

Composition and Interpretation of Stratified Deposits  
in Ancestral Hopi Villages at Homol'ovi

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**Abstract**

During more than 20 years excavating in five of the seven ancestral Hopi villages comprising the Homol'ovi Settlement Cluster in northeastern Arizona, an incredible diversity of depositional practices has been noted within and outside structures. This paper focuses on one particular class of deposits unique in its use of ash either as part of the composition of deposits or as caps to deep, complex deposits. The association of ash with ritual structures, rare or unusual objects, and structural fires is explored and explained as likely tied to purification ritual and attempts to forget the past. Recognition of these deposits was possible through a systematic study of stratigraphic patterns among all excavation units.

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Ritual activities include the deliberate manipulation of natural materials such as sediments in addition to traditionally recognized ritual artifacts. Ritual artifacts have received significant attention as material manifestations of religion and cosmology as evidenced by studies of the contexts and contents of burials, foundation deposits predating construction episodes, and closure of structures and sites resulting from inter and intra-site population movement. Artifacts are often included in purposeful filling of structures adding meaning to the deposits and possible clarity in the interpretation, but these materials only provide one piece of the story of deposition.

In addition to artifacts, variable quantities and varieties of sediment are used to demarcate different depositional events and patterns. Richards and Thomas (1984) identify “structured deposits” in the deliberate patterning of material culture at sites throughout southern England and interpret these behaviors as indicators of symbolic and ritual investment. Building upon this premise, numerous research programs have employed the idea of structured deposits to explain their findings (ex. Hill 1995; Pollard 1995; Thomas 1999). Despite the broad applicability of the authors’ concept, Pollard (2008) rejects their unquestioned association with ritual and instead highlights the role of deposition in the formation and renegotiation of both material and human relationships. His study emphasizes the importance of creating links between deposits through material citation (Jones 2001). Namely, deposits cannot be understood on their own, but rather accrue relational significance through their reference to other practices found throughout the site or region.

Social stratigraphy, an approach introduced by McAnany and Hodder (2009) provides an alternative means to understanding the deposition of both materials and sediment. The critical concept of this theory is that individual deposits within a unit of deposition are related both physically and socially. Expanding upon earlier investigations of deposition, social stratigraphy broadens the focus of analysis to include the order and association of their content and placement as reflecting social decisions; hence what was deposited before and after affects the meaning and social understanding of any individual deposit. This allows for investigation of variability in deposits as representations of different social practices mediating relationships among people, materials, and spaces. As an example, we highlight the importance of the patterned deposition of sediments, specifically ash, as a social practice in the North American Southwest. While deviating from the traditional focus on cultural materials by instead addressing the use of sediment to construct social meaning, the deliberate deposition seen in the closure of structures highlights the social importance of sediments in creating the desired configuration of materials in the Prehispanic Southwest (Van Keuren and Roos 2013). Sediment research is far from novel, but its use in understanding social and ritual lives of prehistoric people moves beyond explanations of environment and subsistence towards an understanding of social and ritual practices both temporally and spatially. Salisbury (2012) argues for the importance of understanding the significance of sediment, specifically as a representing an important component in the lives of agriculturists. Van Keuren and Roos (2013) use detailed geochemical analysis to understand the complex closure of a single kiva at Fourmile Ruin. Building upon these studies of sediment from a geochemical standpoint,

we outline and interpret the widespread use of ash as a key component of ritual closure in the HSC.

#### Previous Research in the Homol'ovi Settlement Cluster

From 1985 to 2006, Arizona State Museum (ASM), University of Arizona, excavated 178 structures representing 5.4% of the estimated 3285 structures present in the seven villages that comprise the Homol'ovi Settlement Cluster (HSC) in northeastern Arizona (Adams 2002) (Table 1, Fig. 1). Additional excavations were conducted in spaces outside pueblo walls and within plazas, which also contained complex deposits. The HSC represents an ancestral Hopi occupation of the Little Colorado River valley between 1260 and 1400 (Adams 2002, 2004). Archaeologists working in HSC have documented extensive, variable, and complex cultural deposits within and outside structures. All excavations used stratigraphy rather than arbitrary excavation units, and detailed notes were kept on each deposit. From the beginning of work within the HSC, ASM researchers focused on how ancestral Hopis at Homol'ovi engaged and manipulated their material world through religious ritual practices (Adams 1991, 1994; Walker 1995, 1996; Walker et al. 2000). This research employed tenets of behavioral archaeology (Schiffer 1987) augmented by construction of object and structure life histories or biographies (LaMotta and Schiffer 1999; Meyers 2007; Walker 1995) to uncover patterns of behavior that diverged from domestic activities (Adams 1996, 2002).

The initial focus on the treatment of kivas (distinctive ceremonial structures) revealed strong patterns in their closure, using burning, burial, and insertion of unusual, rare, and whole objects, in comparison to other structures (Adams and LaMotta 2006; Karunaratne 1997; LaMotta 1996; Walker et al. 2000). By focusing on objects in kivas, it

was apparent their presence was the end point of a complex history for the object that along with histories for other objects in structures allowed insights into the social lives of these objects, the purposes for deposition in kivas, and the meaning of the structure within the community before and during its filling. Searches for object patterning in non-kiva structures revealed similar object clusters and closure practices suggesting the structures had special, non-residential meaning to the community (Adams 2002). While exploring object and structure relationships, strong patterns of distinctive deposits were also identified, the most obvious being the insertion of ash, often without artifacts, into many kivas, but also into some non-kiva structures. In this paper we explore the distribution and context of an intriguing material, ash, to determine its possible role in closing structures and transforming spaces at Homol'ovi. Because we argue that fire and its end product, ash, are related to structure and community termination or closure, we briefly discuss the relationship between the two.

### Formation Processes and Human Agency

Recognition of formation processes is central to interpreting archaeological deposits. Behavioral archaeology, developed at the University of Arizona by Michael Schiffer, William Rathje, and J. J. Reid, provides two broad categories of formation processes: cultural and natural. Cultural formation processes involve human activities that transform objects from systemic, or lived, contexts to the archaeological record, while natural formation processes encompass environmental aspects of and impacts to this transition (Schiffer 1987). Stratigraphy, or the vertical and horizontal relationship of materials in the archaeological record, provides temporal and spatial information on the

ordering and patterning of formation processes. While the initial constructs of behavioral archaeology were limited regarding ritual processes, this approach has recently served as a means to firmly ground ritual behaviors in the archaeological record (Hollenback 2010; LaMotta and Schiffer 1999).

Attempts to understand the formation processes associated with ritual deposition led to the creation of several additional categories of behavior. Walker (2002:160) argues that regularities can be identified and used to study more thoroughly the role of ritual in the formation of deposits. Specifically, he posits the existence of three main types of ritual deposition: sacrificial, kratophanous, and ceremonial trash (Walker 1995).

Sacrificial deposits include the deposition of artifacts with remaining use-lives, or functional utility, and sacrifice of animals and humans; kratophanous deposits are similar, but include the fear of powerful objects that require neutralization. Ceremonial trash references deposits with objects discarded or used-up during ceremonial activities.

LaMotta (2001) expands this list to include a fourth category of ritual deposition specifically for mortuary contexts. Additionally, Adams and LaMotta (2006:59) use the term “enriched deposits” to refer to those containing higher frequencies of “complete objects, exotic goods, or nonsubsistence fauna” resulting from ceremonial activities.

Alternately, the lack of expected artifacts of ritual importance has also been examined.

Seymour and Schiffer (1987:571) use the term “ritual depletion” to reference the deliberate curation of objects (items that remain in the possession of individuals), thus removing them from archaeological contexts.

Studies of memory provide a means to focus on both “the transmission and transformation of social practices” (Mills and Walker 2008:4). The role of material

culture in the creation and maintenance of memory led to its connection with materiality. Materiality references the complex interrelationships between humans and materials in various social contexts (Mills and Walker 2008:3; Buchli 2004; DeMarrais et al. 2004; Graves-Brown 2000; Meskell 2004:6, 2005; Miller 2005; Preucel and Meskell 2004). In a similar fashion, memory is not only experienced, but also created through social action with materials (Jansen 2007; Krause 2005; Litzinger 1998; Mills and Walker 2008; Stoler and Strassler 2000), which can be used to encode memory onto the landscape (Alcock 2002; Ashmore and Knapp 1999; Bender 1993; Bradley 1998; Edmonds 1999; Hirsch and O'Hanlon 1995; Thomas 1999; Tilley 1994; Van Dyke 2003, 2007, 2011). For example, Nora (1989) discusses the role played by museums in the display and transmission of memories. Similarly, ancestral sites can serve as markers of and catalysts for the memories of descendant communities (Ferguson and Colwell-Chanthaphonh 2006). The intensity and visibility of social actions responsible for the encoding of memory dictates the strength of its impact on society.

Social memory also concerns what is forgotten by society (Kuchler 1999, 2002). Material forms of memory may be subject to forgetting through acts of destruction or de-consecration. This can involve elaborate ritual procedures (Mills 2004), including the "burning, selective removal of architectural elements, and/or filling" of rooms (Mills 2008:82; Creel and Anyon 2003; Walker et al. 2000). For example, in Chaco Canyon, this process resulted in the deliberate discard of large quantities of objects within room blocks to "memorialize" the site and its occupants (Mills 2008). Patterned discard behaviors generally involve a combination of remembering and forgetting activities. Joyce (2008:38) notes, "depositional practices provide us a way to address the memory

work in which, at many times and places, networks of humans engage, in large part by connecting themselves through nonhumans.” The mention of memory work highlights the centrality of agency and action to the formation of memories, specifically through the deliberate creation of stratigraphic patterns.

These approaches to ritual deposition all focus on objects and their disposal. However, as identified at Homol’ovi I, the patterned deposition of sediment, most commonly associated with natural formation processes, also represents the deliberate behavior of individuals and the expression of human agency. The stratigraphy of ritual deposits often includes evidence of deliberate manipulation in the patterning of sediments based on colors and/or associations with specific cultural meaning (McAnany and Hodder 2009; Sherwood and Kidder 2011). This practice occurs throughout the prehistoric record as illustrated by the alteration of light and dark fill in the mound construction of the Mississippian center of Cahokia (Pauketat 2004, 2008) and the use of yellow sand and wood ashes to create a surface for Burial 14 in Pueblo Bonito, Chaco Canyon (Plog and Heitman 2010:19622). Artifacts found with this burial generally receive the most research focus, but deliberate patterning of ash and sand also contribute to the significance of this deposit. The HSC practice of burning and filling kivas, including ash deposits, is a clear-cut example of individuals or groups in the community making decisions about what sediments and objects enter the archaeological record and where they are located (Fig. 3). These patterns result in the creation of distinctive stratigraphic signatures noted during excavation and identified in profiles of each structure. Below we describe the nature of these deposits and how they are formed.



## The Relationship Between Structural Fires and Ash in the Homol'ovi Settlement Cluster

Because ash is a result of complete combustion of organic material, the relationship between structural fire and insertion of ash into the fill of purposefully burned structures must be discussed first. Structural fires in the HSC are rare with the exception of ceremonial structures, particularly kivas, and within the 500-room community of Chevelon Pueblo where 20% or more of the structures were purposely burned (Fig. 2, Table 2) (Icove et al. 2006). Chevelon is the exception to the pattern of burning within the cluster and we chose to investigate burned structures outside Chevelon with the exception of those containing ash deposits. Although this may introduce some bias into the results, we believe it provides the best opportunity to understand the relationship between fire and ash at HSC.

In addition to burning, closure and termination can involve removal, burial, and other types of destruction with the goal of forgetting the past. These varied closure rituals are often characterized as acts of purification or protection from uncontrollable powers of previous occupants (Grove and Gillespie 2002; Kuchler 1999; Manzanilla 2002; Plunket 2002; Suhler and Freidel 2003; Twiss et al. 2008).

The ethnographic Southwest is replete with purposeful burning of structures and personal objects primarily associated with mortuary rituals (see Walker et al. 2000:346). These decommissioning rituals mark the transition or transformation of a structure and associated objects of recently deceased individuals from the living to the archaeological record. Similarly, structural fires are common in the archaeological record of ancestral Pueblo groups and often associated with human remains and whole objects from

everyday activities (Lightfoot 1993; Walker et al. 2000). Although burned structures with human remains may occasionally receive additional cultural deposits, these structures are never again occupied and are closed for any future use. As with ethnographic groups, it is likely burning archaeological structures containing human remains and personal property protected the living from potential spiritual contamination through coming into contact with the dead (possibly returning as witches) or their belongings (Darling 1998; Walker 1998, 2008).

As suggested from ethnographic and archaeological records, fire was used to purify or transform structures or entire villages from one state of existence to an alternative one. The ethnographic record suggests the reason for destruction is because objects and areas have become contaminated or pose a danger to the uninitiated (Titiev 1944:106; Walker 1995, 2008; Whiteley 1998). For example, some Hopi societies are involved with journeys to the after-life where individuals come into contact with the dead (Parsons 1936, 1939; Titiev 1944). Individuals not initiated into these societies can become sick or die from contact with objects or spaces used by initiated groups performing their rites (Titiev 1944:106). Among Pueblo groups, ash in the form of deposits, circles, or marks is used to seal or protect individuals or an area from ritual danger or disease caused by spiritual contamination (Parsons 1939:364, 464; Titiev 1944:106).

Witches pose continuous threats to Pueblo groups and burning witches or their households and belongings is a method of purification (Walker 1998). Whiteley (1998:143) reports the burning of *Wuwtsim* (an important Hopi men's society) ritual paraphernalia, including the altar and totem (*tiiponi*), by the chief priest terminates evil,

corruption, and sorcery within his community. During *Wuwtsim*, ghosts of the deceased may walk among the living so faces of the living are marked with ash to distinguish and protect them from the walking dead. Thus, in Hopi society burning and ash protect against ritual forces deemed harmful and relate to beliefs in the natural order of decay, morally and materially, requiring protection and purification (Whiteley 1998). The goal in all cases is protection from spiritual contamination.

During the Hopi New Fire Ceremony (Fewkes 1900), households clean out their hearths, whose ash is deposited in specific areas, in order to start a new fire that marks the beginning of a new ceremonial year. Thus, in Hopi tradition, fire and ash are used to end one chapter and begin another in the life history of inalienable objects, hearths, buildings, or a community. Burning is transformative from one state to another with ash symbolizing the altered and used-up state. This relates to the concept of actively forgetting the past (Kuchler 1999; Meskell 2008; Mills 2008).

Another characteristic of some religious architecture of ancestral Pueblo groups is the presence of sipapus in floors, which in modern Pueblos represent access points to the underworld (Wilshusen 1988). Allowing these to remain open leaves the village unprotected from the dead and malevolent forces (see Walker 2008). To mitigate such dangers, burning or covering the floor would be expected. Of the seven HSC kivas with sipapus, one is too vandalized to know its history, three are burned, two are buried with deposits including ash, and one was dismantled and filled with clean sand. These activities suggest special treatment for kivas having sipapus.

Given the strong ethnographic and archaeological patterns of burning and ash use in the Southwest U.S., it is possible burning and ash belonged to the same category of

symbolism in the HSC belief system with the same social meaning. Structural fire transforms space, providing a means of forgetting the past by terminating the connection to a place with deep, but perhaps undesirable memories. This could explain why some kivas with deep deposits are finally burned or capped with ash, where others with deep deposits are not.

Although burning has been recognized and studied extensively by archaeologists, the use of ash to terminate or close depopulated spaces by residents for similar reasons – purification or protection – has gone unrecognized. As already discussed, Hopi use of ash for purification and protection usually involves religious rituals. Hopi use ash to mark individuals during *Wuwtsim* to protect them from spiritual contamination (Parsons 1939; Titiev 1944). Archaeologically in Greece, the ash altars to Zeus (Rupp 1976) represent extensive offerings or sacrifices. Prior to construction of Mound A at Poverty Point, burning and the resulting ash and charcoal were used to cleanse the ground and prepare it for construction of the mound (Kidder et al. 2004; Sherwood and Kidder 2011). These examples highlight the cross-cultural importance of ash in rituals of purification.

### Stratified Deposits in the Homol'ovi Settlement Cluster

#### Kiva Deposits

Excavation in 24 kivas in HSC villages identified numerous formal properties believed to be the result of rituals associated with decommissioning ceremonial structures characterized by highly redundant patterns, distinctiveness from other deposits, and correlations to ethnographic Pueblo rituals (see Walker et al. 2000). These formal

properties indicate they were part of a system of behaviors and rituals conducted to ensure religious structures managed or owned by social groups within the community were transformed from the living community to the sacred history of the village. This transformation involved some or all of the following: roof burning, placement or discard of unusual or rare objects, structured deposition including ash, purposeful breakage of some objects, and placement of whole objects on the floor or in the fill (Walker et al. 2000). This technology of kiva closure fits with the formal structure of activities associated with ritual described by Rappaport (1999) and suggests that ash deposition is one option available to ancestral Hopi to close and rededicate space in their community. To further explore the purpose of ash deposits in the social and ritual histories of the HSC villages, we need an understanding of how structural deposits are formed, where and when ash is involved, and what other objects and deposit types are associated with ash deposits regardless of structure use.

Where total kivas is fewer than 24, this is due to vandalism so extensive that a conclusion as to their filling could not be determined. Fifteen of 19 kivas (79%) in HSC received special treatment that included purposeful filling with or without ash, 11 of 24 kivas (46%) were burned, and 9 of 19 kivas (47%) had ash added to their fill. Ash or burning occurred in 17 of the 24 kivas (71%) where deposits or roofs were preserved. Their association with each other is not strong. Only three of the 11 burned kivas (27%) have ash deposits as part of their fill out of nine kivas with ash deposits; however, deposits in three of the 11 burned kivas (27%) were too disturbed to determine whether ash was present or not. Little overlap might be due to similar roles in closure of ceremonial spaces for fire and ash. The few burned non-kiva structures also rarely had

ash deposits, although some unburned non-kiva structures had ash and enriched deposits similar to kivas, suggesting we should also focus on deposition and context, including ash and other deposits, rather than just past structure use.

### The Relationship of Ash Deposits to Structure Closures

In this study, ash deposits are considered to be any deliberate patterned secondary deposition of ash within a structure. This intentionally excludes ash created in situ through the burning of a feature, such as a hearth, or from burning the roof of a room. It also excludes structures containing random ashy deposits throughout their fill. By this definition, ash is significant for structural deposits both because of the physical characteristics of the sediment, including color, and its deliberate and patterned placement within structural closures secondary to its primary context. Four practices of deliberate ash deposition within closure deposits are found in the HSC. These include: 1) trash cones with stratified layers of ash separated by other sediments (often clay or sand), 2) ash lenses used to cap or seal deposits, features or surfaces within a structure, 3) ash dumps resulting in discrete deposits throughout the fill, and 4) thick, culturally-rich, ashy deposits. Often structures contain multiple types of ash deposits at different stages of the fill.

It is important to remember that ash appears in other structures within the site cluster as well. Many structures have small random ash lenses that do not appear to be centrally important to the closure of that structure. Therefore, strong evidence of patterning and intentional ordering of sediment was necessary to be considered one of the four ash deposit types described below. Each type will be discussed in detail with

specific examples from the HSC included to illustrate the significance of the placement of these deposits.

The overall appearance of ash deposits in the structures sampled for this paper is provided in Table 3. Five of these structures had been kivas prior to their closure reinforcing the link between ritual usage and ash deposition. The other three structures were used for storage, although two were later converted to habitation areas. The entire span of occupation of the Homol'ovi cluster is represented within this sample.

Homol'ovi III was occupied earliest, ending by the start of the 14<sup>th</sup> century, followed by Chevelon Ruin and Homol'ovi I, with Homol'ovi II representing the latest occupation in the cluster (Adams 2002) (Table 1). This sample of structures allows the configuration of the ash deposits to be the primary focus while also providing identification of spatial and temporal patterning.

### Trash Cones

A large portion of the rooms with evidence of deliberate and structured ash deposits included ash as part of a trash cone. A trash cone is a three-dimensional deposit in the shape of a cone with the widest part found on or near the floor and the point extending vertically upwards. It is created by the deposition of materials through a small opening, or hatchway, in the roof of a structure. As material is added through the hatch, it spreads outwards creating the mound, or cone, beneath the opening (Figs. 4 and 5).

Trash cones are identified archaeologically during excavation as strata appearing at an angle. In the Homol'ovi Research Program (Adams 2002), excavators sought to preserve

the existing formation of the strata and excavated levels of the cone as they were uncovered.

While ash may appear mixed with other deposits within a trash cone, in general, the depositional pattern shown in Figure 4 of Structure 215 is found. In this case, ash is deposited into a trash cone in a highly formalized and patterned manner. This consists of the deposition of mostly green-gray, occasionally white, ash alternately with the deposition of visually-distinctive sediments, producing a layered profile indicative of repeated ash accumulation separated by sand and/or clay. For example, in Kiva 37 of Homol'ovi III, trash layers containing ash deposited through the hatch alternated in the trash cone with clay and plaster as well as organic material likely from the roof (Adams 2001:98-99).

While many of the deposits that compose a trash cone are either natural or are artifact free, there are also layers that contain significant deposits of cultural material. This often includes sherds, flaked stone, and animal bones similar to deposits of domestic trash that are ubiquitous in each village; however, trash cones may also contain rare or unusual materials including projectile points, articulated animal bone, shell, fossils, and reconstructible ceramic vessels.

Structure 733 of Homol'ovi I provides an example of this type of deposit. The fill of this structure contained a large trash cone composed of alternating sand and ash layers. The sand may represent natural fill implying the closure of the room occurred over an extended period of time or sediment was deliberately added to separate out layers of ash. Each layer contained a scattering of sherds, flaked stone, and animal bones with rare and unusual objects, including a large concentration of obsidian flakes, selenite used to make



white pigment, a corncob, and a ladle handle. The obsidian could represent the San Francisco Peaks where it was collected or the color black, the selenite could represent colored layers of clay near Homol'ovi I or the color white, and the yellow sand could represent corn or the local landscape as a source for growing food. This interpretation evokes a perspective that elements of the landscape meaningful to the people of Homol'ovi I may be symbolized in these complex deposits (Bradley 2000; Sherwood and Kidder 2011).

In this scenario, ash represents change or transformation in a physical sense within the deposit and in a metaphorical sense from one symbolized place to another (Knapp and Ashmore 1999; Kopytoff 1986). The presence of cultural materials within both the sand and ash layers supports the hypothesis that the patterned layering of ash and sand was indeed deliberate and sand was used to delineate the ash deposits. These physical layers could also metaphorically represent the layered universe shared by speakers of Uto-Aztecan languages and their neighbors from central Mexico to the U.S. Southwest where transformation from one world or layer to the next is achieved through termination of past lifeways (Hays-Gilpin and Hill 2000). Trash cones found in other structures discussed in this article reflect similar patterns of the layering of deposits, although the number of deposits varies with some ash cones receiving a cap of ash to seal the deposit as a whole. The regular appearance of these relationships of sediment indicates inhabitants were purposely differentiating deposits from one another to create the layered effect evidenced in the stratigraphic profile and perhaps creating cultural metaphors as described above.

The deliberate patterning and possible metaphysical meanings of objects and deposits, whether involving ash or not, underscores the social meaning imbued by construction of these deposits (McAnany and Hodder 2009). It seems likely stratigraphic deposits that include ash were constructed with knowledge of the deposits underlying them as illustrated by the intentional alternating of ash with natural fill strata described above. In some cases, such as Kiva 279 in Chevelon Pueblo, purposeful deposits are likely tied to memory-making (Mills and Walker 2008). For other structures where filling was more rapid, the emphasis may have been on forgetting (Kuchler 1999; Meskell 2008; Mills 2008) or purification and protection of the living

#### Ash Lenses

When ash appears in a thin layer over a floor, roof, trash cone, or other series of deposits, it appears to seal or restrict access to an area or prior deposits. This type of deposit can make up the final layer of a trash cone or ash may be spread across the floor of a room or above a dismantled roof. This type of ash deposit may or may not include cultural materials; however, it can be considered a reference to artifacts deposited below it, marking the transition in use or filling of a structure. Thus, ash lenses mark a shift to a new use for an area or to a different depositional pattern suggesting a change in the ritual practices occurring within that space. Once the final layer of ash has been added to a trash cone, the roof is often destroyed and the room is filled as a whole. The destruction of the roof marked a shift in the relationship of the inhabitants with the structure and served to end the formation of a trash cone by dismantling the roof hatch. In other cases, the addition of ash to seal a structure can be used to mark its repurposing. Repurposing

refers to the reuse of the structure itself through the addition of floor levels, as seen in Structure 701 of Homol'ovi I, or reuse of an area, illustrated by the creation of the east plaza at Homol'ovi I. In both cases, the activities that occur with or within these spaces are drastically altered following placement of the ash layer.

A clear example of the use of ash to cap or seal a feature or deposit can be seen in Structure 901 of Chevelon Pueblo (Fig. 5). This room contained a trash cone formed through deposition of material through the hatchway. This trash cone was formed through layers of sandy loam and redeposited ash and included shell, projectile points, articulated elements of birds and bighorn sheep, ceramic ladles and miniatures, and numerous partially reconstructible vessels in addition to sherds, flaked stone, and animal bone (Diaz de Valdes 2007). The ash cap appeared as a thick deposit at the top of the cone. Soon after deposition of the ash cap, portions of the roof were burned and wall fall began to appear. Artifact deposition shifted from the central location of the hatch to numerous localized openings in the roof caused by its partial burning and decay. The shift from highly patterned and controlled deposition with formation of the ash cone to the destruction of the roof and general trash fill and wall fall from structural deterioration signifies important changes in the relationship between the community inhabitants and this structure.

Structure 701 of Homol'ovi I provides another example of the utilization of an ash lens to signify a change in structure use. The ash in this room was found between the two floor levels that mark the transition of this space from storage to habitation. The ash was included as fill in addition to a large concentration of articulated rabbit and turkey remains. A thin layer of orange sand was placed above the ash and served as the floor for

the subsequent habitation structure. This newly formed space included a corner shrine feature, indicating Structure 701 served as a ritual habitation structure or possibly a clan house (Adams 1983, 2002). These two examples illustrate the different ways ash lenses were used to mark a transformation of the social relationships with space and associated ritual practices.

### Ash Dumps

Individual ash dumps are formed through the deliberate deposition of concentrated ash in small quantities. These form pockets of ash in the midst of clay or sand deposits. When ash appears in this form, it seems to be the result of cleaning of a hearth or other heating feature. This is one of the most common appearances of ash within structure fill in the HSC. However, as noted above, it is only considered to be part of a deliberate ash deposition practice when there is evidence of its patterned occurrence throughout the fill of a structure or in association with another type of ash deposit described in this context. Ash pockets often occur in fill above the collapsed roof of structures that previously received significant depositions of ash in the form of trash cones or ash lenses.

Additionally, while ashy pockets generally contain unburned or burnt bone as well as ceramics and lithics, there are instances of rare or unique objects found within these dumping episodes. For example, in Structure 651 of Homol'ovi I turquoise is found in a deposit resulting from a hearth dump. In Aztec mythology, the central hearth of Aztec origin was referred to as the turquoise hearth (Taube 2000). Turquoise may signify the hearth or the structure in which it was deposited were highly valued spaces. Whatever

the reason, this association indicates the significance of the depositional context as it was deemed appropriate to receive materials of high value.

Ash first appeared in Kiva 37 at Homol'ovi III as part of a trash cone. The roof was then dismantled with ash deposited in pockets and lenses above the dismantled roof layer. While ash pockets can be seen as isolated events, the appearance of numerous pockets above the roof fall in addition to the appearance of an ash and sand layered trash cone within the structure suggest the actions are related, that the structure was still an appropriate area for the placement of ash, and demonstrates continued attention to closure of the room. In addition, the numerous, distinctive ash dumps indicate multiple social actors may have been involved. In these instances the deposition of ash is accretional and representative of a social practice and behavioral choice, fitting the discussion of deliberate deposits created through the addition of material within social stratigraphy proposed by McAnany and Hodder (2009).

#### Thick Ashy Cultural Deposits

The final formation in which ash deposition occurs is as a thick layer of ashy cultural deposits. The large quantities of cultural materials distinguish this type of ash deposit from others. These deposits may include articulated animal bone, human bone, projectile points, shell, reconstructible vessels, or other unique materials in addition to sherds, flaked stone, and disarticulated animal bone. The concentration of cultural materials in a deposit with high ash content is unique. While many stratigraphic levels contain some portion of ash, its appearance and association with a high number of

artifacts is unusual. While this type often occurs in association with other forms of ash deposition, it may also be unique within a structure.

For example, a thick cultural ashy layer may be used to signify the repurposing of a structure, as discussed above in relation to the use of ash to cap a room or feature. Structure 651 of Homol'ovi I is the only unconverted storage structure to receive an ash deposit in this sample. Ash in this room took two forms: as a lens within clay and sand deposits likely representing isolated ash inclusions intermixed with deliberate filling of the structure with other sediment, and as cultural ashy fill including the burial of two neonatal skeletons. Despite the apparent commonplace use of this structure, it was located in an area leveled for the construction of an interior plaza, itself having ritual deposits, used by the surrounding room block. Thus, this area of the pueblo came to embody a great amount of ritual significance to the community and served as a center for the 600s room block. Ash deposits in this structure may have been used to prepare the area for its future role within the society by signifying its shift in use and importance. While ashy cultural deposits are not automatically used to seal or close a structure or depositional process as discussed above, they do serve to mark a change in use of the structure. Ash has the potential to seal ritually significant objects, including human remains occurring within this structure. If this is the case, the context of the structure itself may be of less importance than the components of the cultural layer.

### Summary

The flow chart in Figure 6 reveals several patterns of ash deposition. First, ash is strongly associated with qualitatively rare and unusual artifacts, or enriched deposits

(Adams and LaMotta 2006), suggesting ash may have served to ritually inter materials. Second, ash deposits are often associated with a planned closure as evidenced by their inclusion in accumulated trash cones created while the roof was still intact, but the room no longer served its original purpose within the community. There are exceptions when the structure is being repurposed rather than closed (Fladd 2012); nevertheless, ash still served to mark a change in the nature of the space in these instances. Third, kivas are the most common structures to receive ash deposits, but they are not the sole repositories of this material. Thus, use of the structure is important but determining its relationship to the surrounding area and its context within the pueblo as a whole must also be considered in understanding the use of ash. Its use to close structures being razed in order to build a new plaza may be indicative of cultural upheaval or social reorganization. For example, the use of ash to close Structure 651 in Homol'ovi I may be indicative of a shift of ritual focus to the southern portion of the site during this time (Adams 2002). These relationships suggest that ash can be ritually charged and serve as an important element in ritual practices within the village community. Finally, ash deposition occurs in many structures in multiple ways and often into a single structure in multiple ways. The evidenced variability demonstrates flexible use of ash throughout the settlement cluster. As a result, we conclude that ash creates social stratigraphy within structures used by Homol'ovi occupants to construct or deconstruct memory at the family, social unit, or community level.

## Conclusions

The act of burning or deposition of ash creates life histories for affected structures in the HSC different from other structures. This paper has associated these activities with a broad range of ritual practices creating social stratigraphy or structured biographies for the community (McAnany and Hodder 2009; Mills and Walker 2008). These deposits are distinctive for the length of time needed for their accumulation, the broad array of rare or unusual objects, and the use of ash. Connections to ritual activities of the past through deposition of associated objects in former religious structures demonstrate the social memory of the community, and at times highlight attempts to forget. Whether ash and fire symbolize attempts to actively transform and perhaps forget the past or simply to protect the living, they are prime examples of agency within the community. As a result of the systematic examination of stratigraphy among more than 200 excavated units with HSC, we have learned these deposits are only special classes of a pattern where every structure at Homol'ovi has some form, often multiple forms, of closure (Fladd 2012). Thus, closure practices transform strata from physical relationships to social relationships, expanding the life history or biography of the spaces in which they occur (Kopytoff 1986; McAnany and Hodder 2009). Thus, treating sediment as altered through human agency reveals social structures and symbols overlooked by purely artifact-based studies (Salisbury 2012; Van Keuren and Roos 2013).

People living in Homol'ovi pueblos were actively engaged with the spaces around them during the occupation of the community. Structures infused with ash always contain dozens to 100s of objects also purposely placed within their walls to commemorate past events involving the structure and surrounding space, to reanimate those events, or to forget them. Regardless of the purpose, all the events were social and involved members



of the community, in some cases restricted when access and visibility was limited, in other cases to the entire community, when a structure was readily accessible, such as a plaza kiva. When ash was involved, the practice of structure closure involved purification or protection. In many instances, human remains were involved and the ash may be protection from associated spirits. In some, ash may have been used to protect community members from practices that took place in these spaces, perhaps also involving deceased spirits. In these instances, ash deposition is likely linked more to forgetting these relationships than commemorating them.

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Table 1. Villages within the Homol'ovi Settlement Cluster

Village	No. of Structures	Structures Excavated	Occupation Period
Homol'ovi I	1100	70	1290-1390
Homol'ovi II	1200	34	1360-1400
Homol'ovi III	45	20	1285-1305 1325-1375
Homol'ovi IV	200	10	1260-1285
Chevelon	500	39	1290-1390
Jackrabbit	120	5	1285-1305 1350-1375
Cottonwood Creek	120	0	1285-1360
Totals	3285	178	

Table 2. Frequency of burning in excavated villages in the Homol'ovi Settlement Cluster.

Village	Structures	Structures	Frequency of	Frequency of Burned
	Excavated	Burned	Burned Structures	Non-kiva Structures
Homol'ovi I	70	4	5.7%	6.1% (4 of 66)
Homol'ovi II	34	8	23.5%	3.7% (1 of 27)
Homol'ovi III	20	4	20.0%	13.3% (2 of 15)
Homol'ovi IV	10	0	0%	0% (0 of 8)
Chevelon	39	19	48.7%	48.6% (17 of 35)
Jackrabbit	5	0	0%	0% (0 of 4)
Totals	178	33	18.5%	14.8% (23 of 155)

*Note:* The number for burned structures includes kivas: 0 at Homol'ovi I; 6 at Homol'ovi II; 2 at Homol'ovi III, 3 at Chevelon.

Table 3: Structures with Analyzed Ash Deposits

Site	Structure*	Use	Ash Dump (P/A)	Ash Lens (P/A)	Ashy Cultural Deposit (P/A)	Trash Cone (P/A)
Homol'ovi III	37	Kiva	P	A	A	P
Chevelon	274/279	Kiva	P	P	P	P
Chevelon	901	Kiva	A	P	A	P
Homol'ovi I	651	Storage	P	P	P	A
Homol'ovi I	701	Storage to Habitation	A	A	P	A
Homol'ovi I	733	Corn Storage to Habitation	A	P	P	P
Homol'ovi II	324	Kiva	P	A	A	A
Homol'ovi I	203/215	Kiva	P	A	P	P

\* Assessments of ash deposition is based on the portion of each structure that was excavated by the HRP.

Note: P=Present and A=Absent in this table.

## Figure Captions

**Fig. 1** Location of villages in the Homol'ovi Settlement Cluster

**Fig. 2** Structure life history flow chart involving ash

**Fig. 3** Plan map of Chevelon Pueblo showing locations of structural fire

**Fig. 4** Plan view of ash cone from Homol'ovi I Kiva 215

**Fig. 5** North profile of Chevelon Pueblo Kiva 901

**Fig. 6** Practices of structure closure involving ash in the HSC

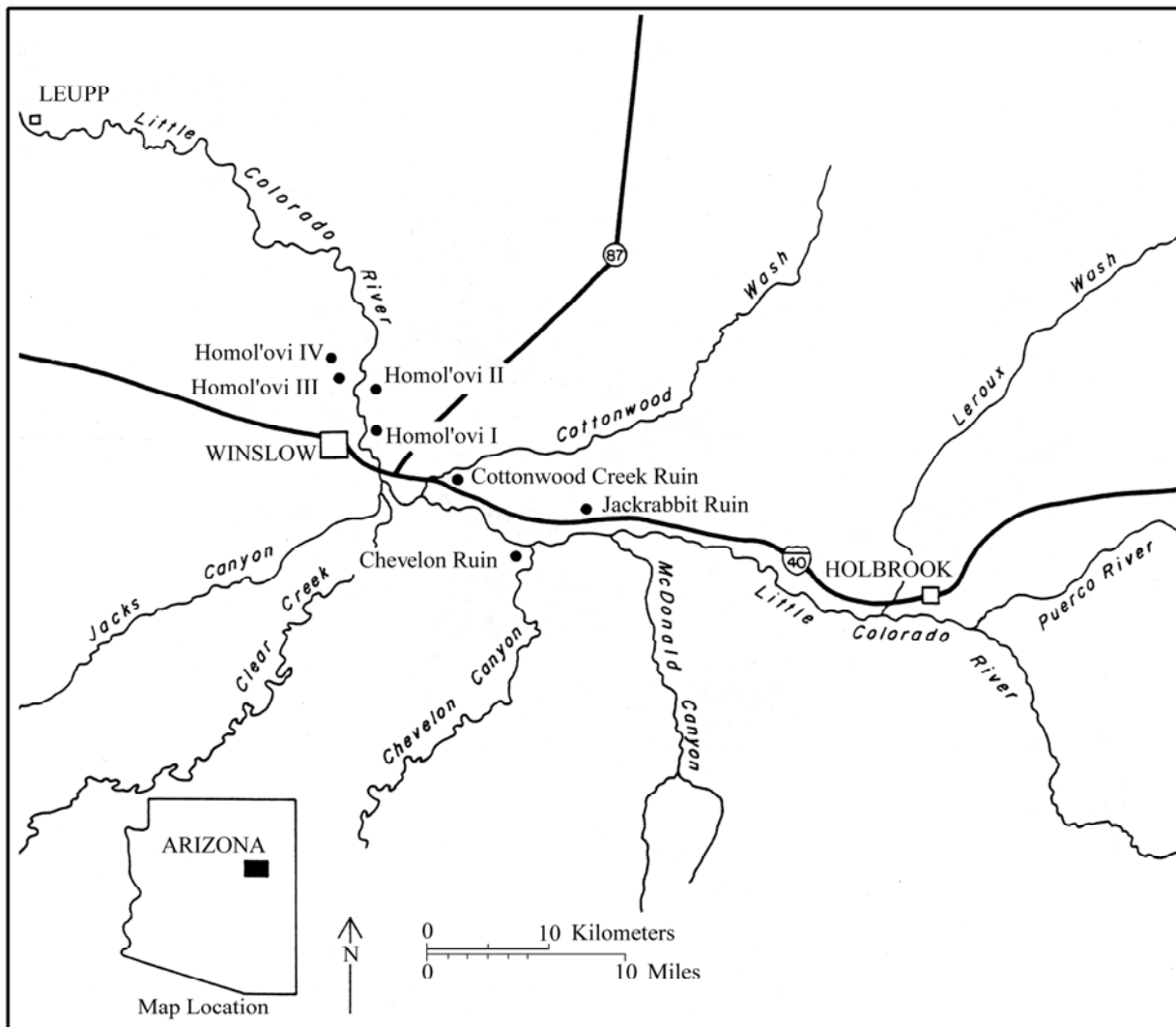


Fig. 1 Primary villages within the Homol'ovi Settlement Cluster



Fig. 2 Structure life history adapted from Adams (2002:Figure 2.1 )



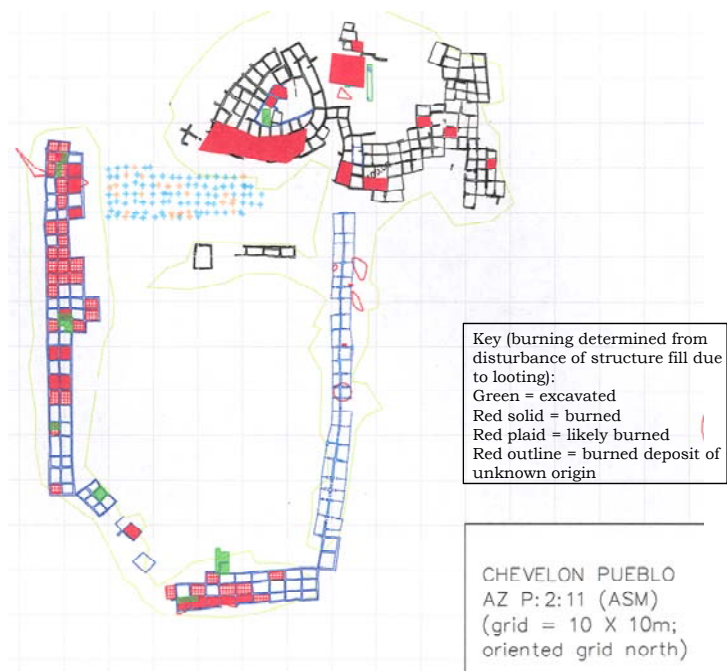


Fig. 3 Plan map of Chevelon Pueblo showing locations of structural fire in red

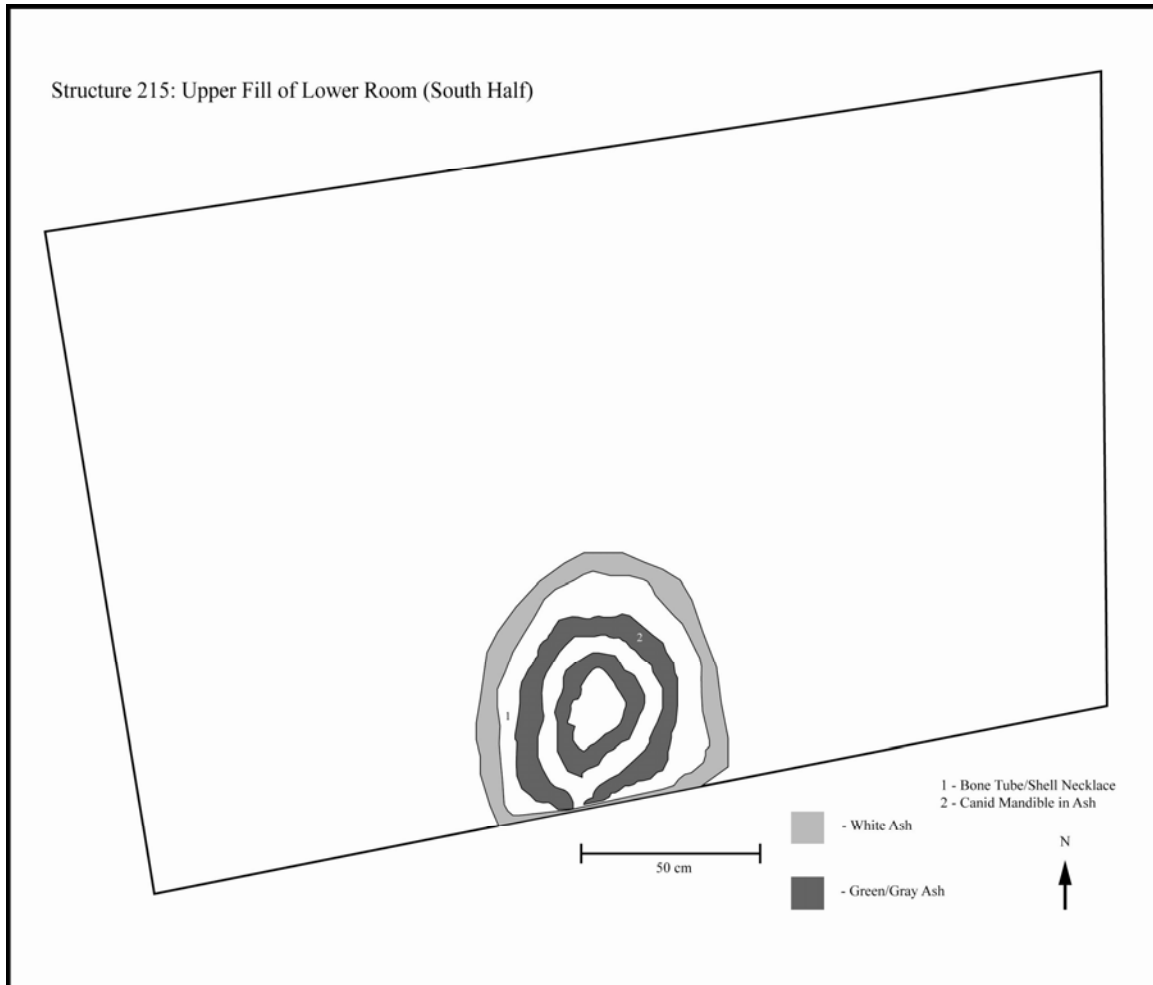


Fig. 4 Plan view of ash cone in Kiva 215 from Homol'ovi I

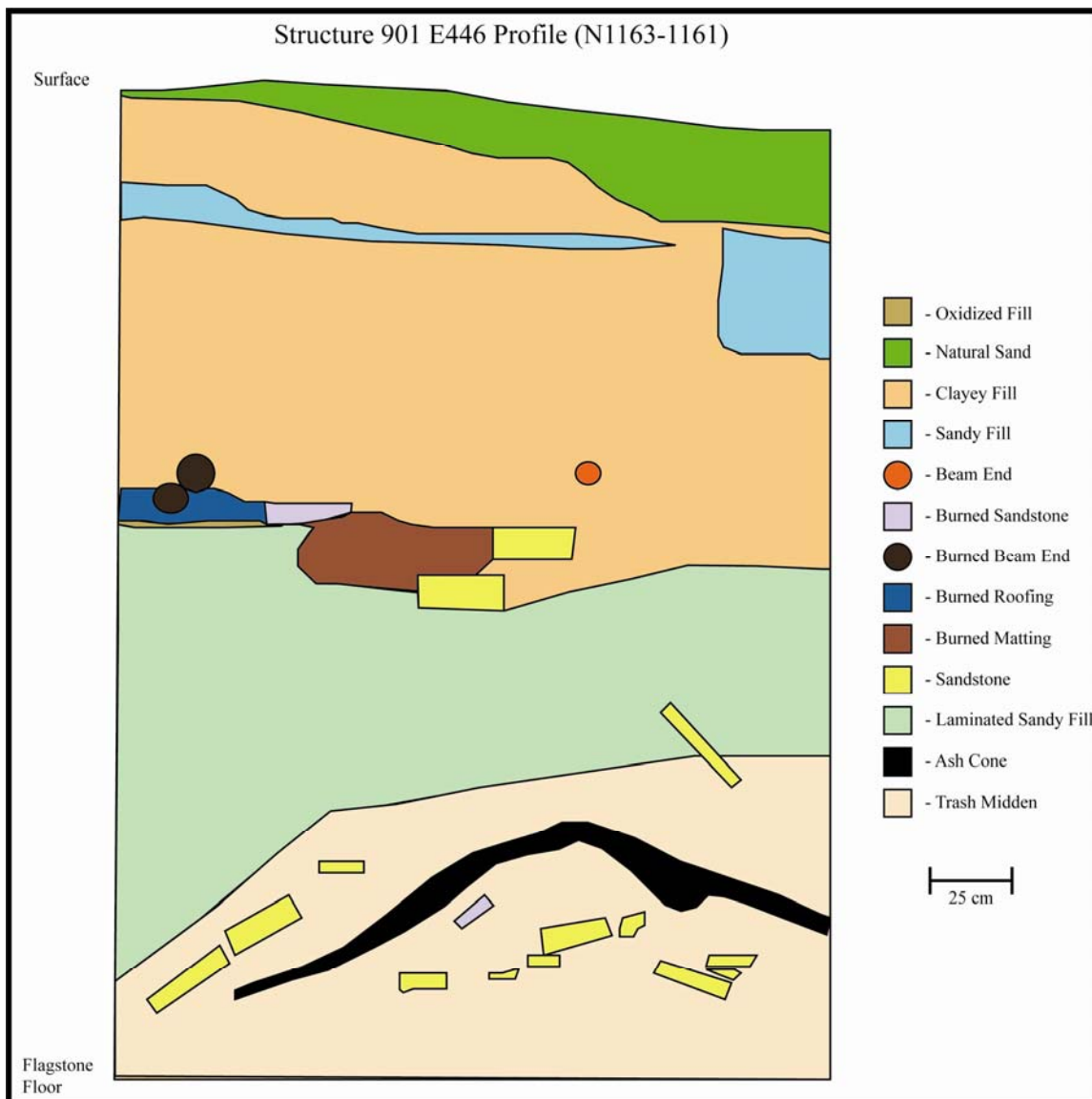


Fig. 5 North profile of Kiva 901 from Chevelon showing trash cone capped by an ash lens and burned beams

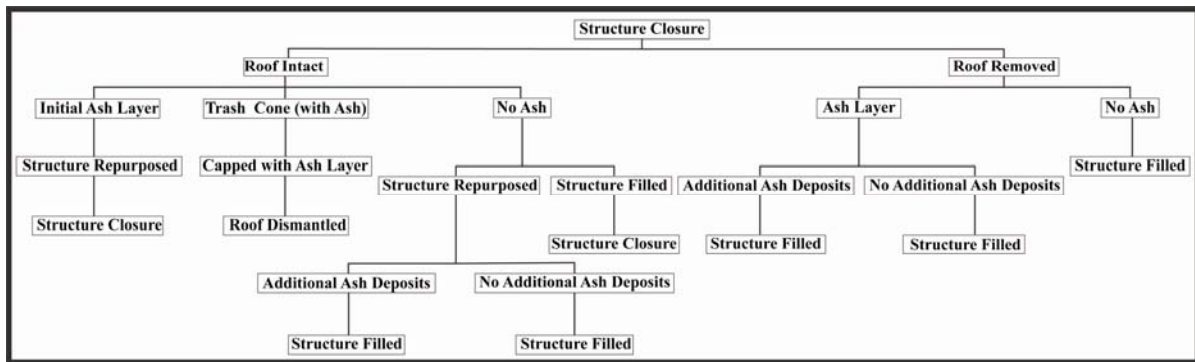


Fig. 6 Practices of structure closure involving ash in the HSC