2	9.7	1.9	n	cr	f	0.7	na		na
1	1-131	6	15.7	15	3.1	n	cx	h	1	9.1	3	27.3
1	1-132	6	22.2	20	3.7	n	fl	h	1.4	7.9	3.5	27.65
1	1-133	6	19.8	12.9	2.7	n	cr	s	0.8	na		na
1	1-134	6	31.3	10	1	n	cx	f	0.8	4.4	1.2	5.28
1	1-135	6	23.2	13.4	1.9	n	ab	f	0.9	9.3	1.6	14.88
2	2-001	1	32.9	35.3	14.6	y	co	f	16.8	20.3	11.2	227.36
2	2-002	1	31.7	56.5	9.1	y	cr	f	7.5	na		na
2	2-003	1	74.1	63	8.9	y	fl	f	28.5	16.6	5.4	89.64
2	2-004	1	25.1	34.2	8.3	y	co	f	5.4	19.7	8.2	161.54
2	2-005	1	39.9	38.8	7.6	y	co	f	9.4	26.5	7.5	198.75
2	2-006	1	80	30.8	11.2	y	fl	f	30.3	17.3	8	138.4
2	2-007	1	63.7	17.4	8	y	co	f	6.2	na		na

Biface #	Flake #	Event #	Length	Width	Thick	Cortex	Plat	Term	Weight	Plat_Wid	Pl_Thic	Pl_Area
2	2-008	1	56.2	35.2	7.9	y	fl	f	11.9	17.6	7	123.2
2	2-009	1	43.9	12.4	4.7	n	fl	s	1.8	7.7	3.8	29.26
2	2-010	1	27.3	19.1	5	n	na	f	3	na		na
2	2-011	1	18.5	37.4	13.8	y	na	f	5.7	na		na
2	2-012	1	34.6	35.4	15.4	y	cr	f	6.9	na		na
2	2-013	1	43.9	45.5	7.9	y	co	f	11.8	24.8	8.4	208.32
2	2-014	1	40.7	38.1	8.6	y	co	s	10.5	26.2	6.8	178.16
2	2-015	1	36.2	62.5	7.4	y	fl	f	11.1	19.1	4.4	84.04
2	2-016	1	53.5	61.3	9.9	y	fl	f	21.1	24.8	8.9	220.72
2	2-017	1	48.9	75.4	9.9	y	co	s	29	na		na
2	2-018	1	55.6	70.1	15.2	y	co	f	37.8	na		na
2	2-019	1	44.5	37.3	9.1	y	na	s	13.4	na		na
2	2-020	1	37.5	53.5	13.8	y	fl	f	21	29.8	9	268.2
2	2-021	1	25.9	44.7	11.6	y	fl	f	6.8	11.8	4.4	51.92
2	2-022	1	20.7	30.3	8	n	na	h	3.8	na		na
2	2-023	1	40.7	46.8	11.7	y	na	h	19.5	na		na
2	2-024	1	109.3	49	9.9	y	ab	f	44.6	10.9	3.1	33.79
2	2-025	1	34.2	48.3	5.5	y	na	f	7.1	na		na
2	2-026	1	81.2	54.6	11	y	co	s	48.4	39.8	7.5	298.5
2	2-027	1	64.5	61.9	6.4	y	cr	h	15	18.6	6.5	120.9
2	2-028	2	53.2	57.4	7.8	y	cx	h	20.8	22.6	9.2	207.92
2	2-029	2	27.2	38.6	5.3	y	cx	f	3.6	18.4	5.3	97.52
2	2-030	2	33.6	37.2	7.7	y	na	f	7.9	na		na
2	2-031	2	30.3	18.7	6.8	n	na	f	2.7	na		na
2	2-032	2	33.1	36.3	7.3	n	na	h	5.2	na		na
2	2-033	2	35	46.8	3.3	n	cr	h	4.5	na		na
2	2-034	2	42.5	21.6	3.5	n	ab	h	3.3	15.2	3	45.6
2	2-035	2	28.4	23.6	3.5	y	co	f	1.4	11.2	3.2	35.84
2	2-036	2	39.5	45.4	9.8	y	cx	f	9.6	19	7.8	148.2
2	2-037	2	37.8	68.2	13.9	y	ab	f	22.5	37.3	8	298.4
2	2-038	2	29.3	35.7	3.7	n	ab	f	2.2	14.4	2.9	41.76
2	2-039	2	44.9	41.6	6.3	n	ab	h	11.4	14.9	2.9	43.21
2	2-040	2	43.2	29.9	4.8	n	ab	f	3.8	8.6	4.1	35.26
2	2-041	2	46.9	30.9	4.3	n	ab	f	3.9	10.6	4.2	44.52
2	2-042	2	44.5	26.4	3	n	ab	h	3.1	3.7	2	7.4
2	2-043	2	43.5	30.4	4.3	n	cx	f	4.9	12.6	3.4	42.84
2	2-044	2	30.2	40.1	7.6	n	cx	f	5.6	18.8	7.2	135.36
2	2-045	2	40.1	25.8	4.1	n	ab	f	3.2	6.4	2	12.8
2	2-046	2	26.9	22.5	6.2	n	cx	h	2.3	20.5	6.3	129.15
2	2-047	2	41.2	23.3	3.4	n	cx	f	3.1	8.1	2.5	20.25
2	2-048	3	20.6	17.4	2	n	cx	s	0.6	6.3	1.6	10.08
2	2-049	3	22.1	14.1	2.6	n	ab	f	0.7	9.6	2.3	22.08
2	2-050	3	46.2	24.1	2.4	n	cr	f	3	7.1	2	14.2
2	2-051	3	21.6	15.2	1.5	n	cr	h	0.7	na		na
2	2-052	3	11.9	14.9	1.8	n	cx	h	0.2	6.4	1.7	10.88
2	2-053	3	12.8	16.1	3.6	n	ab	h	0.7	4.1	2	8.2
2	2-054	3	14.5	29.6	1.4	n	na	h	0.6	na		na

Biface #	Flake #	Event #	Length	Width	Thick	Cortex	Plat	Term	Weight	Plat_Wid	Pl_Thic	Pl_Area
2	2-055	3	15	26.8	3	n	cx	f	0.8	17.8	1.3	23.14
2	2-056	3	53.7	20.6	1.3	n	na	f	1.9	na		na
2	2-057	3	21.1	13.4	2.3	n	na	s	0.6	na		na
2	2-058	3	24	15.5	3.3	n	ab	h	1.4	9.6	3.9	37.44
2	2-059	3	23.3	24.5	3.5	n	ab	f	1.4	18.8	3.2	60.16
2	2-060	4	17.6	14.8	1.9	n	ab	h	0.5	9.9	1.4	13.86
2	2-061	4	34	14.4	3.7	n	na	s	1.3	na		na
2	2-062	4	33	15.9	2.2	n	na	h	1	na		na
2	2-063	4	65.2	17.6	2.6	n	ab	f	2.9	6.5	1.6	10.4
2	2-064	4	38.1	25.7	2.5	n	cx	f	3.5	19.1	2.2	42.02
2	2-065	4	31.7	35.7	1.7	n	na	f	2.3	na		na
2	2-066	4	32.4	23	3.9	n	ab	f	1.4	na		na
2	2-067	4	26.1	19	3.9	n	cx	f	1.1	11.5	3.5	40.25
2	2-068	4	12.8	16.8	1.9	n	ab	s	0.4	5	1.5	7.5
2	2-069	4	18.1	13	2.1	n	na	h	0.5	na		na
2	2-070	4	17.9	11.1	2	n	na	f	0.2	na		na
2	2-071	4	21.4	17.2	1.9	n	cr	h	0.5	na		na
2	2-072	4	18.9	10.6	2.4	n	ab	f	0.4	10.2	2.3	23.46
2	2-073	4	46.2	36	1.6	n	ab	h	2.4	7.2	1.5	10.8
2	2-074	4	14.4	15.2	1.9	n	cx	h	0.4	8.9	2.1	18.69
2	2-075	4	38.2	20.8	3.1	n	ab	h	2.8	na		na
2	2-076	4	14.5	25.2	2.3	n	ab	h	0.7	na		na
2	2-077	4	17.8	13.3	2	n	cr	s	0.5	na		na
2	2-078	5	24.5	15.8	1.8	n	ab	s	0.9	na		na
2	2-079	5	30.3	9.7	1.2	n	na	f	0.9	na		na
2	2-080	5	8.6	12.7	1.4	n	ab	s	0.5	5	1.6	8
2	2-081	5	18.7	12.4	1.6	n	ab	s	0.8	4.5	1.1	4.95
2	2-082	5	31.2	22.3	2.4	n	ab	s	1.7	4.9	1.6	7.84
2	2-083	5	30.9	19.3	2.5	n	ab	f	1.7	8.2	1.3	10.66
2	2-084	5	28.3	16.8	1.7	n	ab	f	1	12	0.7	8.4
2	2-085	5	17	23.8	2.1	n	cx	h	1.3	11.7	3	35.1
2	2-086	5	37	23.6	2.1	n	ab	f	2	5.3	1.4	7.42
2	2-087	5	16	27.4	2.2	n	ab	h	1.2	7	1.3	9.1
2	2-088	5	13.4	12.8	2.4	n	ab	s	0.6	11	2.1	23.1
2	2-089	5	11.3	17.8	2.7	n	ab	s	0.6	2.1	0.8	1.68
2	2-090	5	13.9	14.3	1.9	n	cx	s	0.7	3.9	0.6	2.34
2	2-091	5	9	11.6	1.6	n	cx	s	0.5	7.3	2.5	18.25
2	2-092	5	23.8	13.6	1.5	n	ab	f	1	9	0.9	8.1
2	2-093	5	36.4	14.2	1.5	n	ab	f	1.1	7.5	2	15
2	2-094	5	22.8	12.3	1.7	n	ab	f	0.7	8	1.8	14.4
2	2-095	5	17.5	13	2.1	n	ab	f	0.3	5.2	1.6	8.32
2	2-096	5	47.9	23.8	2.7	n	ab	f	3.4	9.7	2.6	25.22
2	2-097	5	15.3	14.2	2.1	n	na	f	0.2	na		na
2	2-098	5	14.1	13.4	1.2	n	ab	h	0.2	4	1.5	6
2	2-099	5	36.9	36.6	3.7	n	ab	h	3.4	9.3	2.1	19.53
2	2-100	6	39	24.4	2.6	n	ab	f	3	8.6	1.9	16.34
2	2-101	6	40.4	17.7	2.6	n	cx	f	2	8.9	1.7	15.13

Biface #	Flake #	Event #	Length	Width	Thick	Cortex	Plat	Term	Weight	Plat_Wid	Pl_Thic	Pl_Area
2	2-102	6	36.9	19.2	1.8	n	ab	f	1.7	6.1	0.8	4.88
2	2-103	6	11.5	16.4	2.1	n	ab	h	1.1	5	2.1	10.5
2	2-104	6	25.5	27.8	2.7	n	ab	s	2	na		na
2	2-105	6	45.6	27.1	2.6	n	cx	f	3.5	6.3	1.8	11.34
2	2-106	6	36.6	17.6	1.5	n	cx	f	1.5	3.2	0.6	1.92
2	2-107	6	40.3	20.9	2.1	n	ab	f	2.1	6.1	1.8	10.98
2	2-108	6	12.4	17.9	1.4	n	fl	f	0.7	14	1.3	18.2
2	2-109	6	16.2	12.9	2.6	n	fl	f	0.8	5.5	2.4	13.2
2	2-110	6	15	13.4	1.1	n	na	f	0.6	na		na
2	2-111	6	34.9	18.6	2.3	n	cr	f	1.1	11	1.1	12.1
2	2-112	6	21	19.4	2.1	n	ab	f	0.8	13	1.9	24.7
2	2-113	6	17.6	26.6	3	n	cx	f	0.9	10.1	2.4	24.24
3	3-001	1	71.5	78	22	y	fl	h	90.8	39.3	12.2	479.46
3	3-002	1	48.6	48.3	14.3	y	ab	f	30.2	38	12.6	478.8
3	3-003	1	41	23.5	8.5	y	co	f	9.8	12.9	7.7	99.33
3	3-004	1	77.3	93.8	15.7	y	fl	f	99.5	58.8	16.1	946.68
3	3-005	1	27.4	53.5	13.3	y	na	f	9.2	na		na
3	3-006	1	35.5	43	7.1	y	co	f	8.2	28.9	6.3	182.07
3	3-007	1	24.9	45.2	9.7	y	cr	h	9.8	na		na
3	3-008	1	37.1	48.4	9.3	y	fl	h	12.3	17.7	9	159.3
3	3-009	1	32.4	33.3	3.8	y	cr	f	3.3	na		na
3	3-010	1	71.8	88.2	18.1	y	fl	h	61	17.9	9.2	164.68
3	3-011	1	42.2	53.6	13.4	y	fl	f	16.7	16.3	3.8	61.94
3	3-012	1	29.1	22.7	10	n	na	f	2.9	na		na
3	3-013	1	55.1	69.2	16.5	y	fl	f	35.2	21.7	9.2	199.64
3	3-014	1	40.9	34.8	8.9	y	na	f	9.3	na		na
3	3-015	1	44.3	15.3	6.2	y	co	h	4.4	11.4	3.5	39.9
3	3-016	1	22.8	32.7	5.3	y	co	f	2.3	11.2	4.9	54.88
3	3-017	1	39.2	52.3	8.9	y	co	f	9.2	42.7	8.2	350.14
3	3-018	1	24.8	41.2	10.2	y	co	f	5.7	21.3	9.8	208.74
3	3-019	1	34.8	32.1	10.1	y	co	f	5.7	22	6.6	145.2
3	3-020	1	33.2	27.2	5.4	y	co	h	2.7	22.1	5.7	125.97
3	3-021	1	na	na	na	y	na	na	7.3	na	broken	na
3	3-022	1	22.2	34.7	8.4	n	ab	h	5	27.2	3.5	95.2
3	3-023	1	21.4	40.6	8.8	n	cr	f	5.7	na		na
3	3-024	1	32.2	56.1	15.7	n	fl	s	17.8	27.2	15.7	427.04
3	3-025	1	22.9	35.7	9.5	y	fl	h	4.9	34.1	8.8	300.08
3	3-026	1	25.4	39.5	6.3	n	fl	f	2.6	22.6	5.3	119.78
3	3-027	1	36.8	19.9	2	y	cr	f	1.2	na		na
3	3-028	1	20.6	25.6	2.8	n	fl	f	1.2	8.3	1.6	13.28
3	3-029	2	25.9	29.3	6.9	n	cr	f	4.1	na		na
3	3-030	2	26.6	37.2	2.8	n	na	h	2.7	na		na
3	3-031	2	13.9	54.2	6.2	n	na	h	4.9	na		na
3	3-032	2	37.4	38.7	7.8	y	ab	f	8.9	20.6	5.2	107.12
3	3-033	2	36.7	29.3	6	y	cr	f	3	na		na
3	3-034	2	42.6	25.7	5.5	y	ab	f	4.6	15.3	3.6	55.08
3	3-035	2	48.1	57.9	8.8	y	cx	f	16	45.8	8.3	380.14

Biface #	Flake #	Event #	Length	Width	Thick	Cortex	Plat	Term	Weight	Plat_Wid	Pl_Thic	Pl_Area
3	3-036	2	48.4	42.6	7.3	y	cx	f	11.4	34.3	5.3	181.79
3	3-037	2	55.6	78.2	8.4	y	ab	f	25	15.5	2.5	38.75
3	3-038	2	40.7	31.5	3.9	n	ab	f	4.6	15.6	3.2	49.92
3	3-039	2	51.2	50.2	8.2	y	cx	f	12.8	46.3	2.4	111.12
3	3-040	2	67.5	34.9	6.4	y	cx	f	10.5	22.8	5.7	129.96
3	3-041	2	65.6	58.4	3.8	y	ab	s	15	12.8	4	51.2
3	3-042	2	34	23.5	5.2	y	ab	f	2.9	9.3	2.9	26.97
3	3-043	2	29.9	20.8	5.8	y	na	f	1.8	na		na
3	3-044	2	52.3	20.4	2.8	y	na	f	2.8	na		na
3	3-045	2	37.1	34.7	5.3	y	cx	h	5.2	11.6	3.6	41.76
3	3-046	2	25.7	20.3	4.2	y	cx	s	2.1	11.3	3.5	39.55
3	3-047	2	39.1	32.6	4.6	y	na	f	4.4	na		na
3	3-048	2	21.9	25.6	5.1	n	ab	h	1.9	10	3.6	36
3	3-049	2	42.3	28.6	7	n	cr	f	6.5	na		na
3	3-050	2	32.3	1.5	3.1	n	ab	h	3.3	5.3	2.1	11.13
3	3-051	2	52.9	49.7	4.1	y	ab	f	8.5	22.3	3.4	75.82
3	3-052	2	32.4	37.3	6.5	y	fl	f	4.5	18.6	6.2	115.32
3	3-053	2	32.8	20.2	4.1	n	cr	h	2.4	na		na
3	3-054	3	55.2	18.9	3.6	y	ab	s	3.6	9.2	3.1	28.52
3	3-055	3	37.5	22.7	2.4	y	ab	h	2.6	4.5	2.4	10.8
3	3-056	3	22.9	8.6	1.4	n	ab	s	0.3	7.7	0.7	5.39
3	3-057	3	47	44.4	2.1	y	ab	f	5.1	6.8	1.7	11.56
3	3-058	3	20.2	18.1	1.7	n	cr	h	0.7	na		na
3	3-059	3	16.4	15.7	1.7	n	ab	s	0.4	7.8	1.7	13.26
3	3-060	3	22	25.5	2.4	n	fl	f	0.9	10.3	2.4	24.72
3	3-061	3	20.5	17.4	2.4	n	ab	h	0.7	8.7	2	17.4
3	3-062	3	18.5	20.7	3.5	n	ab	h	1	13.7	2.4	32.88
3	3-063	3	32.6	18.5	4.8	n	cx	h	2.5	17.2	5.3	91.16
3	3-064	3	26.4	18.6	2.6	n	ab	f	1.1	8.4	2.6	21.84
3	3-065	3	15.7	17.7	2.3	n	cx	f	0.4	9.5	2	19
3	3-066	3	23.8	18.2	2.7	n	ab	h	0.8	9.6	2.7	25.92
3	3-067	3	16.5	12.5	2.1	n	ab	f	0.1	12.5	2	25
3	3-068	3	14.6	16.1	2.3	n	ab	h	0.4	8.5	2.2	18.7
3	3-069	4	36.4	17.5	2.3	n	ab	h	1.2	3.8	1.7	6.46
3	3-070	4	15.6	16.5	2.3	n	ab	h	0.4	5	1.3	6.5
3	3-071	4	9.1	9.3	1	n	na	h	0.1	na		na
3	3-072	4	19.8	31.7	4.1	n	cx	h	1.9	11.3	2.1	23.73
3	3-073	4	23.3	8.2	0.8	n	ab	s	0.2	4.9	0.4	1.96
3	3-074	4	38.1	27.4	2.3	n	cx	h	2.4	8.9	3	26.7
3	3-075	4	17.5	33.4	2	n	na	h	1.2	na		na
3	3-076	4	26.4	28.3	3.1	n	ab	f	2	9.5	2.4	22.8
3	3-077	4	24.9	12.5	1.7	n	ab	h	0.6	5.5	0.7	3.85
3	3-078	4	21.7	14.2	2.2	n	cx	h	0.8	6.6	2	13.2
3	3-079	4	47.1	18.7	3	n	na	h	2.3	na		na
3	3-080	4	17.1	16.8	1.5	n	ab	h	0.6	3.1	0.9	2.79
3	3-081	4	25.7	14.3	2.4	n	ab	s	0.6	7.7	2.5	19.25
3	3-082	4	32.8	24.6	2.1	n	ab	h	1.3	7.4	1.6	11.84

Biface #	Flake #	Event #	Length	Width	Thick	Cortex	Plat	Term	Weight	Plat_Wid	Pl_Thic	Pl_Area
3	3-083	4	34.5	16.6	2.2	y	ab	s	1	4.4	0.8	3.52
3	3-084	4	38.1	22.6	2	n	ab	h	1.1	5.3	2	10.6
3	3-085	5	20.2	19.3	1.5	n	na	h	0.6	na		na
3	3-086	5	9.3	13.7	1.7	n	ab	s	0.3	8.3	1.5	12.45
3	3-087	5	18.1	12.8	2	n	ab	s	0.5	4.8	1.8	8.64
3	3-088	5	29.4	19.1	3.1	n	na	h	1.4	na		na
3	3-089	5	25.1	12	1.8	n	cx	f	0.5	9.9	3.8	37.62
3	3-090	5	37.8	34.5	2.4	y	ab	h	2.6	4.2	1.7	7.14
3	3-091	5	49.3	32.9	3.3	y	ab	h	5.3	20.5	3	61.5
3	3-092	5	28.2	17.1	1	n	na	f	0.6	na		na
3	3-093	5	35.2	17.6	1	n	ab	f	0.8	6.2	1.7	10.54
3	3-094	5	17.5	15.3	1.1	n	na	s	0.3	na		na
3	3-095	5	32.1	10.3	1.6	n	ab	f	0.5	4.6	2.7	12.42
3	3-096	5	22.8	16.8	1.3	n	ab	h	0.5	5	1.3	6.5
3	3-097	5	22.1	13.5	2	n	na	h	0.4	na		na
3	3-098	5	13.4	15.5	2.7	n	ab	s	0.3	5.9	1.8	10.62
3	3-099	5	22.8	12.8	1.8	n	ab	s	0.4	7.6	2.5	19
3	3-100	5	34.4	18.3	2.2	n	ab	h	1.4	3.3	2.8	9.24
3	3-101	5	12.8	12.1	0.7	n	ab	h	0.1	7.8	0.5	3.9
3	3-102	6	19.3	13.5	1.8	n	ab	f	0.4	8.2	1.3	10.66
3	3-103	6	19.8	16.2	2.1	n	na	s	0.8	na		na
3	3-104	6	28.5	11.4	1.7	n	ab	f	0.5	na		na
3	3-105	6	15.9	20.9	2.3	n	ab	h	0.8	6.8	1.3	8.84
3	3-106	6	14.4	23.9	3.8	n	cx	s	1.4	9.8	2	19.6
3	3-107	6	21.5	14.4	1.2	n	na	s	1.4	na		na
3	3-108	6	29.5	36.2	3.3	n	ab	f	2	20.2	3.8	76.76
3	3-109	6	14.7	10.8	2.3	n	ab	f	0.3	4.5	2	9
3	3-110	6	40.7	16.7	3.4	n	cx	h	1.9	4.5	0.8	3.6
3	3-111	6	19.6	12.5	2	n	cx	s	0.3	8.7	1.1	9.57
3	3-112	6	35.4	15	2.1	y	na	h	1	na		na
3	3-113	6	24.3	11.8	1.7	n	ab	s	0.5	5	1.2	6
3	3-114	6	18.8	15.3	1.7	n	ab	s	0.9	8.1	1.7	13.77

<u>Key:</u>

Biface #: Biface specimen ID flake detached
Flake #: Flake id, biface #-flake #
Biface #: Specimen ID
Event #: Reduction Event:
0-2= manufacturing
3-6= resharpening
Length & Width: maximum dimensions in mm
Thick: maximum thickness in mm
Cortex: y=presence of cortex
n=absence of cortex

Plat: Platform type: ab-abraded; cr-crushed; cx- complex; fl-flat; na-absent
Term: Termination type: f-feather; h-hinge; p-plunging; s-step
Weight: Weight of flake
Pl_Wid: Platform Width in mm
Pl_Thic: Platform Thickness in mm
Pl_Area: Platform Width multiplied by Platform Thickness; na= cannot be calculated because of missing/crushed platform

APPENDIX B

BOXPLOTS OF VARIABLES RECORDED FROM EXPERIMENTAL FLAKES

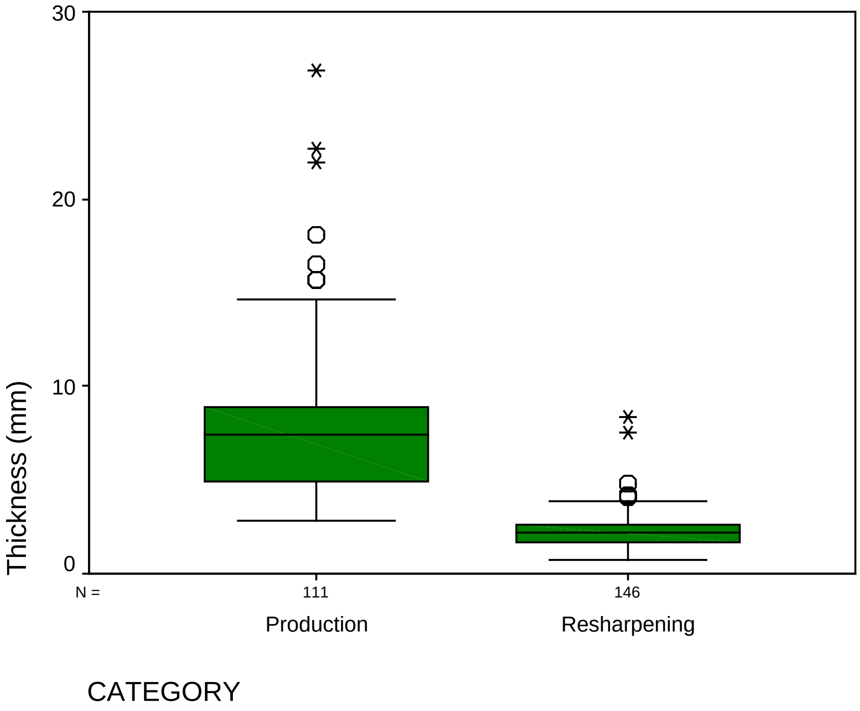

Figure 1. Thickness differences between production and resharpening episodes.

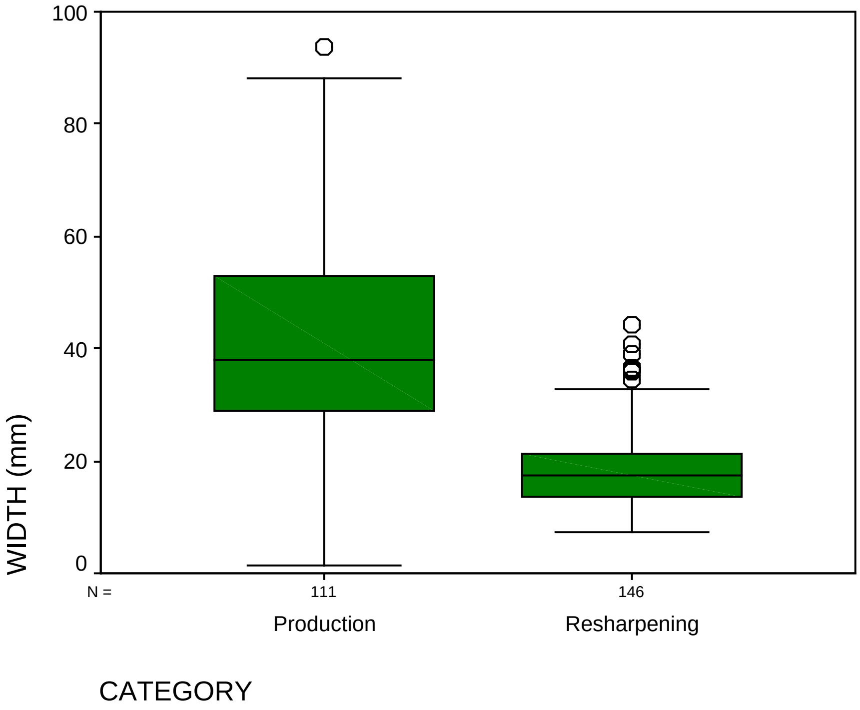

Figure 2. Width differences between production and resharpening episodes.

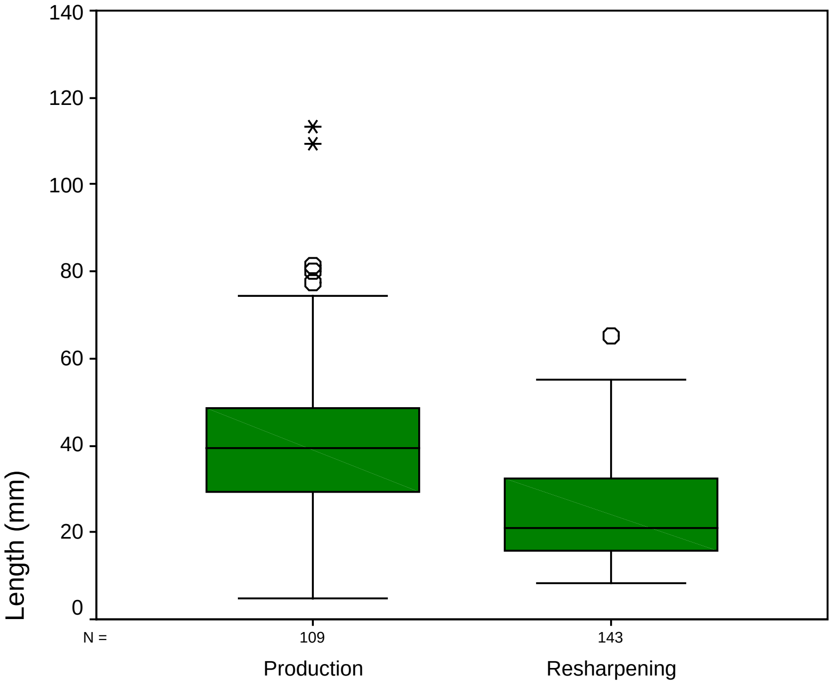

Figure 3. Flake length differences between production and resharpening episodes.

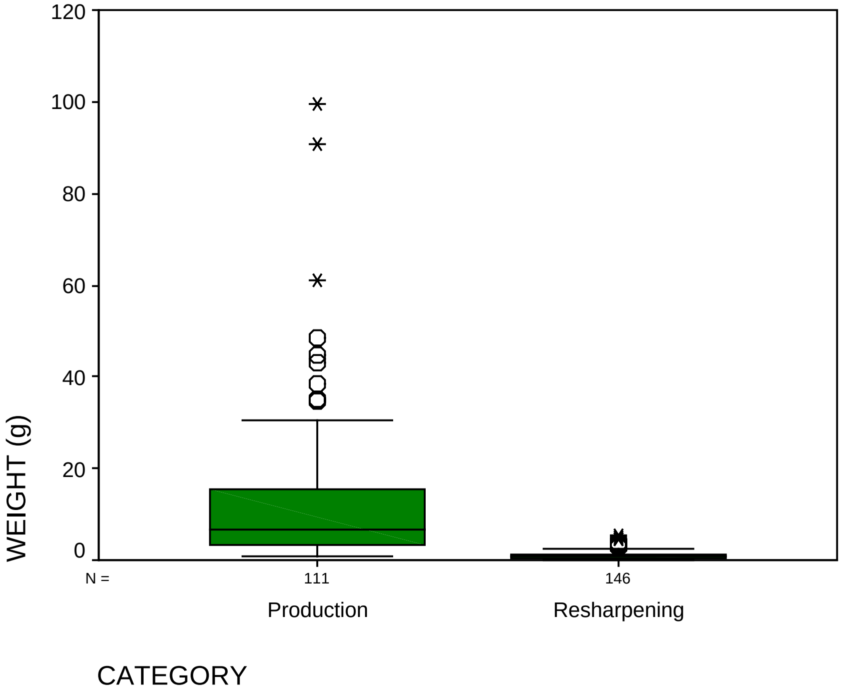

Figure 4. Flake weight differences between production and resharpening episodes.

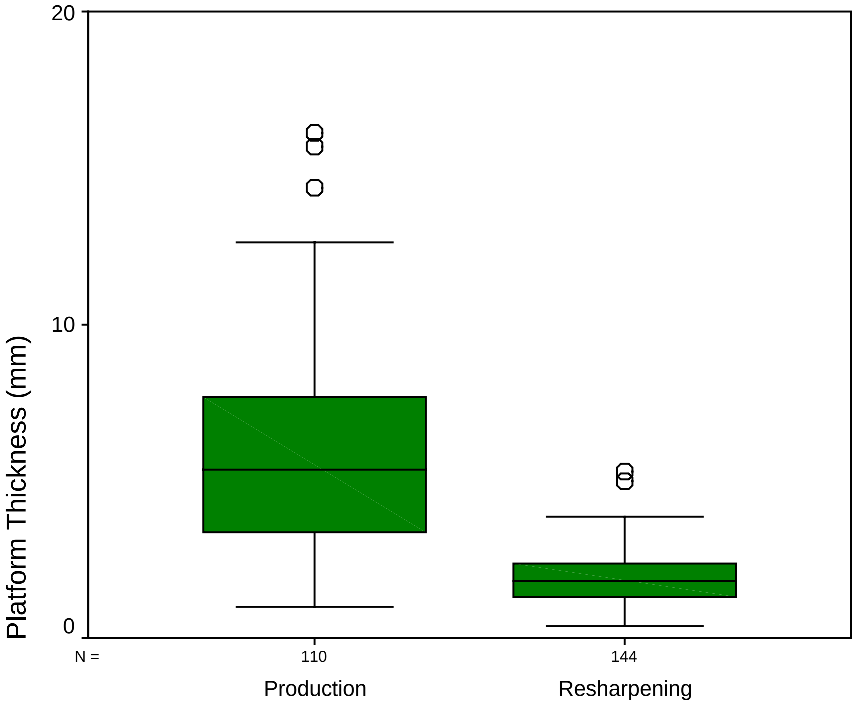

Figure 5. Flake platform thickness between production and resharpening episodes.

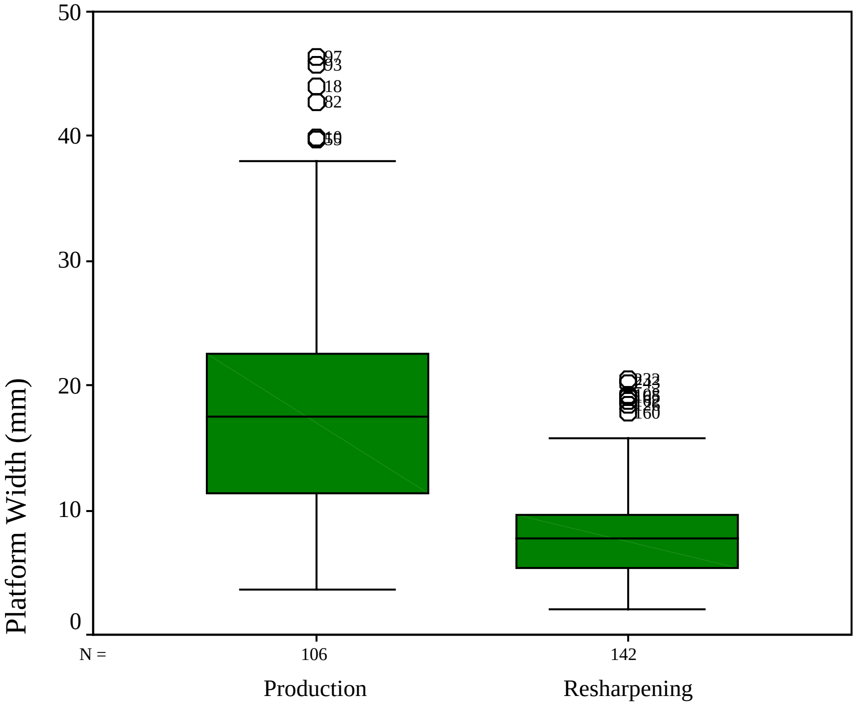

Figure 6. Flake platform width between production and resharpening episodes.

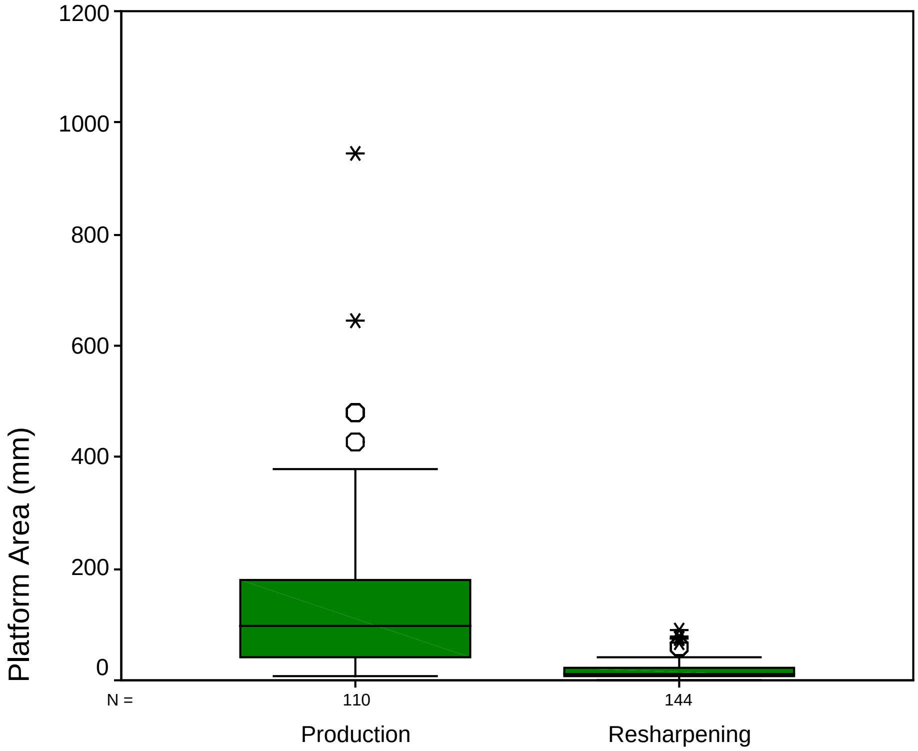

Figure 7. Flake platform area between production and resharpening episodes.

APPENDIX C

GROUNDSTONE CLUSTERS

During the 2005 field season at Chalk Basin, clusters of groundstone artifacts were identified, recorded, and photographed across the main campsite along the river (Figure 1). The purpose of this inventory was not to produce a detailed analysis of the groundstone used by the occupants of Chalk Basin. Instead, it was intended to get a general idea of how much groundstone was present at the site. None of the groundstone included in this appendix was collected from the field. Therefore, only general analytical categories are given, including pestle (n=34), mortar (or grinding stone) (n=39), and hopper mortar (n=3) (Table 1). Pestles were considered to be handheld rocks that were used to grind/pulverize the material (e.g., seeds) against the mortar surface (Figure 2). Artifacts included in this category were in a whole and fragmented condition and had signs of wear and/or battering on its surface. Mortars (or grinding stones) were large basalt rocks that were used as a hard surface to process materials in order to work it to a desired state for consumption (Figure 3). In the Great Basin region, the most common activity for grinding sets was used for seed processing (Kolvet and Eisele 2000). Hopper mortars were identified as having a distinctive circular wear pattern on the grinding surface (Figure 4). This distinctive pattern of hopper mortars was produced from pulverizing a material inside of an open-ended basket with a pestle on the rock surface (Butler 1986).

Table 1. Summary Table of the Groundstone Identified in the Field by Category.

Cluster Number	Pestle Count	Mortar Count	Hopper Mortar Count
1	2	0	0
2	1	0	0
3	0	1	0
4	0	0	1
5	1	1	0
6	0	1	0
7	0	1	0
8	0	3	0
9	0	1	1
10	0	1	0
11	1	1	0
12	1	1	0
13	5	2	0
14	2	2	0
15	2	0	0
16	0	1	0
17	1	2	1
18	1	0	0
19	1	0	0
20	1	2	0
21	0	3	0
22	0	3	0
23	2	4	0
24	1	1	0
25	0	1	0
26	1	1	0
27	1	1	0
28	1	1	0
29	3	1	0
30	3	2	0
31	2	2	0
32	1	1	0
TOTALS	**34**	**39**	**3**

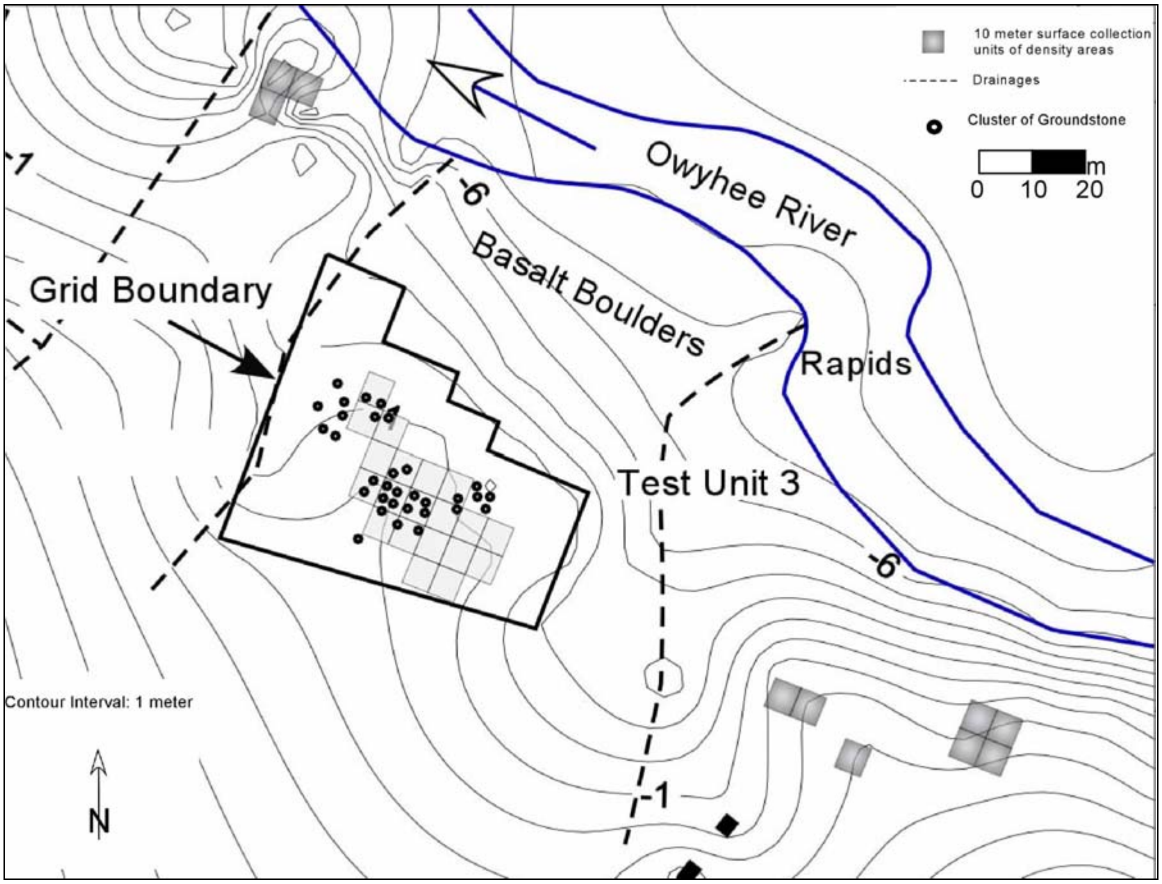

Figure 1. Distribution map of the groundstone across the main campsite area at Chalk Basin.

Figure 2. Pestle fragments identified in the field.

Figure 3. The large rock in the photograph is a mortar/ grinding stone. The middle of the rock shows signs of being hit and/or ground repeatedly during use.

Figure 4. The large rock circled is a hopper mortar, which has a distinctive circular pattern in what would have been the middle of the grinding surface.

References Cited in Appendix C

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APPENDIX D

DETAILED ACCOUNT OF SITE EXCAVATION METHODS

This section includes a detailed description of field methods employed at Chalk Basin during the field excavations in 2004 and 2005. During this time, two different fieldwork sessions were conducted at the site, which included subsurface and surface artifact collections. Figure 4.4, from Chapter Four, is a site topography map with the locations of all the subsurface testing and surface collection grids mentioned below.

2004 Pedestrian Survey

The first field season was in June 2004 by six crewmembers from Washington State University and the University of Alabama Office of Archaeological Research. During this investigation, the goals were to delineate and map the site boundary, identify the high concentration of surface artifacts, and to select areas for subsurface testing. The first of the goals was accomplished by a pedestrian survey of the entire river terrace area below the canyon rim. As such, survey transects were laid out in 10 meter intervals across the entire river terrace in order to determine the high-density areas (10 or more artifacts in a meter radius). After the high-density areas were flagged, a grid (orientated true north) was laid over these areas and marked off in 10 by 10 meter squares using a compass and 50 m tapes. Each square was identified by its northing and easting coordinates in the northwest corner. Within each 10-m^2 square, all artifacts on the surface were collected and later used to determine the location of the test units.

A total of 33 squares were collected in this surface sampling strategy totaling 3300 m^2 of surface area. From the pedestrian survey, there were three main areas of artifact collection within the river terrace. Beginning in the western portion of the terrace, three collection squares were included on a high point overlooking the river. This area is composed of loose sand and large basalt boulders, with artifacts scattered throughout. The second area was the main camp area where 23 of the 33 squares were collected. This area consisted of a flat bench truncated by drainages on either side to the east and west with a smaller drainage to the south. The northern portion of this area slumped off onto a lower beach of large basalt boulders, which was frequently subjected to flooding. This main campsite area did not contain any boulders and was covered with sagebrush and bunchgrass plants (Figure 1). Also, because of the high artifact concentration, this area was chosen as the location for the test units in the subsurface testing program. To the far east of the river terrace, the final six squares were collected. This area was on a gradual slope that had large basalt boulders and sagebrush plants scattered throughout.

Figure 1. View of main riverine campsite area at Chalk Basin. White circle indicates approximate location of the test units.

2004 Subsurface Testing

As stated above, three test units were excavated in the high-density areas from the surface collection. The test units measured one by two meters and were excavated in 10-centimeter arbitrary levels. Depths for the arbitrary levels were taken with a line level subdatum located at the northwest corner of each test unit. Information observed during the excavation was recorded on a standardized level form modified from the Birch Creek Archaeological Project (see Andrefsky et al. 2003, Appendix C). Information recorded from the test unit excavations included ending elevations (taken from subdatum), photograph information, plan view of level (including the 3 point provenience of any diagnostic artifacts, features, stains, disturbances, or rocks), Munsell color description of sediments encountered during excavation (recorded from wet sediments), and general comments about the level.

As different strata of sediment were encountered, a new bag was started for that stratum but was still considered to be apart of the same arbitrary level. At the bottom of each level, a constant volume sample was taken from the northwest corner of the unit. In total, 12 constant volume samples were collected during this excavation at 10-centimeter intervals. All of the locations of the test units and surface collection squares, as well as other general landmarks (e.g., Owyhee River, drainage, boulder field, etc.) were recorded with an EDM, a Nikon Total Station model DTM-521. These locations were recorded as coordinates from the site datum and used to create a site boundary map and a topographical map of the area using both Golden Software Surfer 7© and Deneba Canvas 8© computer programs.

At the end of first field season at Chalk Basin, all three previously mentioned goals were met but the subsurface testing program was incomplete. Test Units 1 and 3 were excavated down to about 40 cm below the ground surface and Test Unit 2 was only excavated down to 20 cm below surface. It should be noted that Test Unit 2 was abandoned at a higher depth because of a paucity of artifacts in Strata I and the contact with a very compact Stratum II made excavation there almost impossible with hand tools.

Test Units 1 and 3 were still producing artifacts at the end of the field season. Because of time and budget constraints, further excavation of these units was not possible. Therefore, the subsurface testing for the 2004 season could not answer the question of how deep the cultural deposits at Chalk Basin extended and if there was evidence of an earlier, separate occupation zone further down in the profile.

2005 Field Investigations

This question of the extent of the buried cultural deposits at Chalk Basin was the focus of a 10-day field season in May 2005. A team of two Washington State University graduate students traveled back to the site and camped there for the duration of the season. Upon first arriving at the site, newly exposed clusters of groundstone were scattered throughout the main occupation area where the surface collection had taken place. Some groundstone had been noted during the previous season but were low in numbers and scattered throughout the site. This new ‘appearance’ of groundstone is attributed to soil deflation. The top layer of sediment covering the site is loose silty sand, resulting in previously buried artifacts to be exposed to the surface.

Because of the remote location of the site, the total station was not taken back to the site for further mapping. Instead, universal transverse mercator (UTMs) coordinate locations were recorded with a Garmin Etrex global positioning system (gps) receiver for all of the groundstone clusters present in areas that were included in the surface collection in 2004. A cluster was considered to be all of the groundstone present in a two-meter diameter circle. In total, 23 clusters of groundstone were identified, photographed, and recorded.

In order to determine the depth of the cultural material at Chalk Basin, a two by two meter test unit was excavated in close proximity of Test Unit 1. This area was chosen based on the high number of artifacts that were found during the surface collection and in the test unit excavations. Instead of a one by two meter test unit, the two by two meter test unit was chosen in an attempt to expose a larger area of the site. Because of time constraints, only two arbitrary 10 cm levels were excavated as a two by two meter square. Beginning in level 3 (approximately 30 cm below the ground surface), only the west side of the test unit was excavated, or the northwest and southwest quadrants of the original two by two meter square.

In all, 10 arbitrary levels were excavated in this test unit. This extended the test unit down to an approximate depth of one meter. No buried cultural deposit was identified; however, in an additional 50 cm shovel probe excavated on the south side of the unit exposed a high-energy flood deposit (Figure 2). This flooding episode left a mixture of small and large cobbles across the area. No cultural materials were noted and the sediment was loose sand.

Figure 2. Profile of the south wall in Test Unit 4. White circle indicates location of the flood episode where there is a mixture of small sediments and large cobbles.

APPENDIX E

CHALK BASIN POLLEN STUDY

Methods

Soil samples from test unit excavations were used to extract pollen for this research project. As such, the pollen grains were encapsulated within the same matrix of carbonates, charcoal, silicates, organics, humates, and minerals. Therefore, in order to examine the pollen grains, efforts were undertaken to remove as much excess material from the matrix. From the 12 constant volume samples collected during the 2004 field season, 6 were chosen for processing (5 from Test Unit 1; 1 from Test Unit 3). A 10ml sample was taken from the 6 samples and 2 *Lycopodium* tablets (12542 grains per tablet) were added to each one for control. Drops of Hydrochloric Acid (HCL) (concentrated 36% and diluted 10%) were added to the samples in order to dissolve the *Lycopodium* tablets. From the initial reaction to the HCL, it was apparent that amount of calcium carbonates increased with depth in Test Unit 1 and caused the most reaction in Sample 12 from Test Unit 3.

The samples were then screened through 5 mm mesh to remove large pieces of debris from the samples (e.g. rocks, rootlets, etc…), while ensuring that the pollen passes through the screen. After all of the 10 ml samples had been screened, water was added to the samples and repeatedly centrifuged until all of the samples had been condensed down to one tube per sample. The samples were then treated for 24 hours with Hydrofluoric (HF) acid (~48% strength) in order to remove silicates (i.e. sand, silts, and clay). From adding HF, it was apparent that Samples 1,2,3, and 4 had the highest amounts of silicates present in the matrix.

The next day, the HF was removed from the samples and centrifuged with water in order to ensure that all of the remnants of HF were gone. The next step of processing was to add potassium hydroxide (KOH) 1% strength) for the purpose of getting rid of the humates (partially decomposed organics) that were present in the sample. After the KOH had been removed, the samples were subjected to acetolysis in order to remove the organics (Erdtman 1960). Acetolysis mixture was the combination of one part sulphur acid (~95% strength) to nine parts of acetic anahydride (100% strength). Under the fumehood, the acetolysis mixture was added to all of the samples and then placed into boiling water on a hotplate for approximately 10 minutes. After the samples were "cooked" they were removed from the water and centrifuged. The acetolysis mixture was decanted from the samples.

At this stage of the processing, all of the carbonates, silicates, humates, and organics had been removed from the soil matrix. The remaining materials included charcoal, minerals, and pollen grains. After observing the samples up until this point, it was determined that most of them contained minimal minerals and were not processed any further. However, Samples JK1, JK2, JK4 and JK12 underwent further processing with a heavy density concentration of zinc chloride to remove excess minerals. After zinc chloride was added to these four samples, they were placed in the centrifuge at a low speed (1000 rpm/sec.) and were slowly accelerated to approximately 4000 rpm/sec. over a 10 minute period. With the gradual increase in centrifuge speed, the samples resulted in all of the charcoal and pollen grains floating to the top of the test tube, while all of the mineral contents sunk to the bottom. This separation allowed for the pollen grains and charcoal to be collected from the top and transported to a different test tube. This step ended the processing sequence for these samples. The remaining materials for the samples included pollen grains and charcoal. Unfortunately, there is no method as of yet that can successfully get rid of the charcoal without compromising the pollen grains. Therefore, there was no effort to remove the charcoal from the pollen matrix.

In addition to processing the 6 samples to extract pollen grains, the pH values of 5 of the samples were taken following guidelines provided by Goodman (2001). Only 5 of the 6 samples were included was due to the low volume of soil collected from the field excavations. The soil from the 5 samples tested were screened through 2 mm mesh and lightly ground with a pestle and mortar. A volume of 15 mL was measured out from each sample and placed into a 100 mL beaker. Approximately 15 mL of distilled water was then added to each sample and stirred with a glass stirring rod to create a slurry. When the samples were well mixed, the pH electrode was place in each sample and gently moved around until a pH reading was obtained. This last step was performed to each of the 5 samples with the electrode being cleaned with distilled water between testing each sample.

Results

After lab processing, slides were made from the six samples to analyze the pollen grains under a compound light microscope. All of the samples contained enough pollen to have statistically valid counts of 200 pollen grains, as outlined by Barkley (1934) and Martin (1963). From the analysis of the pollen grains from Chalk Basin, seven plant taxa were identified in every sample, including *Artemsia*, *Cheno*-Ams, TCT, *Pinus*, Poacaea, Low-Spined Asteraceae, and *Sarcobatus*. As shown in Table 1, Cheno-Am anthers were present in sample JK1 at a depth of 10 cm. Of these types identified, the most common grains found in every level were *Artemisia* and *Cheno*-Ams, comprising 37% and 29%, respectively of the total pollen grains counted.

Unfortunately, all of these pollen types are characterized by Bryant et al. (1994) as 1) durable taxa that are resistant to most destructive agents, 2) these types could still be identified even if they were severely degraded, or 3) were severely damaged pollen grains that could no longer be identified. Only 2 pollen types (i.e. Lugilifloreae and Onagraceae) from the assemblage were isolated to one level and were not present again in the study. This may be due to preservation factors, which provided an environment for differential preservation to occur (in favor of durable pollen types). Or this could be a case in which these plant types only grew in during certain periods due to climate factors.

The concentration values generally decreased with depth, with the exception with of JK4 (at 40cm) (Table 1). The soil sample from JK4 was taken from a soil stratum that was comprised of loose sand wedged in between two compact silty sand layers. The results from the pH readings generally rose with depth, indicating an alkaline soil. The highest reading came from sample JK12, which was taken from Test Unit 3 at a depth of 40 cm.

Table 1. Percentages of Plant Taxa Identified from the Chalk Basin Excavations. Chart Also includes Concentration Values and pH Values for Each Sample.

Type	**JK1 TU1-10cm**	**JK2 TU1-20cm**	**JK3 TU1-30cm**	**JK4 TU1-40cm**	**JK5 TU1-50cm**	**JK12 TU3-40cm**	**TOTALS**
Pinus	20(10.0%)	18(9.0%)	14(7.0%)	4(2.0%)	9(4.5%)	5(2.5%)	**70(5.8%)**
TCT	8(4.0%)	16(8.0%)	19(9.5%)	6(3.0%)	21(10.5%)	24(12.0%)	**94(7.8%)**
Artemesia	78(39.0%)	70(35.0%)	50(25.0%)	77(38.5%)	39(19.5%)	34(17.0%)	**348(29.0%)**
Cheno-Am	72(36.0%)*	72(36.0%)	70(35.0%)	66(33.0%)	67(33.5%)	101(50.5%)	**448(37.3%)**
Liguliflorae	0(0.0%)	0(0.0%)	0(0.0%)	0(0.0%)	7(3.5%)	0(0.0%)	**7(0.6%)**
L.S. Asteraceae	8(4.0%)	6(3.0%)	11(5.5%)	12(6.0%)	17(8.5%)	9(4.5%)	**63(5.3%)**
Onagraceae	0(0.0%)	0(0.0%)	1(0.5%)	0(0.0%)	0(0.0%)	0(0.0%)	**1(0.1%)**
Poaceae	6(3.0%)	2(1.0%)	6(3.0%)	0(0.0%)	4(2.0%)	5(2.5%)	**23(1.9%)**
Sarcobatus	2(1.0%)	8(4.0%)	5(2.5%)	3(1.5%)	5(2.5%)	8(4.0%)	**31(2.6%)**
Indeterminate	6(3.0%)	8(4.0%)	24(12.0%)	32(16.0%)	31(15.5%)	14(7.0%)	**115(9.6%)**
TOTALS	**200**	**200**	**200**	**200**	**200**	**200**	**1200**
Lycopodium (tracer)	105	434	432	245	289	919	
Concentration Values	4778	1156	1161	2047.7	1735.9	545.9	
pH Values	8.5	8.83	9	NA	8.37	9.78	

* anthers present in sample

The Indeterminate Category used for this analysis project included grains that were corroded, degraded, crumpled, or broken. These categories are taken from Cushing's 1967 article on differential pollen preservation. Within the exception of JK12, the percentage of grains included in this category increased with depth, the highest comprising 16% of the sample. It should be noted that no pollen grains were classified as an unknown type. All of the pollen types analyzed during this project could be identified to the family level or were damaged to a point that diagnostic features were no longer visible.

Discussion

As mentioned earlier, the results from this study are biased towards durable pollen types due to the inhospitable preservation factors. Three major preservation factors would include exposure to numerous wet/dry cycles, having an aridosol soil type at the site (typical of arid environments where moisture is low and pH is high from build up of carbonates; Jones 2004) and the chemical erosion of pollen grains from high pH and Eh levels in the soil. Therefore, results from this project can provide minimal information about the environmental and prehistoric context of the site.

Regarding the pH of the soil, as stated above these samples were from an aridosol soil type. This soil type is characterized as not providing an optimal environment for pollen preservation (Jones 2004); in fact it was surprising to discover that any pollen grains were present in these harsh conditions. To begin with, the highest pH level found in this sample was 9.78, which is well above the documented 8.9 pH level from other alkaline soils with pollen grains in the American Southwest (Martin 1963; Bryant 1969; Hall 1981, 1991). Another factor that characterizes aridosols is the presence of calcium carbonates. As mentioned in the Methods Section of this paper, these samples had an increased reaction with the HCL acid with depth, which implies that they increasingly contained more calcium carbonates.

Inferring environmental data from the pollen grains recovered is risky due to the differential preservation at the site. However, the results from this project can be used to determine what plants were growing near or at the site. The presence of *Cheno*-Am anthers present in sample JK1, suggests that actual plant producing the pollen is in close proximity to the site (Jones 2004). It also appears that *Juniperus* (TCT) was also occurring near or at the site because over 7% of the samples were composed of TCT including JK2, JK3, JK5, and JK12 (Davis 1981; Henry 1984).

In regards to the differential preservation at the site, it appears that under these alkaline conditions, the most durable pollen types are *Artemisia* and *Cheno*-Ams. With the high percentage of *Cheno*-Ams (lowest comprising 34% in JK4) in all the samples, it may be inferred that these samples are representative of shadscale communities (Davis 1981; Henry 1984).

Summary and Conclusions

One of the basic tenets for environmental reconstruction in pollen analysis emphasizes the point that certain environmental factors must exist in order to support plant communities of certain taxa (Moore et al. 1991). In other words, some plant types cannot exist in environments that are not suited to their needs (i.e. right amount of moisture). If this tenet was applied to the Chalk Basin samples without considering the factors of pollen preservation, then one might believe that only 7 different plant taxa were present in each of the soil samples. But this probably not the case and instead the better interpretation would be a case of differential preservation.

Given the state of preservation at the site and previous pollen studies, it is surprising that pollen grains are present in any of the samples. As such, interpreting results from samples with differential preservation should be conservative. With the abundance of TCT grains and *Cheno*-Ams, it may be considered that Juniper trees were growing in close proximity to the site and that the environment supports a shadscale community (high number of *Cheno*-Ams). In sample JK1, taken at 10 cm, it also appears that *Cheno*-Ams were growing near or at the site based on the presence of anthers. This would support the area being a shadscale community and raises suspension that other *Cheno*-Am anthers might have been present in other samples, but have slowly broken apart over time.

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APPENDIX F

ARTIFACT DESCRIPTIONS

Non-Chipped Stone Artifacts

Bone: The bone collected at Chalk Basin was fragmented and poorly preserved due to the acidity of the sediments. As such, bone found from the test unit excavations was not counted but it was weighed to the nearest tenth of a gram. Two bone artifacts were found during the test unit excavations and included a bison tooth (Specimen # 03-051) and bone tube (Specimen 56-022). The bison tooth was recovered from the top stratum of Test Unit 1. The tooth pieces collected in the field yielded seven different fragments weighing 5.1 g. A faunal expert from Washington State University (Dr. Karen Lupo) helped identify the fragments as an erupted lower molar of a subadult *bison bison* based on the occlusal surface patterns. Another type of bone artifact collected was a polished bone tube that weighs 5.3 grams.

Shell: Shell fragments were noted during the field excavations and the laboratory analysis. For the artifact analysis, all shell fragments were weighed but not counted. Because of the small size, there were no diagnostic pieces of shell to could be used to determine the genus/species.

Fire Cracked Rock: Rocks that have been intentionally heated in a fire that were used to line a fire hearth or used for ‘stoneboiling’ in baskets; sometimes these rocks are split and/or cracked due to overexposure to heat.

Unmodified Rock: Rocks that were collected in the field that have not been modified by humans.

Chipped Stone Artifacts

Non-Tools: By-products of producing and resharpening chipped stone tools that exhibit no further human modification.

- Angular shatter: Angular shatter is a by-product that has no definitive dorsal or ventral side and is typically blocky/angular in shape.
- Flake Shatter: Flake shatter is defined in this study as the by-products that have a distinctive dorsal and ventral side but do not have a striking platform.
- Proximal Flakes: Proximal flakes have a striking platform (from being detached from an objective piece) and also have proximal (interior) and dorsal (exterior) side.

Tools: Chipped stone artifacts that have been intentionally modified by retouch or unintentionally modified by use wear.

- Core Tools: Objective piece that has had flakes removed from its surface and are not bifacial or produced on a flake. Core tools are a supply of raw material for making stone tools but can also be used as a chopper or a cutting tool (Figure 1).

Figure 1. Core tool (Specimen # 37-011) with dorsal cortex made from the local White Chert raw material.

- Flake Tools: A proximal flake or flake fragment (having a dorsal and ventral side) that has evidence of being intentionally retouched to create a cutting edge or has wear patterns ("nibbling") from being used for a task (Figure 2).


(a) (b)

Figure 2. Examples of (a) an obsidian (Specimen # 33-001) and (b) Other Chert (Specimen # 41-001) flake tools that were collected from the surface of Chalk Basin. Both tools are oriented with the worked edge facing down. Each black and white square on the scale at the bottom of the photographs represents one centimeter.

- Hafted Bifaces: Stone tools that have two surfaces (or faces) that meet to form an edge around the entire perimeter and has a haft element that can be used to hold it in handle or shaft (Figure 3).
- Unhafted Bifaces: Stone tools that have two surfaces (or faces) that meet to form an edge around the entire perimeter but do not have a haft element (or stem) to secure it in a shaft. Also, unhafted bifaces usually have flake scars that extend from the edge to the midline of the surface (Figure 4).

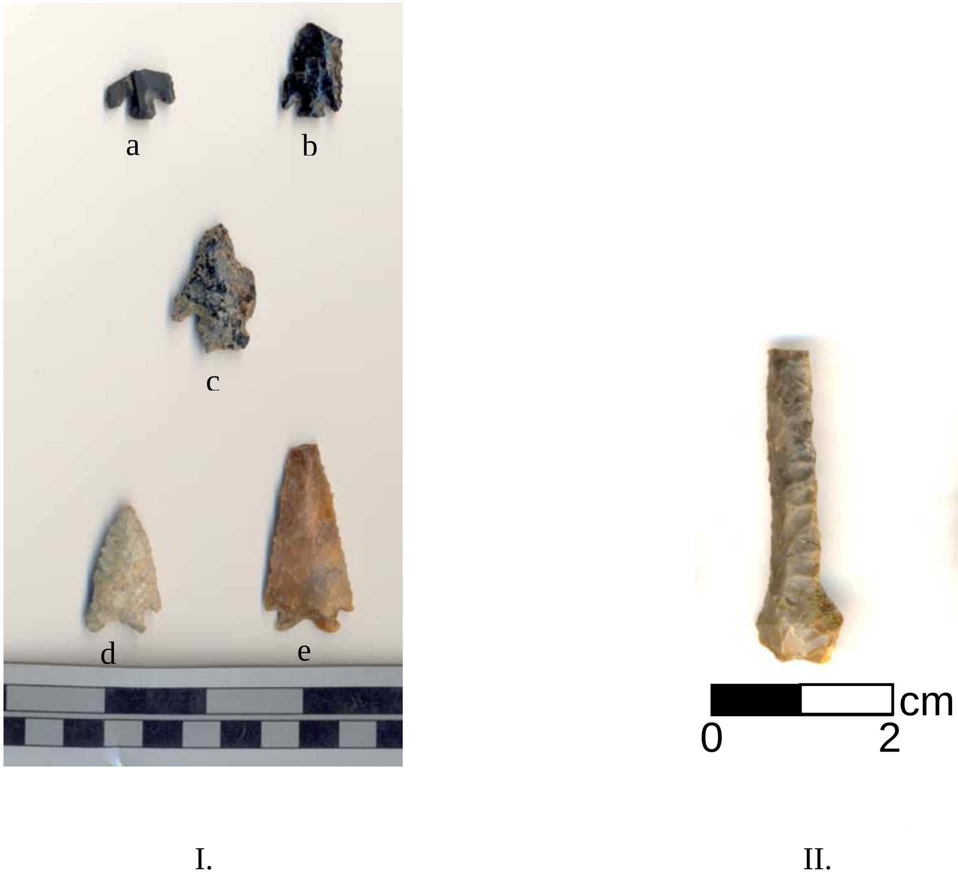

Figure 3. Hafted bifaces recovered from Chalk Basin that are similar to ones usually found in the Northern Great Basin on the left (I.), including a) Rosespring (Specimen # 42-001), b) Rosespring (Specimen # 53-001), c) Elko Corner-Notched (Specimen # 04-012), d) Elko Eared (Specimen # 02-265), and e) Elko Eared (Specimen # 02-266). On the right (II.) is an example of a hafted biface (Specimen # 42-001) that is not diagnostic of a cultural type.

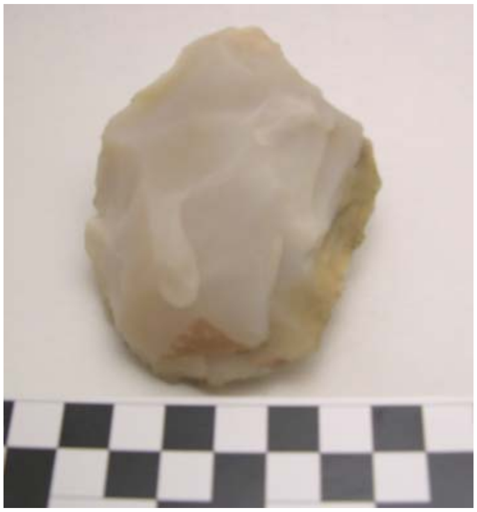

Figure 4. Example of a complete unhafted biface (Specimen # 53-004) collected from the surface.

APPENDIX G

ARTIFACT INVENTORY

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
01-001	TU 1	1	1	6/14/2004	JT/JS	PF	WC	Y	1.4	17.7	18.8	7.2
01-002	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	1	17.8	23.9	2.2
01-003	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	2.1	27.4	21.7	4.4
01-004	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	2.2	13.4	29.8	7.4
01-005	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.4	16	17.4	2.9
01-006	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	0.3	13	9.7	2.8
01-007	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.6	19.1	13.6	2.8
01-008	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.3	14.3	9.2	2
01-009	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.4	14.1	13.7	2.5
01-010	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	10.5	8.6	1.4
01-011	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	4.4	31.7	27.3	5
01-012	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.9	14.4	21.1	3.6
01-013	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.4	11.9	14.2	2.1
01-014	TU 1	1	1	6/14/2004	JT/JS	PF	OB	N	0.1	6.1	11.2	0.9
01-015	TU 1	1	1	6/14/2004	JT/JS	UB	WC	N	41.8	30.8	53.8	23.2
01-016	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	4.2	23	45.8	3.9
01-017	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.7	16.6	19.9	2.4
01-018	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	0.5	16.5	17.9	2.5
01-019	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.5	13.5	21.8	1.1
01-020	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	1.9	25	27.5	2.5
01-021	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	1.5	18.4	27.6	3.9
01-022	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	1.8	19.2	32.2	3.3
01-023	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	3.7	38.1	27	3.9
01-024	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.3	15.5	11.1	2
01-025	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.4	11	17.8	1.6
01-026	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	0.9	17.9	28.5	1.6
01-027	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.3	13.3	10.6	1.8
01-028	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	13.2	34.4	51.6	7.5
01-029	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	3	31	21.1	4.9
01-030	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	2.3	21.5	25.2	5
01-031	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	0.4	10.8	12.4	4
01-032	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.5	20.3	12.4	1.9
01-033	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	0.1	6.3	8.1	1.8
01-034	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	1.5	17.4	23.8	4.4
01-035	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.5	13.7	12.8	2.3
01-036	TU 1	1	1	6/14/2004	JT/JS	PF	OB	N	0.1	7.1	10.8	0.9
01-037	TU 1	1	1	6/14/2004	JT/JS	PF	OB	N	1.1	23.2	14.4	2.8
01-038	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.6	13.3	18.7	3.4
01-039	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	1.3	17.1	28.5	2.5
01-040	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	6.1	9.4	1
01-041	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	0.7	14.9	18.7	3.1
01-042	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	11.4	8.3	1.6
01-043	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	7.8	8.3	0.7
01-044	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.3	16.6	11.8	1.6
01-045	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	9.7	11.3	0.9
01-046	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	7.2	11.4	1.5
01-047	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	7.2	7.6	1
01-048	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	2.1	20.6	28.2	3.1
01-049	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	1.8	29.5	22	3
01-050	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	1.6	24.3	17.7	3.9
01-051	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.7	20.1	13.5	2.8
01-052	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.7	17.5	19.4	2.5
01-053	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	1.2	22.1	16.6	4.7
01-054	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	11.9	9.9	2.4
01-055	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	9.2	12.7	2
01-056	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	10.9	5.8	2.4
01-057	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.3	14.4	11	3.9
01-058	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.5	14.2	16.1	2

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
01-059	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	9.3	9	1.8
01-060	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	0.3	11.1	13.1	1.8
01-061	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	9.9	8.2	1.6
01-062	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	9.7	7.2	1.8
01-063	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.4	21.1	19.1	3.3
01-064	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	2.7	23.3	25.3	6.2
01-065	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	17.1	37.8	36.4	14.5
01-066	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	10.4	36.8	27.9	9.3
01-067	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	10.8	10.2	1.4
01-068	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.2	14.7	8.2	1.3
01-069	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.2	14.6	9.6	1.1
01-070	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	2.6	26.5	25.6	4.7
01-071	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.4	29.3	21.5	2.6
01-072	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.3	20.5	26.1	3.3
01-073	TU 1	1	1	6/14/2004	JT/JS	PF	WC	Y	1.8	19.2	20.3	4.3
01-074	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	10.5	11	0.9
01-075	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	9.5	8.9	1.3
01-076	TU 1	1	1	6/14/2004	JT/JS	PF	WC	Y	1.7	20.6	24.3	3.1
01-077	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.1	14.4	16.7	2.5
01-078	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.5	15.5	18.3	3.5
01-079	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1	17.6	17.1	2.8
01-080	TU 1	1	1	6/14/2004	JT/JS	PF	WC	Y	5.4	24.5	40.2	5.1
01-081	TU 1	1	1	6/14/2004	JT/JS	PF	OB	N	0.1	9.6	9.3	1.1
01-082	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.3	14	22.9	3.8
01-083	TU 1	1	1	6/14/2004	JT/JS	PF	OB	N	0.1	7.6	14	1.8
01-084	TU 1	1	1	6/14/2004	JT/JS	UB	OC	Y	12.7	23.4	39.4	9.8
01-085	TU 1	1	1	6/14/2004	JT/JS	UB	OC	Y	20.1	47.8	37.2	9.4
01-086	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	1.3	18.6	17.8	3.1
01-087	TU 1	1	1	6/14/2004	JT/JS	UB	WC	N	4.2	14.3	29.1	7.7
01-088	TU 1	1	1	6/14/2004	JT/JS	UB	WC	N	0.7	14.2	17.2	3.9
01-089	TU 1	1	1	6/14/2004	JT/JS	UB	OC	Y	111.8	55.9	86.4	30.4
01-090	TU 1	1	1	6/14/2004	JT/JS	UB	WC	Y	112.2	43.4	82.8	27.5
01-091	TU 1	1	1	6/14/2004	JT/JS	UB	OC	Y	157	67.9	76.8	33.4
01-092	TU 1	1	1	6/14/2004	JT/JS	UB	WC	N	2.9	17.7	25.9	10.2
01-093	TU 1	1	1	6/14/2004	JT/JS	UB	OC	N	0.2	10.9	7.8	7.1
01-094	TU 1	1	1	6/14/2004	JT/JS	CT	WC	Y	32.3	43	55.6	14.6
01-095	TU 1	1	1	6/14/2004	JT/JS	CT	WC	Y	16.6	38.5	29.4	16.3
01-096	TU 1	1	1	6/14/2004	JT/JS	CT	WC	Y	14.2	25.3	36.8	14.3
01-097	TU 1	1	1	6/14/2004	JT/JS	CT	OC	Y	82.6	50.4	45.7	32.2
01-098	TU 1	1	1	6/14/2004	JT/JS	FT	WC	Y	72.6	56.7	81.3	14.9
01-099	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	2.6	34	10.8	8.2
01-100	TU 1	1	1	6/14/2004	JT/JS	FT	WC	Y	16.9	51.3	49.4	9.6
01-101	TU 1	1	1	6/14/2004	JT/JS	FT	AR	N	3.5	13.7	39	4.9
01-102	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.6	16.3	19.7	2
01-103	TU 1	1	1	6/14/2004	JT/JS	PF	WC	Y	4	20.1	39.8	5.6
01-104	TU 1	1	1	6/14/2004	JT/JS	FT	WC	N	9.7	49.8	35.6	11.9
01-105	TU 1	1	1	6/14/2004	JT/JS	FT	WC	Y	1.8	16.2	28.4	4.2
01-106	TU 1	1	1	6/14/2004	JT/JS	FT	OC	N	9.5	42.5	27.1	10.2
01-107	TU 1	1	1	6/14/2004	JT/JS	FT	WC	N	1	22.1	13.8	4.7
01-108	TU 1	1	1	6/14/2004	JT/JS	PF	WC	Y	6.3	27	28.9	9.7
01-109	TU 1	1	1	6/14/2004	JT/JS	FS	WC	N	77.9			
01-110	TU 1	1	1	6/14/2004	JT/JS	FS	WC	Y	67.9			
01-111	TU 1	1	1	6/14/2004	JT/JS	AS	WC	N	20.5			
01-112	TU 1	1	1	6/14/2004	JT/JS	AS	WC	Y	58.2			
01-113	TU 1	1	1	6/14/2004	JT/JS	FS	OC	Y	50			
01-114	TU 1	1	1	6/14/2004	JT/JS	FS	OC	N	57.8			
01-115	TU 1	1	1	6/14/2004	JT/JS	AS	OC	N	11.4			
01-116	TU 1	1	1	6/14/2004	JT/JS	AS	OC	Y	69.1			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
01-117	TU 1	1	1	6/14/2004	JT/JS	FS	OB	N	5			
01-118	TU 1	1	1	6/14/2004	JT/JS	AS	OB	N	0.3			
01-119	TU 1	1	1	6/14/2004	JT/JS	FS	OB	Y	0.4			
01-120	TU 1	1	1	6/14/2004	JT/JS	PF	OB	Y	1.9	1.9	13.4	20.8
01-121	TU 1	1	1	6/14/2004	JT/JS	PF	OB	Y	0.1	0.2	7.2	15
01-122	TU 1	1	1	6/14/2004	JT/JS	PF	OB	N	0.4	0.4	10.9	11.1
01-123	TU 1	1	1	6/14/2004	JT/JS	PF	OB	N	0.1	0.1	9.8	7
01-124	TU 1	1	1	6/14/2004	JT/JS	PF	OB	N	0.1	0.1	9.1	10.9
01-125	TU 1	1	1	6/14/2004	JT/JS	AS	AR	N	22.2			
01-126	TU 1	1	1	6/14/2004	JT/JS	PF	AR	N	2.8	35.7	22.4	5.3
01-127	TU 1	1	1	6/14/2004	JT/JS	FS	AR	N	4.7			
01-128	TU 1	1	1	6/14/2004	JT/JS	FS	AR	Y	11.3			
01-129	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	9.2	5.7	2.4
01-130	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	10.2	10	2.2
01-131	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	10.7	8	1.1
01-132	TU 1	1	1	6/14/2004	JT/JS	FT	WC	Y	41.1	41.6	69.8	20.3
01-133	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	27.3	30.8	63.5	16.2
01-134	TU 1	1	1	6/14/2004	JT/JS	FT	WC	N	22	34.7	46.6	13.6
01-135	TU 1	1	1	6/14/2004	JT/JS	FT	OC	Y	11.9	33.6	52.4	7.2
01-136	TU 1	1	1	6/14/2004	JT/JS	FT	OC	Y	17.2	34.7	56.7	9.4
01-137	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	2.1	21.6	27.8	4.1
01-138	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	2.8	19.4	31.1	4.3
01-139	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	2.5	30.3	22	5.3
01-140	TU 1	1	1	6/14/2004	JT/JS	PF	WC	Y	2.7	27.5	27.6	5.2
01-141	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.8	18.3	17.3	4.5
01-142	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.5	20	17.2	1.6
01-143	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	8	7.8	0.5
01-144	TU 1	1	1	6/14/2004	JT/JS	PF	WC	Y	0.4	13.3	15	1.7
01-145	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	3	21.1	38.8	3.3
01-146	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.2	10.4	9.5	2.8
01-147	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	9.8	10.8	1.2
01-148	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.1	17.7	16.8	3
01-149	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.2	11.9	12.3	1.4
01-150	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.6	12.5	28.4	3.7
01-151	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	2.4	18.7	22.3	8.5
01-152	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.5	10	18.7	3.6
01-153	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.3	12.7	10	3.7
01-154	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.3	10.1	10.6	1.4
01-155	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	7.7	8.2	1.8
01-156	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.2	14.8	11.2	1.5
01-157	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	8.9	15.8	1.6
01-158	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	1.1	12.5	15.7	4.5
01-159	TU 1	1	1	6/14/2004	JT/JS	PF	OC	Y	0.6	16.4	17.4	1.9
01-160	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	11.1	5	1
01-161	TU 1	1	1	6/14/2004	JT/JS	PF	WC	N	0.1	13	7.8	2.2
01-162	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.2	10.2	14.4	2
01-163	TU 1	1	1	6/14/2004	JT/JS	PF	OC	N	0.1	6.8	11.1	1.9
01-164	TU 1	1	1	6/14/2004	JT/JS	BN			7			
01-165	TU 1	1	1	6/14/2004	JT/JS	UR	AR		11.4			
02-001	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	8.3			
02-002	TU 1	2	1	6/14/2004	JS/JT	FT	OC	N	2.9			
02-003	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	1.7			
02-004	TU 1	2	1	6/14/2004	JS/JT	FT	OC	Y	0.7			
02-005	TU 1	2	1	6/14/2004	JS/JT	UB	OC	Y	8.3			
02-006	TU 1	2	1	6/14/2004	JS/JT	UB	WC	Y	160.3			
02-007	TU 1	2	1	6/14/2004	JS/JT	FT	WC	Y	47.6			
02-008	TU 1	2	1	6/14/2004	JS/JT	UB	WC	N	11.6			
02-009	TU 1	2	1	6/14/2004	JS/JT	FT	WC	N	2.5			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
02-010	TU 1	2	1	6/14/2004	JS/JT	FT	WC	Y	5.3			
02-011	TU 1	2	1	6/14/2004	JS/JT	FT	WC	N	2.1			
02-012	TU 1	2	1	6/14/2004	JS/JT	CT	WC	Y	100	70.3		
02-013	TU 1	2	1	6/14/2004	JS/JT	CT	WC	Y	42.2	64.3		
02-014	TU 1	2	1	6/14/2004	JS/JT	CT	WC	Y	118.4	93.7		
02-015	TU 1	2	1	6/14/2004	JS/JT	CT	WC	Y	20.7	47.4		
02-016	TU 1	2	1	6/14/2004	JS/JT	CT	WC	Y	31.7	45.6		
02-017	TU 1	2	1	6/14/2004	JS/JT	CT	WC	Y	12.2	38.6		
02-018	TU 1	2	1	6/14/2004	JS/JT	CT	OC	Y	106.6	72.8		
02-019	TU 1	2	1	6/14/2004	JS/JT	CT	WC	N	26.4	32.4		
02-020	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	10.9			
02-021	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	8.7			
02-022	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	21.2			
02-023	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	12.4			
02-024	TU 1	2	1	6/14/2004	JS/JT	CT	OB	N	13.4	64.2		
02-025	TU 1	2	1	6/14/2004	JS/JT	UB	OC	N	1			
02-026	TU 1	2	1	6/14/2004	JS/JT	PF	WC	Y	48.5			
02-027	TU 1	2	1	6/14/2004	JS/JT	PF	WC	Y	0			
02-028	TU 1	2	1	6/14/2004	JS/JT	PF	WC	Y	0			
02-029	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	50.7			
02-030	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-031	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-032	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-033	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-034	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-035	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-036	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-037	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-038	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-039	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-040	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-041	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-042	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-043	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-044	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-045	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-046	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-047	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-048	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-049	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-050	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-051	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-052	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-053	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-054	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-055	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-056	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-057	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-058	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-059	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-060	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-061	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-062	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-063	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-064	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-065	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-066	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-067	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
02-068	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	113			
02-069	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-070	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-071	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-072	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-073	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-074	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-075	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-076	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-077	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-078	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-079	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-080	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-081	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-082	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-083	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-084	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-085	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-086	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-087	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-088	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-089	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-090	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-091	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-092	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-093	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-094	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-095	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-096	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-097	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-098	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-099	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-100	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-101	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-102	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-103	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-104	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-105	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-106	TU 1	2	1	6/14/2004	JS/JT	PF	OC	Y	0			
02-107	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	73.8			
02-108	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-109	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-110	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-111	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-112	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-113	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-114	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-115	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-116	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-117	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-118	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-119	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-120	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-121	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-122	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-123	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-124	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-125	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
02-126	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-127	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-128	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-129	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-130	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-131	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-132	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-133	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-134	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-135	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-136	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-137	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-138	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-139	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-140	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-141	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-142	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-143	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-144	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-145	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-146	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-147	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-148	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-149	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-150	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-151	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-152	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-153	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-154	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-155	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-156	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-157	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-158	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-159	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-160	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-161	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-162	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-163	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-164	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-165	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-166	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-167	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-168	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-169	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-170	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-171	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-172	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-173	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-174	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-175	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-176	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-177	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-178	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-179	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-180	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-181	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-182	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-183	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
02-184	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-185	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-186	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-187	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-188	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-189	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-190	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-191	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-192	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-193	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-194	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-195	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-196	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-197	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-198	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-199	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-200	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-201	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-202	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-203	TU 1	2	1	6/14/2004	JS/JT	FS	WC	N	191.4			
02-204	TU 1	2	1	6/14/2004	JS/JT	FS	WC	Y	78			
02-205	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-206	TU 1	2	1	6/14/2004	JS/JT	AS	WC	N	33.6			
02-207	TU 1	2	1	6/14/2004	JS/JT	AS	WC	Y	80.2			
02-208	TU 1	2	1	6/14/2004	JS/JT	FS	OC	N	157.7			
02-209	TU 1	2	1	6/14/2004	JS/JT	FS	OC	Y	70.4			
02-210	TU 1	2	1	6/14/2004	JS/JT	AS	OC	Y	85.7			
02-211	TU 1	2	1	6/14/2004	JS/JT	AS	OC	N	20.8			
02-212	TU 1	2	1	6/14/2004	JS/JT	FS	BA	N	3.3			
02-213	TU 1	2	1	6/14/2004	JS/JT	FS	AR	N	4			
02-214	TU 1	2	1	6/14/2004	JS/JT	FS	AR	Y	6.6			
02-215	TU 1	2	1	6/14/2004	JS/JT	AS	AR	Y	5.2			
02-216	TU 1	2	1	6/14/2004	JS/JT	AS	QU	N	9.5			
02-217	TU 1	2	1	6/14/2004	JS/JT	PF	AR	N	13.8			
02-218	TU 1	2	1	6/14/2004	JS/JT	PF	AR	N	0			
02-219	TU 1	2	1	6/14/2004	JS/JT	PF	AR	N	0			
02-220	TU 1	2	1	6/14/2004	JS/JT	PF	AR	N	0			
02-221	TU 1	2	1	6/14/2004	JS/JT	PF	AR	Y	0			
02-222	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-223	TU 1	2	1	6/14/2004	JS/JT	PF	OC	N	0			
02-224	TU 1	2	1	6/14/2004	JS/JT	AS	OC	N	10.5			
02-225	TU 1	2	1	6/14/2004	JS/JT	FS	OB	N	11.6			
02-226	TU 1	2	1	6/14/2004	JS/JT	BN			12.9			
02-227	TU 1	2	1	6/14/2004	JS/JT	UR	BA	Y	19.9			
02-228	TU 1	2	1	6/14/2004	JS/JT	FCR	QU		194.9			
02-229	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-230	TU 1	2	1	6/14/2004	JS/JT	PF	WC	N	0			
02-231	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	3.4			
02-232	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-233	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-234	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-235	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-236	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-237	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-238	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-239	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-240	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-241	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
02-242	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-243	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-244	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-245	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-246	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-247	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-248	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-249	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-250	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-251	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-252	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-253	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-254	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-255	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-256	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0			
02-257	TU 1	2	1	6/14/2004	JS/JT	CT	OB	N	12.5	31.7		
02-258	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0.6			
02-259	TU 1	2	1	6/14/2004	JS/JT	FS	OB	N	1.1			
02-260	TU 1	2	1	6/14/2004	JS/JT	FS	OB	N	0.4			
02-261	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	0.7			
02-262	TU 1	2	1	6/14/2004	JS/JT	FS	OB	N	1.2			
02-263	TU 1	2	1	6/14/2004	JS/JT	FS	OB	N	0.9			
02-264	TU 1	2	1	6/14/2004	JS/JT	PF	OB	N	1.3			
02-265	TU 1	2	1	6/14/2004	JS/JT	HB	OC	N	6.7	22.6	48.6	6.4
02-266	TU 1	2	1	6/14/2004	JS/JT	HB	OC	N	2.6	19	33.4	5.3
02-267	TU 1	2	1	6/14/2004	JS/JT	FT	WC	N	1	10.4	27.9	3.3
03-001	TU 1	3	1	6/15/2004	JT/TW/JK	CT	AR	Y	192.4	72.5		
03-002	TU 1	3	1	6/15/2004	JT/TW/JK	CT	WC	Y	146.7	116		
03-003	TU 1	3	1	6/15/2004	JT/TW/JK	CT	WC	Y	33.1	46.5		
03-004	TU 1	3	1	6/15/2004	JT/TW/JK	CT	WC	Y	104	65.2		
03-005	TU 1	3	1	6/15/2004	JT/TW/JK	CT	WC	Y	26.3	37.2		
03-006	TU 1	3	1	6/15/2004	JT/TW/JK	CT	OC	N	55.5	62.2		
03-007	TU 1	3	1	6/15/2004	JT/TW/JK	CT	WC	N	14.9	43.8		
03-008	TU 1	3	1	6/15/2004	JT/TW/JK	CT	WC	N	57	59.6		
03-009	TU 1	3	1	6/15/2004	JT/TW/JK	CT	OC	N	26.6	62.5		
03-010	TU 1	3	1	6/15/2004	JT/TW/JK	UB	OC	Y	4.8			
03-011	TU 1	3	1	6/15/2004	JT/TW/JK	PF	WC	N	1.4			
03-012	TU 1	3	1	6/15/2004	JT/TW/JK	PF	WC	N	0.7			
03-013	TU 1	3	1	6/15/2004	JT/TW/JK	PF	WC	N	1			
03-014	TU 1	3	1	6/15/2004	JT/TW/JK	PF	WC	N	0.8			
03-015	TU 1	3	1	6/15/2004	JT/TW/JK	PF	WC	N	0.2			
03-016	TU 1	3	1	6/15/2004	JT/TW/JK	PF	WC	Y	3.2			
03-017	TU 1	3	1	6/15/2004	JT/TW/JK	PF	WC	Y	29.6			
03-018	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	Y	1.4			
03-019	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	Y	1.3			
03-020	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	Y	0.7			
03-021	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.3			
03-022	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.5			
03-023	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	1			
03-024	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.7			
03-025	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	1.6			
03-026	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	18.1			
03-027	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.9			
03-028	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.3			
03-029	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.3			
03-030	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.2			
03-031	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.4			
03-032	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.4			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
03-033	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.7			
03-034	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.4			
03-035	TU 1	3	1	6/15/2004	JT/TW/JK	PF	OC	N	0.5			
03-036	TU 1	3	1	6/15/2004	JT/TW/JK	FS	WC	N	22.5			
03-037	TU 1	3	1	6/15/2004	JT/TW/JK	FS	WC	Y	20			
03-038	TU 1	3	1	6/15/2004	JT/TW/JK	AS	WC	N	15.3			
03-039	TU 1	3	1	6/15/2004	JT/TW/JK	AS	WC	Y	1.2			
03-040	TU 1	3	1	6/15/2004	JT/TW/JK	FS	OC	N	33.5			
03-041	TU 1	3	1	6/15/2004	JT/TW/JK	FS	OC	Y	18.1			
03-042	TU 1	3	1	6/15/2004	JT/TW/JK	AS	OC	N	6.7			
03-043	TU 1	3	1	6/15/2004	JT/TW/JK	AS	OC	Y	3.5			
03-044	TU 1	3	1	6/15/2004	JT/TW/JK	AS	OB	Y	0.8			
03-045	TU 1	3	1	6/15/2004	JT/TW/JK	FS	OB	N	2.2			
03-048	TU 1	3	1	6/15/2004	JT/TW/JK	FCR			105.4			
03-049	TU 1	3	1	6/15/2004	JT/TW/JK	SH			2.1			
03-050	TU 1	3	1	6/15/2004	JT/TW/JK	BN			4.1			
03-051	TU 1	3	1	6/15/2004	JT/TW/JK	Bison BN			5.1	sent for AMS date		
04-001	TU 1	4	1	6/16/2004	JT/NS	PF	OC	N	0.1			
04-002	TU 1	4	1	6/16/2004	JT/NS	PF	OC	Y	0.3			
04-003	TU 1	4	1	6/16/2004	JT/NS	PF	OC	N	7.5			
04-004	TU 1	4	1	6/16/2004	JT/NS	CT	WC	Y	45.4	51.4		
04-005	TU 1	4	1	6/16/2004	JT/NS	FS	WC	Y	0.1			
04-006	TU 1	4	1	6/16/2004	JT/NS	FS	WC	N	3.8			
04-007	TU 1	4	1	6/16/2004	JT/NS	AS	OC	N	2.7			
04-008	TU 1	4	1	6/16/2004	JT/NS	AS	OC	Y	0.9			
04-009	TU 1	4	1	6/16/2004	JT/NS	FS	OB	N	0.5			
04-010	TU 1	4	1	6/16/2004	JT/NS	FS	OC	N	3.6			
04-011	TU 1	4	1	6/16/2004	JT/NS	FS	OC	Y	5.2			
04-012	TU 1	4	1	6/16/2004	JT/NS	HB	OB	N	3	22.2	32.7	5
04-013	TU 1	4	1	6/16/2004	JT/NS	FS	OB	N	1			
05-001	TU 1	4	2	6/16/2004	JT/NS	PF	OC	N	0.2			
05-002	TU 1	4	2	6/16/2004	JT/NS	PF	OC	N	0.3			
05-003	TU 1	4	2	6/16/2004	JT/NS	AS	WC	N	0.3			
05-004	TU 1	4	2	6/16/2004	JT/NS	AS	WC	Y	1			
05-005	TU 1	4	2	6/16/2004	JT/NS	FS	WC	N	0.7			
05-006	TU 1	4	2	6/16/2004	JT/NS	FS	WC	Y	0.1			
05-007	TU 1	4	2	6/16/2004	JT/NS	FS	OC	N	0.5			
05-008	TU 1	4	2	6/16/2004	JT/NS	FS	OC	Y	0.6			
05-009	TU 1	4	2	6/16/2004	JT/NS	FS	OB	N	0.1			
05-010	TU 1	4	2	6/16/2004	JT/NS	BN			0.6			
06-001	TU 4	5	2	6/17/2004	JK/JT	PF	WC	Y	19.7			
06-002	TU 4	5	2	6/17/2004	JK/JT	PF	WC	Y	0			
06-003	TU 4	5	2	6/17/2004	JK/JT	PF	OC	N	0.1			
06-004	TU 4	5	2	6/17/2004	JK/JT	PF	OC	Y	0.6			
06-005	TU 4	5	2	6/17/2004	JK/JT	FS	OC	N	3.4			
06-006	TU 4	5	2	6/17/2004	JK/JT	FS	OC	Y	3.2			
06-007	TU 4	5	2	6/17/2004	JK/JT	FS	WC	N	0.3			
06-008	TU 4	5	2	6/17/2004	JK/JT	AS	OC	Y	0.3			
06-009	TU 4	5	2	6/17/2004	JK/JT	SH			1.1			
07-001	TU 2	1	1	6/14/2004	LC/KH	PF	OC	N	0.1			
07-002	TU 2	1	1	6/14/2004	LC/KH	PF	OC	N	0.9			
07-003	TU 2	1	1	6/14/2004	LC/KH	FS	OB	N	0.1			
07-004	TU 2	1	1	6/14/2004	LC/KH	PF	OC	N	0.2			
07-005	TU 2	1	1	6/14/2004	LC/KH	FS	OC	Y	1.4			
07-006	TU 2	1	1	6/14/2004	LC/KH	FS	WC	Y	0.5			
07-007	TU 2	1	1	6/14/2004	LC/KH	FS	WC	N	2.6			
07-008	TU 2	1	1	6/14/2004	LC/KH	AS	WC	N	1.4			
07-009	TU 2	1	1	6/14/2004	LC/KH	FS	OC	N	1.4			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
07-010	TU 2	1	1	6/14/2004	LC/KH	AS	OC	Y	1.5			
07-011	TU 2	1	1	6/14/2004	LC/KH	AS	OC	N	3.7			
07-012	TU 2	1	1	6/14/2004	LC/KH	AS	AR	N	1			
07-013	TU 2	1	1	6/14/2004	LC/KH	FS	AR	Y	8.8			
07-014	TU 2	1	1	6/14/2004	LC/KH	FS	AR	N	1.2			
07-015	TU 2	1	1	6/14/2004	LC/KH	BN			0.1			
07-016	TU 2	1	1	6/14/2004	LC/KH	FCR	QU	Y	83.9			
08-001	TU 2	2	1	6/14/2004	LC/KH	FS	OC	N	0.6			
08-002	TU 2	2	1	6/14/2004	LC/KH	FS	WC	Y	0.1			
08-003	TU 2	2	1	6/14/2004	LC/KH	PF	OC	Y	2.2			
09-001	TU 2	3	2	6/15/2004	LC/KH	CT	WC	Y	149.4	81.8		
09-002	TU 2	3	2	6/15/2004	LC/KH	PF	OC	Y	30.1			
09-003	TU 2	3	2	6/15/2004	LC/KH	PF	OC	Y	0			
09-004	TU 2	3	2	6/15/2004	LC/KH	PF	OC	Y	0			
09-005	TU 2	3	2	6/15/2004	LC/KH	PF	OC	Y	0			
09-006	TU 2	3	2	6/15/2004	LC/KH	PF	OC	Y	0			
09-007	TU 2	3	2	6/15/2004	LC/KH	PF	OC	Y	0			
09-008	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	8.5			
09-009	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-010	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-011	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-012	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-013	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-014	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-015	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-016	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-017	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-018	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-019	TU 2	3	2	6/15/2004	LC/KH	PF	OC	N	0			
09-020	TU 2	3	2	6/15/2004	LC/KH	PF	WC	Y	5.5			
09-021	TU 2	3	2	6/15/2004	LC/KH	PF	WC	Y	0			
09-022	TU 2	3	2	6/15/2004	LC/KH	PF	WC	Y	0			
09-023	TU 2	3	2	6/15/2004	LC/KH	PF	WC	Y	0			
09-024	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	5.9			
09-025	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-026	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-027	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-028	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-029	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-030	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-031	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-032	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-033	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-034	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-035	TU 2	3	2	6/15/2004	LC/KH	PF	WC	N	0			
09-036	TU 2	3	2	6/15/2004	LC/KH	PF	OB	N	1.1			
09-037	TU 2	3	2	6/15/2004	LC/KH	PF	OB	N	0			
09-038	TU 2	3	2	6/15/2004	LC/KH	PF	OB	N	0			
09-039	TU 2	3	2	6/15/2004	LC/KH	PF	OB	N	0			
09-040	TU 2	3	2	6/15/2004	LC/KH	PF	OB	N	0			
09-041	TU 2	3	2	6/15/2004	LC/KH	PF	OB	N	0			
09-042	TU 2	3	2	6/15/2004	LC/KH	FS	WC	Y	10.5			
09-043	TU 2	3	2	6/15/2004	LC/KH	FS	WC	Y	16.2			
09-044	TU 2	3	2	6/15/2004	LC/KH	FS	WC	N	4.4			
09-045	TU 2	3	2	6/15/2004	LC/KH	AS	BA	N	0.7			
09-046	TU 2	3	2	6/15/2004	LC/KH	AS	AR	N	2.3			
09-047	TU 2	3	2	6/15/2004	LC/KH	FS	OC	N	12.6			
09-048	TU 2	3	2	6/15/2004	LC/KH	FS	OC	Y	2.9			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
09-049	TU 2	3	2	6/15/2004	LC/KH	AS	OC	N	6.3			
09-050	TU 2	3	2	6/15/2004	LC/KH	AS	OC	Y	3.5			
09-051	TU 2	3	2	6/15/2004	LC/KH	AS	WC	Y	5.4			
09-052	TU 2	3	2	6/15/2004	LC/KH	BN			0.1			
09-053	TU 2	3	2	6/15/2004	LC/KH	FS	OB	N	3.5			
10-001	TU 3	1	1	6/15/2004	LC/KH	PF	WC	N	0.6			
10-002	TU 3	1	1	6/15/2004	LC/KH	PF	WC	N	1.1			
10-003	TU 3	1	1	6/15/2004	LC/KH	PF	WC	N	0.4			
10-004	TU 3	1	1	6/15/2004	LC/KH	PF	WC	N	0.1			
10-005	TU 3	1	1	6/15/2004	LC/KH	PF	OC	N	0.2			
10-006	TU 3	1	1	6/15/2004	LC/KH	PF	OC	N	0.8			
10-007	TU 3	1	1	6/15/2004	LC/KH	PF	OC	N	0.3			
10-008	TU 3	1	1	6/15/2004	LC/KH	PF	OC	N	2.1			
10-009	TU 3	1	1	6/15/2004	LC/KH	PF	OC	N	0.1			
10-010	TU 3	1	1	6/15/2004	LC/KH	PF	OC	N	0.4			
10-011	TU 3	1	1	6/15/2004	LC/KH	PF	OC	N	0.2			
10-012	TU 3	1	1	6/15/2004	LC/KH	PF	OC	N	0.1			
10-013	TU 3	1	1	6/15/2004	LC/KH	PF	OC	N	0.7			
10-014	TU 3	1	1	6/15/2004	LC/KH	PF	OB	N	0.1			
10-015	TU 3	1	1	6/15/2004	LC/KH	PF	OB	N	0.4			
10-016	TU 3	1	1	6/15/2004	LC/KH	FS	OB	N	1.7			
10-017	TU 3	1	1	6/15/2004	LC/KH	FS	OC	N	7.1			
10-018	TU 3	1	1	6/15/2004	LC/KH	FS	OC	Y	0.6			
10-019	TU 3	1	1	6/15/2004	LC/KH	AS	OC	N	6.9			
10-020	TU 3	1	1	6/15/2004	LC/KH	AS	OC	Y	5.7			
10-021	TU 3	1	1	6/15/2004	LC/KH	AS	WC	N	3.9			
10-022	TU 3	1	1	6/15/2004	LC/KH	AS	WC	Y	2.5			
10-023	TU 3	1	1	6/15/2004	LC/KH	FS	WC	N	7.5			
10-024	TU 3	1	1	6/15/2004	LC/KH	FS	WC	Y	20.4			
10-025	TU 3	1	1	6/15/2004	LC/KH	FS	AR	N	2.1			
10-026	TU 3	1	1	6/15/2004	LC/KH	BN			0.1			
11-001	TU 3	2	1	6/16/2004	LC/KH	PF	OC	N	16.4			
11-002	TU 3	2	1	6/16/2004	LC/KH	PF	OC	N	0.4			
11-003	TU 3	2	1	6/16/2004	LC/KH	FS	OC	N	0.7			
12-001	TU 3	3	1	6/15/2004	LC/KH	CT	OC	Y	59.8	42.7		
12-002	TU 3	3	1	6/15/2004	LC/KH	UB	OB	N	0.1			
12-003	TU 3	3	1	6/15/2004	LC/KH	PF	OC	Y	0.7			
12-004	TU 3	3	1	6/15/2004	LC/KH	PF	OC	N	8.1			
12-005	TU 3	3	1	6/15/2004	LC/KH	PF	OC	N	0			
12-006	TU 3	3	1	6/15/2004	LC/KH	PF	OC	N	0			
12-007	TU 3	3	1	6/15/2004	LC/KH	PF	OC	N	0			
12-008	TU 3	3	1	6/15/2004	LC/KH	PF	WC	Y	3.8			
12-009	TU 3	3	1	6/15/2004	LC/KH	PF	WC	Y	0			
12-010	TU 3	3	1	6/15/2004	LC/KH	PF	WC	Y	0			
12-011	TU 3	3	1	6/15/2004	LC/KH	PF	OB	N	0.3			
12-012	TU 3	3	1	6/15/2004	LC/KH	PF	OB	N	0			
12-013	TU 3	3	1	6/15/2004	LC/KH	PF	OB	N	0.5			
12-014	TU 3	3	1	6/15/2004	LC/KH	PF	OB	N	0			
12-015	TU 3	3	1	6/15/2004	LC/KH	PF	OB	N	0			
12-016	TU 3	3	1	6/15/2004	LC/KH	PF	OB	N	0			
12-017	TU 3	3	1	6/15/2004	LC/KH	AS	WC	N	5.8			
12-018	TU 3	3	1	6/15/2004	LC/KH	AS	WC	Y	10.9			
12-019	TU 3	3	1	6/15/2004	LC/KH	FS	WC	N	20.8			
12-020	TU 3	3	1	6/15/2004	LC/KH	FS	WC	Y	3.4			
12-021	TU 3	3	1	6/15/2004	LC/KH	FS	OC	N	17.4			
12-022	TU 3	3	1	6/15/2004	LC/KH	FS	OC	Y	5.5			
12-023	TU 3	3	1	6/15/2004	LC/KH	AS	OC	N	4.9			
12-024	TU 3	3	1	6/15/2004	LC/KH	AS	OC	Y	2.3			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
12-025	TU 3	3	1	6/15/2004	LC/KH	FS	OB	N	4.5			
12-026	TU 3	3	1	6/15/2004	LC/KH	FS	OB	Y	0.1			
12-027	TU 3	3	1	6/15/2004	LC/KH	AS	OB	N	1			
12-028	TU 3	3	1	6/15/2004	LC/KH	AS	QU	N	3.5			
12-029	TU 3	3	1	6/15/2004	LC/KH	PF	OC	N	8.7			
12-030	TU 3	3	1	6/15/2004	LC/KH	CT	OB	Y	5.9	29.5		
12-031	TU 3	3	1	6/15/2004	LC/KH	PF	OB	N	0.5			
12-032	TU 3	3	1	6/15/2004	LC/KH	FS	OB	N	1.1			
13-001	TU 3	3	2	6/16/2004	LC/KH	AS	WC	N	0.1			
13-002	TU 3	3	2	6/16/2004	LC/KH	AS	OB	N	0.1			
14-001	TU 3	4	2	6/17/2004	LC/KH	FS	WC	N	0.1			
15-001	TU 4	1	1	5/29/2005	JK/TW	HB	OB	N	3.4	17	31.6	5.7
15-002	TU 4	1	1	5/29/2005	JK/TW	HB	OB	N	0.6	11.9	14.4	3.6
15-003	TU 4	1	1	5/29/2005	JK/TW	HB	OB	N	0.1	10.7	4.8	2.4
15-004	TU 4	1	1	5/29/2005	JK/TW	UB	OB	N	0.1	6	8.9	2.4
15-005	TU 4	1	1	5/29/2005	JK/TW	UB	WC	N	0.1	7.9	8.8	2.3
15-006	TU 4	1	1	5/29/2005	JK/TW	UB	OC	Y	34.2	47.5	45.6	13
15-007	TU 4	1	1	5/29/2005	JK/TW	FT	OC	N	22.9	41.4	54.7	12.2
15-008	TU 4	1	1	5/29/2005	JK/TW	CT	WC	Y	321.9	66.3	86.1	54.4
15-009	TU 4	1	1	5/29/2005	JK/TW	CT	WC	Y	128.1	51.5	58.1	45.1
15-010	TU 4	1	1	5/29/2005	JK/TW	CT	WC	Y	42.7	43.6	52.8	24.3
15-011	TU 4	1	1	5/29/2005	JK/TW	CT	WC	Y	46.6	39.4	63.9	24.9
15-012	TU 4	1	1	5/29/2005	JK/TW	FT	WC	Y	34	48.1	44.6	18.5
15-013	TU 4	1	1	5/29/2005	JK/TW	FT	WC	Y	33.9	50.9	35	25.1
15-014	TU 4	1	1	5/29/2005	JK/TW	UB	WC	Y	84	68.9	54.3	30.1
15-015	TU 4	1	1	5/29/2005	JK/TW	UB	WC	N	16.3	54	17.6	21.9
15-016	TU 4	1	1	5/29/2005	JK/TW	FT	AR	Y	32.4	62	38.9	17.6
15-017	TU 4	1	1	5/29/2005	JK/TW	FT	AR	Y	53.8	76.4	48.4	15.3
15-018	TU 4	1	1	5/29/2005	JK/TW	FS	WC	N	2.7	16.7	22.1	4.6
15-019	TU 4	1	1	5/29/2005	JK/TW	UB	WC	N	1.5	22.7	18.8	5.1
15-020	TU 4	1	1	5/29/2005	JK/TW	UB	WC	N	7.5	18.2	43.4	14.3
15-021	TU 4	1	1	5/29/2005	JK/TW	FS	WC	Y	5.7	29.8	33.1	10.1
15-022	TU 4	1	1	5/29/2005	JK/TW	CT	OC	Y	80.8	55.5	68.5	29.1
15-023	TU 4	1	1	5/29/2005	JK/TW	CT	OC	Y	83.1	47.5	73.6	21.5
15-024	TU 4	1	1	5/29/2005	JK/TW	CT	OC	Y	41.8	32.3	51.8	23
15-025	TU 4	1	1	5/29/2005	JK/TW	CT	WC	Y	41.7	26.5	70.1	22.2
15-026	TU 4	1	1	5/29/2005	JK/TW	UB	WC	N	64.4	54.6	72.7	20.6
15-027	TU 4	1	1	5/29/2005	JK/TW	UB	WC	N	5.1	35.1	24.9	7.5
15-028	TU 4	1	1	5/29/2005	JK/TW	FT	WC	Y	35.2	56.2	33.3	15.4
15-029	TU 4	1	1	5/29/2005	JK/TW	FT	WC	N	16	38	42.3	9.6
15-030	TU 4	1	1	5/29/2005	JK/TW	FT	WC	Y	28.1	49.3	52	10.3
15-031	TU 4	1	1	5/29/2005	JK/TW	FT	WC	Y	41.7	43.9	56.6	17.9
15-032	TU 4	1	1	5/29/2005	JK/TW	UB	OB	N	0.9	9.6	23	5.7
15-033	TU 4	1	1	5/29/2005	JK/TW	FT	OB	N	1.5	15.6	24.6	4.6
15-034	TU 4	1	1	5/29/2005	JK/TW	FT	OB	N	1.9	18.6	23	5.5
15-035	TU 4	1	1	5/29/2005	JK/TW	PF	OB	N	0.2	9.5	16.1	1.7
15-036	TU 4	1	1	5/29/2005	JK/TW	PF	OB	N	0.2	10.8	9.9	1.8
15-037	TU 4	1	1	5/29/2005	JK/TW	PF	OB	N	0.1	7.9	8.5	2.3
15-038	TU 4	1	1	5/29/2005	JK/TW	PF	OB	N	0.1	7.2	10.1	1.2
15-039	TU 4	1	1	5/29/2005	JK/TW	PF	OB	N	0.1	6.4	6.6	1.1
15-040	TU 4	1	1	5/29/2005	JK/TW	PF	OB	N	0.1	4.7	7.3	1
15-041	TU 4	1	1	5/29/2005	JK/TW	AS	OB	Y	0.6			
15-042	TU 4	1	1	5/29/2005	JK/TW	FS	OB	N	7.7			
15-043	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.4	17.1	9.2	3.4
15-044	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.7	20.9	19.3	3.3
15-045	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.6	13.8	14.6	2.8
15-046	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.2	18.4	18.7	3.4
15-047	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.6	18.4	22.2	2.6

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
15-048	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.9	16.5	28.9	3.8
15-049	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.1	23.8	18.6	1.6
15-050	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.9	14	19.8	4.4
15-051	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	2.2	32.4	22.8	3.8
15-052	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.5	14.4	18	2
15-053	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	2.2	22.6	27.5	2.7
15-054	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.3	17.1	27.3	2.6
15-055	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.9	24.6	12.7	2.9
15-056	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.2	13.7	12.5	1.4
15-057	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	6.1	41	24.9	6.4
15-058	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.3	11.4	17.1	1.3
15-059	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.6	16.7	13.1	1.8
15-060	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1	20.7	14.5	5.3
15-061	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.3	12.6	14.4	1.6
15-062	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.5	18.1	12.2	3.5
15-063	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.5	13.7	14.6	2.6
15-064	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.3	17.8	10.1	1.6
15-065	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1	17.4	22	2.5
15-066	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.8	23.5	10.6	3.1
15-067	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.3	16.9	9	1.9
15-068	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.6	17.1	13.2	2.3
15-069	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.4	20.4	27	2.6
15-070	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.9	21.4	25	1.6
15-071	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	10.1	22.9	51.9	10.3
15-072	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	2.6	21.5	30.2	3.9
15-073	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	0.5	13.6	18.3	1.6
15-074	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	22	37.4	44.4	15.4
15-075	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	5.2	23.1	42.3	5.3
15-076	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	0.1	7.9	12.4	1.5
15-077	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	0.8	14.9	14.5	3.6
15-078	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	2.1	29.4	20.8	3.3
15-079	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	3.5	19.3	35.8	4.5
15-080	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	1.1	15.3	24.9	2.4
15-081	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	22.3	40.4	46.5	11.2
15-082	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	9.6	30	42.3	8.3
15-083	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	5	29.8	26.9	6.1
15-084	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	3	25.9	28.8	4.4
15-085	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.3	22.5	17.9	3.5
15-086	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.1	20.8	14.9	2.7
15-087	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.2	16.2	27.3	2.6
15-088	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	3.9	22.5	33.9	6.1
15-089	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.5	18.6	12	2.2
15-090	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.3	17.3	18.1	4.7
15-091	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.1	20.7	17.9	2.1
15-092	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.2	14	6.7	2.3
15-093	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.7	23.5	12.9	2.5
15-094	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.3	14.6	14	1.4
15-095	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.2	12.2	14.7	1.3
15-096	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.2	11.7	8.1	1.7
15-097	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.2	15.5	10.7	1.6
15-098	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.7	21.6	25.8	3.2
15-099	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	1.6	24.8	14.8	24.8
15-100	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	1.9	23.4	12.7	7.8
15-101	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.4	11.2	9.5	2.4
15-102	TU 4	1	1	5/29/2005	JK/TW	FT	WC	N	22.2	36.4	50.2	13.3
15-103	TU 4	1	1	5/29/2005	JK/TW	FT	WC	N	1.1	16.2	17.4	3
15-104	TU 4	1	1	5/29/2005	JK/TW	FT	WC	N	22.5	29.4	37.8	14.2
15-105	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.4	15.3	10.7	3

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
15-106	TU 4	1	1	5/29/2005	JK/TW	FT	OC	N	5.2	22.9	41.8	4.7
15-107	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	1.3	27.3	18.4	2.5
15-108	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	0.3	14.2	10.4	2.2
15-109	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.1	10.7	9.8	1.5
15-110	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.6	24.3	9	1.9
15-111	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.3	17.3	11.6	1.7
15-112	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	0.6	15.5	13.7	4
15-113	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	4.8	39.5	20	5.6
15-114	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	2.9	24.3	18	7.3
15-115	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	4.4	33.1	26.2	7.2
15-116	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	0.5	11.1	19.7	2.4
15-117	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	0.1	13.5	9.2	1.5
15-118	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.1	8.8	9.6	1.2
15-119	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	4.2	24.8	41.3	4
15-120	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.7	15	14.6	3.2
15-121	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.4	13	15.7	2.2
15-122	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.8	12.7	19	3.8
15-123	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	2.1	20.6	28.8	4.3
15-124	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	4.2	33.8	32.2	
15-125	TU 4	1	1	5/29/2005	JK/TW	FT	OC	Y	11.8	49	31.4	8.8
15-126	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	33.5	45.4	58.8	15.2
15-127	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	3.7	25.6	22.7	5.2
15-128	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	14.2	50.9	37.7	7.2
15-129	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	3.8	21.3	37.7	5.5
15-130	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.3	13.4	17.4	2.1
15-131	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.8	18.5	20.4	1.6
15-132	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	2.4	18	32.3	3.2
15-133	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.6	17.2	16.5	2.2
15-134	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.3	13.2	11.7	2.1
15-135	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.2	9.8	9.4	2
15-136	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	2.9	25.3	31.7	5.1
15-137	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	3	36.8	21.1	5.4
15-138	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	3.5	33.4	27.9	3.3
15-139	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	3.5	36.9	24.4	3.5
15-140	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.3	13.1	15	1.7
15-141	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	1.4	25.3	11	5.9
15-142	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	1.1	17.9	19.4	2.7
15-143	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.2	10	10.9	1.9
15-144	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.2	9.7	7.5	2.6
15-145	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.4	13.9	11.4	2.3
15-146	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.2	7.4	14.2	1.7
15-147	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.2	11.2	6.6	2.1
15-148	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.4	13.7	16.7	1.3
15-149	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	1.2	23	16.9	4.4
15-150	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	1.6	17.9	24.2	4.5
15-151	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	1.5	19.1	28	2.3
15-152	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.8	19.7	18.4	2.9
15-153	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.7	21.3	13.1	2.4
15-154	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	2.7	25.2	23.5	4.5
15-155	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.1	9.8	8.3	1.7
15-156	TU 4	1	1	5/29/2005	JK/TW	PF	AR	N	74.7	76.8	51.3	32
15-157	TU 4	1	1	5/29/2005	JK/TW	PF	AR	Y	15	46.2	31	14.6
15-158	TU 4	1	1	5/29/2005	JK/TW	PF	AR	N	2.3	28.6	21	4.3
15-159	TU 4	1	1	5/29/2005	JK/TW	PF	AR	N	55	69.5	45.7	21.1
15-160	TU 4	1	1	5/29/2005	JK/TW	FS	AR	N	24.1			
15-161	TU 4	1	1	5/29/2005	JK/TW	FS	QU	N	2			
15-162	TU 4	1	1	5/29/2005	JK/TW	CT	WC	Y	29.6	46.6	31.3	22.4
15-163	TU 4	1	1	5/29/2005	JK/TW	CT	WC	Y	28.2	49.1	23.8	20.9

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
15-164	TU 4	1	1	5/29/2005	JK/TW	CT	WC	Y	16.5	28.1	30.5	14.6
15-165	TU 4	1	1	5/29/2005	JK/TW	AS	OC	Y	38.2			
15-166	TU 4	1	1	5/29/2005	JK/TW	AS	OC	N	3.2			
15-167	TU 4	1	1	5/29/2005	JK/TW	FS	OC	Y	34.3			
15-168	TU 4	1	1	5/29/2005	JK/TW	FS	OC	N	68.7			
15-169	TU 4	1	1	5/29/2005	JK/TW	FS	OC	N	102.3			
15-170	TU 4	1	1	5/29/2005	JK/TW	FS	OC	Y	110.8			
15-171	TU 4	1	1	5/29/2005	JK/TW	AS	OC	N	8.7			
15-172	TU 4	1	1	5/29/2005	JK/TW	AS	OC	Y	8.3			
15-173	TU 4	1	1	5/29/2005	JK/TW	FS	OC	N	0.2			
15-174	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	9.2	28	54.6	4.6
15-175	TU 4	1	1	5/29/2005	JK/TW	FT	OC	N	0.2	15.7	16.3	2.9
15-176	TU 4	1	1	5/29/2005	JK/TW	FT	OC	N	2.2	21.7	25.5	3.8
15-177	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.6	14.1	20.6	1.8
15-178	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.2	7.8	14.3	2.3
15-179	TU 4	1	1	5/29/2005	JK/TW	PF	OC	N	0.1	8.3	7.5	1.2
15-180	TU 4	1	1	5/29/2005	JK/TW	PF	OC	Y	0.1	13.7	8.2	2.8
15-181	TU 4	1	1	5/29/2005	JK/TW	FS	WC	N	188			
15-182	TU 4	1	1	5/29/2005	JK/TW	FS	WC	Y	80.9			
15-183	TU 4	1	1	5/29/2005	JK/TW	FS	WC	N	31.5			
15-184	TU 4	1	1	5/29/2005	JK/TW	AS	WC	Y	255.8			
15-185	TU 4	1	1	5/29/2005	JK/TW	PF	WC	Y	0.4	16.8	14.4	2
15-186	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.5	15.9	13.6	2.3
15-187	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	2.2	30.5	22	4.4
15-188	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	1.2	16.3	15	4.1
15-189	TU 4	1	1	5/29/2005	JK/TW	PF	WC	N	0.1	11.6	7.5	2
15-190	TU 4	1	1	5/29/2005	JK/TW	UB	WC	N	1	20.1	15.4	5.4
15-191	TU 4	1	1	5/29/2005	JK/TW	FT	WC	N	5.9	17.6	29.2	13
15-192	TU 4	1	1	5/29/2005	JK/TW	AS	QU	Y	3.8			
15-193	TU 4	1	1	5/29/2005	JK/TW	AS	QU	N	1.5			
15-194	TU 4	1	1	5/29/2005	JK/TW	PF	AR	Y	7.5	29.1	28.5	9.2
15-195	TU 4	1	1	5/29/2005	JK/TW	AS	AR	N	10.2			
15-196	TU 4	1	1	5/29/2005	JK/TW	AS	AR	Y	4.6			
15-197	TU 4	1	1	5/29/2005	JK/TW	FT	AR	N	1.6	14.8	23.4	3.9
15-198	TU 4	1	1	5/29/2005	JK/TW	BN			2.6			
15-199	TU 4	1	1	5/29/2005	JK/TW	FCR	BA		320.1			
15-200	TU 4	1	1	5/29/2005	JK/TW	GS	BA		454.9			
16-001	TU 4	1	1b	5/30/2005	JW/TW	UB	WC	Y	8.6			
16-002	TU 4	1	1b	5/30/2005	JW/TW	UB	OC	N	1.4			
16-003	TU 4	1	1b	5/30/2005	JW/TW	CT	OC	N	13.2	35.7		
16-004	TU 4	1	1b	5/30/2005	JW/TW	CT	WC	Y	12.2	39.5		
16-005	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	24.8			
16-006	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-007	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-008	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-009	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-010	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-011	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-012	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-013	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-014	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-015	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-016	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-017	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	N	0			
16-018	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	Y	12			
16-019	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	Y	0			
16-020	TU 4	1	1b	5/30/2005	JW/TW	PF	WC	Y	0			
16-021	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	93.4			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
16-022	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-023	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-024	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-025	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-026	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-027	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-028	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-029	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-030	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-031	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-032	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-033	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-034	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-035	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-036	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-037	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-038	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-039	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-040	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-041	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	N	0			
16-042	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	Y	14.6			
16-043	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	Y	0			
16-044	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	Y	0			
16-045	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	Y	0			
16-046	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	Y	0			
16-047	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	Y	0			
16-048	TU 4	1	1b	5/30/2005	JW/TW	PF	OC	Y	0			
16-049	TU 4	1	1b	5/30/2005	JW/TW	AS	WC	N	34.5			
16-050	TU 4	1	1b	5/30/2005	JW/TW	AS	WC	Y	34			
16-051	TU 4	1	1b	5/30/2005	JW/TW	FS	WC	N	47.8			
16-052	TU 4	1	1b	5/30/2005	JW/TW	FS	WC	Y	8.9			
16-053	TU 4	1	1b	5/30/2005	JW/TW	FS	OC	Y	31.1			
16-054	TU 4	1	1b	5/30/2005	JW/TW	FS	OC	N	47.1			
16-055	TU 4	1	1b	5/30/2005	JW/TW	AS	OC	N	56.8			
16-056	TU 4	1	1b	5/30/2005	JW/TW	AS	OC	Y	124.8			
16-057	TU 4	1	1b	5/30/2005	JW/TW	FS	OB	N	1.5			
16-058	TU 4	1	1b	5/30/2005	JW/TW	PF	OB	N	1.1			
16-059	TU 4	1	1b	5/30/2005	JW/TW	PF	OB	N	0			
16-060	TU 4	1	1b	5/30/2005	JW/TW	PF	OB	N	0			
17-001	TU 4	2	2	5/30/2005	JW/TW	CT	OB	N	1.4	20.5		
17-002	TU 4	2	2	5/30/2005	JW/TW	FS	OB	N	1.7			
17-003	TU 4	2	2	5/30/2005	JW/TW	PF	WC	N	9.7			
17-004	TU 4	2	2	5/30/2005	JW/TW	PF	WC	N	0			
17-005	TU 4	2	2	5/30/2005	JW/TW	PF	WC	N	0			
17-006	TU 4	2	2	5/30/2005	JW/TW	PF	WC	N	0			
17-007	TU 4	2	2	5/30/2005	JW/TW	PF	WC	N	0			
17-008	TU 4	2	2	5/30/2005	JW/TW	PF	WC	N	0			
17-009	TU 4	2	2	5/30/2005	JW/TW	PF	WC	N	0			
17-010	TU 4	2	2	5/30/2005	JW/TW	AS	WC	Y	76.8			
17-011	TU 4	2	2	5/30/2005	JW/TW	AS	WC	N	26.5			
17-012	TU 4	2	2	5/30/2005	JW/TW	FS	WC	Y	21.1			
17-013	TU 4	2	2	5/30/2005	JW/TW	FS	WC	N	22.8			
17-014	TU 4	2	2	5/30/2005	JW/TW	AS	OC	N	37.2			
17-015	TU 4	2	2	5/30/2005	JW/TW	AS	OC	Y	30			
17-016	TU 4	2	2	5/30/2005	JW/TW	FS	OC	Y	9.1			
17-017	TU 4	2	2	5/30/2005	JW/TW	FS	OC	N	29.7			
17-018	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	38.5			
17-019	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
17-020	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-021	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-022	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-023	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-024	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-025	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-026	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-027	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-028	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-029	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-030	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-031	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-032	TU 4	2	2	5/30/2005	JW/TW	PF	OC	N	0			
17-033	TU 4	2	2	5/30/2005	JW/TW	PF	OC	Y	3.3			
17-034	TU 4	2	2	5/30/2005	JW/TW	PF	OC	Y	0			
17-035	TU 4	2	2	5/30/2005	JW/TW	FS	OB	N	1.9			
17-036	TU 4	2	2	5/30/2005	JW/TW	PF	OB	N	3.2			
17-037	TU 4	2	2	5/30/2005	JW/TW	HB	OC	N	2.8	13.9	40.1	5.1
17-038	TU 4	2	2	5/30/2005	JW/TW	PF	WC	N	0			
17-039	TU 4	2	2	5/30/2005	JW/TW	PF	WC	N	0			
18-001	TU 4	3	2	5/30/2005	JW/TW	PF	WC	N	2.6			
18-002	TU 4	3	2	5/30/2005	JW/TW	PF	WC	N	0			
18-003	TU 4	3	2	5/30/2005	JW/TW	PF	OC	N	3.5			
18-004	TU 4	3	2	5/30/2005	JW/TW	PF	OC	N	0			
18-005	TU 4	3	2	5/30/2005	JW/TW	PF	OC	N	0			
18-006	TU 4	3	2	5/30/2005	JW/TW	FS	WC	N	7.4			
18-007	TU 4	3	2	5/30/2005	JW/TW	FS	WC	Y	2.6			
18-008	TU 4	3	2	5/30/2005	JW/TW	AS	WC	Y	2.9			
18-009	TU 4	3	2	5/30/2005	JW/TW	AS	WC	N	13.3			
18-010	TU 4	3	2	5/30/2005	JW/TW	AS	OC	Y	69.3			
18-011	TU 4	3	2	5/30/2005	JW/TW	AS	OC	N	0.3			
18-012	TU 4	3	2	5/30/2005	JW/TW	FS	OC	Y	9.1			
18-013	TU 4	3	2	5/30/2005	JW/TW	FS	OC	N	17.1			
18-014	TU 4	3	2	5/30/2005	JW/TW	FS	OB	N	0.1			
18-015	TU 4	3	2	5/30/2005	JW/TW	PF	OB	N	0.1			
18-016	TU 4	3	2	5/30/2005	JW/TW	SH			1.1			
18-017	TU 4	3	2	5/30/2005	JW/TW	BN			0.1			
19-001	TU 4	4	2	5/31/2005	JW/TW	PF	WC	N	0.3			
19-002	TU 4	4	2	5/31/2005	JW/TW	PF	WC	N	0.3			
19-003	TU 4	4	2	5/31/2005	JW/TW	FS	OC	N	1.5			
19-004	TU 4	4	2	5/31/2005	JW/TW	FS	OB	N	0.1			
19-005	TU 4	4	2	5/31/2005	JW/TW	FS	OC	Y	7.2			
19-006	TU 4	4	2	5/31/2005	JW/TW	FS	OC	N	1.5			
19-007	TU 4	4	2	5/31/2005	JW/TW	SH			0.1			
19-008	TU 4	4	2	5/31/2005	JW/TW	BN			0.1			
20-001	TU 4	5	2	5/31/2005	JW/TW	FS	WC	N	2.7			
20-002	TU 4	5	2	5/31/2005	JW/TW	FS	OB	N	0.1			
20-003	TU 4	5	2	5/31/2005	JW/TW	AS	WC	N	1			
20-004	TU 4	5	2	5/31/2005	JW/TW	SH			0.1			
20-005	TU 4	5	2	5/31/2005	JW/TW	FS	OC	N	5.8			
21-001	TU 4	6	2b	6/1/2005	JW/TW	FS	OC	N	0.9			
21-002	TU 4	6	2b	6/1/2005	JW/TW	FS	WC	N	0.1			
21-003	TU 4	6	2b	6/1/2005	JW/TW	FS	OB	N	0.1			
21-004	TU 4	6	2b	6/1/2005	JW/TW	UR	QU	Y	0.6			
22-001	TU 4	7	2b	6/1/2005	JW/TW	FS	OC	N	1.1			
22-002	TU 4	7	2b	6/1/2005	JW/TW	AS	WC	N	0.4			
22-003	TU 4	7	2b	6/1/2005	JW/TW	FS	WC	N	0.3			
22-004	TU 4	7	2b	6/1/2005	JW/TW	SH			0.9			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
23-001	TU 4	8	2b	6/1/2005	JW/TW	SH			0.2			
24-001	TU 4	9	2b	6/1/2005	JW/TW	FS	OB	N	0.1			
25-001	TU 4	10	3	6/1/2005	JW/TW	UR	WC	Y	1			
26-001	N5120 E4770	Surface	1	6/13/2004	JK	PF	AR	Y	26.5			
26-002	N5120 E4770	Surface	1	6/13/2004	JK	PF	AR	Y	2.2			
26-003	N5120 E4770	Surface	1	6/13/2004	JK	PF	WC	N	10.5			
26-004	N5120 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
26-005	N5120 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
26-006	N5120 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
26-007	N5120 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
26-008	N5120 E4770	Surface	1	6/13/2004	JK	PF	WC	Y	1.6			
26-009	N5120 E4770	Surface	1	6/13/2004	JK	PF	OC	Y	6.6			
26-010	N5120 E4770	Surface	1	6/13/2004	JK	FS	WC	N	12.9			
26-011	N5120 E4770	Surface	1	6/13/2004	JK	FS	WC	Y	9.7			
26-012	N5120 E4770	Surface	1	6/13/2004	JK	AS	WC	N	14.5			
26-013	N5120 E4770	Surface	1	6/13/2004	JK	AS	WC	Y	17.3			
26-014	N5120 E4770	Surface	1	6/13/2004	JK	FS	OC	N	2.6			
27-001	N5120 E4780	Surface	1	6/14/2004	JK	UB	OC	N	1.3			
27-002	N5120 E4780	Surface	1	6/14/2004	JK	FT	WC	Y	1.5			
27-003	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	11.4			
27-004	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-005	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-006	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-007	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-008	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-009	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-010	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-011	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-012	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-013	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-014	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-015	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-016	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-017	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-018	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-019	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-020	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-021	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-022	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-023	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-024	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	Y	2.6			
27-025	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	Y	0			
27-026	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	Y	0			
27-027	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	33.2			
27-028	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-029	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-030	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-031	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-032	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-033	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-034	N5120 E4780	Surface	1	6/14/2004	JK	PF	WC	N	0			
27-035	N5120 E4780	Surface	1	6/14/2004	JK	FS	WC	N	0			
27-036	N5120 E4780	Surface	1	6/14/2004	JK	FS	WC	Y	0			
27-037	N5120 E4780	Surface	1	6/14/2004	JK	AS	WC	N	0			
27-038	N5120 E4780	Surface	1	6/14/2004	JK	AS	WC	Y	6.9			
27-039	N5120 E4780	Surface	1	6/14/2004	JK	FS	OB	N	0.1			
27-040	N5120 E4780	Surface	1	6/14/2004	JK	FS	OC	N	6.1			
27-041	N5120 E4780	Surface	1	6/14/2004	JK	FS	OC	Y	14.2			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
27-042	N5120 E4780	Surface	1	6/14/2004	JK	PF	OC	N	2.5			
28-001	N5110 E4770	Surface	1	6/13/2004	JK	FT	OC	Y	35.6			
28-002	N5110 E4770	Surface	1	6/13/2004	JK	FT	OB	N	3			
28-003	N5110 E4770	Surface	1	6/13/2004	JK	FT	WC	N	2.4			
28-004	N5110 E4770	Surface	1	6/13/2004	JK	FT	WC	Y	15.8			
28-005	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	31.7			
28-006	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-007	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-008	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-009	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-010	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-011	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-012	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-013	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-014	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-015	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-016	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-017	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-018	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-019	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-020	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	N	0			
28-021	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	Y	36.2			
28-022	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	Y	0			
28-023	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	Y	0			
28-024	N5110 E4770	Surface	1	6/13/2004	JK	PF	WC	Y	0			
28-025	N5110 E4770	Surface	1	6/13/2004	JK	PF	OC	N	6.3			
28-026	N5110 E4770	Surface	1	6/13/2004	JK	PF	OC	N	0			
28-027	N5110 E4770	Surface	1	6/13/2004	JK	PF	OC	N	0			
28-028	N5110 E4770	Surface	1	6/13/2004	JK	PF	OC	Y	4.4			
28-029	N5110 E4770	Surface	1	6/13/2004	JK	PF	AR	Y	3			
28-030	N5110 E4770	Surface	1	6/13/2004	JK	FS	AR	Y	31			
28-031	N5110 E4770	Surface	1	6/13/2004	JK	FS	WC	Y	19.2			
28-032	N5110 E4770	Surface	1	6/13/2004	JK	AS	WC	N	45.4			
28-033	N5110 E4770	Surface	1	6/13/2004	JK	FS	WC	N	175.4			
28-034	N5110 E4770	Surface	1	6/13/2004	JK	AS	WC	Y	34.7			
28-035	N5110 E4770	Surface	1	6/13/2004	JK	FS	OC	N	9.2			
28-036	N5110 E4770	Surface	1	6/13/2004	JK	AS	OC	Y	4.3			
28-037	N5110 E4770	Surface	1	6/13/2004	JK	AS	OC	N	13.3			
29-001	N5060E4790	Surface	1	6/13/2004	JK	FT	OC	Y	12.6			
29-002	N5060E4790	Surface	1	6/13/2004	JK	FT	OC	Y	31.5			
29-003	N5060E4790	Surface	1	6/13/2004	JK	FT	WC	N	32.4			
29-004	N5060E4790	Surface	1	6/13/2004	JK	FT	WC	N	11			
29-005	N5060E4790	Surface	1	6/13/2004	JK	AS	WC	N	1			
29-006	N5060E4790	Surface	1	6/13/2004	JK	FT	WC	Y	4.6			
29-007	N5060E4790	Surface	1	6/13/2004	JK	UB	WC	N	7.4			
29-008	N5060E4790	Surface	1	6/13/2004	JK	UB	OB	N	0.5			
29-009	N5060E4790	Surface	1	6/13/2004	JK	CT	WC	Y	42.3	51.1		
29-010	N5060E4790	Surface	1	6/13/2004	JK	CT	OC	Y	83.5	72.6		
29-011	N5060E4790	Surface	1	6/13/2004	JK	CT	OC	Y	123.3	85		
29-012	N5060E4790	Surface	1	6/13/2004	JK	PF	OB	N	3.3			
29-013	N5060E4790	Surface	1	6/13/2004	JK	FS	OB	N	0.2			
29-014	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	Y	94.2			
29-015	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
29-016	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
29-017	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
29-018	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
29-019	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
29-020	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
29-021	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
29-022	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
29-023	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	N	24.4			
29-024	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
29-025	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
29-026	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
29-027	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
29-028	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
29-029	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
29-030	N5060E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
29-031	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	N	8.4			
29-032	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
29-033	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
29-034	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
29-035	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
29-036	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
29-037	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	Y	79.4			
29-038	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	Y	0			
29-039	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	Y	0			
29-040	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	Y	0			
29-041	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	Y	0			
29-042	N5060E4790	Surface	1	6/13/2004	JK	PF	OC	Y	0			
29-043	N5060E4790	Surface	1	6/13/2004	JK	PF	AR	Y	102.6			
29-044	N5060E4790	Surface	1	6/13/2004	JK	PF	AR	Y	0			
29-045	N5060E4790	Surface	1	6/13/2004	JK	PF	AR	Y	0			
29-046	N5060E4790	Surface	1	6/13/2004	JK	PF	AR	Y	0			
29-047	N5060E4790	Surface	1	6/13/2004	JK	FS	OC	Y	49.3			
29-048	N5060E4790	Surface	1	6/13/2004	JK	FS	OC	N	44.4			
29-049	N5060E4790	Surface	1	6/13/2004	JK	AS	OC	Y	66.3			
29-050	N5060E4790	Surface	1	6/13/2004	JK	FS	WC	Y	101.2			
29-051	N5060E4790	Surface	1	6/13/2004	JK	FS	WC	N	24.8			
29-052	N5060E4790	Surface	1	6/13/2004	JK	AS	WC	N	19.3			
29-053	N5060E4790	Surface	1	6/13/2004	JK	AS	WC	Y	55.9			
29-054	N5060E4790	Surface	1	6/13/2004	JK	FS	AR	Y	72.8			
29-055	N5060E4790	Surface	1	6/13/2004	JK	AS	AR	Y	76.8			
30-001	N5050E4790	Surface	1	6/13/2004	JK	UB	WC	N	21			
30-002	N5050E4790	Surface	1	6/13/2004	JK	UB	WC	N	17.6			
30-003	N5050E4790	Surface	1	6/13/2004	JK	UB	WC	Y	94.4			
30-004	N5050E4790	Surface	1	6/13/2004	JK	UB	WC	Y	57.5			
30-005	N5050E4790	Surface	1	6/13/2004	JK	UB	OC	N	82.8			
30-006	N5050E4790	Surface	1	6/13/2004	JK	UB	WC	N	2.1			
30-007	N5050E4790	Surface	1	6/13/2004	JK	CT	AR	Y	204.4	109		
30-008	N5050E4790	Surface	1	6/13/2004	JK	FT	OB	N	0.8			
30-009	N5050E4790	Surface	1	6/13/2004	JK	FT	OC	N	1.6			
30-010	N5050E4790	Surface	1	6/13/2004	JK	FT	OC	N	1.9			
30-011	N5050E4790	Surface	1	6/13/2004	JK	FT	OC	Y	6.1			
30-012	N5050E4790	Surface	1	6/13/2004	JK	FT	WC	N	16.8			
30-013	N5050E4790	Surface	1	6/13/2004	JK	FT	WC	N	2.4			
30-014	N5050E4790	Surface	1	6/13/2004	JK	FT	OC	N	1			
30-015	N5050E4790	Surface	1	6/13/2004	JK	CT	WC	Y	58.8	58.5		
30-016	N5050E4790	Surface	1	6/13/2004	JK	CT	WC	Y	214.1	72.8		
30-017	N5050E4790	Surface	1	6/13/2004	JK	CT	WC	Y	7.9	27.3		
30-018	N5050E4790	Surface	1	6/13/2004	JK	CT	WC	N	22.5	49.6		
30-019	N5050E4790	Surface	1	6/13/2004	JK	CT	OC	Y	173	84.1		
30-020	N5050E4790	Surface	1	6/13/2004	JK	CT	OC	Y	343.4	92.3		
30-021	N5050E4790	Surface	1	6/13/2004	JK	CT	OC	Y	167.2	66.5		
30-022	N5050E4790	Surface	1	6/13/2004	JK	CT	OC	Y	871.1	122		
30-023	N5050E4790	Surface	1	6/13/2004	JK	PF	OB	N	1.5			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
30-024	N5050E4790	Surface	1	6/13/2004	JK	PF	OB	N	0			
30-025	N5050E4790	Surface	1	6/13/2004	JK	PF	AR	Y	37.6			
30-026	N5050E4790	Surface	1	6/13/2004	JK	PF	AR	Y	0			
30-027	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	N	10.5			
30-028	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
30-029	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
30-030	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
30-031	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
30-032	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
30-033	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	N	0			
30-034	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	Y	38.4			
30-035	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
30-036	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
30-037	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
30-038	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
30-039	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
30-040	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
30-041	N5050E4790	Surface	1	6/13/2004	JK	PF	WC	Y	0			
30-042	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	82.8			
30-043	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
30-044	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
30-045	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
30-046	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
30-047	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
30-048	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
30-049	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
30-050	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
30-051	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	0			
30-052	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	Y	31.6			
30-053	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	Y	0			
30-054	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	Y	0			
30-055	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	Y	0			
30-056	N5050E4790	Surface	1	6/13/2004	JK	FS	WC	Y	13.3			
30-057	N5050E4790	Surface	1	6/13/2004	JK	AS	WC	Y	23.6			
30-058	N5050E4790	Surface	1	6/13/2004	JK	FS	WC	N	46.1			
30-059	N5050E4790	Surface	1	6/13/2004	JK	AS	WC	N	51.5			
30-060	N5050E4790	Surface	1	6/13/2004	JK	FS	OC	Y	76			
30-061	N5050E4790	Surface	1	6/13/2004	JK	FS	OC	N	69.3			
30-062	N5050E4790	Surface	1	6/13/2004	JK	AS	OC	N	6.8			
30-063	N5050E4790	Surface	1	6/13/2004	JK	AS	OC	Y	6.1			
30-064	N5050E4790	Surface	1	6/13/2004	JK	PF	OC	N	6.5			
30-065	N5050E4790	Surface	1	6/13/2004	JK	FS	OB	N	2			
30-066	N5050E4790	Surface	1	6/13/2004	JK	FS	AR	Y	127.8			
30-067	N5050E4790	Surface	1	6/13/2004	JK	FS	QU	N	2.4			
31-001	N5050 E4800	Surface	1	6/14/2004	KH	CT	OC	Y	765.2	125		
31-002	N5050 E4800	Surface	1	6/14/2004	KH	CT	OC	Y	44.5	41.3		
31-003	N5050 E4800	Surface	1	6/14/2004	KH	CT	WC	Y	36.6	47.7		
31-004	N5050 E4800	Surface	1	6/14/2004	KH	CT	WC	Y	18.9	31.7		
31-005	N5050 E4800	Surface	1	6/14/2004	KH	CT	WC	N	4.5	22.5		
31-006	N5050 E4800	Surface	1	6/14/2004	KH	CT	WC	Y	23.2	47.7		
31-007	N5050 E4800	Surface	1	6/14/2004	KH	CT	WC	Y	20.5	37.3		
31-008	N5050 E4800	Surface	1	6/14/2004	KH	AS	WC	Y	16.1			
31-009	N5050E4800	Surface	1	6/14/2004	KH	FT	AR	Y	28.9			
31-010	N5050 E4800	Surface	1	6/14/2004	KH	CT	OC	N	23.7	34.2		
31-011	N5050E4800	Surface	1	6/14/2004	KH	FT	OC	N	57			
31-012	N5050 E4800	Surface	1	6/14/2004	KH	CT	WC	Y	286.9	85.4		
31-013	N5050 E4800	Surface	1	6/14/2004	KH	CT	WC	Y	319.8	102		
31-014	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	40			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
31-015	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-016	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-017	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-018	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-019	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-020	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-021	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-022	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-023	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-024	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-025	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-026	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-027	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-028	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-029	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-030	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-031	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-032	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-033	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-034	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-035	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-036	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-037	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-038	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-039	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-040	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-041	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-042	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-043	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-044	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-045	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-046	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-047	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-048	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-049	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-050	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-051	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-052	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-053	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-054	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-055	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-056	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-057	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-058	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-059	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-060	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-061	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-062	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-063	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-064	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-065	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-066	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-067	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-068	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-069	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-070	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-071	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-072	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
31-073	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-074	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-075	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-076	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-077	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-078	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	N	0			
31-079	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	168.4			
31-080	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-081	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-082	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-083	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-084	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-085	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-086	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-087	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-088	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-089	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-090	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-091	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-092	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-093	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-094	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-095	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-096	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-097	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-098	N5050 E4800	Surface	1	6/14/2004	KH	PF	WC	Y	0			
31-099	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	63.1			
31-100	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-101	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-102	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-103	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-104	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-105	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-106	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-107	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-108	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-109	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-110	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-111	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-112	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-113	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-114	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-115	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-116	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-117	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-118	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-119	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	0			
31-120	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	212.9			
31-121	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-122	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-123	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-124	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-125	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-126	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-127	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-128	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-129	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-130	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
31-131	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-132	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	Y	0			
31-133	N5050 E4800	Surface	1	6/14/2004	KH	FS	WC	N	97			
31-134	N5050 E4800	Surface	1	6/14/2004	KH	FS	WC	Y	234.9			
31-135	N5050 E4800	Surface	1	6/14/2004	KH	AS	WC	Y	215.6			
31-136	N5050 E4800	Surface	1	6/14/2004	KH	AS	WC	N	37.9			
31-137	N5050 E4800	Surface	1	6/14/2004	KH	FS	OC	N	41.2			
31-138	N5050 E4800	Surface	1	6/14/2004	KH	FS	OC	Y	73.5			
31-139	N5050 E4800	Surface	1	6/14/2004	KH	AS	OC	N	23.9			
31-140	N5050 E4800	Surface	1	6/14/2004	KH	AS	OC	Y	37.4			
31-141	N5050 E4800	Surface	1	6/14/2004	KH	PF	OB	N	0.2			
31-142	N5050 E4800	Surface	1	6/14/2004	KH	FS	OB	N	0.2			
31-143	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	96			
31-144	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	0			
31-145	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	0			
31-146	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	0			
31-147	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	0			
31-148	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	0			
31-149	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	0			
31-150	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	0			
31-151	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	0			
31-152	N5050 E4800	Surface	1	6/14/2004	KH	PF	AR	Y	0			
31-153	N5050 E4800	Surface	1	6/14/2004	KH	FS	QU	N	17.6			
31-154	N5050 E4800	Surface	1	6/14/2004	KH	FT	WC	Y	25.8			
31-155	N5050 E4800	Surface	1	6/14/2004	KH	FT	OC	N	1.8			
31-156	N5050 E4800	Surface	1	6/14/2004	KH	UB	WC	N	1.1			
31-157	N5050 E4800	Surface	1	6/14/2004	KH	CT	WC	Y	152.3			
31-158	N5050 E4800	Surface	1	6/14/2004	KH	FT	WC	N	0.3			
31-159	N5050 E4800	Surface	1	6/14/2004	KH	PF	OC	N	1.4			
31-160	N5050 E4800	Surface	1	6/14/2004	KH	CT	WC	Y	29.4	72.2		
31-161	N5050 E4800	Surface	1	6/14/2004	KH	CT	OC	N	54.6	61.7		
31-162	N5050 E4800	Surface	1	6/14/2004	KH	FS	AR	Y	460.5			
31-163	N5050 E4800	Surface	1	6/14/2004	KH	AS	AR	Y	320.4			
31-164	N5050E4800	Surface	1	6/14/2004	KH	FS	WC	N	20.3			
31-165	N5050E4800	Surface	1	6/14/2004	KH	CT	WC	Y	62.6			
31-166	N5050E4800	Surface	1	6/14/2004	KH	FT	OC	Y	3.5			
31-167	N5050E4800	Surface	1	6/14/2004	KH	FS	WC	Y	5.2			
31-168	N5050E4800	Surface	1	6/14/2004	KH	FT	AR	Y	28			
31-169	N5050E4800	Surface	1	6/14/2004	KH	FS	WC	Y	23.2			
31-170	N5050E4800	Surface	1	6/14/2004	KH	FT	WC	N	3.9			
31-171	N5050E4800	Surface	1	6/14/2004	KH	AS	WC	Y	6.4			
31-172	N5050 E4800	Surface	1	6/14/2004	KH	AS	OC	N	9.5			
31-173	N5050E4800	Surface	1	6/14/2004	KH	AS	WC	Y	63			
31-174	N5050 E4800	Surface	1	6/14/2004	KH	FT	OC	N	166.3	65.3		
32-001	N5040 E4800	Surface	1	6/13/2004	KH	CT	OC	Y	560.4	110		
32-002	N5040 E4800	Surface	1	6/13/2004	KH	FT	OC	Y	2			
32-003	N5040 E4800	Surface	1	6/13/2004	KH	PF	WC	Y	2.9			
32-004	N5040 E4800	Surface	1	6/13/2004	KH	PF	WC	N	10.4			
32-005	N5040 E4800	Surface	1	6/13/2004	KH	PF	OC	Y	74.5			
32-006	N5040 E4800	Surface	1	6/13/2004	KH	PF	OC	N	0			
32-007	N5040 E4800	Surface	1	6/13/2004	KH	AS	OC	Y	21.1			
32-008	N5040 E4800	Surface	1	6/13/2004	KH	FS	OC	Y	19			
32-009	N5040 E4800	Surface	1	6/13/2004	KH	FS	OC	N	22.3			
32-010	N5040 E4800	Surface	1	6/13/2004	KH	FS	OB	N	0.4			
32-011	N5040 E4800	Surface	1	6/13/2004	KH	FS	WC	Y	3.4			
32-012	N5040 E4800	Surface	1	6/13/2004	KH	FS	WC	N	2.6			
32-013	N5040 E4800	Surface	1	6/13/2004	KH	AS	WC	N	0.6			
32-014	N5040 E4800	Surface	1	6/13/2004	KH	AS	WC	Y	27.8			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
32-015	N5040 E4800	Surface	1	6/13/2004	KH	FS	AR	Y	68.7			
32-016	N5040 E4800	Surface	1	6/13/2004	KH	UR	OC	Y	12.2			
33-001	N5030E4800	Surface	1	6/13/2004	JK	FT	OB	Y	6.6			
33-002	N5030E4800	Surface	1	6/13/2004	JK	FT	WC	Y	29.4			
33-003	N5030E4800	Surface	1	6/13/2004	JK	FT	OC	Y	19.3			
33-004	N5030E4800	Surface	1	6/13/2004	JK	CT	OC	Y	93	83.2		
33-005	N5030E4800	Surface	1	6/13/2004	JK	CT	AR	Y	173.2	106		
33-006	N5030E4800	Surface	1	6/13/2004	JK	CT	WC	Y	57.2	61.1		
33-007	N5030E4800	Surface	1	6/13/2004	JK	CT	OC	Y	47.2	54.1		
33-008	N5030E4800	Surface	1	6/13/2004	JK	CT	OC	Y	117.1	91.1		
33-009	N5030E4800	Surface	1	6/13/2004	JK	CT	OC	N	29	53.9		
33-010	N5030E4800	Surface	1	6/13/2004	JK	CT	OC	Y	149.7	86.8		
33-011	N5030E4800	Surface	1	6/13/2004	JK	CT	OC	Y	167.1	84.3		
33-012	N5030E4800	Surface	1	6/13/2004	JK	CT	OC	Y	320.9	87.2		
33-013	N5030E4800	Surface	1	6/13/2004	JK	GS	BA	Y	485.4			
33-014	N5030E4800	Surface	1	6/13/2004	JK	PF	WC	Y	7.7			
33-015	N5030E4800	Surface	1	6/13/2004	JK	PF	WC	Y	0			
33-016	N5030E4800	Surface	1	6/13/2004	JK	PF	WC	Y	0			
33-017	N5030E4800	Surface	1	6/13/2004	JK	PF	WC	N	0.3			
33-018	N5030E4800	Surface	1	6/13/2004	JK	PF	AR	Y	67.8			
33-019	N5030E4800	Surface	1	6/13/2004	JK	PF	AR	Y	0			
33-020	N5030E4800	Surface	1	6/13/2004	JK	FS	OC	Y	178.1			
33-021	N5030E4800	Surface	1	6/13/2004	JK	FS	OC	N	23.8			
33-022	N5030E4800	Surface	1	6/13/2004	JK	AS	OC	Y	42.6			
33-023	N5030E4800	Surface	1	6/13/2004	JK	AS	OC	N	4.2			
33-024	N5030E4800	Surface	1	6/13/2004	JK	AS	WC	N	1.4			
33-025	N5030E4800	Surface	1	6/13/2004	JK	AS	WC	Y	6.6			
33-026	N5030E4800	Surface	1	6/13/2004	JK	FS	WC	N	1.2			
33-027	N5030E4800	Surface	1	6/13/2004	JK	FS	WC	Y	17.1			
33-028	N5030E4800	Surface	1	6/13/2004	JK	PF	OC	N	4.9			
33-029	N5030E4800	Surface	1	6/13/2004	JK	PF	OC	N	0			
33-030	N5030E4800	Surface	1	6/13/2004	JK	PF	OC	N	0			
33-031	N5030E4800	Surface	1	6/13/2004	JK	PF	OC	N	0			
33-032	N5030E4800	Surface	1	6/13/2004	JK	PF	OC	N	0			
33-033	N5030E4800	Surface	1	6/13/2004	JK	PF	OC	Y	129.4			
33-034	N5030E4800	Surface	1	6/13/2004	JK	PF	OC	Y	0			
34-001	N5040 E4810	Surface	1	6/13/2004	KH	CT	AR	Y	223.4	88.7		
34-002	N5040 E4810	Surface	1	6/13/2004	KH	CT	AR	Y	163.4	92.9		
34-003	N5040 E4810	Surface	1	6/13/2004	KH	PF	AR	Y	67.4			
34-004	N5040 E4810	Surface	1	6/13/2004	KH	PF	AR	Y	0			
34-005	N5040 E4810	Surface	1	6/13/2004	KH	PF	WC	Y	7.4			
34-006	N5040 E4810	Surface	1	6/13/2004	KH	PF	WC	Y	0			
34-007	N5040 E4810	Surface	1	6/13/2004	KH	PF	WC	N	1.3			
34-008	N5040 E4810	Surface	1	6/13/2004	KH	PF	WC	N	0			
34-009	N5040 E4810	Surface	1	6/13/2004	KH	PF	OC	N	4.8			
34-010	N5040 E4810	Surface	1	6/13/2004	KH	PF	OC	N	0			
34-011	N5040 E4810	Surface	1	6/13/2004	KH	PF	OC	N	0			
34-012	N5040 E4810	Surface	1	6/13/2004	KH	PF	OC	N	0			
34-013	N5040 E4810	Surface	1	6/13/2004	KH	PF	OC	Y	6.5			
34-014	N5040 E4810	Surface	1	6/13/2004	KH	PF	OC	Y	0			
34-015	N5040 E4810	Surface	1	6/13/2004	KH	FS	WC	Y	74			
34-016	N5040 E4810	Surface	1	6/13/2004	KH	AS	WC	Y	40.6			
34-017	N5040 E4810	Surface	1	6/13/2004	KH	AS	WC	N	8.2			
34-018	N5040 E4810	Surface	1	6/13/2004	KH	FS	OC	N	12.4			
34-019	N5040 E4810	Surface	1	6/13/2004	KH	FS	OC	Y	68.5			
34-020	N5040 E4810	Surface	1	6/13/2004	KH	AS	OC	N	35.8			
34-021	N5040 E4810	Surface	1	6/13/2004	KH	AS	OC	Y	16.8			
34-022	N5040 E4810	Surface	1	6/13/2004	KH	PF	OC	N	14.5			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
34-023	N5040 E4810	Surface	1	6/13/2004	KH	AS	QU	Y	20.4			
34-024	N5040 E4810	Surface	1	6/13/2004	KH	FS	AR	Y	29.1			
34-025	N5040 E4810	Surface	1	6/13/2004	KH	SH			0.2			
35-001	N5030 E4810	Surface	1	6/14/2004	KH	CT	OC	Y	67.4	61.6		
35-002	N5030 E4810	Surface	1	6/14/2004	KH	CT	OC	Y	6.1	27.2		
35-003	N5030 E4810	Surface	1	6/14/2004	KH	CT	OC	Y	9	33.9		
35-004	N5030 E4810	Surface	1	6/14/2004	KH	UB	AR	Y	61.2			
35-005	N5030 E4810	Surface	1	6/14/2004	KH	PF	AR	Y	1.9			
35-006	N5030 E4810	Surface	1	6/14/2004	KH	PF	AR	Y	1.4			
35-007	N5030 E4810	Surface	1	6/14/2004	KH	PF	AR	Y	0			
35-008	N5030 E4810	Surface	1	6/14/2004	KH	PF	AR	Y	0			
35-009	N5030 E4810	Surface	1	6/14/2004	KH	PF	OB	N	4.8			
35-010	N5030 E4810	Surface	1	6/14/2004	KH	PF	OB	N	0			
35-011	N5030 E4810	Surface	1	6/14/2004	KH	PF	OB	N	0			
35-012	N5030 E4810	Surface	1	6/14/2004	KH	PF	AR	Y	6.5			
35-013	N5030 E4810	Surface	1	6/14/2004	KH	PF	AR	Y	0			
35-014	N5030 E4810	Surface	1	6/14/2004	KH	PF	OC	Y	14.8			
35-015	N5030 E4810	Surface	1	6/14/2004	KH	PF	OC	Y	6.5			
35-016	N5030 E4810	Surface	1	6/14/2004	KH	PF	OC	Y	2.5			
35-017	N5030 E4810	Surface	1	6/14/2004	KH	PF	OC	N	3.9			
35-018	N5030 E4810	Surface	1	6/14/2004	KH	PF	OC	N	0			
35-019	N5030 E4810	Surface	1	6/14/2004	KH	PF	OC	N	0			
35-020	N5030 E4810	Surface	1	6/14/2004	KH	PF	OC	N	0			
35-021	N5030 E4810	Surface	1	6/14/2004	KH	PF	OC	Y	14.5			
35-022	N5030 E4810	Surface	1	6/14/2004	KH	PF	WC	N	3.6			
35-023	N5030 E4810	Surface	1	6/14/2004	KH	PF	AR	Y	9.8			
35-024	N5030 E4810	Surface	1	6/14/2004	KH	PF	AR	Y	28.9			
35-025	N5030 E4810	Surface	1	6/14/2004	KH	FS	WC	N	13			
35-026	N5030 E4810	Surface	1	6/14/2004	KH	FS	WC	Y	7.7			
35-027	N5030 E4810	Surface	1	6/14/2004	KH	AS	WC	N	34.8			
35-028	N5030 E4810	Surface	1	6/14/2004	KH	AS	WC	Y	30.9			
35-029	N5030 E4810	Surface	1	6/14/2004	KH	FS	OC	N	16			
35-030	N5030 E4810	Surface	1	6/14/2004	KH	FS	OC	Y	9.9			
35-031	N5030 E4810	Surface	1	6/14/2004	KH	AS	OC	N	28			
35-032	N5030 E4810	Surface	1	6/14/2004	KH	AS	OC	Y	8.4			
35-033	N5030 E4810	Surface	1	6/14/2004	KH	PF	AR	Y	31.3			
35-034	N5030 E4810	Surface	1	6/14/2004	KH	FS	AR	Y	89			
35-035	N5030 E4810	Surface	1	6/14/2004	KH	AS	AR	Y	49.9			
35-036	N5030 E4810	Surface	1	6/14/2004	KH	FS	OB	N	0.4			
36-001	N5020 E4810	Surface	1	6/13/2004	JT	CT	WC	Y	4.6	17.9		
36-002	N5020 E4810	Surface	1	6/13/2004	JT	CT	OC	Y	76.5	59		
36-003	N5020 E4810	Surface	1	6/13/2004	JT	PF	WC	N	0.9			
36-004	N5020 E4810	Surface	1	6/13/2004	JT	PF	WC	N	0			
36-005	N5020 E4810	Surface	1	6/13/2004	JT	PF	AR	N	7.8			
36-006	N5020 E4810	Surface	1	6/13/2004	JT	PF	OC	N	45.7			
36-007	N5020 E4810	Surface	1	6/13/2004	JT	PF	OC	N	0			
36-008	N5020 E4810	Surface	1	6/13/2004	JT	PF	OC	N	0			
36-009	N5020 E4810	Surface	1	6/13/2004	JT	PF	OC	N	0			
36-010	N5020 E4810	Surface	1	6/13/2004	JT	PF	OC	N	0			
36-011	N5020 E4810	Surface	1	6/13/2004	JT	PF	OC	N	0			
36-012	N5020 E4810	Surface	1	6/13/2004	JT	PF	OC	N	0			
36-013	N5020 E4810	Surface	1	6/13/2004	JT	FS	AR	N	41.1			
36-014	N5020 E4810	Surface	1	6/13/2004	JT	FS	OC	N	4.8			
36-015	N5020 E4810	Surface	1	6/13/2004	JT	FS	OC	Y	4.7			
36-016	N5020 E4810	Surface	1	6/13/2004	JT	PF	OC	N	41.8			
36-017	N5020 E4810	Surface	1	6/13/2004	JT	FS	WC	N	1.5			
36-018	N5020 E4810	Surface	1	6/13/2004	JT	FS	WC	Y	19.5			
36-019	N5020 E4810	Surface	1	6/13/2004	JT	AS	WC	N	2.9			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
36-020	N5020 E4810	Surface	1	6/13/2004	JT	AS	WC	Y	9			
36-021	N5020 E4810	Surface	1	6/13/2004	JT	FS	BA	N	0.1			
36-022	N5020 E4811	Surface	1	6/13/2004	JT	PF	OC	N	0			
36-023	N5020 E4812	Surface	1	6/13/2004	JT	PF	OC	N	0			
37-001	N5040 E4820	Surface	1	6/13/2004	KH	UB	WC	Y	48			
37-002	N5040 E4820	Surface	1	6/13/2004	KH	UB	WC	N	21.5			
37-003	N5040 E4820	Surface	1	6/13/2004	KH	UB	WC	N	5.6			
37-004	N5040 E4820	Surface	1	6/13/2004	KH	FT	WC	N	4.6			
37-005	N5040 E4820	Surface	1	6/13/2004	KH	FT	WC	N	7.8			
37-006	N5040 E4820	Surface	1	6/13/2004	KH	FT	WC	N	8.2			
37-007	N5040 E4820	Surface	1	6/13/2004	KH	FT	WC	N	6			
37-008	N5040 E4820	Surface	1	6/13/2004	KH	FT	WC	Y	4.6			
37-009	N5040 E4820	Surface	1	6/13/2004	KH	FT	OC	Y	1.2			
37-010	N5040 E4820	Surface	1	6/13/2004	KH	FT	OC	N	0.1			
37-011	N5040 E4820	Surface	1	6/13/2004	KH	CT	WC	Y	523.3	153		
37-012	N5040 E4820	Surface	1	6/13/2004	KH	CT	WC	Y	229	77.4		
37-013	N5040 E4820	Surface	1	6/13/2004	KH	FS	WC	Y	70			
37-014	N5040 E4820	Surface	1	6/13/2004	KH	AS	WC	Y	28.7			
37-015	N5040 E4820	Surface	1	6/13/2004	KH	AS	WC	Y	11			
37-016	N5040 E4820	Surface	1	6/13/2004	KH	AS	WC	Y	3.5			
37-017	N5040 E4820	Surface	1	6/13/2004	KH	FS	WC	N	22.8			
37-018	N5040 E4820	Surface	1	6/13/2004	KH	AS	WC	N	18.5			
37-019	N5040 E4820	Surface	1	6/13/2004	KH	AS	OC	Y	10.4			
37-020	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	3.9			
37-021	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-022	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-023	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-024	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-025	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-026	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-027	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-028	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-029	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-030	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-031	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-032	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-033	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-034	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-035	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-036	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-037	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-038	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-039	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-040	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-041	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-042	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-043	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-044	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-045	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-046	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-047	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	N	0			
37-048	N5040 E4820	Surface	1	6/13/2004	KH	PF	OB	Y	1.4			
37-049	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	170.7			
37-050	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-051	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-052	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-053	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-054	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
37-055	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-056	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-057	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-058	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-059	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-060	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-061	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-062	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-063	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-064	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-065	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-066	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-067	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-068	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-069	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-070	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-071	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-072	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-073	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-074	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-075	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-076	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-077	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-078	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-079	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-080	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-081	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-082	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-083	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-084	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-085	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-086	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-087	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-088	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-089	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-090	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-091	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-092	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-093	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-094	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-095	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-096	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-097	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-098	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-099	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-100	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-101	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-102	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-103	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-104	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-105	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-106	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-107	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-108	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-109	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-110	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-111	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-112	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
37-113	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-114	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-115	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-116	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-117	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-118	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-119	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-120	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-121	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-122	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-123	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-124	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-125	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-126	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-127	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-128	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-129	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-130	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-131	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-132	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-133	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-134	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-135	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-136	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-137	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-138	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-139	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-140	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-141	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-142	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-143	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-144	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-145	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-146	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-147	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-148	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-149	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-150	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-151	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-152	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-153	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-154	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-155	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-156	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-157	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-158	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-159	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-160	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-161	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-162	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-163	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-164	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-165	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-166	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-167	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-168	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-169	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-170	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
37-171	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-172	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-173	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-174	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-175	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-176	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-177	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-178	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	52.6			
37-179	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-180	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-181	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-182	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-183	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-184	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-185	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-186	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-187	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-188	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-189	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-190	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-191	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-192	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	Y	0			
37-193	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-194	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-195	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-196	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-197	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-198	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	48.9			
37-199	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-200	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-201	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-202	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-203	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-204	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-205	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-206	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-207	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-208	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-209	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-210	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-211	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-212	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-213	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-214	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-215	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-216	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-217	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-218	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-219	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-220	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-221	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-222	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-223	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-224	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-225	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-226	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-227	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-228	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
37-229	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-230	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	N	0			
37-231	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	70.9			
37-232	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-233	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-234	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-235	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-236	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-237	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-238	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-239	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-240	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-241	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-242	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-243	N5040 E4820	Surface	1	6/13/2004	KH	PF	OC	Y	0			
37-244	N5040 E4820	Surface	1	6/13/2004	KH	PF	AR	Y	16.3			
37-245	N5040 E4820	Surface	1	6/13/2004	KH	PF	AR	Y	0			
37-246	N5040 E4820	Surface	1	6/13/2004	KH	PF	BA	N	0			
37-247	N5040 E4820	Surface	1	6/13/2004	KH	FS	WC	N	195.1			
37-248	N5040 E4820	Surface	1	6/13/2004	KH	FS	WC	Y	10.8			
37-249	N5040 E4820	Surface	1	6/13/2004	KH	AS	WC	N	119.1			
37-250	N5040 E4820	Surface	1	6/13/2004	KH	AS	WC	Y	208.7			
37-251	skipped numbers											
37-252												
37-253	N5040 E4820	Surface	1	6/13/2004	KH	AS	OC	N	8.5			
37-254	N5040 E4820	Surface	1	6/13/2004	KH	AS	OC	Y	50.6			
37-255	N5040 E4820	Surface	1	6/13/2004	KH	FS	OC	N	43.6			
37-256	N5040 E4820	Surface	1	6/13/2004	KH	FS	OC	Y	113			
37-257	N5040 E4820	Surface	1	6/13/2004	KH	FS	AR	Y	44			
37-258	N5040 E4820	Surface	1	6/13/2004	KH	AS	AR	Y	96.6			
37-259	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	3.4			
37-260	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-261	N5040 E4820	Surface	1	6/13/2004	KH	PF	WC	N	0			
37-262	N5040 E4820	Surface	1	6/13/2004	KH	FS	OB	N	2.8			
37-263	N5040 E4820	Surface	1	6/13/2004	KH	FS	OB	Y	0.2			
37-264	N5040 E4820	Surface	1	6/13/2004	KH	AS	OB	N	0.9			
38-001	N5030E4820	Surface	1	6/14/2004	JT	HB	OB	N	0.6	17.7	15.2	3.2
38-002	N5030E4820	Surface	1	6/14/2004	JT	UB	OB	N	0.1	5.5	11.3	2.5
38-003	N5030E4820	Surface	1	6/14/2004	JT	UB	OB	N	0.1	10.9	8.7	2.1
38-004	N5030E4820	Surface	1	6/14/2004	JT	UB	OB	N	0.6	4	24.1	6.4
38-005	N5030E4820	Surface	1	6/14/2004	JT	CT	OB	Y	6.6	28.9	27.5	16
38-006	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	Y	0.5	19.5	13.6	2.8
38-007	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	N	2.4	15.6	26.9	5.2
38-008	N5030E4820	Surface	1	6/14/2004	JT	UB	OC	N	4.9	18.5	27.1	7.7
38-009	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	Y	76.4	56.1	42.2	35.2
38-010	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	Y	18.8	48.7	23.1	20.5
38-011	N5030E4820	Surface	1	6/14/2004	JT	UB	OC	Y	141.6	55.8	75.9	31.5
38-012	N5030E4820	Surface	1	6/14/2004	JT	UB	OC	Y	20.6	52	34.6	11.2
38-013	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	Y	50.2	39	58.9	21.3
38-014	N5030E4820	Surface	1	6/14/2004	JT	FT	AR	Y	98.9	63.5	58.5	26.4
38-015	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	N	13.6	17.5	56.3	18.2
38-016	N5030E4820	Surface	1	6/14/2004	JT	HB	WC	N	3.1	18	32.6	6.9
38-017	N5030E4820	Surface	1	6/14/2004	JT	UB	OC	N	0.1	5.1	11.5	3.7
38-018	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	N	0.1	8	9.9	2.2
38-019	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	N	0.8	12.4	14.4	5.4
38-020	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	Y	54.2	37.3	70.9	22.9
38-021	N5030E4820	Surface	1	6/14/2004	JT	FT	OC	N	4.6	20.5	22.9	7.9
38-022	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	Y	5.9	29.2	33.5	7.2

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-023	N5030E4820	Surface	1	6/14/2004	JT	FT	OC	N	0.8	16.3	15.8	3.2
38-024	N5030E4820	Surface	1	6/14/2004	JT	FT	OC	N	6.5	27.9	34.4	12.3
38-025	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	Y	9.7	29.6	43.3	7.8
38-026	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	Y	7.5	28.7	38.3	6.8
38-027	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	0.3	7.6	18.7	1.8
38-028	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	1.8	18.5	27.5	3.3
38-029	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	1.5	22.4	22.3	3.1
38-030	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	1.3	21	23.1	3.4
38-031	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	N	1.3	15	27.5	3.6
38-032	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	N	1.1	20.1	17.4	2.5
38-033	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5	10.2	13.1	2.7
38-034	N5030E4820	Surface	1	6/14/2004	JT	AS	WC	N	1.2	14	17.9	5.6
38-035	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	2.2	25.7	25.7	5.5
38-036	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	0.4	10	16.1	2
38-037	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	1	11.1	23.6	4.3
38-038	N5030E4820	Surface	1	6/14/2004	JT	FT	OC	N	0.5	15.8	13.3	2.8
38-039	N5030E4820	Surface	1	6/14/2004	JT	FT	OC	N	1.3	19.2	13	9.9
38-040	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	1.4	17.3	18.5	6.1
38-041	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	0.5	17.9	13.2	3.1
38-042	N5030E4820	Surface	1	6/14/2004	JT	FT	AR	Y	17.5	37.9	46.3	14.9
38-043	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	6.7	32.5	18.7	11.6
38-044	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	4.2	22.2	32.3	6.8
38-045	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	N	2.7	8.6	36.6	10.6
38-046	N5030E4820	Surface	1	6/14/2004	JT	UB	WC	N	30.8	43.8	55	15.4
38-047	N5030E4820	Surface	1	6/14/2004	JT	FT	OC	N	2.1	13	26.3	5.4
38-048	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	Y	22.8	38	32.9	15.3
38-049	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	10.5	26.2	28.1	8.2
38-050	N5030E4820	Surface	1	6/14/2004	JT	FT	WC	N	0.8	16.4	15.1	4.2
38-051	N5030E4820	Surface	1	6/14/2004	JT	FT	AR	Y	9	28.6	38.4	7.1
38-052	N5030E4820	Surface	1	6/14/2004	JT	FT	OC	N	2.8	16.2	33.9	5.5
38-053	N5030E4820	Surface	1	6/14/2004	JT	CT	WC	Y	14.2	33.3	26.8	21.9
38-054	N5030E4820	Surface	1	6/14/2004	JT	CT	AR	Y	47	21.7	43.5	23.6
38-055	N5030E4820	Surface	1	6/14/2004	JT	CT	WC	Y	7.3	36.2	16.5	11.6
38-056	N5030E4820	Surface	1	6/14/2004	JT	CT	WC	Y	78	69	44.4	26.3
38-057	N5030E4820	Surface	1	6/14/2004	JT	CT	WC	Y	30.7	56.6	32.2	16.7
38-058	N5030E4820	Surface	1	6/14/2004	JT	CT	OC	N	32.6	42.1	35.1	19.3
38-059	N5030E4820	Surface	1	6/14/2004	JT	CT	OC	Y	72.1	48.5	61.6	22.8
38-060	N5030E4820	Surface	1	6/14/2004	JT	CT	OC	Y	186.6	47.7	113.5	33.1
38-061	N5030E4820	Surface	1	6/14/2004	JT	CT	AR	Y	318.5	68.4	128.1	42.3
38-062	N5030E4820	Surface	1	6/14/2004	JT	FS	WC	N	661.7			
38-063	N5030E4820	Surface	1	6/14/2004	JT	AS	WC	Y	187.7			
38-064	N5030E4820	Surface	1	6/14/2004	JT	AS	WC	N	139.7			
38-065	N5030E4820	Surface	1	6/14/2004	JT	FS	WC	Y	613.8			
38-066	N5030E4820	Surface	1	6/14/2004	JT	FS	OC	N	144.6			
38-067	N5030E4820	Surface	1	6/14/2004	JT	FS	OC	Y	45			
38-068	N5030E4820	Surface	1	6/14/2004	JT	AS	OC	N	40.8			
38-069	N5030E4820	Surface	1	6/14/2004	JT	AS	OC	Y	8.4			
38-070	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	3.3			
38-071	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	9.1			
38-072	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	8			
38-073	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.7			
38-074	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-075	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.1			
38-076	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-077	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.5			
38-078	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-079	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.7			
38-080	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-081	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	3.7			
38-082	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.7			
38-083	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.4			
38-084	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.4			
38-085	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.5			
38-086	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.2			
38-087	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.1			
38-088	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.5			
38-089	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.6			
38-090	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.5			
38-091	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.6			
38-092	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	3.1			
38-093	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.6			
38-094	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.3			
38-095	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.2			
38-096	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.6			
38-097	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.1			
38-098	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.1			
38-099	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.2			
38-100	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	4.2			
38-101	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.4			
38-102	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-103	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	4.3			
38-104	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-105	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-106	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	6.2			
38-107	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.1			
38-108	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	4.2			
38-109	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-110	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	3.9			
38-111	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	7.3			
38-112	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	3.4			
38-113	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.4			
38-114	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.4			
38-115	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.1			
38-116	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-117	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-118	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1			
38-119	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-120	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.8			
38-121	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.1			
38-122	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.8			
38-123	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-124	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.1			
38-125	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-126	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.6			
38-127	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.2			
38-128	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-129	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.1			
38-130	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	5.5			
38-131	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	11.6			
38-132	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.1			
38-133	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	24.9			
38-134	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.9			
38-135	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.7			
38-136	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.9			
38-137	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	3.1			
38-138	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-139	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.4			
38-140	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.7			
38-141	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.8			
38-142	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-143	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.9			
38-144	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	5.5			
38-145	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.3			
38-146	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.8			
38-147	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.3			
38-148	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.3			
38-149	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.7			
38-150	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.7			
38-151	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1			
38-152	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.6			
38-153	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.8			
38-154	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-155	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	12.2			
38-156	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.5			
38-157	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1			
38-158	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.6			
38-159	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.6			
38-160	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.3			
38-161	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-162	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-163	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-164	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.2			
38-165	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-166	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.8			
38-167	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.2			
38-168	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.7			
38-169	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.8			
38-170	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.9			
38-171	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.6			
38-172	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.4			
38-173	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.2			
38-174	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-175	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-176	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-177	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.6			
38-178	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.6			
38-179	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.6			
38-180	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-181	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.7			
38-182	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-183	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.6			
38-184	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-185	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-186	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.9			
38-187	skipped number											
38-188	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2.5			
38-189	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-190	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-191	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.3			
38-192	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	2			
38-193	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.1			
38-194	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.2			
38-195	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.2			
38-196	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.2			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-197	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-198	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.1			
38-199	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	1.4			
38-200	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-201	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-202	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.2			
38-203	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.2			
38-204	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.6			
38-205	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-206	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-207	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.4			
38-208	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0.5			
38-209	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	44.8			
38-210	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	Y	193.3			
38-211	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	N	88.5			
38-212	N5030E4820	Surface	1	6/14/2004	JT	BN			16.1			
38-213	N5030E4820	Surface	1	6/14/2004	JT	FS	OB	Y	1.2			
38-214	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	Y	1.8			
38-215	N5030E4820	Surface	1	6/14/2004	JT	FS	OB	N	2.2			
38-216	N5030E4820	Surface	1	6/14/2004	JT	FS	OC	N	15.9			
38-217	N5030E4820	Surface	1	6/14/2004	JT	FS	OC	Y	101.3			
38-218	N5030E4820	Surface	1	6/14/2004	JT	AS	OC	Y	65.3			
38-219	N5030E4820	Surface	1	6/14/2004	JT	AS	OC	N	20.8			
38-220	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	N	44.2			
38-221	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	N	0			
38-222	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	N	0			
38-223	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	N	0			
38-224	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	N	0			
38-225	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	N	0			
38-226	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	N	0			
38-227	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	N	0			
38-228	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-229	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.9			
38-230	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.3			
38-231	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.4			
38-232	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.2			
38-233	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.8			
38-234	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.6			
38-235	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.3			
38-236	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.2			
38-237	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.2			
38-238	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.2			
38-239	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.2			
38-240	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-241	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-242	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-243	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-244	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-245	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-246	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-247	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-248	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-249	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-250	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-251	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-252	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-253	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-254	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-255	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	N	0.1			
38-256	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	Y	0.4			
38-257	N5030E4820	Surface	1	6/14/2004	JT	PF	OB	Y	0.1			
38-258	N5030E4820	Surface	1	6/14/2004	JT	FS	OB	N	11.2			
38-259	N5030E4820	Surface	1	6/14/2004	JT	AS	OB	N	7			
38-260	N5030E4820	Surface	1	6/14/2004	JT	AS	OB	Y	5.1			
38-261	N5030E4820	Surface	1	6/14/2004	JT	FS	OB	Y	0.1			
38-262	N5030E4820	Surface	1	6/14/2004	JT	AS	QU	Y	27.9			
38-263	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	Y	37.2			
38-264	N5030E4820	Surface	1	6/14/2004	JT	FS	BA	Y	2.6			
38-265	N5030E4820	Surface	1	6/14/2004	JT	FS	AR	Y	52.6			
38-266	N5030E4820	Surface	1	6/14/2004	JT	AS	AR	Y	41.4			
38-267	N5030E4820	Surface	1	6/14/2004	JT	FS	OC	Y	2			
38-268	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	Y	0			
38-269	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	Y	0			
38-270	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	Y	0			
38-271	N5030E4820	Surface	1	6/14/2004	JT	PF	AR	Y	0			
38-272	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	9.7			
38-273	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	0.3			
38-274	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	0.3			
38-275	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	1.7			
38-276	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	2.4			
38-277	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	4.4			
38-278	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	5			
38-279	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	1.6			
38-280	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	1.7			
38-281	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	0.6			
38-282	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	0.4			
38-283	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	0.6			
38-284	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	Y	1.3			
38-285	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	N	0.2			
38-286	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	N	0.5			
38-287	N5030E4820	Surface	1	6/14/2004	JT	PF	OC	N	0.7			
38-288	N5030E4821	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-289	N5030E4822	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-290	N5030E4823	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-291	N5030E4824	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-292	N5030E4825	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-293	N5030E4826	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-294	N5030E4827	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-295	N5030E4828	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-296	N5030E4829	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-297	N5030E4830	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-298	N5030E4831	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-299	N5030E4832	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-300	N5030E4833	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-301	N5030E4834	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-302	N5030E4835	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-303	N5030E4836	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-304	N5030E4837	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-305	N5030E4838	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-306	N5030E4839	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-307	N5030E4840	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-308	N5030E4841	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-309	N5030E4842	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-310	N5030E4843	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-311	N5030E4844	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-312	N5030E4845	Surface	1	6/14/2004	JT	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-313	N5030E4846	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-314	N5030E4847	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-315	N5030E4848	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-316	N5030E4849	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-317	N5030E4850	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-318	N5030E4851	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-319	N5030E4852	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-320	N5030E4853	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-321	N5030E4854	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-322	N5030E4855	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-323	N5030E4856	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-324	N5030E4857	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-325	N5030E4858	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-326	N5030E4859	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-327	N5030E4860	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-328	N5030E4861	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-329	N5030E4862	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-330	N5030E4863	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-331	N5030E4864	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-332	N5030E4865	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-333	N5030E4866	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-334	N5030E4867	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-335	N5030E4868	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-336	N5030E4869	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-337	N5030E4870	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-338	N5030E4871	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-339	N5030E4872	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-340	N5030E4873	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-341	N5030E4874	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-342	N5030E4875	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-343	N5030E4876	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-344	N5030E4877	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-345	N5030E4878	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-346	N5030E4879	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-347	N5030E4880	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-348	N5030E4881	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-349	N5030E4882	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-350	N5030E4883	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-351	N5030E4884	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-352	N5030E4885	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-353	N5030E4886	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-354	N5030E4887	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-355	N5030E4888	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-356	N5030E4889	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-357	N5030E4890	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-358	N5030E4891	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-359	N5030E4892	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-360	N5030E4893	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-361	N5030E4894	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-362	N5030E4895	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-363	N5030E4896	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-364	N5030E4897	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-365	N5030E4898	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-366	N5030E4899	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-367	N5030E4900	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-368	N5030E4901	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-369	N5030E4902	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-370	N5030E4903	Surface	1	6/14/2004	JT	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-371	N5030E4904	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-372	N5030E4905	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-373	N5030E4906	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-374	N5030E4907	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-375	N5030E4908	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-376	N5030E4909	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-377	N5030E4910	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-378	N5030E4911	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-379	N5030E4912	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-380	N5030E4913	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-381	N5030E4914	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-382	N5030E4915	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-383	N5030E4916	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-384	N5030E4917	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-385	N5030E4918	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-386	N5030E4919	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-387	N5030E4920	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-388	N5030E4921	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-389	N5030E4922	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-390	N5030E4923	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-391	N5030E4924	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-392	N5030E4925	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-393	N5030E4926	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-394	N5030E4927	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-395	N5030E4928	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-396	N5030E4929	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-397	N5030E4930	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-398	N5030E4931	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-399	N5030E4932	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-400	N5030E4933	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-401	N5030E4934	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-402	N5030E4935	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-403	N5030E4936	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-404	N5030E4937	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-405	N5030E4938	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-406	N5030E4939	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-407	N5030E4940	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-408	N5030E4941	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-409	N5030E4942	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-410	N5030E4943	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-411	N5030E4944	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-412	N5030E4945	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-413	N5030E4946	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-414	N5030E4947	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-415	N5030E4948	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-416	N5030E4949	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-417	N5030E4950	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-418	N5030E4951	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-419	N5030E4952	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-420	N5030E4953	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-421	N5030E4954	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-422	N5030E4955	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-423	N5030E4956	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-424	N5030E4957	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-425	N5030E4958	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-426	N5030E4959	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-427	N5030E4960	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-428	N5030E4961	Surface	1	6/14/2004	JT	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-429	N5030E4962	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-430	N5030E4963	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-431	N5030E4964	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-432	N5030E4965	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-433	N5030E4966	Surface	1	6/14/2004	JT	PF	WC	N	0			
38-434	N5030E4967	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-435	N5030E4968	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-436	N5030E4969	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-437	N5030E4970	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-438	N5030E4971	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-439	N5030E4972	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-440	N5030E4973	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-441	N5030E4974	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-442	N5030E4975	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-443	N5030E4976	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-444	N5030E4977	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-445	N5030E4978	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-446	N5030E4979	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-447	N5030E4980	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-448	N5030E4981	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-449	N5030E4982	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-450	N5030E4983	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-451	N5030E4984	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-452	N5030E4985	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-453	N5030E4986	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-454	N5030E4987	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-455	N5030E4988	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-456	N5030E4989	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-457	N5030E4990	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-458	N5030E4991	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-459	N5030E4992	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-460	N5030E4993	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-461	N5030E4994	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-462	N5030E4995	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-463	N5030E4996	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-464	N5030E4997	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-465	N5030E4998	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-466	N5030E4999	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-467	N5030E5000	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-468	N5030E5001	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-469	N5030E5002	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-470	N5030E5003	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-471	N5030E5004	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-472	N5030E5005	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-473	N5030E5006	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-474	N5030E5007	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-475	N5030E5008	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-476	N5030E5009	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-477	N5030E5010	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-478	N5030E5011	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-479	N5030E5012	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-480	N5030E5013	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-481	N5030E5014	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-482	N5030E5015	Surface	1	6/14/2004	JT	PF	WC	Y	0			
38-483	N5030E5016	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-484	N5030E5017	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-485	N5030E5018	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-486	N5030E5019	Surface	1	6/14/2004	JT	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-487	N5030E5020	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-488	N5030E5021	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-489	N5030E5022	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-490	N5030E5023	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-491	N5030E5024	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-492	N5030E5025	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-493	N5030E5026	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-494	N5030E5027	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-495	N5030E5028	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-496	N5030E5029	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-497	N5030E5030	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-498	N5030E5031	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-499	N5030E5032	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-500	N5030E5033	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-501	N5030E5034	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-502	N5030E5035	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-503	N5030E5036	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-504	N5030E5037	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-505	N5030E5038	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-506	N5030E5039	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-507	N5030E5040	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-508	N5030E5041	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-509	N5030E5042	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-510	N5030E5043	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-511	N5030E5044	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-512	N5030E5045	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-513	N5030E5046	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-514	N5030E5047	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-515	N5030E5048	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-516	N5030E5049	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-517	N5030E5050	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-518	N5030E5051	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-519	N5030E5052	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-520	N5030E5053	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-521	N5030E5054	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-522	N5030E5055	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-523	N5030E5056	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-524	N5030E5057	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-525	N5030E5058	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-526	N5030E5059	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-527	N5030E5060	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-528	N5030E5061	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-529	N5030E5062	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-530	N5030E5063	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-531	N5030E5064	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-532	N5030E5065	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-533	N5030E5066	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-534	N5030E5067	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-535	N5030E5068	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-536	N5030E5069	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-537	N5030E5070	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-538	N5030E5071	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-539	N5030E5072	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-540	N5030E5073	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-541	N5030E5074	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-542	N5030E5075	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-543	N5030E5076	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-544	N5030E5077	Surface	1	6/14/2004	JT	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
38-545	N5030E5078	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-546	N5030E5079	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-547	N5030E5080	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-548	N5030E5081	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-549	N5030E5082	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-550	N5030E5083	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-551	N5030E5084	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-552	N5030E5085	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-553	N5030E5086	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-554	N5030E5087	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-555	N5030E5088	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-556	N5030E5089	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-557	N5030E5090	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-558	N5030E5091	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-559	N5030E5092	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-560	N5030E5093	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-561	N5030E5094	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-562	N5030E5095	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-563	N5030E5096	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-564	N5030E5097	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-565	N5030E5098	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-566	N5030E5099	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-567	N5030E5100	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-568	N5030E5101	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-569	N5030E5102	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-570	N5030E5103	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-571	N5030E5104	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-572	N5030E5105	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-573	N5030E5106	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-574	N5030E5107	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-575	N5030E5108	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-576	N5030E5109	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-577	N5030E5110	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-578	N5030E5111	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-579	N5030E5112	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-580	N5030E5113	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-581	N5030E5114	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-582	N5030E5115	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-583	N5030E5116	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-584	N5030E5117	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-585	N5030E5118	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-586	N5030E5119	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-587	N5030E5120	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-588	N5030E5121	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-589	N5030E5122	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-590	N5030E5123	Surface	1	6/14/2004	JT	PF	OC	N	0			
38-591	N5030E4820	Surface	1	6/14/2004	JT	PF	WC	N	0			
39-001	N5020E4820	Surface	1	6/13/2004	JT	FT	WC	Y	24.6			
39-002	N5020E4820	Surface	1	6/13/2004	JT	UB	OC	Y	28.2			
39-003	N5020E4820	Surface	1	6/13/2004	JT	FT	WC	N	2.1			
39-004	N5020E4820	Surface	1	6/13/2004	JT	CT	WC	N	17.6	32.7		
39-005	N5020E4820	Surface	1	6/13/2004	JT	CT	WC	Y	83.2	114		
39-006	N5020E4820	Surface	1	6/13/2004	JT	CT	WC	Y	45.5	63.7		
39-007	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	9.4			
39-008	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-009	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-010	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-011	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
39-012	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-013	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-014	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-015	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-016	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-017	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-018	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-019	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-020	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-021	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-022	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-023	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-024	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-025	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-026	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-027	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-028	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-029	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-030	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-031	N5020E4820	Surface	1	6/13/2004	JT	PF	OB	N	0			
39-032	N5020E4820	Surface	1	6/13/2004	JT	CT	OC	Y	36.9	42		
39-033	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	Y	32			
39-034	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	Y	0			
39-035	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	Y	0			
39-036	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	Y	0			
39-037	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	Y	0			
39-038	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	Y	0			
39-039	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	Y	0			
39-040	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	31.2			
39-041	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-042	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-043	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-044	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-045	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-046	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-047	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-048	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-049	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-050	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-051	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-052	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-053	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-054	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-055	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-056	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-057	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-058	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-059	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-060	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-061	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-062	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-063	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-064	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-065	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-066	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-067	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-068	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-069	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
39-070	N5020E4820	Surface	1	6/13/2004	JT	PF	OC	N	0			
39-071	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	89.7			
39-072	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-073	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-074	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-075	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-076	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-077	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-078	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-079	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-080	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-081	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-082	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-083	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-084	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-085	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-086	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-087	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-088	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-089	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-090	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-091	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-092	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-093	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-094	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-095	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-096	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-097	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-098	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-099	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-100	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-101	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-102	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-103	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-104	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-105	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-106	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-107	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-108	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-109	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-110	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-111	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-112	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-113	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-114	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-115	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-116	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-117	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-118	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-119	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-120	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-121	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-122	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-123	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-124	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-125	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-126	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-127	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
39-128	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-129	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-130	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-131	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-132	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-133	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-134	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-135	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-136	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-137	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-138	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-139	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-140	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-141	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-142	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-143	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-144	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-145	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-146	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-147	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-148	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-149	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-150	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-151	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-152	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-153	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-154	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-155	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-156	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-157	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-158	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-159	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-160	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-161	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-162	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-163	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-164	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-165	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-166	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-167	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-168	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-169	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-170	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-171	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-172	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-173	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-174	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-175	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-176	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-177	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-178	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-179	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-180	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-181	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-182	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-183	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-184	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-185	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
39-186	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-187	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-188	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-189	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-190	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-191	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-192	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-193	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-194	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-195	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-196	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-197	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-198	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-199	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-200	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-201	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	N	0			
39-202	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	93.4			
39-203	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-204	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-205	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-206	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-207	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-208	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-209	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-210	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-211	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-212	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-213	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-214	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-215	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-216	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-217	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-218	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-219	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-220	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-221	N5020E4820	Surface	1	6/13/2004	JT	PF	WC	Y	0			
39-222	N5020E4820	Surface	1	6/13/2004	JT	PF	BA	Y	2.7			
39-223	N5020E4820	Surface	1	6/13/2004	JT	PF	BA	N	0			
39-224	N5020E4820	Surface	1	6/13/2004	JT	PF	AR	N	9.1			
39-225	N5020E4820	Surface	1	6/13/2004	JT	PF	QU	N	1.6			
39-226	N5020E4820	Surface	1	6/13/2004	JT	AS	OB	N	3.8			
39-227	N5020E4820	Surface	1	6/13/2004	JT	FS	OB	N	5.8			
39-228	N5020E4820	Surface	1	6/13/2004	JT	FS	OB	Y	0.7			
39-229	N5020E4820	Surface	1	6/13/2004	JT	FS	WC	N	133.2			
39-230	N5020E4820	Surface	1	6/13/2004	JT	FS	WC	Y	34.4			
39-231	N5020E4820	Surface	1	6/13/2004	JT	AS	WC	N	16			
39-232	N5020E4820	Surface	1	6/13/2004	JT	AS	WC	Y	44.8			
39-233	N5020E4820	Surface	1	6/13/2004	JT	FS	OC	N	27.9			
39-234	N5020E4820	Surface	1	6/13/2004	JT	FS	OC	Y	10.7			
39-235	N5020E4820	Surface	1	6/13/2004	JT	AS	OC	N	1.1			
39-236	N5020E4820	Surface	1	6/13/2004	JT	AS	OC	Y	4.5			
39-237	N5020E4820	Surface	1	6/13/2004	JT	FS	AR	Y	3.5			
39-238	N5020E4820	Surface	1	6/13/2004	JT	FS	QU	Y	11.1			
40-001	N5040 E4830	surface	1	6/14/2004	KH	CT	AR	Y	457.2	159		
40-002	N5040 E4830	surface	1	6/14/2004	KH	PF	OB	N	0.4			
40-003	N5040 E4830	surface	1	6/14/2004	KH	PF	OB	N	0.2			
40-004	N5040 E4830	surface	1	6/14/2004	KH	PF	OB	N	0.1			
40-005	N5040 E4830	surface	1	6/14/2004	KH	FS	OB	N	4.9			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
40-006	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	12.4			
40-007	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	1.4			
40-008	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	3.9			
40-009	N5040 E4830	surface	1	6/14/2004	KH	PF	AR	Y	0.8			
40-010	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	1.9			
40-011	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	1.1			
40-012	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	0.8			
40-013	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.2			
40-014	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	0.4			
40-015	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	0.2			
40-016	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.1			
40-017	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.4			
40-018	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.5			
40-019	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.1			
40-020	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.4			
40-021	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	0.4			
40-022	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.3			
40-023	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.3			
40-024	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.4			
40-025	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0.2			
40-026	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	0.3			
40-027	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	83.7			
40-028	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	Y	0			
40-029	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0			
40-030	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0			
40-031	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0			
40-032	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0			
40-033	N5040 E4830	surface	1	6/14/2004	KH	PF	OC	N	0			
40-034	N5040 E4830	surface	1	6/14/2004	KH	UB	WC	N	1.5			
40-035	N5040 E4830	surface	1	6/14/2004	KH	FT	WC	Y	5			
40-036	N5040 E4830	surface	1	6/14/2004	KH	FT	WC	Y	5.5			
40-037	N5040 E4830	surface	1	6/14/2004	KH	FS	WC	N	4.5			
40-038	N5040 E4830	surface	1	6/14/2004	KH	FT	WC	N	3.6			
40-039	N5040 E4830	surface	1	6/14/2004	KH	FT	WC	Y	2.8			
40-040	N5040 E4830	surface	1	6/14/2004	KH	FT	OC	Y	3.6			
40-041	N5040 E4830	surface	1	6/14/2004	KH	FT	OC	N	0.2			
40-042	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	21.4			
40-043	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-044	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-045	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-046	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-047	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-048	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-049	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-050	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-051	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-052	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-053	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-054	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-055	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-056	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-057	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-058	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-059	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-060	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-061	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-062	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-063	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
40-064	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	34			
40-065	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-066	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-067	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-068	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-069	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-070	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-071	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-072	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-073	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-074	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-075	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-076	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-077	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-078	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-079	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-080	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-081	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-082	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-083	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-084	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-085	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-086	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-087	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-088	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-089	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-090	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-091	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-092	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-093	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-094	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-095	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-096	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-097	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-098	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-099	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-100	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-101	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-102	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-103	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-104	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-105	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-106	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-107	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-108	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-109	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-110	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-111	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-112	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-113	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-114	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-115	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-116	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-117	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-118	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-119	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-120	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-121	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
40-122	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-123	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-124	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-125	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-126	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-127	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-128	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-129	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-130	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-131	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-132	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-133	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-134	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-135	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-136	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-137	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-138	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-139	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-140	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-141	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-142	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-143	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-144	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-145	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-146	N5040 E4830	surface	1	6/14/2004	KH	PF	QU	Y	6.1			
40-147	N5040 E4830	surface	1	6/14/2004	KH	AS	WC	Y	13.6			
40-148	N5040 E4830	surface	1	6/14/2004	KH	FS	WC	Y	66.7			
40-149	N5040 E4830	surface	1	6/14/2004	KH	AS	OC	Y	9.9			
40-150	N5040 E4830	surface	1	6/14/2004	KH	FS	OC	Y	6.3			
40-151	N5040 E4830	surface	1	6/14/2004	KH	FS	OC	N	36.8			
40-152	N5040 E4830	surface	1	6/14/2004	KH	AS	OC	N	12.4			
40-153	N5040 E4830	surface	1	6/14/2004	KH	AS	WC	N	44.4			
40-154	N5040 E4830	surface	1	6/14/2004	KH	FS	WC	N	146.2			
40-155	N5040 E4830	surface	1	6/14/2004	KH	FS	BA	Y	10.2			
40-156	N5040 E4830	surface	1	6/14/2004	KH	FS	QU	Y	4.8			
40-157	N5040 E4830	surface	1	6/14/2004	KH	FS	QU	N	1.7			
40-158	N5040 E4830	surface	1	6/14/2004	KH	PF	AR	Y	6.7			
40-159	N5040 E4830	surface	1	6/14/2004	KH	PF	AR	N	0			
40-160	N5040 E4830	surface	1	6/14/2004	KH	PF	AR	N	0			
40-161	N5040 E4830	surface	1	6/14/2004	KH	PF	AR	N	0			
40-162	N5040 E4830	surface	1	6/14/2004	KH	PF	AR	N	0			
40-163	N5040 E4830	surface	1	6/14/2004	KH	AS	AR	Y	2.4			
40-164	N5040 E4830	surface	1	6/14/2004	KH	AS	AR	N	1.7			
40-165	N5040 E4830	surface	1	6/14/2004	KH	FS	AR	Y	2.6			
40-166	N5040 E4830	surface	1	6/14/2004	KH	FS	AR	N	3.3			
40-167	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	5.8			
40-168	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	Y	0			
40-169	N5040 E4830	surface	1	6/14/2004	KH	PF	WC	N	0			
40-170	N5040 E4830	surface	1	6/14/2004	KH	BN			0.1			
40-171	N5040 E4830	surface	1	6/14/2004	KH	AS	OB	N	3			
40-172	N5040 E4830	surface	1	6/14/2004	KH	PF	OB	N	0.1			
40-173	N5040 E4830	surface	1	6/14/2004	KH	PF	OB	N	0.1			
41-001	N5030E4830	Surface	1	6/14/2004	JK	FT	OC	Y	7.1			
41-002	N5030E4830	Surface	1	6/14/2004	JK	UB	OC	Y	10.1			
41-003	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0.8			
41-004	N5030E4830	Surface	1	6/14/2004	JK	UB	WC	Y	27.5			
41-005	N5030E4830	Surface	1	6/14/2004	JK	UB	OC	N	1.1			
41-006	N5030E4830	Surface	1	6/14/2004	JK	FT	OC	Y	30.1			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
41-007	N5030E4830	Surface	1	6/14/2004	JK	FT	WC	N	32.1			
41-008	N5030E4830	Surface	1	6/14/2004	JK	UB	WC	N	1.6			
41-009	N5030E4830	Surface	1	6/14/2004	JK	FT	WC	N	9.4			
41-010	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	1.3			
41-011	N5030E4830	Surface	1	6/14/2004	JK	CT	WC	Y	48.1	48.8		
41-012	N5030E4830	Surface	1	6/14/2004	JK	CT	WC	Y	38.5	54.9		
41-013	N5030E4830	Surface	1	6/14/2004	JK	CT	WC	Y	56.6	56.1		
41-014	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	45.5			
41-015	N5030E4830	Surface	1	6/14/2004	JK	AS	WC	N	24.6			
41-016	N5030E4830	Surface	1	6/14/2004	JK	FS	WC	N	16.9			
41-017	N5030E4830	Surface	1	6/14/2004	JK	AS	WC	N	12.7			
41-018	N5030E4830	Surface	1	6/14/2004	JK	AS	WC	N	8.9			
41-019	N5030E4830	Surface	1	6/14/2004	JK	AS	WC	N	4.8			
41-020	N5030E4830	Surface	1	6/14/2004	JK	AS	WC	N	5.6			
41-021	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	14.9			
41-022	N5030E4830	Surface	1	6/14/2004	JK	AS	WC	N	4.9			
41-023	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	1.4			
41-024	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0.2			
41-025	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	7.3			
41-026	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-027	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-028	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-029	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-030	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-031	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-032	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-033	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-034	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-035	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-036	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-037	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-038	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-039	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-041	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-042	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-043	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-044	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-045	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-046	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-047	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-048	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-049	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-050	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-051	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-052	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-053	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-054	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-055	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-056	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-057	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-058	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-059	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-060	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-061	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
41-062	N5030E4830	Surface	1	6/14/2004	JK	PF	QU	N	0.9			
41-063	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	49.6			
41-064	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-065	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
41-066	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-067	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-068	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-069	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-070	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-071	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-072	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-073	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-074	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-075	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-076	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-077	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-078	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-079	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-080	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-081	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-082	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-083	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-084	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-085	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	112.8			
41-086	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-087	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-088	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-089	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-090	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-091	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-092	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-093	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-094	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-095	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-096	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-097	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-098	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-099	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-100	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-101	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-102	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-103	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-104	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-105	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-106	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-107	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-108	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-109	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-110	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-111	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-112	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-113	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-114	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-115	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-116	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-117	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-118	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-119	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-120	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-121	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-122	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-123	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
41-124	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-125	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-126	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-127	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-128	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-129	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-130	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-131	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-132	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-133	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-134	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-135	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-136	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-137	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-138	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-139	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-140	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-141	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-142	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-143	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-144	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-145	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-146	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-147	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-148	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-149	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-150	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-151	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-152	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-153	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-154	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-155	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-156	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-157	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-158	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-159	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-160	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-161	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-162	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-163	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-164	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-165	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-166	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-167	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-168	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-169	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-170	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-171	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-172	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-173	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-174	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-175	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-176	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-177	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-178	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-179	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-180	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-181	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
41-182	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-183	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-184	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-185	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-186	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-187	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-188	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-189	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-190	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-191	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-192	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-193	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-194	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-195	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-196	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-197	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-198	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-199	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-200	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-201	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-202	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-203	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-204	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-205	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-206	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-207	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-208	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-209	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-210	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-211	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-212	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-213	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-214	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	Y	0			
41-215	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	76.5			
41-216	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-217	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-218	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-219	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-220	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-221	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-222	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-223	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-224	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-225	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-226	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-227	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-228	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-229	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-230	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-231	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-232	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-233	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-234	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	151.1			
41-235	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-236	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-237	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-238	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-239	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
41-240	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-241	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-242	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-243	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-244	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-245	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-246	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-247	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-248	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-249	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-250	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-251	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-252	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-253	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-254	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-255	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-256	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-257	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-258	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-259	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-260	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-261	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-262	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-263	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-264	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-265	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-266	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-267	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-268	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-269	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-270	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-271	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-272	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-273	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-274	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-275	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-276	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-277	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-278	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-279	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-280	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-281	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-282	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-283	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-284	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-285	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-286	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-287	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-288	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-289	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-290	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-291	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-292	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-293	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-294	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-295	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-296	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-297	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
41-298	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-299	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-300	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-301	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-302	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-303	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-304	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-305	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-306	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-307	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-308	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-309	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-310	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-311	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-312	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-313	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-314	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-315	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-316	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-317	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-318	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-319	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-320	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-321	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-322	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-323	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-324	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-325	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-326	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-327	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-328	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-329	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-330	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-331	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-332	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-333	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-334	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-335	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-336	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-337	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-338	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-339	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-340	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-341	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-342	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-343	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-344	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-345	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-346	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-347	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-348	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-349	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-350	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-351	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-352	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-353	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-354	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-355	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
41-356	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-357	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-358	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-359	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-360	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-361	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-362	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-363	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-364	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-365	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-366	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-367	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-368	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-369	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-370	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-371	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-372	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-373	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-374	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-375	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-376	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-377	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-378	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-379	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-380	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-381	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-382	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-383	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-384	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-385	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-386	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-387	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-388	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-389	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-390	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-391	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-392	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-393	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-394	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-395	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-396	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-397	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-398	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-399	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-400	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-401	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-402	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-403	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-404	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-405	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-406	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-407	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-408	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-409	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-410	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-411	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-412	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-413	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
41-414	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-415	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-416	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-417	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-418	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-419	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-420	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-421	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-422	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-423	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-424	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-425	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-426	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-427	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-428	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-429	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-430	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-431	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-432	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	Y	0			
41-433	N5030E4830	Surface	1	6/14/2004	JK	PF	WC	N	0			
41-434	N5030E4830	Surface	1	6/14/2004	JK	FS	WC	N	340.7			
41-435	N5030E4830	Surface	1	6/14/2004	JK	FS	WC	Y	148.4			
41-436	N5030E4830	Surface	1	6/14/2004	JK	AS	WC	N	44.1			
41-437	N5030E4830	Surface	1	6/14/2004	JK	AS	WC	Y	81.9			
41-438	N5030E4830	Surface	1	6/14/2004	JK	FS	OC	N	130.2			
41-439	N5030E4830	Surface	1	6/14/2004	JK	FS	OC	Y	91.8			
41-440	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-441	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-442	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-443	N5030E4830	Surface	1	6/14/2004	JK	PF	OC	N	0			
41-444	N5030E4830	Surface	1	6/14/2004	JK	FS	AR	Y	38.6			
41-445	N5030E4830	Surface	1	6/14/2004	JK	AS	AR	Y	2.7			
41-446	N5030E4830	Surface	1	6/14/2004	JK	PF	AR	Y	8.3			
41-447	N5030E4830	Surface	1	6/14/2004	JK	PF	AR	Y	0			
41-448	N5030E4830	Surface	1	6/14/2004	JK	FS	QU	Y	6.4			
41-449	N5030E4830	Surface	1	6/14/2004	JK	FS	OB	Y	0.1			
41-450	N5030E4830	Surface	1	6/14/2004	JK	FT	OC	Y	8.6			
41-451	N5030E4830	Surface	1	6/14/2004	JK	FT	OC	Y	9.8			
41-452	N5030E4830	Surface	1	6/14/2004	JK	BN			2.6			
41-453	N5030E4830	Surface	1	6/15/2004	JK	CT	WC	Y	736.8	153		
41-454	N5030 E4830	Surface	1	6/14/2004	KH	CT	WC	Y	5.3	31.6		
41-454	N5030 E4830	Surface	1	6/14/2004	KH	CT	WC	Y	61	61.1		
41-455	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	5.2			
41-456	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	0			
41-457	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	0			
41-458	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	0			
41-459	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	0			
41-460	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	0			
41-461	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	0			
41-462	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	0			
41-463	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	0			
41-464	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	N	0			
41-465	N5030 E4830	Surface	1	6/14/2004	KH	PF	WC	Y	0			
41-466	N5030 E4830	Surface	1	6/14/2004	KH	PF	OC	N	0			
41-467	N5030 E4830	Surface	1	6/14/2004	KH	PF	OC	N	2.1			
41-468	N5030 E4830	Surface	1	6/14/2004	KH	PF	OC	N	0			
41-469	N5030 E4830	Surface	1	6/14/2004	KH	PF	OC	N	0			
41-470	N5030 E4830	Surface	1	6/14/2004	KH	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
41-471	N5030 E4830	Surface	1	6/14/2004	KH	PF	OC	N	0			
41-472	N5030 E4830	Surface	1	6/14/2004	KH	PF	OC	N	0			
41-473	N5030 E4830	Surface	1	6/14/2004	KH	PF	OC	N	0			
41-474	N5030 E4830	Surface	1	6/14/2004	KH	PF	OC	N	0			
41-475	N5030 E4830	Surface	1	6/14/2004	KH	FS	AR	Y	2.1			
41-476	N5030 E4830	Surface	1	6/14/2004	KH	FS	WC	N	22.9			
41-477	N5030 E4830	Surface	1	6/14/2004	KH	FS	WC	Y	1.7			
41-478	N5030 E4830	Surface	1	6/14/2004	KH	FS	OC	N	8.6			
41-479	N5030 E4830	Surface	1	6/14/2004	KH	FS	OC	Y	3.8			
41-480	N5030 E4830	Surface	1	6/14/2004	KH	AS	WC	N	4.9			
41-481	N5030 E4830	Surface	1	6/14/2004	KH	AS	WC	Y	4.9			
41-482	N5030 E4830	Surface	1	6/14/2004	KH	AS	OC	N	1.3			
41-483	N5030 E4830	Surface	1	6/14/2004	KH	AS	OC	Y	9.9			
41-484	N5030 E4830	Surface	1	6/14/2004	KH	PF	OB	N	1.2			
41-485	N5030 E4830	Surface	1	6/14/2004	KH	PF	OB	N	0			
41-486	N5030 E4830	Surface	1	6/14/2004	KH	FS	OB	N	13.1			
41-487	N5030 E4830	Surface	1	6/14/2004	KH	AS	OB	N	0.1			
41-488	N5030 E4830	Surface	1	6/14/2004	KH	BN			0.1			
41-490	N5030E4830	Surface	1	6/14/2004	JK	PF	OB	N	0			
42-001	N5020 E4830	Surface	1	6/14/2004	TW	HB	OC	N	1.3	11.2	36.8	5.3
42-002	N5020 E4830	Surface	1	6/14/2004	TW	UB	WC	Y	7.7			
42-003	N5020 E4830	Surface	1	6/14/2004	TW	FT	WC	N	5.7			
42-004	N5020 E4830	Surface	1	6/14/2004	TW	CT	OC	Y	139.3	71.4		
42-005	N5020 E4830	Surface	1	6/14/2004	TW	CT	OC	N	4.8	26.9		
42-006	N5020 E4830	Surface	1	6/14/2004	TW	CT	WC	Y	36.4	55		
42-007	N5020 E4830	Surface	1	6/14/2004	TW	CT	WC	Y	47.4	47.8		
42-008	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	Y	13.6			
42-009	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	Y	0			
42-010	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	Y	0			
42-011	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	Y	0			
42-012	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	Y	0			
42-013	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	Y	0			
42-014	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	25.8			
42-015	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-016	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-017	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-018	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-019	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-020	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-021	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-022	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-023	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-024	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-025	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-026	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-027	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-028	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-029	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-030	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-031	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-032	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-033	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-034	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-035	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-036	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-037	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-038	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-039	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
42-040	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-041	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-042	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-043	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-044	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	14.7			
42-045	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-046	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-047	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-048	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-049	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-050	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-051	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-052	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-053	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-054	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-055	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-056	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-057	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-058	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	0			
42-059	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	N	9.9			
42-060	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	Y	0			
42-061	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	Y	0			
42-062	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	Y	0			
42-063	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	Y	0			
42-064	N5020 E4830	Surface	1	6/14/2004	TW	FS	WC	N	59.9			
42-065	N5020 E4830	Surface	1	6/14/2004	TW	FS	WC	Y	20.4			
42-066	N5020 E4830	Surface	1	6/14/2004	TW	AS	WC	N	22			
42-067	N5020 E4830	Surface	1	6/14/2004	TW	AS	WC	Y	21			
42-068	N5020 E4830	Surface	1	6/14/2004	TW	FS	OC	N	31.3			
42-069	N5020 E4830	Surface	1	6/14/2004	TW	FS	OC	Y	14.3			
42-070	N5020 E4830	Surface	1	6/14/2004	TW	AS	OC	N	1.8			
42-071	N5020 E4830	Surface	1	6/14/2004	TW	AS	OC	Y	9.7			
42-072	N5020 E4830	Surface	1	6/14/2004	TW	PF	OC	N	0			
42-073	N5020 E4830	Surface	1	6/14/2004	TW	PF	WC	Y	0			
42-074	N5020 E4830	Surface	1	6/14/2004	TW	CT	OC	Y	24.8	53.9		
42-075	N5020 E4830	Surface	1	6/14/2004	TW	PF	AR	Y	14.2			
42-076	N5020 E4830	Surface	1	6/14/2004	TW	FS	OC	N	0.9			
42-077	N5020 E4830	Surface	1	6/14/2004	TW	PF	OB	N	0.3			
42-078	N5020 E4830	Surface	1	6/14/2004	TW	PF	OB	N	0.2			
42-079	N5020 E4830	Surface	1	6/14/2004	TW	FS	OB	N	1			
42-080	N5020 E4830	Surface	1	6/14/2004	TW	AS	OB	Y	0.9			
42-081	N5020 E4830	Surface	1	6/14/2004	TW	BN			0.8			
43-001	N5010 E4830	Surface	1	6/14/2004	JK	PF	OC	N	1.1			
43-002	N5010 E4830	Surface	1	6/14/2004	JK	FS	OC	N	2.2			
43-003	N5010 E4830	Surface	1	6/14/2004	JK	AS	WC	N	0.1			
43-004	N5010 E4830	Surface	1	6/14/2004	JK	FS	WC	N	1.4			
43-005	N5010 E4830	Surface	1	6/14/2004	JK	FS	OC	N	0.1			
43-006	N5010 E4830	Surface	1	6/14/2004	JK	FS	WC	Y	0.3			
43-007	N5010 E4830	Surface	1	6/14/2004	JK	SH			0.3			
44-001	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0.1			
44-002	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OB	N	0.3			
44-003	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OB	N	0			
44-004	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OB	N	0			
44-005	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OB	N	0			
44-006	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OB	N	0			
44-007	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OB	N	0.2			
44-008	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	Y	2.6			
44-009	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	Y	1.4			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
44-010	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	7.1			
44-011	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-012	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-013	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-014	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-015	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-016	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-017	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-018	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-019	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-020	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-021	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-022	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-023	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-024	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0			
44-025	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	N	0.6			
44-026	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	Y	14.7			
44-027	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	1.3			
44-028	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-029	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-030	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-031	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-032	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-033	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-034	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-035	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	7.2			
44-036	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-037	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-038	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-039	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-040	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-041	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-042	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-043	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-044	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-045	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-046	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-047	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-048	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-049	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-050	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-051	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-052	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-053	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-054	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-055	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	WC	N	0			
44-056	N5030 E4840	Surface	1	6/14/2004	JT/TW	FS	WC	N	36.6			
44-057	N5030 E4840	Surface	1	6/14/2004	JT/TW	FS	WC	Y	8.8			
44-058	N5030 E4840	Surface	1	6/14/2004	JT/TW	AS	WC	Y	64.6			
44-059	N5030 E4840	Surface	1	6/14/2004	JT/TW	AS	WC	N	30			
44-060	N5030 E4840	Surface	1	6/14/2004	JT/TW	FS	OC	Y	4.9			
44-061	N5030 E4840	Surface	1	6/14/2004	JT/TW	FS	OC	N	18.7			
44-062	N5030 E4840	Surface	1	6/14/2004	JT/TW	AS	OC	Y	5.1			
44-063	N5030 E4840	Surface	1	6/14/2004	JT/TW	AS	OC	N	2.7			
44-064	N5030 E4840	Surface	1	6/14/2004	JT/TW	FS	AR	Y	0.6			
44-065	N5030 E4840	Surface	1	6/14/2004	JT/TW	PF	OC	Y	0			
44-066	N5030 E4840	Surface	1	6/14/2004	JT/TW	FS	OB	N	1			
44-067	N5030 E4840	Surface	1	6/14/2004	JT/TW	BN			0.1			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
45-001	N5020 E4840	Surface	1	6/13/2004	TW	CT	WC	N	62.1	71.1		
45-002	N5020 E4840	Surface	1	6/13/2004	TW	AS	WC	Y	6.2			
45-003	N5020 E4840	Surface	1	6/13/2004	TW	AS	WC	Y	5.1			
45-004	N5020 E4840	Surface	1	6/13/2004	TW	FT	WC	Y	8			
45-005	N5020 E4840	Surface	1	6/13/2004	TW	FT	WC	Y	5.3			
45-006	N5020 E4840	Surface	1	6/13/2004	TW	PF	OB	N	1.9			
45-007	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0.5			
45-008	N5020 E4840	Surface	1	6/13/2004	TW	PF	OC	N	3.6			
45-009	N5020 E4840	Surface	1	6/13/2004	TW	PF	OC	N	0.1			
45-010	N5020 E4840	Surface	1	6/13/2004	TW	PF	OC	N	0			
45-011	N5020 E4840	Surface	1	6/13/2004	TW	PF	OC	Y	3.9			
45-012	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	Y	4.8			
45-013	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	8.2			
45-014	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-015	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-016	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-017	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-018	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-019	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-020	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-021	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-022	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-023	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-024	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-025	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-026	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-027	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-028	N5020 E4840	Surface	1	6/13/2004	TW	PF	WC	N	0			
45-029	N5020 E4840	Surface	1	6/13/2004	TW	FS	OB	N	0.1			
45-030	N5020 E4840	Surface	1	6/13/2004	TW	FS	WC	N	30.7			
45-031	N5020 E4840	Surface	1	6/13/2004	TW	FS	WC	Y	14.2			
45-032	N5020 E4840	Surface	1	6/13/2004	TW	FS	OC	N	10.5			
45-033	N5020 E4840	Surface	1	6/13/2004	TW	FS	OC	Y	2.9			
45-034	N5020 E4840	Surface	1	6/13/2004	TW	AS	OC	Y	4.1			
45-035	N5020 E4840	Surface	1	6/13/2004	TW	BN			0.3			
45-036	N5020 E4840	Surface	1	6/13/2004	TW	SH			1.3			
45-037	N5020 E4841	Surface	1	6/13/2004	TW	AS	WC	N	4.9			
45-038	N5020 E4842	Surface	1	6/13/2004	TW	AS	WC	Y	10			
45-039	N5020 E4842	Surface	1	6/13/2004	TW	PF	OC	Y	0			
46-001	N5010 E4840	Surface	1	6/14/2004	JK/TW	CT	WC	N	18.6	31.9		
46-002	N5010 E4840	Surface	1	6/14/2004	JK/TW	PF	WC	N	6.6			
46-003	N5010 E4840	Surface	1	6/14/2004	JK/TW	PF	WC	N	0			
46-004	N5010 E4840	Surface	1	6/14/2004	JK/TW	PF	WC	N	0			
46-005	N5010 E4840	Surface	1	6/14/2004	JK/TW	PF	WC	N	0			
46-006	N5010 E4840	Surface	1	6/14/2004	JK/TW	PF	WC	N	3.8			
46-007	N5010 E4840	Surface	1	6/14/2004	JK/TW	PF	OC	N	0			
46-008	N5010 E4840	Surface	1	6/14/2004	JK/TW	PF	OC	N	0			
46-009	N5010 E4840	Surface	1	6/14/2004	JK/TW	PF	OC	Y	5.4			
46-010	N5010 E4840	Surface	1	6/14/2004	JK/TW	FS	OB	N	0.5			
46-011	N5010 E4840	Surface	1	6/14/2004	JK/TW	FS	WC	N	11			
46-012	N5010 E4840	Surface	1	6/14/2004	JK/TW	FS	WC	Y	2.4			
46-013	N5010 E4840	Surface	1	6/14/2004	JK/TW	FS	OC	N	0.1			
46-014	N5010 E4840	Surface	1	6/14/2004	JK/TW	FS	OC	Y	0.9			
46-015	N5010 E4840	Surface	1	6/14/2004	JK/TW	AS	WC	N	4			
46-016	N5010 E4840	Surface	1	6/14/2004	JK/TW	AS	WC	Y	3.3			
46-017	N5010 E4840	Surface	1	6/14/2004	JK/TW	AS	OC	N	6.5			
46-018	N5010 E4840	Surface	1	6/14/2004	JK/TW	AS	OC	Y	2.8			
46-019	N5010 E4840	Surface	1	6/14/2004	JK/TW	UR		Y	20.2			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
47-001	N5030 E4850	Surface	1	6/13/2004	TW	FT	OC	Y	1.6			
47-002	N5030 E4850	Surface	1	6/13/2004	TW	FT	OC	N	4.7			
47-003	N5030 E4850	Surface	1	6/13/2004	TW	PF	OC	N	0.8			
47-004	N5030 E4850	Surface	1	6/13/2004	TW	PF	WC	Y	3.8			
47-005	N5030 E4850	Surface	1	6/13/2004	TW	PF	WC	Y	0			
47-006	N5030 E4850	Surface	1	6/13/2004	TW	PF	WC	Y	0			
47-007	N5030 E4850	Surface	1	6/13/2004	TW	PF	WC	N	1.9			
47-008	N5030 E4850	Surface	1	6/13/2004	TW	PF	WC	N	0			
47-009	N5030 E4850	Surface	1	6/13/2004	TW	PF	WC	N	0			
47-010	N5030 E4850	Surface	1	6/13/2004	TW	PF	WC	N	0			
47-011	N5030 E4850	Surface	1	6/13/2004	TW	FS	OB	N	0.1			
47-012	N5030 E4850	Surface	1	6/13/2004	TW	AS	WC	N	10.1			
47-013	N5030 E4850	Surface	1	6/13/2004	TW	AS	WC	Y	4.7			
47-014	N5030 E4850	Surface	1	6/13/2004	TW	FS	WC	N	8.3			
47-015	N5030 E4850	Surface	1	6/13/2004	TW	FS	WC	Y	6.8			
47-016	N5030 E4850	Surface	1	6/13/2004	TW	FS	OC	N	5.6			
47-017	N5030 E4850	Surface	1	6/13/2004	TW	FS	OC	Y	3.2			
47-018	N5030 E4850	Surface	1	6/13/2004	TW	FS	OC	Y	1			
47-019	N5030 E4850	Surface	1	6/13/2004	TW	BN			0.1			
48-001	N5020E4850	Surface	1	6/14/2004	LC	CT	WC	Y	643.9	93.6		
48-002	N5020E4850	Surface	1	6/14/2004	LC	CT	WC	Y	291.3	93.6		
48-003	N5020E4850	Surface	1	6/14/2004	LC	CT	WC	Y	323	98		
48-004	N5020E4850	Surface	1	6/14/2004	LC	CT	WC	Y	640.9	113		
48-005	N5020E4850	Surface	1	6/14/2004	LC	CT	WC	Y	756.4	135		
48-006	N5020E4850	Surface	1	6/14/2004	LC	CT	OC	Y	132.1	84.2		
48-007	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	7.3			
48-008	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-009	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-010	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-011	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-012	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-013	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	N	0.3			
48-014	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	N	0			
48-015	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	15.5			
48-016	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-017	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-018	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-019	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-020	N5020E4850	Surface	1	6/14/2004	LC	PF	WC	Y	0			
48-021	N5020E4850	Surface	1	6/14/2004	LC	PF	OC	N	2.9			
48-022	N5020E4850	Surface	1	6/14/2004	LC	PF	OC	N	0			
48-023	N5020E4850	Surface	1	6/14/2004	LC	PF	OC	N	0			
48-024	N5020E4850	Surface	1	6/14/2004	LC	PF	OC	N	0			
48-025	N5020E4850	Surface	1	6/14/2004	LC	PF	OC	N	0			
48-026	N5020E4850	Surface	1	6/14/2004	LC	FS	WC	Y	10.6			
48-027	N5020E4850	Surface	1	6/14/2004	LC	FS	WC	N	18.3			
48-028	N5020E4850	Surface	1	6/14/2004	LC	AS	WC	N	23.8			
48-029	N5020E4850	Surface	1	6/14/2004	LC	AS	WC	Y	18.1			
48-030	N5020E4850	Surface	1	6/14/2004	LC	FS	OC	N	1.5			
48-031	N5020E4850	Surface	1	6/14/2004	LC	FS	OC	Y	1.5			
48-032	N5020E4850	Surface	1	6/14/2004	LC	AS	OB	Y	0.1			
49-001	N5010E4920	Surface	1	6/13/2004	LC	FT	OC	Y	28.5			
49-002	N5010E4920	Surface	1	6/13/2004	LC	FS	WC	N	0.2			
49-003	N5010E4920	Surface	1	6/13/2004	LC	CT	WC	Y	241.8	140		
49-004	N5010E4920	Surface	1	6/13/2004	LC	CT	WC	Y	172.9	84.4		
49-005	N5010E4920	Surface	1	6/13/2004	LC	CT	OC	Y	93.1	73.7		
49-006	N5010E4920	Surface	1	6/13/2004	LC	PF	OB	Y	0.3			
49-007	N5010E4920	Surface	1	6/13/2004	LC	PF	OB	Y	0.1			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
49-008	N5010E4920	Surface	1	6/13/2004	LC	FS	OB	Y				
49-009	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	N	24.2			
49-010	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	N	0			
49-011	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	N	0			
49-012	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	N	0			
49-013	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	N	0			
49-014	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	N	0			
49-015	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	N	0			
49-016	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	N	0			
49-017	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	Y	11.8			
49-018	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	Y	0			
49-019	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	Y	0			
49-020	N5010E4920	Surface	1	6/13/2004	LC	PF	OC	Y	0			
49-021	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	Y	2.9			
49-022	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	Y	0			
49-023	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	Y	0			
49-024	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	Y	0			
49-025	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	Y	0			
49-026	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	Y	0			
49-027	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	Y	0			
49-028	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	Y	0			
49-029	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	Y	0			
49-030	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	38.3			
49-031	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-032	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-033	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-034	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-035	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-036	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-037	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-038	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-039	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-040	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-041	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-042	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-043	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-044	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-045	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-046	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-047	N5010E4920	Surface	1	6/13/2004	LC	PF	WC	N	0			
49-048	N5010E4920	Surface	1	6/13/2004	LC	PF	AR	N	17.1			
49-049	N5010E4920	Surface	1	6/13/2004	LC	FS	WC	N	29.7			
49-050	N5010E4920	Surface	1	6/13/2004	LC	FS	WC	Y	46.2			
49-051	N5010E4920	Surface	1	6/13/2004	LC	AS	WC	N	18			
49-052	N5010E4920	Surface	1	6/13/2004	LC	AS	WC	Y	22.5			
49-053	N5010E4920	Surface	1	6/13/2004	LC	FS	OC	N	47			
49-054	N5010E4920	Surface	1	6/13/2004	LC	FS	OC	Y	18.1			
49-055	N5010E4920	Surface	1	6/13/2004	LC	AS	OC	N	5.5			
49-056	N5010E4920	Surface	1	6/13/2004	LC	AS	OC	Y	31.6			
49-057	N5010E4920	Surface	1	6/13/2004	LC	FS	AR	N	17.2			
49-058	N5010E4920	Surface	1	6/13/2004	LC	FS	AR	Y	68.3			
49-059	N5010E4920	Surface	1	6/13/2004	LC	AS	AR	Y	59.1			
50-001	N5010E4940	Surface	1	6/14/2004	LC	FT	AR	N	10.8			
50-002	N5010E4940	Surface	1	6/14/2004	LC	FT	WC	N	5.7			
50-003	N5010E4940	Surface	1	6/14/2004	LC	CT	WC	Y	7.3	20.4		
50-004	N5010E4940	Surface	1	6/14/2004	LC	CT	WC	Y	14.1	25.8		
50-005	N5010E4940	Surface	1	6/14/2004	LC	CT	WC	Y	35.9	45.9		
50-006	N5010E4940	Surface	1	6/14/2004	LC	CT	WC	N	14.2	20.5		

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
50-007	N5010E4940	Surface	1	6/14/2004	LC	CT	WC	N	3.8	18.5		
50-008	N5010E4940	Surface	1	6/14/2004	LC	CT	WC	N	36.2	66.6		
50-009	N5010E4940	Surface	1	6/14/2004	LC	CT	OC	Y	431.2	102		
50-010	N5010E4940	Surface	1	6/14/2004	LC	CT	OC	Y	9.8	34		
50-011	N5010E4940	Surface	1	6/14/2004	LC	CT	OC	Y	72.8	59.1		
50-012	N5010E4940	Surface	1	6/14/2004	LC	CT	OC	Y	99.7	94.2		
50-013	N5010E4940	Surface	1	6/14/2004	LC	CT	OC	Y	11.9	25.5		
50-014	N5010E4940	Surface	1	6/14/2004	LC	CT	OC	Y	77.2	60.9		
50-015	N5010E4940	Surface	1	6/14/2004	LC	CT	OC	Y	10.1	36		
50-016	N5010E4940	Surface	1	6/14/2004	LC	PF	OB	N	34.4	67.8		
50-017	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	Y	21.6			
50-018	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	Y	0			
50-019	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	Y	0			
50-020	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	Y	0			
50-021	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	N	7.4			
50-022	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	N	0			
50-023	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	N	0			
50-024	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	N	0			
50-025	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	N	0			
50-026	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	N	0			
50-027	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	N	0			
50-028	N5010E4940	Surface	1	6/14/2004	LC	PF	WC	N	0			
50-029	N5010E4940	Surface	1	6/14/2004	LC	PF	OC	Y	85.6			
50-030	N5010E4940	Surface	1	6/14/2004	LC	PF	OC	Y	0			
50-031	N5010E4940	Surface	1	6/14/2004	LC	PF	OC	Y	0			
50-032	N5010E4940	Surface	1	6/14/2004	LC	PF	OC	N	2.7			
50-033	N5010E4940	Surface	1	6/14/2004	LC	PF	OC	N	0			
50-034	N5010E4940	Surface	1	6/14/2004	LC	PF	OC	N	0			
50-035	N5010E4940	Surface	1	6/14/2004	LC	PF	AR	N	11.9			
50-036	N5010E4940	Surface	1	6/14/2004	LC	PF	AR	N	0			
50-037	N5010E4940	Surface	1	6/14/2004	LC	FS	WC	N	2.2			
50-038	N5010E4940	Surface	1	6/14/2004	LC	FS	WC	Y	15.9			
50-039	N5010E4940	Surface	1	6/14/2004	LC	AS	WC	N	6.2			
50-040	N5010E4940	Surface	1	6/14/2004	LC	AS	WC	Y	59.2			
50-041	N5010E4940	Surface	1	6/14/2004	LC	FS	OC	N	5.5			
50-042	N5010E4940	Surface	1	6/14/2004	LC	FS	OC	Y	2.4			
50-043	N5010E4940	Surface	1	6/14/2004	LC	AS	OC	N	6.2			
50-044	N5010E4940	Surface	1	6/14/2004	LC	AS	OC	Y	106			
50-045	N5010E4940	Surface	1	6/14/2004	LC	CT	OC	Y	21.4	44.3		
50-046	N5010E4940	Surface	1	6/14/2004	LC	UR	BA	Y				
51-001	N5000E4970	Surface	1	6/14/2004	LC	UB	OC	N	6.1			
51-002	N5000E4970	Surface	1	6/14/2004	LC	CT	WC	Y	28.5	41.1		
51-003	N5000E4970	Surface	1	6/14/2004	LC	CT	WC	N	46.9	88.5		
51-004	N5000E4970	Surface	1	6/14/2004	LC	CT	WC	N	43.3	79.5		
51-005	N5000E4970	Surface	1	6/14/2004	LC	CT	AR	Y	27.8	58.6		
51-006	N5000E4970	Surface	1	6/14/2004	LC	CT	AR	Y	60.9	70.7		
51-007	N5000E4970	Surface	1	6/14/2004	LC	CT	AR	Y	444.2	121		
51-008	N5000E4970	Surface	1	6/14/2004	LC	CT	OC	Y	104.5	77.1		
51-009	N5000E4970	Surface	1	6/14/2004	LC	CT	OC	Y	23.4	54		
51-010	N5000E4970	Surface	1	6/14/2004	LC	CT	OC	Y	36	47.5		
51-011	N5000E4970	Surface	1	6/14/2004	LC	CT	OC	Y	19.1	38.3		
51-012	N5000E4970	Surface	1	6/14/2004	LC	CT	OC	Y	228	78.6		
51-013	N5000E4970	Surface	1	6/14/2004	LC	GS	BA		47.8			
51-014	N5000E4970	Surface	1	6/14/2004	LC	GS	BA		30.6			
51-015	N5000E4970	Surface	1	6/14/2004	LC	GS	BA		99.2			
51-016	N5000E4970	Surface	1	6/14/2004	LC	FS	OB	N	0.1			
51-017	N5000E4970	Surface	1	6/14/2004	LC	PF	WC	N	16.7			
51-018	N5000E4970	Surface	1	6/14/2004	LC	PF	WC	N	0			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
51-019	N5000E4970	Surface	1	6/14/2004	LC	PF	OC	N	5.7			
51-020	N5000E4970	Surface	1	6/14/2004	LC	PF	OC	N	0			
51-021	N5000E4970	Surface	1	6/14/2004	LC	PF	OC	N	0			
51-022	N5000E4970	Surface	1	6/14/2004	LC	PF	OC	N	0			
51-023	N5000E4970	Surface	1	6/14/2004	LC	PF	OC	N	0			
51-024	N5000E4970	Surface	1	6/14/2004	LC	PF	OC	Y	64.8			
51-025	N5000E4970	Surface	1	6/14/2004	LC	PF	OC	Y	0			
51-026	N5000E4970	Surface	1	6/14/2004	LC	PF	OC	Y	0			
51-027	N5000E4970	Surface	1	6/14/2004	LC	PF	AR	Y	53.4			
51-028	N5000E4970	Surface	1	6/14/2004	LC	PF	AR	Y	0			
51-029	N5000E4970	Surface	1	6/14/2004	LC	PF	AR	Y	0			
51-030	N5000E4970	Surface	1	6/14/2004	LC	PF	AR	Y	0			
51-031	N5000E4970	Surface	1	6/14/2004	LC	FS	WC	N	3.6			
51-032	N5000E4970	Surface	1	6/14/2004	LC	FS	WC	Y	15.9			
51-033	N5000E4970	Surface	1	6/14/2004	LC	AS	WC	N	11.2			
51-034	N5000E4970	Surface	1	6/14/2004	LC	FS	OC	N	78.9			
51-035	N5000E4970	Surface	1	6/14/2004	LC	FS	OC	Y	82.7			
51-036	N5000E4970	Surface	1	6/14/2004	LC	AS	OC	N	1.4			
51-037	N5000E4970	Surface	1	6/14/2004	LC	AS	OC	Y	22.5			
51-038	N5000E4970	Surface	1	6/14/2004	LC	FS	AR	Y	67.3			
51-039	N5000E4970	Surface	1	6/14/2004	LC	FS	AR	N	16.4			
51-040	N5000E4970	Surface	1	6/14/2004	LC	AS	AR	Y	6.5			
52-001	N4990E4970	Surface	1	6/13/2004	LC	UB	WC	N	54.7			
52-002	N4990E4970	Surface	1	6/13/2004	LC	CT	WC	Y	13.7	38.1		
52-003	N4990E4970	Surface	1	6/13/2004	LC	CT	WC	Y	2.3	19.3		
52-004	N4990E4970	Surface	1	6/13/2004	LC	CT	OC	Y	26.7	39.6		
52-005	N4990E4970	Surface	1	6/13/2004	LC	CT	OC	N	3.5	28.6		
52-006	N4990E4970	Surface	1	6/13/2004	LC	PF	WC	Y	28.6			
52-007	N4990E4970	Surface	1	6/13/2004	LC	PF	WC	Y	0			
52-008	N4990E4970	Surface	1	6/13/2004	LC	PF	WC	Y	0			
52-009	N4990E4970	Surface	1	6/13/2004	LC	PF	WC	Y	0			
52-010	N4990E4970	Surface	1	6/13/2004	LC	PF	WC	Y	0			
52-011	N4990E4970	Surface	1	6/13/2004	LC	PF	WC	Y	0			
52-012	N4990E4970	Surface	1	6/13/2004	LC	PF	WC	N	3.9			
52-013	N4990E4970	Surface	1	6/13/2004	LC	PF	WC	N	0			
52-014	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	18.7			
52-015	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-016	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-017	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-018	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-019	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-020	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-021	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-022	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-023	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-024	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	Y	1.8			
52-025	N4990E4970	Surface	1	6/13/2004	LC	FS	WC	N	22.2			
52-026	N4990E4970	Surface	1	6/13/2004	LC	FS	WC	Y	6.8			
52-027	N4990E4970	Surface	1	6/13/2004	LC	AS	WC	N	3.5			
52-028	N4990E4970	Surface	1	6/13/2004	LC	AS	WC	Y	69.3			
52-029	N4990E4970	Surface	1	6/13/2004	LC	FS	OC	N	20.3			
52-030	N4990E4970	Surface	1	6/13/2004	LC	FS	OC	Y	30.8			
52-031	N4990E4970	Surface	1	6/13/2004	LC	AS	OC	N	3.9			
52-032	N4990E4970	Surface	1	6/13/2004	LC	AS	OC	Y	35.4			
52-033	N4990E4970	Surface	1	6/13/2004	LC	PF	AR	Y	53.4			
52-034	N4990E4970	Surface	1	6/13/2004	LC	PF	AR	N	0			
52-035	N4990E4970	Surface	1	6/13/2004	LC	PF	AR	N	0			
52-036	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	1.4			

Bag #	Unit	Depth	Stratum	Date	Crew	Category	Material	Cortex	Weight	Width	Length	Thickness
52-037	N4990E4970	Surface	1	6/13/2004	LC	PF	OC	N	0			
52-038	N4990E4970	Surface	1	6/13/2004	LC	FS	AR	Y	57.8			
52-039	N4990E4970	Surface	1	6/13/2004	LC	AS	AR	Y	10.3			
53-001	GENERAL	Surface	1	6/12/2004	JW	HB	OB	N	0.6	15.7	24.5	4.5
53-002	GENERAL	Surface	1	6/12/2004	JW	HB	OB	N	1.5	12.6	12.6	3.4
53-003	GENERAL	Surface	1	6/13/2004	JW	HB	OC	N	0.7	17.6	13.5	3.9
53-004	GENERAL	Surface	1	6/13/2004	JW	UB	WC	N	183.5	59.9	80.7	36.1
54-001	TU 2	Surface	1	6/14/2004	LC/KH	PF	OC	N	1.1			
54-002	TU 2	Surface	1	6/14/2004	LC/KH	FS	OC	N	1.2			
54-003	TU 2	Surface	1	6/14/2004	LC/KH	AS	OC	N	1.1			
54-004	TU 2	Surface	1	6/14/2004	LC/KH	AS	WC	Y	0.1			
54-005	TU 2	Surface	1	6/14/2004	LC/KH	BN			0.1			
55-001	TU 4	- distur	1	5/30/2005	JW/TW	FS	WC	Y	9.8			
55-002	TU 4	- distur	1	5/30/2005	JW/TW	FS	WC	N	2.7			
55-003	TU 4	- distur	1	5/30/2005	JW/TW	FS	OC	N	2.2			
55-004	TU 4	- distur	1	5/30/2005	JW/TW	PF	OC	N	0.6			
55-005	TU 4	- distur	1	5/30/2005	JW/TW	PF	OC	N	0.4			
56-001	TU 4	-compa	3	6/1/2005	JW/TW	FS	WC	N	0.5			
56-001	TU 4	1	1 & 2	5/30/2005	JW/TW	FT	AR	Y	66.4			
56-002	TU 4	-compa	3	6/1/2005	JW/TW	FS	OC	Y	1.6			
56-002	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	OC	N	28.6			
56-003	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	OC	N	0			
56-004	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	OC	N	0			
56-005	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	OC	N	0			
56-006	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	OC	N	0			
56-007	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	OC	N	0			
56-008	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	OC	Y	0			
56-009	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	OC	Y	0			
56-010	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	OC	Y	0			
56-011	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	WC	N	3.9			
56-012	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	WC	N	0			
56-013	TU 4	1	1 & 2	5/30/2005	JW/TW	PF	AR	Y	6			
56-014	TU 4	1	1 & 2	5/30/2005	JW/TW	FS	WC	N	22.9			
56-015	TU 4	1	1 & 2	5/30/2005	JW/TW	FS	WC	Y	15.8			
56-016	TU 4	1	1 & 2	5/30/2005	JW/TW	AS	WC	N	9.3			
56-017	TU 4	1	1 & 2	5/30/2005	JW/TW	FS	OC	N	6.7			
56-018	TU 4	1	1 & 2	5/30/2005	JW/TW	FS	OC	Y	8.8			
56-019	TU 4	1	1 & 2	5/30/2005	JW/TW	AS	OC	N	1.9			
56-020	TU 4	1	1 & 2	5/30/2005	JW/TW	AS	OC	Y	1.5			
56-021	TU 4	1	1 & 2	5/30/2005	JW/TW	BN			5.2			
56-022	TU 4	1	1 & 2	5/30/2005	JW/TW	BN Tube			5.3	9.2	48.6	1.2
56-023	TU 4	1	1 & 2	5/30/2005	JW/TW	SH			0.8			
57-001	TU 4	10	3	6/1/2005	JW/TW	UR	WC	Y	2.2			
57-002	TU 4	10	3	6/1/2005	JW/TW	UR	OC	Y	255.3			

APPENDIX H

XRF ANALYSIS PREPARED BY CRAIG SKINNER (2006)

NORTHWEST OBSIDIAN STUDIES LABORATORY

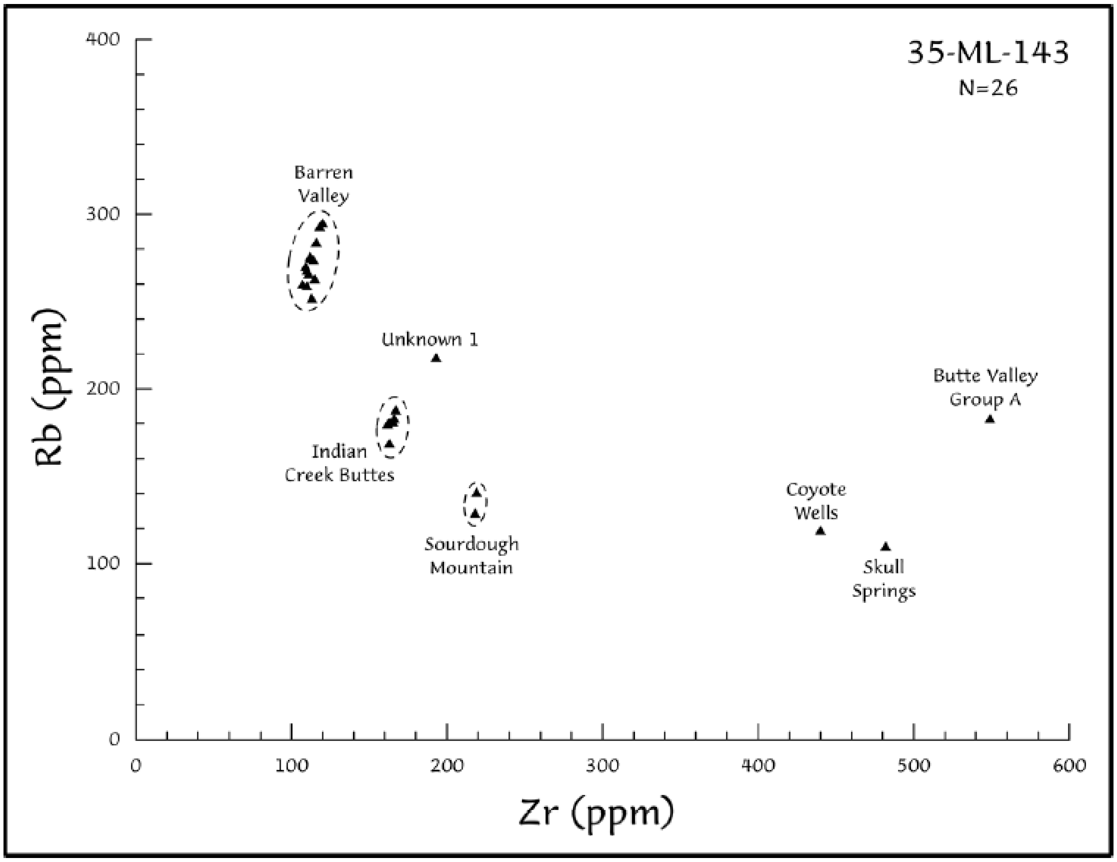

Figure 1. Scatterplot of the XRF Studies: 35-ML-143, Malheur County, Oregon.

Table 1. Results of XRF Studies: 35-ML-143, Malheur County, Oregon.

	Specimen		Trace Element Concentrations											Ratios		
Site	No.	Catalog No.	Zn	Pb	Rb	Sr	Y	Zr	Nb	Ti	Mn	Ba	$Fe^{2}O^{3\,T}$	Fe:Mn	Fe:Ti	Geochemical Source
35-ML-143	1	2-1	89	42	295	13	73	120	50	438	318	0	0.99	27.1	74.5	Barren Valley
			± 10	5	5	9	3	10	2	88	27	31	0.11			
35-ML-143	2	2-2	90	30	274	14	68	114	50	NM	NM	NM	NM	27.2	147.8	Barren Valley *
			± 10	5	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	3	2-3	81	35	275	13	69	112	50	334	327	7	1.05	27.7	100.5	Barren Valley
			± 10	4	5	9	3	10	2	88	27	31	0.11			
35-ML-143	4	2-4	58	24	181	35	52	163	29	NM	NM	NM	NM	52.6	77.5	Indian Creek Buttes *
			± 10	5	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	5	2-5	48	21	169	34	50	163	30	NM	NM	NM	NM	53.3	75.6	Indian Creek Buttes *
			± 11	5	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	6	2-6	90	28	276	12	70	112	47	NM	NM	NM	NM	30.6	103.8	Barren Valley *
			± 10	4	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	7	2-7	50	34	263	12	70	115	46	NM	NM	NM	NM	16.9	112.7	Barren Valley *
			± 10	4	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	8	2-8	26	15	181	33	56	165	28	NM	NM	NM	NM	42.1	80.5	Indian Creek Buttes *
			± 12	5	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	9	4-1	83	30	270	12	68	109	47	254	404	11	1.01	21.6	124.1	Barren Valley
			± 9	4	5	9	3	10	2	88	28	31	0.11			
35-ML-143	10	4-2	63	28	218	38	56	193	30	NM	NM	184	NM	43.4	79.8	Unknown 1 *
			± 10	4	5	9	3	10	2	NM	NM	32	NM			
35-ML-143	11	12-1	67	32	293	14	73	118	47	209	350	0	0.88	22.0	129.8	Barren Valley
			± 9	4	5	9	3	10	2	88	28	31	0.11			
35-ML-143	12	12-2	90	24	119	29	63	440	31	NM	NM	NM	NM	34.8	53.6	Coyote Wells *
			± 10	5	4	9	3	10	2	NM	NM	NM	NM			
35-ML-143	13	12-3	70	30	268	13	68	110	44	NM	NM	NM	NM	26.3	122.3	Barren Valley *
			± 10	4	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	14	15-1	128	19	110	15	72	482	32	1393	771	600	2.84	30.3	67.3	Skull Springs
			± 10	5	4	9	3	10	2	91	28	32	0.11			
35-ML-143	15	15-2	58	24	259	12	67	110	44	NM	NM	NM	NM	29.1	98.8	Barren Valley *
			± 10	4	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	16	15-35	65	28	252	13	70	113	47	345	376	33	0.90	20.8	84.5	Barren Valley
			± 10	5	5	9	3	10	2	88	28	37	0.11			

All trace element values reported in parts per million; ± = analytical uncertainty estimate (in ppm). Iron content reported as weight percent oxide.
NA = Not available; ND = Not detected; NM = Not measured.; * = Small sample.

Table 1 continued.

	Specimen		Trace Element Concentrations											Ratios		
Site	No.	Catalog No.	Zn	Pb	Rb	Sr	Y	Zr	Nb	Ti	Mn	Ba	Fe^2O^{3T}	Fe:Mn	Fe:Ti	Geochemical Source
35-ML-143	17	15-36	81	29	274	14	71	114	51	NM	NM	NM	NM	26.8	108.9	Barren Valley *
			± 10	4	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	18	17-1	67	35	183	73	70	549	52	NM	NM	945	NM	69.0	43.8	Butte Valley Group A *
			± 10	5	5	9	3	10	2	NM	NM	33	NM			
35-ML-143	19	17-2	56	23	188	36	52	167	30	NM	NM	140	NM	36.9	81.1	Indian Creek Buttes *
			± 10	5	5	9	3	10	2	NM	NM	32	NM			
35-ML-143	20	38-1	72	17	183	35	55	166	33	NM	NM	NM	NM	42.6	86.2	Indian Creek Buttes *
			± 10	5	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	21	38-214	43	22	141	38	38	219	21	NM	NM	NM	NM	23.3	38.3	Sourdough Mountain *
			± 10	4	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	22	38-215	79	23	260	14	72	107	48	328	316	17	1.04	28.7	101.9	Barren Valley
			± 10	5	5	9	3	10	2	88	27	31	0.11			
35-ML-143	23	38-5	82	23	266	12	65	111	49	261	389	0	0.92	20.6	111.5	Barren Valley
			± 9	4	5	9	3	10	2	88	28	31	0.11			
35-ML-143	24	54-1	31	16	129	39	34	218	22	NM	NM	NM	NM	46.4	36.7	Sourdough Mountain *
			± 12	5	5	9	3	10	2	NM	NM	NM	NM			
35-ML-143	25	54-2	55	20	180	34	53	162	32	623	271	173	1.38	43.4	72.8	Indian Creek Buttes
			± 10	5	5	9	3	10	2	89	27	32	0.11			
35-ML-143	26	38-213	71	24	284	15	69	116	47	NM	NM	NM	NM	26.9	117.7	Barren Valley *
			± 9	4	5	9	3	10	2	NM	NM	NM	NM			
NA	RGM-1	RGM-1	47	19	161	112	27	223	8	1712	288	821	1.92	56.2	37.7	RGM-1 Reference Standard
			± 10	5	4	9	3	10	2	92	28	32	0.11			

All trace element values reported in parts per million; ± = analytical uncertainty estimate (in ppm). Iron content reported as weight percent oxide.
NA = Not available; ND = Not detected; NM = Not measured.; * = Small sample.

APPENDIX I

ANOVA & TUKEY HSD/GAMES-HOWELL SPSS 15 OUTPUT

Table 1. Test of Homogeneity of Variances for the Proximal Flakes from the Chalk Basin Sample.

Variable	Levene Statistic	df1	df2	Sig.
Length (log 10)	2.100440699	2	297	0.124217
Thickness (log 10)	0.961214871	2	297	0.383614
Weight (log 10)	3.237803932	2	297	0.04064
Width (log 10)	4.615163676	2	297	0.010621
Platform Thickness (log 10)	0.168256123	2	275	0.845224
Platform Width (log 10)	0.338081475	2	275	0.713433

Table 2. ANOVA Table for the Proximal Flakes from the Chalk Basin Sample.

Variable		Sum of Squares	df	Mean Square	F	Sig.
Length (log 10)	Between Groups	1.522747609	2	0.761373804	21.90741	1.33E-09
	Within Groups	10.32198949	297	0.034754173		
	Total	11.8447371	299			
Thickness (log 10)	Between Groups	2.556711224	2	1.278355612	18.68017	2.28E-08
	Within Groups	20.32484388	297	0.068433818		
	Total	22.88155511	299			
Weight (log 10)	Between Groups	14.23995221	2	7.119976103	31.66714	3.42E-13
	Within Groups	66.77688196	297	0.224837986		
	Total	81.01683417	299			
Width (log 10)	Between Groups	3.417229808	2	1.708614904	59.68184	1.63E-22
	Within Groups	8.502731599	297	0.028628726		
	Total	11.91996141	299			
Platform Thickness (log 10)	Between Groups	1.592176802	2	0.796088401	13.25697	3.19E-06
	Within Groups	16.51390103	275	0.060050549		
	Total	18.10607784	277			
Platform Width (log 10)	Between Groups	0.910139825	2	0.455069912	11.35225	1.83E-05
	Within Groups	11.02374068	275	0.04008633		
	Total	11.93388051	277			

Table 3. Equality of Means for the Proximal Flakes from the Chalk Basin Sample.

Variable	Test	Statistic[a]	df1	df2	Sig.
Length (log 10)	Welch	24.29313	2	140.4451	8.7E-10
Thickness (log 10)	Welch	12.48228	2	127.3327	1.12E-05
Weight (log 10)	Welch	39.72392	2	143.0382	1.9E-14
Width (log 10)	Welch	52.09359	2	126.2231	3.2E-17
Platform Thickness (log 10)	Welch	12.49544	2	113.7129	1.24E-05
Platform Width (log 10)	Welch	9.835577	2	110.6574	0.000117

a. Asymptotically F distributed.

Table 4. Post Hoc Comparisons between Raw Material Groups from the Chalk Basin Assemblage.

Dependent Variable	Sig. Test	(I) Raw Material	(J) Raw Material	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Upper Bound	Lower Bound
Length (log 10)	Tukey HSD	Other Chert	Obsidian	.16689(*)	0.031711488	8.18891E-07	0.092193336	0.241587727
			White Chert	-0.026342165	0.024366311	0.526549926	-0.083737615	0.031053286
		Obsidian	Other Chert	-.16689(*)	0.031711488	8.18891E-07	-0.241587727	-0.092193336
			White Chert	-.19323(*)	0.029585305	5.92799E-09	-0.262921616	-0.123543776
		White Chert	Other Chert	0.026342165	0.024366311	0.526549926	-0.031053286	0.083737615
			Obsidian	.19323(*)	0.029585305	5.92799E-09	0.123543776	0.262921616
	Games-Howell	Other Chert	Obsidian	.16689(*)	0.031194077	1.25475E-06	0.092876167	0.240904895
			White Chert	-0.026342165	0.025123639	0.547275396	-0.085687981	0.033003651
		Obsidian	Other Chert	-.16689(*)	0.031194077	1.25475E-06	-0.240904895	-0.092876167
			White Chert	-.19323(*)	0.028065788	6.76687E-09	-0.260028254	-0.126437138
		White Chert	Other Chert	0.026342165	0.025123639	0.547275396	-0.033003651	0.085687981
			Obsidian	.19323(*)	0.028065788	6.76687E-09	0.126437138	0.260028254
Thickness (log 10)	Tukey HSD	Other Chert	Obsidian	.22029(*)	0.044498822	3.71675E-06	0.115468458	0.325104617
			White Chert	-0.028995642	0.034191779	0.673434727	-0.109535224	0.05154394
		Obsidian	Other Chert	-.22029(*)	0.044498822	3.71675E-06	-0.325104617	-0.115468458
			White Chert	-.24928(*)	0.041515279	2.1732E-08	-0.347072448	-0.151491911
		White Chert	Other Chert	0.028995642	0.034191779	0.673434727	-0.05154394	0.109535224
			Obsidian	.24928(*)	0.041515279	2.1732E-08	0.151491911	0.347072448
	Games-Howell	Other Chert	Obsidian	.22029(*)	0.051817776	0.000161435	0.096643202	0.343929873
			White Chert	-0.028995642	0.031527014	0.628467553	-0.103423862	0.045432578
		Obsidian	Other Chert	-.22029(*)	0.051817776	0.000161435	-0.343929873	-0.096643202
			White Chert	-.24928(*)	0.049890273	1.11786E-05	-0.368601349	-0.12996301
		White Chert	Other Chert	0.028995642	0.031527014	0.628467553	-0.045432578	0.103423862
			Obsidian	.24928(*)	0.049890273	1.11786E-05	0.12996301	0.368601349
Weight (log 10)	Tukey HSD	Other Chert	Obsidian	.47674(*)	0.080658098	3.29217E-08	0.28674956	0.66673386
			White Chert	-0.120150606	0.061975659	0.129707636	-0.266135807	0.025834595
		Obsidian	Other Chert	-.47674(*)	0.080658098	3.29217E-08	-0.66673386	-0.28674956
			White Chert	-.59689(*)	0.075250158	5.09993E-09	-0.77414593	-0.419638702
		White Chert	Other Chert	0.120150606	0.061975659	0.129707636	-0.025834595	0.266135807
			Obsidian	.59689(*)	0.075250158	5.09993E-09	0.419638702	0.77414593

Dependent Variable	Sig. Test	(I) Raw Material	(J) Raw Material	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Upper Bound	Lower Bound
Weight (log 10)	Games-Howell	Other Chert	Obsidian	.47674(*)	0.077848438	3.36136E-08	0.292228542	0.661254878
			White Chert	-0.120150606	0.065734036	0.16343396	-0.275492556	0.035191343
		Obsidian	Other Chert	-.47674(*)	0.077848438	3.36136E-08	-0.661254878	-0.292228542
			White Chert	-.59689(*)	0.067248418	5.10048E-09	-0.756806384	-0.436978249
		White Chert	Other Chert	0.120150606	0.065734036	0.16343396	-0.035191343	0.275492556
			Obsidian	.59689(*)	0.067248418	5.10048E-09	0.436978249	0.756806384
Width (log 10)	Tukey HSD	Other Chert	Obsidian	.24362(*)	0.028781548	5.09982E-09	0.175819557	0.311410856
			White Chert	-0.047262727	0.022115019	0.084188119	-0.099355203	0.004829749
		Obsidian	Other Chert	-.24362(*)	0.028781548	5.09982E-09	-0.311410856	-0.175819557
			White Chert	-.29088(*)	0.026851811	5.09982E-09	-0.354128041	-0.227627827
		White Chert	Other Chert	0.047262727	0.022115019	0.084188119	-0.004829749	0.099355203
			Obsidian	.29088(*)	0.026851811	5.09982E-09	0.227627827	0.354128041
	Games-Howell	Other Chert	Obsidian	.24362(*)	0.032183992	5.13671E-09	0.167147838	0.320082575
			White Chert	-0.047262727	0.022698933	0.096634938	-0.100941579	0.006416125
		Obsidian	Other Chert	-.24362(*)	0.032183992	5.13671E-09	-0.320082575	-0.167147838
			White Chert	-.29088(*)	0.028427928	5.10074E-09	-0.358814354	-0.222941514
		White Chert	Other Chert	0.047262727	0.022698933	0.096634938	-0.006416125	0.100941579
			Obsidian	.29088(*)	0.028427928	5.10074E-09	0.222941514	0.358814354
Platform Thickness (log 10)	Tukey HSD	Other Chert	Obsidian	.20028(*)	0.044967221	3.64476E-05	0.094318342	0.306246609
			White Chert	-0.013992228	0.032519915	0.903039353	-0.090624597	0.062640141
		Obsidian	Other Chert	-.20028(*)	0.044967221	3.64476E-05	-0.306246609	-0.094318342
			White Chert	-.21427(*)	0.042761463	2.90302E-06	-0.315041024	-0.113508383
		White Chert	Other Chert	0.013992228	0.032519915	0.903039353	-0.062640141	0.090624597
			Obsidian	.21427(*)	0.042761463	2.90302E-06	0.113508383	0.315041024
	Games-Howell	Other Chert	Obsidian	.20028(*)	0.045254935	9.41965E-05	0.092078615	0.308486336
			White Chert	-0.013992228	0.031892421	0.899400364	-0.089263026	0.06127857
		Obsidian	Other Chert	-.20028(*)	0.045254935	9.41965E-05	-0.308486336	-0.092078615
			White Chert	-.21427(*)	0.04400951	2.00314E-05	-0.31967183	-0.108877577
		White Chert	Other Chert	0.013992228	0.031892421	0.899400364	-0.06127857	0.089263026
			Obsidian	.21427(*)	0.04400951	2.00314E-05	0.108877577	0.31967183

Dependent Variable	Sig. Test	(I) Raw Material	(J) Raw Material	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Upper Bound	Lower Bound
Platform Width (log 10)	Tukey HSD	Other Chert	Obsidian	.16132(*)	0.036739708	4.78054E-05	0.074746671	0.247899082
			White Chert	0.005466463	0.026569848	0.97693717	-0.05714472	0.068077645
		Obsidian	Other Chert	-.16132(*)	0.036739708	4.78054E-05	-0.247899082	-0.074746671
			White Chert	-.15586(*)	0.034937531	3.53531E-05	-0.238185834	-0.073526993
		White Chert	Other Chert	-0.005466463	0.026569848	0.97693717	-0.068077645	0.05714472
			Obsidian	.15586(*)	0.034937531	3.53531E-05	0.073526993	0.238185834
	Games-Howell	Other Chert	Obsidian	.16132(*)	0.038807183	0.000249955	0.068510219	0.254135534
			White Chert	0.005466463	0.026148899	0.97619849	-0.056269728	0.067202653
		Obsidian	Other Chert	-.16132(*)	0.038807183	0.000249955	-0.254135534	-0.068510219
			White Chert	-.15586(*)	0.037132608	0.00024567	-0.244931448	-0.06678138
		White Chert	Other Chert	-0.005466463	0.026148899	0.97619849	-0.067202653	0.056269728
			Obsidian	.15586(*)	0.037132608	0.00024567	0.06678138	0.244931448

Table 5. Test of Homogeneity of Variances for the Proximal Flakes from the Chalk Basin Sample and the Experimental Assemblage.

Variable	Levene Statistic	df1	df2	Sig.
Length (log 10)	3.03742978	4	541	0.017075
Thickness (log 10)	7.403960787	4	543	8.23E-06
Weight (log 10)	6.172374401	4	543	7.32E-05
Width (log 10)	2.957516256	4	543	0.019522
Platform Thickness (log 10)	2.016322811	4	521	0.090891
Platform Width (log 10)	1.535166066	4	521	0.190619

Table 6. ANOVA Table for the Proximal Flakes from the Chalk Basin Sample and the Experimental Assemblage.

Variable		Sum of Squares	df	Mean Square	F	Sig.
Length (log 10)	Between Groups	14.51534009	4	3.628835023	107.21	3.22693E-67
	Within Groups	18.31169608	541	0.033847867		
	Total	32.82703617	545			
Thickness (log 10)	Between Groups	20.70550976	4	5.176377439	103.468	1.86127E-65
	Within Groups	27.16563095	543	0.050028786		
	Total	47.87114071	547			
Weight (log 10)	Between Groups	113.9196199	4	28.47990498	151.807	4.51389E-87
	Within Groups	101.869862	543	0.187605639		
	Total	215.7894819	547			
Width (log 10)	Between Groups	15.61237039	4	3.903092597	128.374	4.38469E-77
	Within Groups	16.50946744	543	0.030404176		
	Total	32.12183783	547			
Platform Thickness (log 10)	Between Groups	19.54235084	4	4.885587709	90.354	2.63327E-58
	Within Groups	28.17131039	521	0.054071613		
	Total	47.71366123	525			
Platform Width (log 10)	Between Groups	10.53563656	4	2.63390914	64.7251	2.00412E-44
	Within Groups	21.20146053	521	0.040693782		
	Total	31.73709709	525			

Table 7. Equality of Means for the Proximal Flakes from the Chalk Basin Sample and the Experimental Assemblage.

Variable	Test	Statistic[a]	df1	df2	Sig.
Length (log 10)	Welch	127.12625	4	222.4355	2.69E-56
Thickness (log 10)	Welch	139.37983	4	209.486	7.07E-58
Weight (log 10)	Welch	166.48157	4	218.879	3.39E-65
Width (log 10)	Welch	93.448939	4	213.4698	8.49E-46
Platform Thickness (log 10)	Welch	86.375905	4	192.5255	6.83E-42
Platform Width (log 10)	Welch	53.645955	4	192.6607	2.52E-30
a. Asymptotically F distributed.					

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Table 8. Post Hoc Comparisons between Raw Material Groups from the Chalk Basin Assemblage and the Experimental Proximal Flakes.

Dependent Variable	Sig. Test	(I) Raw Material	(J) Raw Material	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Upper Bound	Lower Bound
Length (log 10)	Tukey HSD	Other Chert	Obsidian	.16689(*)	0.0312953	1.41E-06	0.0812354	0.2525457
			White Chert	-0.0263422	0.0240465	0.808892	-0.0921575	0.0394731
			Production	-.38786(*)	0.0259797	4.6E-13	-0.4589626	-0.3167499
			Resharpening	-.13718(*)	0.0243442	2.81E-07	-0.203813	-0.0705531
		Obsidian	Other Chert	-.16689(*)	0.0312953	1.41E-06	-0.2525457	-0.0812354
			White Chert	-.19323(*)	0.029197	8.76E-10	-0.2731449	-0.1133205
			Production	-.55475(*)	0.0308087	4.6E-13	-0.6390701	-0.4704235
			Resharpening	-.30407(*)	0.0294426	4.6E-13	-0.3846581	-0.2234892
		White Chert	Other Chert	0.0263422	0.0240465	0.808892	-0.0394731	0.0921575
			Obsidian	.19323(*)	0.029197	8.76E-10	0.1133205	0.2731449
			Production	-.36151(*)	0.0234097	4.6E-13	-0.4255864	-0.2974418
			Resharpening	-.11084(*)	0.0215803	3.89E-06	-0.1699061	-0.0517757
		Production	Other Chert	.38786(*)	0.0259797	4.6E-13	0.3167499	0.4589626
			Obsidian	.55475(*)	0.0308087	4.6E-13	0.4704235	0.6390701
			White Chert	.36151(*)	0.0234097	4.6E-13	0.2974418	0.4255864
			Resharpening	.25067(*)	0.0237153	4.6E-13	0.1857643	0.315582
		Resharpening	Other Chert	.13718(*)	0.0243442	2.81E-07	0.0705531	0.203813
			Obsidian	.30407(*)	0.0294426	4.6E-13	0.2234892	0.3846581
			White Chert	.11084(*)	0.0215803	3.89E-06	0.0517757	0.1699061
			Production	-.25067(*)	0.0237153	4.6E-13	-0.315582	-0.1857643
	Games-Howell	Other Chert	Obsidian	.16689(*)	0.0311941	4.13E-06	0.0805122	0.2532689
			White Chert	-0.0263422	0.0251236	0.832321	-0.0955337	0.0428494
			Production	-.38786(*)	0.0255749	4.84E-13	-0.4583187	-0.3173938
			Resharpening	-.13718(*)	0.0260206	3.42E-06	-0.2088071	-0.0655591
		Obsidian	Other Chert	-.16689(*)	0.0311941	4.13E-06	-0.2532689	-0.0805122
			White Chert	-.19323(*)	0.0280658	5.59E-09	-0.2712385	-0.1152269
			Production	-.55475(*)	0.0284704	5.04E-13	-0.6338492	-0.4756444
			Resharpening	-.30407(*)	0.0288715	4.81E-13	-0.3841961	-0.2239512
		White Chert	Other Chert	0.0263422	0.0251236	0.832321	-0.0428494	0.0955337
			Obsidian	.19323(*)	0.0280658	5.59E-09	0.1152269	0.2712385
			Production	-.36151(*)	0.0216493	4.44E-13	-0.4210195	-0.3020086
			Resharpening	-.11084(*)	0.0221741	9.97E-06	-0.1717164	-0.0499654
		Production	Other Chert	.38786(*)	0.0255749	4.84E-13	0.3173938	0.4583187
			Obsidian	.55475(*)	0.0284704	5.04E-13	0.4756444	0.6338492
			White Chert	.36151(*)	0.0216493	4.44E-13	0.3020086	0.4210195
			Resharpening	.25067(*)	0.022684	4.32E-13	0.1883259	0.3130204
		Resharpening	Other Chert	.13718(*)	0.0260206	3.42E-06	0.0655591	0.2088071
			Obsidian	.30407(*)	0.0288715	4.81E-13	0.2239512	0.3841961
			White Chert	.11084(*)	0.0221741	9.97E-06	0.0499654	0.1717164
			Production	-.25067(*)	0.022684	4.32E-13	-0.3130204	-0.1883259
Thickness (log 10)	Tukey HSD	Other Chert	Obsidian	.22029(*)	0.0380472	1.19E-07	0.1161525	0.3244205
			White Chert	-0.0289956	0.0292345	0.859021	-0.1090096	0.0510183
			Production	-.41014(*)	0.0315135	4.55E-13	-0.4963889	-0.3238859
			Resharpening	.08883(*)	0.0295542	0.023145	0.0079377	0.1697152
		Obsidian	Other Chert	-.22029(*)	0.0380472	1.19E-07	-0.3244205	-0.1161525
			White Chert	-.24928(*)	0.0354963	6.57E-11	-0.3464342	-0.1521301

Dependent Variable	Sig. Test	(I) Raw Material	(J) Raw Material	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Upper Bound	Lower Bound
Thickness (log 10)	Tukey HSD	Obsidian	Production	-.63042(*)	0.0373956	4.55E-13	-0.7327743	-0.5280735
			Resharpening	-.13146(*)	0.03576	0.002409	-0.2293339	-0.0335863
		White Chert	Other Chert	0.0289956	0.0292345	0.859021	-0.0510183	0.1090096
			Obsidian	.24928(*)	0.0354963	6.57E-11	0.1521301	0.3464342
			Production	-.38114(*)	0.0283812	4.55E-13	-0.4588202	-0.3034632
			Resharpening	.11782(*)	0.0261886	8.16E-05	0.0461449	0.1894993
		Production	Other Chert	.41014(*)	0.0315135	4.55E-13	0.3238859	0.4963889
			Obsidian	.63042(*)	0.0373956	4.55E-13	0.5280735	0.7327743
			White Chert	.38114(*)	0.0283812	4.55E-13	0.3034632	0.4588202
			Resharpening	.49896(*)	0.0287104	4.55E-13	0.4203845	0.5775431
		Resharpening	Other Chert	-.08883(*)	0.0295542	0.023145	-0.1697152	-0.0079377
			Obsidian	.13146(*)	0.03576	0.002409	0.0335863	0.2293339
			White Chert	-.11782(*)	0.0261886	8.16E-05	-0.1894993	-0.0461449
			Production	-.49896(*)	0.0287104	4.55E-13	-0.5775431	-0.4203845
	Games-Howell	Other Chert	Obsidian	.22029(*)	0.0518178	0.000517	0.0758111	0.364762
			White Chert	-0.0289956	0.031527	0.889059	-0.1157607	0.0577694
			Production	-.41014(*)	0.0302565	4.86E-13	-0.4935219	-0.3267528
			Resharpening	.08883(*)	0.0275413	0.013263	0.0127589	0.1648941
		Obsidian	Other Chert	-.22029(*)	0.0518178	0.000517	-0.364762	-0.0758111
			White Chert	-.24928(*)	0.0498903	3.65E-05	-0.3887747	-0.1097896
			Production	-.63042(*)	0.0490973	5.59E-13	-0.7679209	-0.4929269
			Resharpening	-0.1314601	0.0474722	0.055361	-0.2648752	0.0019551
		White Chert	Other Chert	0.0289956	0.031527	0.889059	-0.0577694	0.1157607
			Obsidian	.24928(*)	0.0498903	3.65E-05	0.1097896	0.3887747
			Production	-.38114(*)	0.0268219	4.2E-13	-0.4548365	-0.307447
			Resharpening	.11782(*)	0.0237166	1.23E-05	0.0526566	0.1829876
		Production	Other Chert	.41014(*)	0.0302565	4.86E-13	0.3267528	0.4935219
			Obsidian	.63042(*)	0.0490973	5.59E-13	0.4929269	0.7679209
			White Chert	.38114(*)	0.0268219	4.2E-13	0.307447	0.4548365
			Resharpening	.49896(*)	0.0219996	4.82E-13	0.4384044	0.5595233
		Resharpening	Other Chert	-.08883(*)	0.0275413	0.013263	-0.1648941	-0.0127589
			Obsidian	0.1314601	0.0474722	0.055361	-0.0019551	0.2648752
			White Chert	-.11782(*)	0.0237166	1.23E-05	-0.1829876	-0.0526566
			Production	-.49896(*)	0.0219996	4.82E-13	-0.5595233	-0.4384044
Weight (log 10)	Tukey HSD	Other Chert	Obsidian	.47674(*)	0.0736777	2.18E-09	0.2750883	0.6783951
			White Chert	-0.1201506	0.0566121	0.212013	-0.275096	0.0347948
			Production	-1.09548(*)	0.0610253	4.55E-13	-1.2625058	-0.9284573
			Resharpening	-.15955(*)	0.057231	0.043486	-0.316189	-0.0029102
		Obsidian	Other Chert	-.47674(*)	0.0736777	2.18E-09	-0.6783951	-0.2750883
			White Chert	-.59689(*)	0.0687378	4.55E-13	-0.7850253	-0.4087593
			Production	-1.57222(*)	0.0724158	4.55E-13	-1.7704228	-1.3740238
			Resharpening	-.63629(*)	0.0692484	4.55E-13	-0.8258219	-0.4467607
		White Chert	Other Chert	0.1201506	0.0566121	0.212013	-0.0347948	0.275096
			Obsidian	.59689(*)	0.0687378	4.55E-13	0.4087593	0.7850253
			Production	-.97533(*)	0.0549597	4.55E-13	-1.1257538	-0.8249081
			Resharpening	-0.039399	0.0507136	0.937221	-0.1782004	0.0994025
		Production	Other Chert	1.09548(*)	0.0610253	4.55E-13	0.9284573	1.2625058

Dependent Variable	**Sig. Test**	**(I) Raw Material**	**(J) Raw Material**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
							Upper Bound	**Lower Bound**
Weight (log 10)	Tukey HSD	Production	Obsidian	1.57222(*)	0.0724158	4.55E-13	1.3740238	1.7704228
			White Chert	.97533(*)	0.0549597	4.55E-13	0.8249081	1.1257538
			Resharpening	.93593(*)	0.055597	4.55E-13	0.7837647	1.0880992
		Resharpening	Other Chert	.15955(*)	0.057231	0.043486	0.0029102	0.316189
			Obsidian	.63629(*)	0.0692484	4.55E-13	0.4467607	0.8258219
			White Chert	0.039399	0.0507136	0.937221	-0.0994025	0.1782004
			Production	-.93593(*)	0.055597	4.55E-13	-1.0880992	-0.7837647
	Games-Howell	Other Chert	Obsidian	.47674(*)	0.0778484	9.51E-08	0.2614566	0.6920269
			White Chert	-0.1201506	0.065734	0.360821	-0.3012821	0.0609809
			Production	-1.09548(*)	0.066933	4.86E-13	-1.2799531	-0.9110101
			Resharpening	-0.1595496	0.0618085	0.078938	-0.3301894	0.0110902
		Obsidian	Other Chert	-.47674(*)	0.0778484	9.51E-08	-0.6920269	-0.2614566
			White Chert	-.59689(*)	0.0672484	7.08E-13	-0.7836102	-0.4101744
			Production	-1.57222(*)	0.0684209	4.85E-13	-1.7621286	-1.3823179
			Resharpening	-.63629(*)	0.0634167	5.46E-13	-0.8130523	-0.4595303
		White Chert	Other Chert	0.1201506	0.065734	0.360821	-0.0609809	0.3012821
			Obsidian	.59689(*)	0.0672484	7.08E-13	0.4101744	0.7836102
			Production	-.97533(*)	0.0542402	4.34E-13	-1.1244116	-0.8262503
			Resharpening	-0.039399	0.0477731	0.922843	-0.1705674	0.0917694
		Production	Other Chert	1.09548(*)	0.066933	4.86E-13	0.9110101	1.2799531
			Obsidian	1.57222(*)	0.0684209	4.85E-13	1.3823179	1.7621286
			White Chert	.97533(*)	0.0542402	4.34E-13	0.8262503	1.1244116
			Resharpening	.93593(*)	0.0494098	4.79E-13	0.7999687	1.0718952
		Resharpening	Other Chert	0.1595496	0.0618085	0.078938	-0.0110902	0.3301894
			Obsidian	.63629(*)	0.0634167	5.46E-13	0.4595303	0.8130523
			White Chert	0.039399	0.0477731	0.922843	-0.0917694	0.1705674
			Production	-.93593(*)	0.0494098	4.79E-13	-1.0718952	-0.7999687
Width (log 10)	Tukey HSD	Other Chert	Obsidian	.24362(*)	0.0296606	4.7E-13	0.1624352	0.3247952
			White Chert	-0.0472627	0.0227905	0.232977	-0.1096394	0.015114
			Production	-.37246(*)	0.0245671	4.55E-13	-0.4397012	-0.3052226
			Resharpening	-0.0488812	0.0230396	0.212321	-0.1119398	0.0141775
		Obsidian	Other Chert	-.24362(*)	0.0296606	4.7E-13	-0.3247952	-0.1624352
			White Chert	-.29088(*)	0.0276719	4.55E-13	-0.366615	-0.2151408
			Production	-.61608(*)	0.0291526	4.55E-13	-0.6958667	-0.5362875
			Resharpening	-.29250(*)	0.0278775	4.55E-13	-0.3687961	-0.2161966
		White Chert	Other Chert	0.0472627	0.0227905	0.232977	-0.015114	0.1096394
			Obsidian	.29088(*)	0.0276719	4.55E-13	0.2151408	0.366615
			Production	-.32520(*)	0.0221252	4.55E-13	-0.3857552	-0.2646431
			Resharpening	-0.0016184	0.0204159	0.999991	-0.057496	0.0542592
		Production	Other Chert	.37246(*)	0.0245671	4.55E-13	0.3052226	0.4397012
			Obsidian	.61608(*)	0.0291526	4.55E-13	0.5362875	0.6958667
			White Chert	.32520(*)	0.0221252	4.55E-13	0.2646431	0.3857552
			Resharpening	.32358(*)	0.0223818	4.55E-13	0.2623225	0.384839
		Resharpening	Other Chert	0.0488812	0.0230396	0.212321	-0.0141775	0.1119398
			Obsidian	.29250(*)	0.0278775	4.55E-13	0.2161966	0.3687961
			White Chert	0.0016184	0.0204159	0.999991	-0.0542592	0.057496
			Production	-.32358(*)	0.0223818	4.55E-13	-0.384839	-0.2623225

Dependent Variable	Sig. Test	(I) Raw Material	(J) Raw Material	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Upper Bound	Lower Bound
Width (log 10)	Games-Howell	Other Chert	Obsidian	.24362(*)	0.032184	1.25E-10	0.1543474	0.332883
			White Chert	-0.0472627	0.0226989	0.232693	-0.1098627	0.0153373
			Production	-.37246(*)	0.028309	4.84E-13	-0.450392	-0.2945318
			Resharpening	-0.0488812	0.0230726	0.2169	-0.112486	0.0147237
		Obsidian Obsidian	Other Chert	-.24362(*)	0.032184	1.25E-10	-0.332883	-0.1543474
			White Chert	-.29088(*)	0.0284279	5.5E-13	-0.3702871	-0.2114688
			Production	-.61608(*)	0.0330803	5.42E-13	-0.7077146	-0.5244396
			Resharpening	-.29250(*)	0.0287272	5.6E-13	-0.3726727	-0.21232
		White Chert	Other Chert	0.0472627	0.0226989	0.232693	-0.0153373	0.1098627
			Obsidian	.29088(*)	0.0284279	5.5E-13	0.2114688	0.3702871
			Production	-.32520(*)	0.0239528	4.74E-13	-0.3912301	-0.2591682
			Resharpening	-0.0016184	0.0174552	0.999983	-0.0495354	0.0462985
		Production	Other Chert	.37246(*)	0.028309	4.84E-13	0.2945318	0.450392
			Obsidian	.61608(*)	0.0330803	5.42E-13	0.5244396	0.7077146
			White Chert	.32520(*)	0.0239528	4.74E-13	0.2591682	0.3912301
			Resharpening	.32358(*)	0.0243072	4.79E-13	0.2565974	0.3905641
		Resharpening	Other Chert	0.0488812	0.0230726	0.2169	-0.0147237	0.112486
			Obsidian	.29250(*)	0.0287272	5.6E-13	0.21232	0.3726727
			White Chert	0.0016184	0.0174552	0.999983	-0.0462985	0.0495354
			Production	-.32358(*)	0.0243072	4.79E-13	-0.3905641	-0.2565974
Platform Thickness (log 10)	Tukey HSD	Other Chert	Obsidian	.20028(*)	0.04267	3.37E-05	0.0834796	0.3170853
			White Chert	-0.0139922	0.0308586	0.991266	-0.0984631	0.0704786
			Production	-.43356(*)	0.0327621	4.33E-13	-0.5232408	-0.3438777
			Resharpening	0.0325335	0.0307251	0.827442	-0.051572	0.116639
		Obsidian	Other Chert	-.20028(*)	0.04267	3.37E-05	-0.3170853	-0.0834796
			White Chert	-.21427(*)	0.0405769	1.88E-06	-0.3253481	-0.1032013
			Production	-.63384(*)	0.0420427	4.33E-13	-0.7489276	-0.5187559
			Resharpening	-.16775(*)	0.0404755	0.000382	-0.2785448	-0.0569532
		White Chert	Other Chert	0.0139922	0.0308586	0.991266	-0.0704786	0.0984631
			Obsidian	.21427(*)	0.0405769	1.88E-06	0.1032013	0.3253481
			Production	-.41957(*)	0.0299852	4.33E-13	-0.5016473	-0.3374868
			Resharpening	0.0465257	0.0277451	0.449187	-0.0294225	0.1224739
		Production	Other Chert	.43356(*)	0.0327621	4.33E-13	0.3438777	0.5232408
			Obsidian	.63384(*)	0.0420427	4.33E-13	0.5187559	0.7489276
			White Chert	.41957(*)	0.0299852	4.33E-13	0.3374868	0.5016473
			Resharpening	.46609(*)	0.0298479	4.33E-13	0.3843885	0.547797
		Resharpening	Other Chert	-0.0325335	0.0307251	0.827442	-0.116639	0.051572
			Obsidian	.16775(*)	0.0404755	0.000382	0.0569532	0.2785448
			White Chert	-0.0465257	0.0277451	0.449187	-0.1224739	0.0294225
			Production	-.46609(*)	0.0298479	4.33E-13	-0.547797	-0.3843885
	Games-Howell	Other Chert	Obsidian	.20028(*)	0.0452549	0.000303	0.0737919	0.326773
			White Chert	-0.0139922	0.0318924	0.992263	-0.1017343	0.0737499
			Production	-.43356(*)	0.0331015	4.84E-13	-0.5246872	-0.3424313
			Resharpening	0.0325335	0.02917	0.798321	-0.0478301	0.1128972
		Obsidian	Other Chert	-.20028(*)	0.0452549	0.000303	-0.326773	-0.0737919
			White Chert	-.21427(*)	0.0440095	6.51E-05	-0.3375275	-0.0910219
			Production	-.63384(*)	0.0448934	5.42E-13	-0.7593845	-0.508299

Dependent Variable	Sig. Test	(I) Raw Material	(J) Raw Material	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Upper Bound	Lower Bound
Platform Thickness (log 10)	Games-Howell	Obsidian	Resharpening	-.16775(*)	0.0420785	0.001692	-0.2861458	-0.0493521
		White Chert	Other Chert	0.0139922	0.0318924	0.992263	-0.0737499	0.1017343
			Obsidian	.21427(*)	0.0440095	6.51E-05	0.0910219	0.3375275
			Production	-.41957(*)	0.0313773	4.37E-13	-0.5058343	-0.3332997
			Resharpening	0.0465257	0.0271978	0.429155	-0.0281784	0.1212299
		Production	Other Chert	.43356(*)	0.0331015	4.84E-13	0.3424313	0.5246872
			Obsidian	.63384(*)	0.0448934	5.42E-13	0.508299	0.7593845
			White Chert	.41957(*)	0.0313773	4.37E-13	0.3332997	0.5058343
			Resharpening	.46609(*)	0.028606	4.8E-13	0.3873614	0.5448241
		Resharpening	Other Chert	-0.0325335	0.02917	0.798321	-0.1128972	0.0478301
			Obsidian	.16775(*)	0.0420785	0.001692	0.0493521	0.2861458
			White Chert	-0.0465257	0.0271978	0.429155	-0.1212299	0.0281784
			Production	-.46609(*)	0.028606	4.8E-13	-0.5448241	-0.3873614
Platform Width (log 10)	Tukey HSD	Other Chert	Obsidian	.16132(*)	0.037017	0.000154	0.0599941	0.2626516
			White Chert	0.0054665	0.0267704	0.999612	-0.0678136	0.0787466
			Production	-.31043(*)	0.0284218	4.33E-13	-0.3882275	-0.2326265
			Resharpening	0.0250418	0.0266546	0.881373	-0.0479214	0.098005
		Obsidian	Other Chert	-.16132(*)	0.037017	0.000154	-0.2626516	-0.0599941
			White Chert	-.15586(*)	0.0352013	0.000113	-0.2522147	-0.0594981
			Production	-.47175(*)	0.0364729	4.33E-13	-0.5715891	-0.3719106
			Resharpening	-.13628(*)	0.0351133	0.001106	-0.2323986	-0.0401635
		White Chert	Other Chert	-0.0054665	0.0267704	0.999612	-0.0787466	0.0678136
			Obsidian	.15586(*)	0.0352013	0.000113	0.0594981	0.2522147
			Production	-.31589(*)	0.0260128	4.33E-13	-0.3870996	-0.2446872
			Resharpening	0.0195753	0.0240694	0.926527	-0.0463112	0.0854619
		Production	Other Chert	.31043(*)	0.0284218	4.33E-13	0.2326265	0.3882275
			Obsidian	.47175(*)	0.0364729	4.33E-13	0.3719106	0.5715891
			White Chert	.31589(*)	0.0260128	4.33E-13	0.2446872	0.3870996
			Resharpening	.33547(*)	0.0258936	4.33E-13	0.2645887	0.4063488
		Resharpening	Other Chert	-0.0250418	0.0266546	0.881373	-0.098005	0.0479214
			Obsidian	.13628(*)	0.0351133	0.001106	0.0401635	0.2323986
			White Chert	-0.0195753	0.0240694	0.926527	-0.0854619	0.0463112
			Production	-.33547(*)	0.0258936	4.33E-13	-0.4063488	-0.2645887
	Games-Howell	Other Chert	Obsidian	.16132(*)	0.0388072	0.000795	0.0528183	0.2698275
			White Chert	0.0054665	0.0261489	0.999572	-0.0665039	0.0774369
			Production	-.31043(*)	0.0297324	4.84E-13	-0.3922758	-0.2285781
			Resharpening	0.0250418	0.0254514	0.862302	-0.0450364	0.0951199
		Obsidian	Other Chert	-.16132(*)	0.0388072	0.000795	-0.2698275	-0.0528183
			White Chert	-.15586(*)	0.0371326	0.000779	-0.2600591	-0.0516537
			Production	-.47175(*)	0.0397376	5.52E-13	-0.5826441	-0.3608556
			Resharpening	-.13628(*)	0.0366448	0.003841	-0.2392588	-0.0333034
		White Chert	Other Chert	-0.0054665	0.0261489	0.999572	-0.0774369	0.0665039
			Obsidian	.15586(*)	0.0371326	0.000779	0.0516537	0.2600591
			Production	-.31589(*)	0.0275109	4.76E-13	-0.3915966	-0.2401903
			Resharpening	0.0195753	0.0228168	0.911868	-0.0430754	0.082226
		Production	Other Chert	.31043(*)	0.0297324	4.84E-13	0.2285781	0.3922758
			Obsidian	.47175(*)	0.0397376	5.52E-13	0.3608556	0.5826441

Dependent Variable	Sig. Test	(I) Raw Material	(J) Raw Material	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Upper Bound	Lower Bound
Platform Width (log 10)	Games-Howell	Production	White Chert	.31589(*)	0.0275109	4.76E-13	0.2401903	0.3915966
			Resharpening	.33547(*)	0.0268488	4.84E-13	0.261559	0.4093785
		Resharpening	Other Chert	-0.0250418	0.0254514	0.862302	-0.0951199	0.0450364
			Obsidian	.13628(*)	0.0366448	0.003841	0.0333034	0.2392588
			White Chert	-0.0195753	0.0228168	0.911868	-0.082226	0.0430754
			Production	-.33547(*)	0.0268488	4.84E-13	-0.4093785	-0.261559
*. The mean difference is significant at the .05 level.								