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The Spectacle of The Bomb: Rhetorical Analysis of Risk of The Nevada Test Site in Technical Communication, Popular Press, and Pop Culture

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The Spectacle of The Bomb: Rhetorical Analysis of Risk of The Nevada Test Site in Technical Communication, Popular Press, and Pop Culture

by

Tiffany Wilgar

A dissertation submitted in partial fulfillment of the requirements for the degree for Doctor of Philosophy with a concentration in Rhetoric & Composition Department of English College of Arts & Sciences University of South Florida

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Keywords: technical communication, rhetoric of science, nuclear, Nevada Test Site, Las Vegas, Nevada, Risk, pop culture

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DEDICATION

This dissertation is dedicated to Harley Roberts and William Nunamaker.
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ABSTRACT

This dissertation is a rhetorical analysis of presentations of risk across three different sites of inquiry: technical communication, the popular press, and pop culture. This dissertation focuses on The Nevada Test Site (NTS), a nuclear testing facility near Las Vegas, Nevada, and analyzes presentations of risk in language of the technical report following an NTS accident in December 1970. Project Baneberry, a routine underground nuclear test, became the accident known as “The Baneberry Vent” when it cracked through the earth and vented into the atmosphere, exposing NTS employees and nearby communities to radiation. Presentations of risk in the technical document were then compared to presentations of risk in local popular press reports. Findings indicate that the technical document (titled the Baneberry Summary Report) presents research about potential health risks through the lens of legal culpability, which is termed “legal risk” in this dissertation. Conversely, the popular press reports health risk as health risk (rather than legal risk); however, popular press consistently deemphasizes the risks of the Baneberry Vent. Popular press reporting insists the NTS accident was not dangerous to local populations.

This dissertation also analyzes nuclear-related pop culture in Las Vegas, Nevada between 1951-1985 and argues pop culture as a meaningful participant in the social construction of risk for the discourse community of Las Vegas. The nuclear-infused pop culture of Las Vegas celebrated the nuclear tests and capitalized on their draw of tourists. This dissertation coins Las Vegas as a Risk Spectacle, which is an inversion of Ulrich Beck’s risk society. Las Vegas is a risk society as a result of NTS, but Las Vegas termed their local hazard a spectacle and celebrated the bomb through pop culture.
CHAPTER ONE: INTRODUCTION, BACKGROUND, CONTEXT, AND METHODS

“The process of becoming aware of risks is therefore always reversible. Troubled times and generations can be succeeded by others for which fear, tamed by interpretations, is a basic element of thought and experience. Here the threats are held captive in the cognitive cage of their always unstable ‘non-existence,’ and in that sense one has the right of later generations to make fun at what so upset the ‘old folks.’ The threat from nuclear weapons with unimaginable destructive force does not change. The perception of it fluctuates wildly. For decades the phrase was: ‘Live with the bomb.’ Then once again it drove millions into the streets. Agitation and calming down can have the same cause: the unimaginability of a danger with which one must nonetheless live.”

-- Ulrich Beck, Risk Society (1992, p. 75)

“The best thing to happen to Vegas was the atomic bomb.”

-- Benny Binion, owner of The Horseshoe Casino, Las Vegas (NATM: Gallery, n.d.)

As a native of Las Vegas, Nevada (NV), I grew up with The Strip lighting its artificial horizon in the night skies, and I rode my bike through open desert between views of Turtle Head Peak in Red Rock Canyon and Lone Mountain. The existence of the Nevada Test Site (NTS) has always been known to me, even as a child. NTS, a nuclear testing facility located roughly sixty miles from Las Vegas, detonated 100 nuclear bombs in the atmosphere between 1951-1963 and over 900 more underground until 1992. I went to church with men who worked at NTS and learned the
concept of a legal gag (i.e., legal restriction of information) by asking them about their work. As teenagers, my peers and I took a field trip to NTS. I remember clipping a thin, plastic geiger counter to my shirt, and I remember being prohibited from taking it home as a souvenir. NTS’s existence and activities existed in the background of my upbringing but were not often brought to the forefront of my attention. When NTS was a topic of conversation with adults, I would usually hear statements of local pride and patriotism. No one in my immediate circle was ever critical of NTS and concerns for public health were never discussed. I later learned that NTS was and had been a significant health risk, and I still wonder about the praising, patriotic language used by those around me throughout my upbringing.

I still wonder why NTS was never mentioned when my mother was diagnosed with ovarian cancer at thirty-six, or when my paternal grandmother died of colon cancer in her fifties, or when my maternal grandfather died of cancer, or when my aunt died of cancer, or when my father was treated for prostate cancer last year. Of course, there is no definitive evidence to link NTS to my cancer-ridden family history; however, for people who lived through the atmospheric testing, like my parents and grandparents, it seems curious to me now that this connection never came up in personal conversations. Terry Tempest Williams’s essay, “Clan of the one-Breasted Women” (1992), blends history and personal narrative to analyze the rhetoric of deference to authority in conversations through her own family’s multi-generational battles with breast cancer. While Williams does not use the word “rhetoric,” her work explores the relationship between physical consequences of nuclear fallout and her family’s use of language about NTS and illness. Williams describes the language her religious and politically conservative family used to discuss their illness as positive and even spiritual. Both Williams’s family in southern Utah, and mine in Las Vegas, did not connect family illness to NTS and did not discuss NTS critically. My personal experience with discussions of the risks of NTS as a native of the southwest United States fueled the question that is at the heart of
this research: how have locals of Las Vegas socially constructed risk as a discourse community about NTS?

This dissertation seeks to research rhetorical and economic circumstances that contributed to the construction of risk related to NTS in the discourse community of Las Vegas. This dissertation explores presentations of risks associated with NTS in technical documents, popular press, and pop culture. This dissertation argues that pop culture representations of nuclear energy in Las Vegas participate in the construction of this uncritical view of NTS and its testing (this is the subject of Chapter 3). This dissertation also argues that presentations of risk regarding a particular NTS accident, The Baneberry Vent of 1970, differs between technical documents written by and for experts when compared to newspapers written by and for lay people. Popular press tends to deemphasize risks of The Baneberry Vent which informs how risk was constructed by the discourse community of Las Vegas (this is the subject of Chapter 4). This dissertation situates these discursive acts of risk construction within the economic history of the city and the financial stimulus NTS brought to the floundering city in 1951 as relevant context for local risk construction (this is the subject of Chapter 2). This chapter provides an overview of the scope of the problem, necessary background on NTS, relevant scholarship to which this research contributes, the purpose and significance of this research, methodology, research questions, conceptual framework, terms and definitions, limitations, and a more detailed summary of chapters 2-5.

Problem Statement

This dissertation explores the unique circumstances for residents of Las Vegas, NV as a community whose experience with the atomic bomb entered common discourse through pop culture, rather than as hazard. This study draws on several areas of scholarship including technical communication, risk communication, rhetoric of science, and pop culture studies. This study builds
on Ulrich Beck’s concept of risk society to explore the idiosyncratic circumstances of nuclear-related pop culture as a participant in constructing risk for the community of Las Vegas between 1951-1985. Las Vegas has historically been affected by NTS through economics, pop culture, and the effects of nuclear fallout. The epigraph from Beck (1992) both describes Las Vegas as a risk society while also highlighting how Las Vegas inverts this process. The threat of nuclear weapons entered Las Vegas local fora as pop culture and entertainment. It is true that the “unimaginable destructive force” of local nuclear detonations remains unchanged in/for Las Vegas; however, the “danger” is not “unimaginable” in Las Vegas discourse as Beck describes. Las Vegas pop culture represented the “danger,” called it “entertainment,” and celebrated it as a spectacle, inverting the production of a risk society (see Chapter 3 for a more in-depth analysis of pop culture in Las Vegas and the inversion of a risk society). The epigraph from old-Vegas Casino Tycoon Benny Binion demonstrates a local view of NTS through an economic lens. Las Vegas business owners specializing in selling entertainment capitalized on the aboveground detonations as a local phenomenon, which they were. NTS and Las Vegas became economically interdependent as government jobs brought stable work to the city and the tourist trade sold atmospheric testing as something worth traveling to see. Las Vegas and southern Utah are the geographic areas most affected by NTS fallout due to proximity and windfall, but some research indicates fallout from NTS potentially ranges across the entire continental United States (Fradkin, 1989). Although many areas were affected by NTS fallout, only Las Vegas became intertwined with NTS in terms of local pop culture and economics. In the time of aboveground testing, tourists and locals of Las Vegas would stand outdoors and on rooftops to watch the mushroom cloud rise in the sky and marvel at the “stardust” that trickled through the air like confetti. Locals and tourists alike were captivated by the spectacle of the bomb.
Background: The Nevada Test Site

NTS actively tested nuclear weapons from 1951-1992 and conducted a total of 1,021 nuclear tests; 100 were detonated aboveground and the remainder were detonated underground. NTS moved nuclear testing underground in 1963, following the international moratorium on atmospheric testing. Pop culture representations of nuclear energy post-1963 began presenting the nuclear tests as historical events (because aboveground tests were a marvel of the past); however, Las Vegas locals remained susceptible to the health and environmental risks of underground nuclear detonations for another 30 years. The last NTS underground nuclear test was detonated in 1992 when I was a ten-year-old native Las Vegan.

A significant radioactive leak poured into the sky on 18 December 1970 when an underground nuclear test broke through the earth and vented into the atmosphere. Aptly named after a poisonous desert plant, Project Baneberry made headlines of local newspapers for weeks following the accident. This accident is now called “The Baneberry Vent” which caused terminal leukemia for two NTS employees and likely caused health-related problems for many others (Fradkin, 1989; Institute of Medicine, 1999). Baneberry was also a political problem. The international moratorium banning atmospheric testing in 1963 barred all signatory nations from releasing radioactivity beyond their own borders (Bureau of Arms Control, 1963). An atmospheric nuclear leak created the possibility of a violation of the agreement of the moratorium which would add energy to an already charged foreign policy between the US and Soviet Russia (for more on Project Baneberry, see Chapter 4).

A brief overview of the known risks of radiation exposure will help contextualize the rhetorical analyses in further chapters. Dangers associated with radiation exposure have a long and dreadful documentation. Early evidence of the health effects of radiation include the 1928 settlement of worker compensation battles of the Radium Girls, who suffered radium poisoning as a
result of working with radium-based paint, and Marie Curie’s death of the same affliction in 1935 (Johnson, R., 2012; Titus, 2001). The contaminants resulting from The Baneberry Vent were less concentrated than the substances that caused the deaths of The Radium Girls and Curie1 (Johnson, R., 2012); however, NTS activity (atmospheric and underground) have been measured to cause cancer (Johnson, C.J., 1984).

As a result of atmospheric NTS detonations and vents from underground tests, increased amounts of the following cancers were discovered among downwinders in southern Utah: leukemia, lymphoma, thyroid cancer, breast cancer, melanoma, gastrointestinal cancers, bone cancer, and brain tumors (Johnson, C.J., 1984). The National Cancer Institute (NCI) conducted additional research specific to the “milk pathway” and concluded that as a result of NTS atmospheric tests “American children were actually exposed to 15 to 70 times as much radiation as had been previously reported” (Gerber, 2007, p. 97; Ortmeyer and Makhijani, 1997). The NCI research determines that levels of contamination were higher than previously thought and establishes a wider range of those affected including communities as far east as New England. As prominent members of the Institute for Energy and Environmental Research, authors Ortmeyer and Makhijani (1997) claim both the harmful effects of radioiodine and the likelihood of wide-ranging fallout were known to the Atomic Energy Commission (AEC) following the Trinity Test in 1945 (Ortmeyer and Makhijani, 1997).

The dangers of underground tests rest primarily with contaminated groundwater (along with atmospheric releases of radiation through venting). Several underground tests were detonated “directly into aquifers;” the amount of contaminated groundwater is roughly 1.6 trillion gallons and the most heavily contaminated water “reaches millions of picocuries per liter. The federal standard for drinking water is 20 picocuries per liter” (Vartabedian, 2009). The full health effects of Nevada’s

---

1 Radium-based paint glowed in the dark, making it a popular choice for watch dials and other items. The radium-based paint, known as Undark, was roughly “one million times more radioactive than uranium” (Johnson, R., 2012, p. 6).
contaminated groundwater remain to be seen. The contaminated water is moving slowly so does not pose an imminent health problem. Also, the contamination dissipates over time, the radiation levels will remain for “tens of thousands of years,” and a full scale cleanup has so far been deemed cost prohibitive by the federal government (Vartabedian, 2009).

**Background: Relevant Scholarship**

The epistemological power of language, with a particular focus on nuclear energy, creates the possibility for language, or communication more broadly, to both create and solve problems. Uses of language can generate human suffering apart from but related to the science/technology itself. Several analyses of discursive problems generated through nuclear technology and fallout discuss the social and discursive repercussions of nuclear energy in ways that directly affect the lived experiences of people.

**The Big Three**

The three pieces of scholarship most germaine to this research are discussed in more detail below as the conceptual framework for this project: Robert Johnson’s *Romancing the Atom* (2012), Olga Kuchinskaya’s *The Politics of Invisibility* (2014), and Ulrich Beck’s *Risk Society* (1992). Robert Johnson (2012) explores rhetoric of nuclear energy through the lens of what he calls “infatuation” and the “atomic mindset,” which includes pop culture as generative of this global lens of being “romanced by the atom.” Similarly, Kuchinskaya (2014) theorizes how risk/danger can be more or less visible in a particular public. She explores the convergence of scientific, political, economic and cultural factors through the lens of (in)visibility. Kuchinskaya (2014) emphasizes the (in)visibility of radiation exposure as an “invisible” risk. The literal invisibility of fallout creates a metaphorical “invisibility” for identifying and solving problems related to fallout. Ulrich Beck’s (1992) influential
theory of risk society describes a social structure created by the industrial revolution and the subsequent rise of environmental pollutants through production. Risk society is a result of industrialization (or “modernization”) which reversed the hierarchy between the production of risk and the production of wealth, and modern civilization’s wealth production is dominated by risk production because “…in a risk society the unknown and unintended consequences came to be a dominant force in history and society” (p. 22). Theorizing about risk partially fills a need for “ideas and theories” to navigate through new problems created by modernization (p. 12). Modern accidents are not accidents in the traditional sense of the word because the consequences are catastrophic and “outlast generations” (p. 22). A statistically small possibility of risk does not balance the scale when the consequences of failure are total “annihilation” (p. 29-30).

Considering “risk society,” “(in)visibility,” and the “atomic mindset” together allows for a theoretical convergence between 1) the material risks of nuclear energy, 2) the social and discursive construction of risk in a particular community, and 3) the inclusion of pop culture as a potential participant in risk construction. The unity of these three offers intellectual space for a complete analysis of Las Vegas as 1) an area affected by material risk of NTS, 2) a discourse community that constructs risk discursively, and 3) a community that used pop culture to (in part) construct that risk.

Approaches to Risk

Risk communication scholarship has historically focused on risk as some form of environmental or health hazard in relation to public opinion or reception of said hazard.² Before risk communication fell into the hands of a few scholars of technical communication, scholars in the fields of risk assessment, cognitive psychology, and communication studies were studying and

² Both NTS and Las Vegas’s atomic culture predate the rise of risk communication as a field of study which began with CERCLA Superfund Act in 1980 (United States Environmental Protection Agency, 2018).
theorizing risk communication. Risk assessment research understood risk communication as simply educating the public of expert-based research and decisions about risk. The risk-assessment model, later termed “technocratic” by technical communication scholars Grabill and Simmons (1998), assumes a one-way flow of information from “expert” to “non-expert” and views the public as passive receivers of information. Scholars working in cognitive psychology, Sheldon Krimsky and Alonzo Plough (1988) in Environmental Hazards: Communicating Risks as a Social Process, broadened the definition of “risk communication” to include all channels of communication about risk at all levels of expertise. By extending the definition of risk communication to include a wider range of participants, Krimsky and Plough (1988) attempted to elevate the importance of cultural factors of risk and risk management. Later termed a “negotiated approach” by Grabill and Simmons (1998), Krimsky and Plough’s cultural-rational model of risk communication attempts a two-way process of risk communication. Scholars in communication studies likewise privilege and legitimize cultural factors of risk communication. Peter Sandman’s (1993) Responding to Community Outrage: Strategies for Effective Risk Communication separates risk assessment as a study of what might “kill people” from risk communication as a study of what might “anger or frighten people” (p. 2). Sandman defines “risk” as a combination of technical “hazard” and public “outrage” and argues for the consideration of “outrage” as an equally important component of “risk.” Theories of risk communication from Krimsky and Plough (1988) and Sandman (1993) allow for more active public participation than scholars working in risk assessment; however, these models view technical risk, or “hazards,” as only positivist, scientific truths rather than also as a type of socially constructed local knowledge.

Although Krimsky and Plough (1998) and Sandman (1993) address at length the significant and varied uncertainties in assessing technical risk, expert-based assessment is treated as objective truth and cultural factors are cognitively separate from technical hazards. In rhetorical models of risk communication, risk itself is discursive and socially constructed. Risk communication scholarship in
the hands of technical communication scholars often explores how failures in communication can lead to material problems and/or human suffering (Winsor, 1990; Herndl, et al., 1991; Graham and Herndl, 2013). An important faction of risk communication in technical communication deals with theorizing the best ways to communicate risks to “the public” and to what extent the public can/should participate in decision-making regarding risks (Stratman, et al., 1995; Grabill and Simmons, 1998; Sauer, 2003). Emphasizing the involvement of “the public” leads to conversations regarding the role of expertise in decision making (Grabill and Simmons, 1998; Sauer, 2003; Walsh and Walker, 2016) and access to the decision-making process in terms of social marginalization (Grabill and Simmons, 1998; Sauer, 2003).

Grabill and Simmons’s seminal article, “Toward a Critical Rhetoric of Risk Communication: Producing Citizens and the Role of Technical Communicators” (1998) reviews the history and problems with risk assessment and risk communication. Grabill and Simmons aim to fuse risk assessment practices with risk communication, which previous scholarship treats as epistemologically separate. Grabill and Simmons detail differences between technocratic, negotiated, and rhetorical approaches to risk communication. Technocratic practices viewed risk assessment as the work of science and risk communication practice as a “one-way” process of information transfer from “expert” to non-expert. Technocratic models of risk communication consider communication failures as instances when opinions of lay people fail to align with “expert” opinion. Grabill and Simmons note negotiated approaches to risk communication from scholarship in communication studies that advocate for a two-way process of communication between “expert” and non-expert; however, Grabill and Simmons note the principal problem with negotiated approaches is that they fail to acknowledge power differences within institutions, between institutions and the public, and among varied groups within the public.
Grabill and Simmons recommend a critical rhetoric of risk communication that merges the knowledge production of risk assessment with the communicative practices of risk communication. As rhetoricians, Grabill and Simmons argue for the generative qualities of language, meaning that knowledge and the representation of knowledge can never be clearly separated, and advocate for including the public in both assessment of risk and decision-making regarding risks. Grabill and Simmons see technical communicators as well-positioned to involve the public in assessment through qualitative research methods and translate scientific data to inform the public of expert opinion to merge expert and non-expert views, values, and opinions to a better, more “intelligent” solution (437).

Grabill and Simmons discuss public involvement in risk communication under the assumption that individuals and communities often understand problems that pertain to them and often have smart ideas about solving these problems. Their view is that communities have their own type of expertise and should be involved in discussions about risk at the ground level. Julie Staggers’s *Learning to Love the Bomb: Secrecy and Denial in the Atomic City, 1943-1961* (2006) builds on Grabill and Simmons (1998) by developing the concept of “risk acceptance” which explores instances in which individuals and communities will knowingly expose themselves and their families to dangerous work and living situations. Staggers’s work points out that Grabill and Simmons’s article assumes that individuals and communities will act in their own best interest. However, Staggers’s study of the Hanford Nuclear Reservation and the company town of Richland is a situation where this assumption cannot be applied. Though unpublished, Staggers’s work makes an important contribution to risk communication scholarship and builds on the widely accepted critical approach to offer a theory of risk acceptance which challenges the fundamental assumptions that people will either accept reasonable risks or resist unreasonable ones. Her work locates a framework for discussing situations when people accept unreasonable risks which apply, given some
differences, to the workers at NTS and the locals of Las Vegas, NV. The locals of Las Vegas, NV, not only accepted the risks associated with NTS (like Staggers's study of Hanford), the city transformed the conversation into a spectacle through pop culture. Previous scholarship in technical communication has presented technical documents as generative in risk construction along with considerations of types of expertise (Sauer, 2003).

This dissertation attempts to add new sites of inquiry to explorations of risk construction in consideration of expertise while proposing that pop culture can participate significantly in such social construction.

**Purpose and Significance**

The locals of southern Nevada have a unique and complex relationship with the practices of NTS. The operations of NTS became intertwined with Las Vegas’ economy, and representations of atomic energy became a staple in Las Vegas pop culture in the 1950s-60s which fused NTS practices with the entertainment culture and tourism trade of Las Vegas. While the presence of nuclear facilities often affect the economy and culture of nearby towns/cities (Iverson, 2013; Staggers, 2006; Williams, 1992), Las Vegas’s relationship to NTS is unique given the city’s economic emphasis on tourism and entertainment. The tourist trade of Las Vegas turned the mushroom cloud into a pop culture icon. As a symbol of patriotism and local color, atmospheric testing at NTS entered the Las Vegas discourse community as an epideictic celebration more so than as a potential threat to public health.

This dissertation contributes to the body of scholarship in technical communication and risk communication through an analysis of discursive construction of risk in Las Vegas with attention to pop culture’s influence in constructing risk. This study situates the exploration of pop culture in an
analysis of technical and popular documents to gain a multifaceted understanding of rhetorical constructions of risk in Las Vegas from multiple participants.

The analyses in this research are significant because it contributes to the way scholars of technical communication include or discuss pop culture in discussions of understanding of risk. Pop culture is part of (and helps create) the cultural milieu. It is a generative medium that can affect understandings of or orientations to “serious” issues, like the risks of nuclear energy.

**Nature of Study**

This study is a rhetorical analysis of language regarding risk in an NTS technical document, Las Vegas newspapers from 1970-71 associated with The Baneberry Vent, and pop culture artifacts from Las Vegas between 1951-1985. The technical document is titled *The Baneberry Summary Report* (BSR) and was officially authored by the AEC in May 1971. The BSR is the official AEC documentation of the causes of the accident, range of fallout, level of exposure, and efforts for cleanup. This research analyzes presentations of risk in the technical document and compares them to presentations of risk in local Las Vegas newspapers from the time of the accident (for a full analysis, see Chapter 4). The goal of this analysis is to identify rhetorical similarities and differences in discussions of risks related to The Baneberry Vent. The technical document represents discussions between experts while newspaper reports represent discussions between local non-experts. The construction of risk in Las Vegas is a complex web of expertise and access to information. Experts associated with NTS and the AEC often had information the general public did not. This research attempts to explore specific documents to investigate expert-based and non-expert-based conversations in the constructions of risk regarding The Baneberry Vent. The comparative analysis between the BSR and local newspapers establishes Las Vegas as a *risk society* in its orientation to NTS (Beck, 1992). In tandem with findings from a comparative analysis between
the BSR and local news reports, this study also offers an analysis of pop culture artifacts from Las Vegas as another potential participant in the conversation of nuclear-related risks in Las Vegas. Pop culture’s influence on the construction of the risks of NTS build on Ulrich Beck’s concept of *risk society* to create Las Vegas as a risk society centered around risk as a spectacle. Las Vegas becomes an inverted risk society, one that recognizes its hazard but celebrates it as entertainment. Las Vegas is a *risk spectacle* (for further explanation of risk society and risk spectacle, see Chapter 3).

I conducted a rhetorical analysis of three datasets through a rhetorical lens of risk. In each dataset, I analyzed presentations of risk in order to discover a multi-faceted understanding of the social construction of risk (about NTS) for the community of Las Vegas. My analysis focuses on the way each set of texts present or discuss risk associated with NTS through (visual) rhetoric. The datasets for this research are: a technical document authored by the AEC, newspaper reports of NTS in Las Vegas, and artifacts of pop culture representing nuclear energy. The selection of datasets for this research highlights varied levels of expertise and rhetorical purpose. Technical documents are written by and for experts with the primary purposes of documenting, informing, or instructing. Newspaper reports are written, in this context, by and for non-experts with the typical rhetorical purpose of informing. I analyzed newspaper reports from the time of The Baneberry Vent from the two most widely read newspapers in Las Vegas. Pop culture artifacts are composed and consumed by a large and diverse body of people, but in the context of this research, neither composers or general consumers of nuclear-related pop culture in Las Vegas are considered experts in nuclear science or engineering. This dataset is considered to be made by and for non-experts for the primary rhetorical purpose of entertainment (for capitalist benefit). The stratified expertise, audience, and rhetorical purpose of each dataset used in this study allows for a multifaceted analysis of risk construction in Las Vegas. Each dataset participates in the construction of risk, broadly writ, from a unique position of expertise and with unique rhetorical goals. My analysis of these datasets aims to
discover if/how risk is presented differently across local media and across lines of formal expertise and access to technical information. This multifaceted approach intends to triangulate a view of risk construction for the discourse community of Las Vegas as a risk society, in Beckian terms.

The technical document is housed in the International Nuclear Information System (INIS); and all newspaper reports were found using the University of Nevada, Las Vegas Library microfiche periodical archive.\(^3\) Pop culture artifacts were pulled from a variety of sources including: The Nevada Test Site Oral History Project, The National Atomic Testing Museum, The Neon (Boneyard) Museum Las Vegas, and the Las Vegas News Bureau, who generously provided permission for the reprinting of the majority of images included in this dissertation. The goal in collecting artifacts of pop culture for analysis was to find explicit or implicit references or representations of nuclear energy in Las Vegas pop culture from a time period in which this pop culture was common. To select the number of artifacts analyzed in this dissertation (see Chapter 3), I curated my findings based on the following criteria: 1) artifacts of pop culture related to nuclear energy specific to Las Vegas, 2) artifacts of pop culture that had a large audience (meaning, I chose mainstream examples rather than fringe artifacts), and 3) artifacts of which images were available for reprint here. All microfiche image captures, images, or video were housed on Evernote for MAC along with corresponding analytical notes.

My approach to rhetorical analysis was intentionally open-ended to allow for discovery of themes in use of language that emerge from the data themselves. More particularly, for each each data set, I examine uses of language that highlight or downplay hazards associated with NTS practices and for any discrepancy in reporting. I also explored uses of language related to issues of expertise and hierarchical structure between texts written by/for experts and text written by/for lay audiences. This study analyzes communication about NTS risk across three distinct datasets to

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\(^3\) Thanks to the Charles Redd Center for Western Studies for funding the travel expenses for this research.
accommodate multiple participants in risk construction for the Las Vegas community between 1951-1985.

I analyze the composition of the artifact (e.g., neon sign, beauty pageant, etc.) itself as being related to atomic energy through shape (e.g., mushroom cloud), color, and size in relation to the temporal production and display of the artifact (Rose, 2012). Using Gillian Rose’s guidelines for visual analysis, I will primarily analyze artifacts for social modality, which entails looking at “visual meanings” and the “site of production” (i.e., who, when, who for, why) (Rose, 2012, p. 21). The focus of the analysis is to note compositional elements and social factors that contribute to a full understanding of an artifact’s visual rhetoric.

This study explores how pop culture can participate in risk construction for a particular community. Recognizing that pop culture cannot construct risk in a community alone, this research situates the exploration of pop culture among other participants in risk construction, popular media and technical documents.

Research Questions

This dissertation explores three primary datasets (technical documents, Las Vegas newspapers, and artifacts of pop culture) to answer the following questions:

- How do the histories of Las Vegas, NV and NTS inform local orientation to the establishment of NTS? Meaning, is there historical context about the establishment of NTS that could inform risk construction for locals of Las Vegas?
- How might pop culture representations of nuclear energy in Las Vegas participate in risk construction for the discourse community of Las Vegas?
How does “pop culture” complicate Ulrich Beck’s concept of risk society for Las Vegas?

- How were the risks of the Baneberry Vent of 1970 presented in technical documents created by engineers, geologists, physicists, physicians and other researchers employed by the AEC? How is this similar to or different from the presentation of risk in popular media written by journalists from 1970-1971?

**Conceptual Framework**

**“Atomic Mindset”**

Robert Johnson’s (2012) work exposes the pervasive rhetoric of nuclear energy in pop culture, business, and science to explore the ways in which communities and individuals around the world have been affected by the “atomic mindset.” Johnson’s historiography begins in 1902 with the creation of Undark, a radium-based paint used to illuminate the numbers and dials of wrist watches (among other items), and the subsequent deaths of the “Radium Girls,” working-class women who painted with Undark. The Radium Girls were not told the paint could be dangerous, and Johnson marks this incident, along with the workman’s-comp legal battles and workers’ agonizing deaths of radium necrosis, as the beginning of an atomic mindset rooted in secrecy and deceit.

NTS’s relationship with other governing bodies and the general public was largely secretive and deceitful to both NTS workers and nearby communities (Fradkin 1989); however, NTS is an interesting case because atmospheric testing cannot be kept secret in the way levels of radioactivity in paint can be. Atmospheric testing at NTS was visually and audibly perceptible by Las Vegas locals, so the “secrecy and deceit” Johnson discussed manifested at NTS as the US government and military pitching nuclear tests to the general public as an exciting patriotic contribution to the country’s national security (United States Air Force, *Target Nevada*, 1951). The general public in Las
Vegas was not introduced to NTS in a context to consider resisting it (see Chapter 2); simultaneously, the “mindset” of Las Vegas locals included pop culture representations of nuclear energy that emphasized the spectacle. While this research is critical of NTS practices, it is worth noting that there remain former NTS workers and affiliates, at varying levels of expertise and experience, who maintain NTS detonations contributed positively to US national security (NATM: Gallery, n.d.; Topham, et al., 2015). Those who remain sympathetic to NTS view it as “the battleground of the Cold War” and value the political leverage of nuclear weaponry over concerns for public health (Fehner & Gosling, 2006).

(In)visibility

By exploring the intersection of technology/science and culture, scholars have noted the interconnected, discursive constructions of science, technology, and culture (Kuchinskaya, 2014; Johnson, R., 2012). Since fallout “does not destroy houses” and “contaminated forests look exactly like uncontaminated ones” (p. 1), Kuchinskaya focuses on the “production of invisibility” (p. 2) largely through, what she terms, “articulation” and “infrastructural conditions” (p. 7). The concept of “articulation” is “both a discursive and a material process” (p. 8) which includes representations of radiation and the subsequent health effects thereof. The “invisible risk” of NTS fallout is most relevant to Las Vegas, NV and southern Utah, as communities in the most immediate geographical area. The literal invisibility of fallout facilitates other lacks in awareness, or “invisibility,” regarding the effects of fallout; invisibility in the metaphorical sense deals with material consequences of fallout that are difficult to determine as such and general (lack of) awareness of public health problems. Fallout is difficult to discuss and research largely because it is invisible. The invisibility also makes it difficult to locate responsibility when people get sick. Even when culpability seems obvious, it can remain elusive for practical purposes; many lawsuits related to public health or
wrongful death filed against the United States for NTS fallout have remained un(der)funded ("Baneberry Collection," 1979-89; “Baneberry suit,” 1996; Hickey, J., 1971b; Rogers, K., 2007a). Locals in the southwest United States continue to wonder what affect NTS has on their earth, air, and water, but invisibility makes fallout easier to ignore (Fialka, 2009; NTSoHP, 2008). The circumstances around NTS also produce an ironic “invisibility,” in Kuchniskaya’s sense, through a celebration of atomic energy in pop culture and popular media. For locals of Las Vegas, the hazards of fallout were socially neutralized through their celebration. By actively celebrating NTS activities, the discourse community of Las Vegas was not conceptualizing NTS as (potential) hazard, but produced “invisibility” through the “articulation” of risks disguised as something to celebrate and through the “infrastructural conditions” and hierarchical structure of the AEC, NTS, and their relationship to the general public.

The “production of invisibility” includes scientific data/reporting at both national and local levels as well as lay perspectives and popular press reporting. Kuchinskaya frames “infrastructural conditions” in terms of power dynamics and epistemology. Determining the consequences of fallout depends largely on who is in charge of “making” the data. Also, determining wide-ranging and long-term health effects becomes parsed out into individual health issues and treatments without being connectable and traceable to a definitive source. Often this lack of connectivity leads to conflicting data from disparate groups (Kuchinskaya, 2014). At NTS, the people who “make” the data determine acceptable limits of exposure for peacetime operations and have a vested interest in continuing to test nuclear weapons at NTS. The people who “make” the rules are also the people who assess risks of exposure and fallout.

For example, the AEC launched an investigation following The Baneberry Vent to assess the range and severity of radioactive fallout. This official document, the BSR, was researched and authored by the AEC itself and includes reports of exposure to test site workers, decontamination
efforts, estimation of geographical range of fallout, and an explanation for the accident. The largely insular nature of setting acceptable limits, researching exposure, and assessing damage all inside the AEC seems problematic in terms of checks and balances. This study includes the infrastructural conditions of the AEC and NTS that assist in the production of invisibility of risk, in Kuchinskaya’s terms (see Chapter 4). This study also reworks Kuchinskaya’s concept of “invisibility” for a context in which atmospheric testing was visible while the risks were not (see Chapter 3). The bombs themselves were visible, but the metaphorical invisibility of risks in Las Vegas was produced through the bombs as a spectacle. Las Vegas presents a new “articulation” of intellectual “invisibility.”

**Risk Society**

Beck defines risk as “a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself” (p. 21). This definition separates the concept of “risk” from the hazard itself and, in a later text *World at Risk*, Beck (2007) more clearly separates “risk” and “catastrophe” as distinct concepts. Once a catastrophe occurs, it is categorically different from risk, because a catastrophe occurs in the present but risk is the potential for future catastrophes (Beck, 2007, p. 9-11) The risk society is a community centered around the potential for danger and there is significant overlap between risk society and socioeconomic power dynamics. Class-based power dynamics affect which groups of people are exposed to risk more or less than others, but a risk society is forced into solidarity regardless of social divisions. In this sense, risks can be equalizing and global risks cross social borders (e.g., class, race, gender, nationality, etc.) in a “boomerang effect” that will eventually affect the producers and profiteers of said risk (Beck, 1992, p. 23). Beck is careful to note that this “boomerang” does not apply only culpable parties. The risk affects everyone; everyone pays.
A risk society is forced into unity through consciously-created risks (i.e., risks created by intentional decision-making as opposed to naturally occurring risks, like tornadoes). Las Vegas is a risk society, in Beckian terms, but is an imperfect example. Las Vegas, NV between 1951-1985 was a risk society forced into unity around NTS’s nuclear testing. Las Vegas locals may not have been aware that they were a risk society because the discourse community of Las Vegas did not produce NTS as a hazard, they produced it, in large part, as something to celebrate. Las Vegas celebrated their hazard through pop culture as a unique form of entertainment. Given the focus on tourism in Las Vegas, seeing NTS as a potential for entertainment blended Las Vegas’s risk society with wealth production. In a traditional risk society, the conversation about risk must be a discursive production of the hazard as risk. The celebratory nature of the risk-related conversation in Las Vegas about NTS instead produced an epideictic celebration—or spectacle—that became linked to the economic success of the city.

There is overlap and relatedness between risk society, class society, and wealth production, but the case of Las Vegas and NTS marks a different relationship between these concepts. (Beck, 1992; Beck, 2007). NTS is what makes Las Vegas a risk society (whether or not the locals were aware of that) as a discourse community forced into collaboration around a local hazard. NTS creates a unity among Las Vegas locals as the generator of a significant hazard; however, this hazard enters the discourse community of Las Vegas as something to showcase and sell to tourists. Pop culture representations of nuclear testing and the tourist-trade of Las Vegas turned NTS into an excitement rather than a local anxiety. Wealth production in Las Vegas became intertwined with the circumstances that created the risk society, which is hardly idiosyncratic to Las Vegas. It would seem commonplace for the benefactors of industry, which creates modern risk, to reap the majority of the financial benefits, but Las Vegas is unique in that the majority of the people selling NTS as spectacle
were not directly affiliated with NTS. Casino and hotel owners advertised their own products and services by pitching the local mushroom clouds as local phenomenon.

Las Vegas functions has an inversion of Beck’s risk society because the production of risk in the discourse community of Las Vegas produced a spectacle, rather than a potential for future catastrophe. Nuclear testing entered the Las Vegas discourse community not as risk, but as kitsch (which is the subject of Chapter 3).

Issues of class overlap risk issues, as Beck discusses, but the overlap between the two is imperfect. Both for civilians of southwest US and workers of NTS, people from lower socioeconomic status were less able to protect themselves from NTS than people with more socioeconomic resources (Borders, 1971). While acknowledging these class differences, Beck theorizes risk as “equalizing,” and for NTS, fallout ends up affecting everyone, but it is not a perfect karmic return to the producers of risk. The fallout affects everyone. It is difficult to categorize the risks of NTS as an equalizing force when a lot of people died of cancer that were not culpable in the decision to test nuclear weapons in the desert of the southwest US (“Baneberry suit,” 1996; Johnson, C.J., 1984). But Beck’s point about the equalizing effects of risk include the influence of time. The score cannot yet be called because the game is not yet over.

Beck describes a clash in risk cultures, and some may argue that Las Vegas is simply a unique risk culture rather than an inverted risk society; however, a risk culture clash indicates a moment of difficulty in problem solving between two or more distinct, but connected, communities of risk. A clash in risk cultures occurs when there are differences in solution-oriented conversations. At a fundamental level, Las Vegas’s risk society is unique in that the city celebrated and sold their local hazard. For many years, Las Vegas locals discussed NTS as largely as a mark of local pride and a tourist attraction which is fundamentally different than any other company town in the world. There
is no other company town in the world who has celebrated the mushroom clouds in the way Las Vegas did, and the celebration was founded upon the fact that these mushroom clouds were local.

**Terms and Definitions**

There are several terms used throughout this dissertation that are worth defining. The majority of these terms are related to nuclear science or NTS specifically. Most theoretical terms from scholarship in rhetoric and composition (writ large) and pop culture studies are not included here. Such terms are detailed in this chapter in the literature review and conceptual framework sections. This section defines, clarifies, and justifies the use of particular terminology used throughout this research listed in alphabetical order.

**Artifact**

I use the term “artifact” of pop culture to include a wide range of things and activities (e.g., hotel signs, souvenirs, beauty pageants, etc.); however, the bulk of this dataset is limited to still images and video. Given the historical scope of this study, many important pop culture items and events no longer exist. This study analyzes images and video (including relevant accompanying text) and discusses these visuals as “artifacts” which includes the image analyzed and the original event or item in its historical context. Reducing this dataset to simply “images” strips it of its complexity. The nuclear-related pop culture artifacts in Las Vegas permeated various types of media and entertainment. Although images and video are all that remains for analysis, this study uses a broader term to fully embrace the multifaceted “atomic mindset” in Las Vegas, 1951-1985 (Johnson, R., 2012).
Atomic (and Nuclear)

The terms “atomic” and “nuclear” have often been used interchangeably, but these terms describe slightly different things. “Atomic” can simply the adjective form of the noun “atom” without necessarily referring to radioactive material or weaponry. “Nuclear” denotes the process of splitting or merging radioactive atoms to create energy, and under that umbrella, “atomic” and “hydrogen” are indicators of type. Both atomic and hydrogen bombs are nuclear because both explosions are accomplished through either the fission or fusion of atoms. Atomic weapons indicate the process of fission, or splitting apart, while hydrogen bombs are created through fusion, or bringing together. Both atomic and hydrogen weapons are nuclear, and technically, hydrogen bombs are also atomic because the fusion is ignited by a fission.

Atomic Energy Commission (AEC)

The Atomic Energy Act of 1946 created the United States Atomic Energy Commission (AEC) to transfer the work of the Manhattan Project from military to civilian regulation. The AEC oversaw all domestic activities related to nuclear energy including: advancements in atomic research, control of fissionable material, regulation of publication and other dissemination of information regarding atomic science, creation of policy and regulation for operation and radiation exposure, health and safety concerns, and advancement in military applications for atomic weaponry (U.S.NRC, 2017; Jones, 1985, p. 596).

The Energy Reorganization Act of 1974 transferred and split the work of the AEC to the Energy Research and Development Administration and the US Nuclear Regulatory Commission. The goal of this reorganization was to separate nuclear production from nuclear regulation. The Energy Research and Development Administration is now part of the US Department of Energy,
and the US Nuclear Regulatory Commission is lead by one chairperson and four commissioners appointed by the US President (U.S.NRC, 2017).

**Detonation**

A nuclear detonation in this context can be termed a “test,” “detonation,” “shot,” “event,” or “project.” The term “project” is most often used in a particular test’s code name (all NTS tests were given code names for both operational and security purposes), like Project Hood (1957) or Project Baneberry (1970). I typically use “test,” “detonation,” “shot,” and “blast” to refer to particular nuclear tests. The term “event” is often used in quotations from other authors, but I intentionally avoid the term “event” because of its similarity to the word “vent” which refers to a particular radioactive leak from 1970 (this vent is the focus of Chapter 4).

**Epideictic**

Aristotle identified *epideictic* rhetoric as a branch of oratory used to praise or blame. It is a ceremonial rhetoric that describes happenings in the present (rather than the future or past). This dissertation uses the phrase “epideictic celebration” as a descriptor of the celebratory nature of nuclear-related pop culture in Las Vegas, NV during the time of atmospheric testing. Pop culture in Las Vegas represented nuclear energy as “hip,” “fun,” “exciting,” and “patriotic;” pop culture representations of nuclear energy created the bomb as a spectacle.

**Kitsch**

Mainstream definitions of “kitsch” usually revolve around marking an artifact of pop culture as low-brow or low culture. Simple definitions of “kitsch” are of pop culture that is tacky, bawdy, gaudy, loud, or overdone. Understandings of “kitsch” have become more complex as divisions
between high culture and low culture continue to change and as marginalized communities, like the queer community in the US, have embraced kitschy pop culture and imbued it with street-level cultural cachet (Călinescu, 1987; Menand, 2011). Since at least the 1980s, kitsch has been reinvigorated to include a more sophisticated appeal than standard definitions usually imply. Kitsch has evolved into a complex concept that describes an artifact of pop culture as good because it is bad. Urban Dictionary, a crowd-sourced online dictionary for slang and pop culture terms, describes kitsch as “pleasingly distasteful,” which implies that kitsch is enjoyable even though it is low class, but I would argue that a more accurate definition should emphasize the pleasing elements of kitsch are generated by its distastefulness. Kitsch is pleasing because, in part, it is tacky, not in spite of it (Urban Dictionary, 2018). For a more detailed explanation of high culture, low culture, and kitsch, see Chapter 3.

Nevada Test Site (NTS)

NTS was renamed the Nevada National Security Site (NNSS) in 2010 which is housed in the National Nuclear Security Administration, formed in 2000, as a “semi-autonomous” office within the Department of Energy (NNSS, 2017; NNSA, 2013). The name change was intended to better reflect the shift in focus from nuclear testing to a wider range of national defense training and research, although NNSS remains important to nuclear issues as stewards of the nuclear stockpile (NNSS, 2017). This study focuses on The Nevada Test Site when it was so named, so I use “NTS” or “Test Site” throughout this project.

Total NTS Tests

This research uses 1,021 as the total number of NTS tests; however, some sources report the total as 928 (Coolidge, 1996; Topham, et al., 2015). The reason for this discrepancy is a difference in
how some underground tests are counted. Of the total underground tests, 62 of them included multiple shots per project. Counting these separate, simultaneous detonations as a group makes for a total of 928, but counting each individual shot regardless of project groupings brings the detonation total to 1,021. This research uses 1,021 as the total number of tests to highlight the significance of each individual nuclear test detonated in the desert near Las Vegas.

Assumptions

As a researcher, I tend to approach academic work from the worldview of advocacy. I find and place value on research with political interests and betterment of people’s living situation (Creswell, 2008). Perhaps the philosophy of activism is what drew me to the field of technical communication and the focus of risk communication. In my view, most scholarship in technical communication aims to better the world through analyzing the ways language builds, reinforces, and can potentially subvert or redirect power structures. Similarly, risk communication scholarship engages with serious real-world problems and works to create normative and practical theories for dealing with and discussing risk. The worldview of advocacy often leads to questions of social marginalization and power dynamics, and my interpretations often bend toward issues of social justice.

My personal relationship with Las Vegas affords me familiarity with the datasets that adds depth and perspective to my analysis. There is a long history, in both scholarly and popular writing, of treating Las Vegas as a metaphor, rather than an actual place where people live and work (e.g., Jean Baudrillard’s Simulacra and Simulation (1994) and Hunter S. Thompson’s Fear and Loathing in Las Vegas (1971)). The tendency to see Las Vegas as an unreal place contributed to the decision to detonate nuclear weapons there in the first place. Legislators discussed the desert of southern Nevada as an uninhabited wasteland while popular and scholarly work, admittedly with the help of
Las Vegas’s own (pop) culture, combined to create an association of Las Vegas as a place that is not quite real; a place that does not quite matter. Rhetorical analysis served as the best analytic tool for a project that works to combine technical information, government analysis/reporting, popular reporting, local pop culture, local historical context, and socioeconomic factors. As a local of Las Vegas, I was able to explore the archives through a mixed perspective as a local of the area and a researcher. The historical focus of my research affords a temporal distance between me and my research. The scope of this project ranges from 1951-1985, and researching a time-frame I cannot remember affords me critical distance as a researcher (I was born in 1982).

Scope and Limitations

Rhetorical analysis offers a rich and complex analysis of text. There is much to be learned by close reading and focused analysis of text, but rhetorical analysis requires smaller datasets than studies in big data, for example. The datasets curated for this research are necessarily narrow to accommodate time constraints. I selected technical documents and popular press reports from 1970-71 to focus on The Baneberry Vent (of December 1970). I chose to focus on The Baneberry Vent in part simply because it interested me as a researcher and also because it was an understudied NTS accident. During the time of writing, an excellent and comprehensive book was published called The Baneberry Disaster (2017) by Larry and Alan Johns. It emphasizes the importance of Baneberry as an NTS accident, but it does not offer a rhetorical analysis of presentations of risk across multiple documents. My research contributes not only to awareness of Baneberry as important NTS history but also as arguments for discursive acts that construct risk.

Pop culture artifacts discussed in this study range from 1951-1985, beginning with the creation of NTS and ending just prior to the Chernobyl disaster of 1986. The establishment of NTS was met with a wide range of responses from pop culture in Las Vegas (discussed further in Chapter
3), and the global conversation about nuclear energy shifted significantly following the Chernobyl disaster of 1986. The global community, including residents of Las Vegas, became more critical of nuclear risks and skeptical about safety and public health. By exploring the time frame between the establishment of NTS and the Chernobyl disaster, this study explores nuclear-related artifacts of pop culture at a time when it was most celebrated by the pop culture of the city.

Overall, this research tends to be critical of NTS and the national decision to work with a science and technology that was not fully understood. The findings of this research informed this critical view; however, I make an effort to consider the perspectives of people loyal to NTS as equally valid. NTS’s contributions to national security could be as significant as its contributions to local health and environmental hazards, both of which are difficult to measure.

Chapter Overview

Chapter 2: Historical Context: Nevada, Las Vegas, and NTS, 1951-1985 provides an in-depth history of both NTS and Las Vegas, NV as context for how NTS became intertwined with the economy and pop culture of Las Vegas. Prior to 1951 (i.e., the establishment of NTS near Las Vegas), Las Vegas was a small town recovering from decades of serious financial instability. The majority of Las Vegas locals welcomed the establishment of NTS in the desert nearby that would bring economic stability to the area. Chapter 2 informs the risk construction of Las Vegas in a historically situated context of economic reality. The economic need of Las Vegas in the early 1950s informs the orientation of locals to NTS; it informs the social construction of risks for Las Vegans about NTS.

Chapter 3: Las Vegas Pop Culture and the Nevada Test Site, 1951-1985 provides an analysis of artifacts of nuclear-related pop culture in Las Vegas between 1951-1985 and situates these artifacts as participants in the discursive construction of risk for residents of Las Vegas. Chapter 3
uses Ulrich Beck’s concept of “risk society” and argues for Las Vegas as the inverse of Beck’s theory: *risk spectacle*. A *risk spectacle* is a risk society that is unified around a shared hazard but names its hazard “entertainment” and treats it primarily as such.


Chapter 5: Technical Communication and Pop Culture provides a framework for including pop culture in scholarly conversations of technical communication, broadly speaking, and provides a framework for including pop culture in the classroom. The final chapter offers a summary of what I believe can be accomplished by including pop culture in scholarly conversations about technical communication.
CHAPTER 2: HISTORICAL CONTEXT OF NTS AND LAS VEGAS, NEVADA

“America… is a very poor lens through which to view Las Vegas, while Las Vegas is a wonderful lens through which to view America.”


This chapter begins with a brief overview of the history of the development of nuclear science as background and context for the existence of the only domestic nuclear testing site in the United States. The chapter then provides a historical overview of the creation of NTS and the growth of Las Vegas, NV as context for how the presence and practices of NTS became intertwined with the economy and pop culture of the growing city of Las Vegas. As each separate entity grew throughout the 1950s and beyond, their successes and failures began to affect one another reciprocally. The heavily service-based economy of Las Vegas capitalized on the novelty of nearby nuclear testing and NTS gained, in effect, a company town for the majority of their employees. This chapter also provides brief overviews of consequences related to nuclear testing in the mojave desert that are important but not the primary focus of this dissertation (e.g., native populations and land, contaminated groundwater, and Yucca Mountain). This chapter offers a history of Las Vegas along with an overview of Las Vegas as a subject in theory and art. Las Vegas is often discussed as a lens from which to understand the culture of the United States as a whole, or capitalism, or hedonism, or desire. The epigraph to this chapter by local anti-hero Dave Hickey, writer, art critic, and former professor at the University of Nevada Las Vegas, perfectly presents the idea that Las Vegas is
simultaneously representative of American culture writ large but is also standing apart from it as something different than the whole.

**Nuclear History before NTS**

NTS was approved by President Truman, and testing began in January 1951; however, the story of NTS begins with the second World War and the Manhattan Project. The “Manhattan Project” was the title given to the government-funded effort to advance nuclear science for military purposes. It began when President Roosevelt established the “President’s Advisory Committee on Uranium” in late 1939 which marks the beginning of what would later be named (and remembered as) The Manhattan Project. The President’s Advisory Committee on Uranium changed names, personnel, and oversight several times as it expanded to the culmination of The Trinity Test of 1945 (Jones, 1985, p. 21). The Manhattan Project was a collaboration between nuclear scientists, US military personnel, and US politicians to discover how to split uranium atoms into a chain reaction and adapt this science for combat (Jones, 1985). US advancements in nuclear science were considered time sensitive, and nuclear scientists pitched the need for government funding and support to President Roosevelt as a necessary attempt to develop an atomic weapon before Nazi Germany discovered the science or developed the technology. The threat and expansion of The Third Reich, including the invasion of Poland in fall 1939 and the invasions of Denmark and Norway in spring 1940, became a primary motivator for US funding of atomic research and development. The same threat created a formal US policy prohibiting publication of scientific advancements in atomic energy beginning in the summer of 1940 (Jones, 1985, p. 26; Titus, 1986). This policy was loosened somewhat in late 1941 when US government officials and scientists noted the potential benefits of communicating with British allies, and so in October 1941, President Roosevelt began regular conversations with Winston Churchill on the progress nuclear science
research (Jones, 1985, p. 31). The phrase “nuclear arms race” typically refers to the political and military tensions between the US and Soviet Russia during The Cold War; however, the push to discover atomic energy in the first place was very much a nuclear arms race of its own. The premise of The Manhattan Project rested upon US urgency to beat Nazi Germany to the finish line of scientific discovery and military action. Building an atomic weapon was literally a race, and the consequences of not winning were assumed to be severe (Jones, 1985).

The first controlled atomic fission in 1932 confirmed Einstein's theory of relativity (from 1905); successfully splitting the atom confirmed that “matter and energy are merely different versions of the same thing” (Jones, 1985, p. 5-6). Niels Bohr and J.A. Wheeler published “The Mechanism of Nuclear Fission” in 1939 which discovered that radioactive atoms could be split at the molecular level to create energy (Bohr and Wheeler, 1939; Jones, 1985). Further study revealed that splitting uranium atoms “released three additional neutrons” which created the possibility for a chain reaction (Jones, 1985, p. 7). These discoveries quickly lead to the research question: how can we use this energy to make a bomb? The Manhattan Project was a concerted, direct, well-funded effort to answer that question. The Manhattan Project culminated in New Mexico with the Trinity Test (1945), the first ever successful test of a nuclear weapon, which exceeded all expectations. This new weapon was immediately used for military strikes on Hiroshima and Nagasaki, and The United States remains the only country to have used nuclear weapons in active warfare.

After WWII ended, nuclear weapons existed on the global stage, and this visibility, combined with national defense concerns and the novelty of nuclear weapons, created a consensus among the US military, US political officials, the scientific community, and the general public for continued development of this new weaponry. The United States sought a space to develop and test

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4 For clarification of differences between “nuclear,” “atomic,” “fission,” and “fusion,” see the definition for “atomic” in the terms and definitions section of Chapter 1.
weapons to further explore the capabilities of nuclear science and technology. US nuclear tests, following WWII, first took place in the South Pacific, with terrible consequences. The United States relocated several native populations to detonate nuclear weapons which contaminated their native land and water. Those populations remain negatively affected by those decisions, and they were not well compensated by the US (interest in compensation has improved over time but these efforts remain undervalued). After several detonations in the Pacific, a domestic, land-based testing site was desirable because the cost and logistics of testing in the South Pacific were high and complicated. A plan for a locally-based testing ground was suggested to ameliorate financial and logistical burdens and as a location to store a stockpile of nuclear weapons. However, political and popular interest in nuclear weapons began to wane not long after the end of the second World War, so the proposal for a domestic testing site was put on hold until the first successful Soviet nuclear test (nicknamed “Joe One” by the US) in 1949 and the beginning of the Korean War in 1950. These dual threats to national security reinvigorated political and popular interest in nuclear weapons development, and in December 1950, President Truman approved the plan for building a domestic nuclear weapons testing site\(^5\) (Titus, 2001; Research Division, 2016). Several sites were suggested and the one selected was an area in Frenchman’s Flat in Nevada, roughly 60 miles outside of Las Vegas. The site began as the Nevada Proving Ground in 1951 and was re-named the Nevada Test Site in 1955; they conducted above- and underground nuclear tests from 1951-1992 and this facility is now called Nevada National Security Site where, among other responsibilities, they serve as stewards for the US nuclear stockpile (NNSS, 2017). Motivations for advancing nuclear science at NTS remained linked

\(^5\) It is worth mentioning that the United States continued to test nuclear weapons in the South Pacific until 1963 alongside tests at NTS. All told, the US conducted 106 nuclear tests in the Pacific (Research Division, 2016, 83-5, p. xiii).
to goals of military superiority. NTS existed to push the boundaries of the science and increase application for the use of nuclear energy and weaponry (Coolidge, 1996).

This dissertation focuses, in part, on circumstances and consequences of the merge between NTS detonations and pop culture representation of nuclear energy in Las Vegas, NV; however, nuclear science has been linked to pop culture since its beginnings. As early as 450 BC scientists began theorising about what we would now call atoms, but the most significant marker of the beginning of atomic science is the discovery of X-rays by German scientist, Willhelm Röntgen, in 1895. Shortly after their discovery, X-rays rose to popularity for the medical community, but even more so, as a pop culture entertainment novelty. Popular interest in X-rays sparked immediately following their first demonstration in the United States, organized by Thomas Edison, at the National Electric Light Association exhibit in May 1896 (Jones, 1985, p. 4; Titus, 2001, p. 2). Equipment and materials for producing an X-ray were fairly accessible, so people would line up to “see their bones” at county fairs (Titus, 2001, p. 2). X-rays mark the first hybrid of technical and popular use for radioactive material. The discovery of X-rays lead scientists to research other fluorescent materials for penetrative radiation, and french researcher Henri Becquerel, discovered radiation emitted from uranium. Becquerel’s discovery of the similarities between X-rays and uranium interested Marie Curie who, only three years following the discovery of X-rays, discovered radium and polonium, both of which were “radioactive” (this term was coined by Curie).

Curie distributed radium to other scientists so they could explore the material themselves, and radium quickly made its way into popular usage due to its ability to glow in the dark. Radium-based paint was used as novelty for many items that made glowing in the dark either fun or useful: gambling wheels, toys, watch dials, etc. (Titus, 1986; Johnson, R., 2012). Curie later died of radium poisoning as did the Radium Girls, three decades prior. The harmful effects of radioactive material existed alongside its popularity and potentials for use. The Radium Girls, for example, were not told
radium-based paint could be dangerous. The workers were advised to use their lips to roll their tiny brushes into a fine point to paint small details on watch dials, which meant they were regularly ingesting the paint. Scientists and managers wore protective clothing while handling radium-based paint, which was roughly “one million times more radioactive than uranium,” but the painters were not given even the protection of a warning (Johnson, R., 2012, p. 6). The culture of secrecy and deceit around radioactive material, the concept that these materials were simultaneously popular and dangerous, was known to experts as early as the turn of the century when the Radium Girls died of radium poisoning, and the hazard was reinforced when Curie herself was killed by her own discovery in 1934 (Johnson, R., 2012).

**Creation of NTS**

The Korean-American war of 1950 created a cultural atmosphere for US politicians and military personnel to argue for the continued testing and development of the newly-invented nuclear weapon (Titus, 2001). As such, the Korean war marks the beginning of the nuclear arms race that continued throughout the Cold War. Southern Nevada was designated as a domestic space to develop, house, and detonate US nuclear weapons. The top-secret effort to locate a suitable site for nuclear testing, codenamed “Nutmeg,” began in 1947, and the desert of Frenchman Flat outside Las Vegas, NV was officially selected in 1950. Southern Nevada was chosen for the testing site over four other possible sites: an area near Fallon, Nevada; White Sands, New Mexico; Dugway Proving Ground, Utah; and Pamlico Sound, North Carolina. The desert in southern Nevada was the largest area proposed, and the land was already under federal jurisdiction/oversight which streamlined the political logistics of establishing the nuclear testing site. Establishing the test site in southern Nevada also had local political support through Senator Pat McCarran who assumed an economic boost would result from presence of the test site (an assumption that would prove incomplete but not
incorrect). Southern Nevada was also selected in part for its weather and (lack of) population. Snow, wind, and rain make for poor testing conditions, so the hot, dry desert was expected to deliver predictable weather. The area surrounding the desert that is now NTS was deemed “relatively unpopulated” by the AEC (Fradkin, 1989, p. 5; Williams, 1992; Titus, 2001, p. 55). To contextualize this assessment, the table below charts population totals from 1950 for five counties in Nevada and one county in southern Utah (UT) that all suffered from NTS fallout at varying levels of severity (See Table 1.) (“Census of Population and Housing”, 1950). My parents and grandparents, along with Nevadans living east of NTS and people in southern Utah, were part of the “relative unpopulation” (phrase adapted from Williams, 1992).

<table>
<thead>
<tr>
<th>Location</th>
<th>Total Population</th>
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</thead>
<tbody>
<tr>
<td>Total population, NV</td>
<td>160,083</td>
</tr>
<tr>
<td>Clark County, NV</td>
<td>48,289</td>
</tr>
<tr>
<td>Nye County, NV</td>
<td>3,101</td>
</tr>
<tr>
<td>Lincoln County, NV</td>
<td>3,837</td>
</tr>
<tr>
<td>Eureka County, NV</td>
<td>898</td>
</tr>
<tr>
<td>White Pine County, NV</td>
<td>9,424</td>
</tr>
<tr>
<td>Total population, UT</td>
<td>688,862</td>
</tr>
<tr>
<td>Washington County, UT</td>
<td>9,836</td>
</tr>
</tbody>
</table>
NTS detonated its first nuclear test, code-named Able\textsuperscript{6}, on 27 January 1951, barely more than a month after President Truman’s approval to establish the testing site (Titus, 2001; NTSOHHP, 2008). By the time my father was born in June 1951 at the Southern Nevada Memorial Hospital, five nuclear tests had been detonated in the atmosphere and seven more would reach the air before the end of that year (U.S. Department of Energy, 2015).

NTS began as a 350-square-mile piece of land from what was previously the Las Vegas-Tonopah Bombing and Gunnery Range. NTS was managed by The United States Atomic Energy Commission (AEC) which oversaw all nuclear research, development, testing, and regulation between 1946 and 1974. Affairs regarding nuclear energy transferred from The Manhattan Project to the AEC following the end of WWII. The AEC managed all nuclear related activity until 1974 when the Energy Reorganization Act enforced a structural separation between the oversight of nuclear development and the regulation of such development (for a complete definition of the AEC see the Terms and Definitions section of Chapter 1). The AEC acquired the land and use of the Indian Springs Air Force Base from the Air Force in December 1950 (Titus, 2001, p. 56). NTS’s area expanded for Operation Ranger, the first sequence of tests, and expanded further throughout the 1950s and 1960s to reach its current size of 1,360 square miles (approximately 850,000 acres), which is larger than the State of Rhode Island. For reference, I’ve included a map of southern Nevada (showing parts of California, Utah, and Arizona), the area of Clark County (with Las Vegas in the center), the outline of NTS, and a conservative estimate of primary fallout areas (See Figure 1.).

\textsuperscript{6} This is Able of Operation Ranger, which took place at NTS in 1951. Confusingly, the first US nuclear test following WWII was also code-named Able, but of Operation Crossroads, which took place in the South Pacific in 1946. There was also an “Able” of Operation Buster, October 1951 and an “Able” of Operation Tumbler-Snapper, April 1952 (U.S. Department of Energy, 2015).
Figure 1. Map of Southern Nevada and NTS*

*map adapted from ArcGIS

NTS’s nuclear tests were intended to test the weaponry itself but, even more so, to “measure the effects of intense radiation” on a plethora of items, and “intended to, if nothing else, advance the state of the art” (Coolidge, 1996, p. 9). This dissertation focuses primarily on the nuclear bombs detonated at NTS, but in addition to these detonations, “other forms of ‘dirty’ and land consumptive research and development has taken place at various locations all over the NTS. At least two nuclear rocket engine development programs were pursued in the Jackass Flat Vicinity, and the hot cell and other buildings have been used in developing radioactive waste management technologies” (Coolidge, 1996, p. 9). People living near NTS were not warned by the government that nuclear tests could be hazardous, in fact, the AEC assured locals that the tests posed “no danger” outside the test site. The AEC distributed “handbills” throughout southern Nevada reassuring locals of their safety. Similar reassurances occurred regularly well into the 1980s when testing moved underground (Titus, 2001, p. 58).
It is important to note the 1863 Treaty of Ruby Valley marks a large section of The Great Basin as Western Shoshone Native American land (See Figure 2.). The entirety of NTS is located on this land as is Yucca Mountain, the only legally-approved site for long-term nuclear waste storage in the country (Fialka, 2009). The Western Shoshone have lived on the 24-million acres of land they call Newe Sogobia for 4,500 years (Glass, 1998, p. 262-3). The Native Americans of The Great Basin have protested military activity in their territory repeatedly through activist and legal channels, to little avail. A “disputed settlement” from 1872 allowed the United States Air Force to claim the Western Shoshone “no longer held a valid claim to their traditional lands” (Glass, 1998, p. 272).

Many people affiliated with NTS look back on their work with pride and patriotism, even those with a critical eye claim that officials and experts were not being intentionally careless in terms of safety but that they were working with the best scientific safety information available at the time (NTSOHP, 2008; NATM: Past Exhibits, 2015). As a researcher and a member of the Las Vegas community, I have trouble mustering sympathy for these views. The US government and military designated land for nuclear testing that had, at best, contested ownership, and at worst, clearly belonged to the Western Shoshone. The US then contaminated large sections of the area with radiation thereby affecting the land, water, and several existing populations nearby (Fradkin, 1989; Titus, 2001; Williams, 1992). Radiation was known to be dangerous before NTS began aboveground testing in 1951 as evident by documented cases of radium poisoning as well as (often insufficient) decontamination protocols at sites affiliated with the Manhattan Project (Staggers, 2006; Iverson, 2013). The pressures of the Cold War do not seem to adequately explain or justify the consequences of treating the people and land of the Western United States as expendable by its own government and military. Although the threat of the Cold War was real and terrifying, the idea that NTS was making Americans “safer” is problematic because NTS was actively dangerous to domestic
populations while foreign powers remained potentially dangerous. Arguments that rely on the scientific ignorance of those involved with nuclear testing are not as compelling as arguments that expose the simple fact that concerns regarding National Defense outweighed all other considerations.

NTS detonated nuclear weapons using several different methods for both atmospheric and underground testing. All types of detonations are listed in the table below with a description (See Table 2). All atmospheric tests, save for the rarely used “surface” method, were detonated in the air at varying heights above the surface of the earth. The most common atmospheric method was “tower”, followed closely by “airdrop.” The most common underground method was “shaft,” followed by “tunnel” (U.S. Department of Energy, 2015, p. xiv). The most noteworthy NTS detonations are Project Harry 1953, later nicknamed “Dirty Harry,” for badly contaminating southern Utah and Mesquite, NV; Project Hood 1957, for being the highest-yield aboveground test in NTS history at 74 kilotons (kt); Project Baneberry 1970, for accidentally venting an underground test into the atmosphere (for more on Project Baneberry, see Chapter 4). Health and environmental consequences of NTS testing have been severe for populations in the southwest United States. During the time of aboveground testing, cattle in Nevada and sheep in southern Utah were “displaying beta burn injuries” and lambs in southern Utah were dying at alarming rates (Fradkin, 1989, p. 148). People in fallout zones following aboveground tests would also experience burns, hair loss, and respiratory problems, but the AEC was actively denying fallout as the cause of these afflictions (Fradkin, 1989).
**Table 2. Types of NTS Detonations***

<table>
<thead>
<tr>
<th>Atmospheric Methods</th>
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<tbody>
<tr>
<td>Type</td>
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<td>---------</td>
</tr>
<tr>
<td>Airburst</td>
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<tr>
<td>Airdrop</td>
</tr>
<tr>
<td>Balloon</td>
</tr>
<tr>
<td>Rocket</td>
</tr>
<tr>
<td>Tower</td>
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<tr>
<td>Surface</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Underground Methods</th>
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<tbody>
<tr>
<td>Type</td>
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<tr>
<td>---------</td>
</tr>
<tr>
<td>Crater</td>
</tr>
<tr>
<td>Shaft</td>
</tr>
<tr>
<td>Tunnel</td>
</tr>
</tbody>
</table>

*Information gathered from U.S. Department of Energy, 2015, p. xiv; 181-184

Types and amounts of exposure affect the body in different ways, but in short, radiation exposure can cause cancer (Fradkin, 1989; Gerber 2007; Institute of Medicine, 1999). Aside from
damage to skin and hair mentioned above, high doses of external exposure can cause leukemia, like the victims of “Dirty Harry” and Baneberry (Fradkin, 1989; for more about the victims of Baneberry, see Chapter 4). Atmospheric testing can create circumstances for ingesting radiation as well. For instance, when grass contaminated by atmospheric fallout is eaten by dairy cattle, it creates radioiodine in the milk they produce. Exposure to radioiodine can cause thyroid cancer in humans, proven by research published in 1963 (Gerber, 2007). Lingering contamination of the earth and water in the southwestern United States is a concern because radiation is invisible to the naked eye and exposure to radiation is always a risk. The history of health and environmental consequences of nuclear fallout are long and horrible. The following chapters of this dissertation continue to explore this history and the complicated, rhetorical process of making data regarding nuclear fallout. Health effects of fallout are difficult to research when contamination is invisible and symptoms are temporally delayed from exposure (Kuchinskaya, 2014). In At Work in the Fields of the Bomb, Robert Del Tredici (1987) quotes a summary of the risk of radiation exposure from Dr. Karl Z. Morgan, the Director of Health Physics in Oak Ridge National Laboratories from 1947-72. Morgan’s assessment is that “There is no safe level of radiation exposure. So, the question is not: What is a safe level? The question is: How great is the risk?”

**Las Vegas History**

The version of Las Vegas that exists today began to take shape in the late 1980s and early 1990s. Historian and professor from University of Nevada, Las Vegas Hal Rothman argued that Las Vegas became a fully-realized center of entertainment in the 1990s with the creation of The Mirage, The Bellagio, Showcase, etc. Such businesses that specifically catered to families and women, rather than the arguably male-centric focus of Las-Vegas-based entertainment of the 1970s and 1980s, broadened the scope of Las Vegas’s patronage and worked to normalize its brand for a mainstream
audience. Steve Wynn, owner of The Mirage, The Bellagio, and The Wynn, intentionally built The Bellagio as a space “where women felt comfortable” and was instrumental in blending high-brow art galleries and high-end retail outlets with the tawdry entertainment already well known on The Strip (Rothman, 2003). Rothman argued contemporary American culture is primarily about experience; when so much can be accessed through the web, real-world experience is the currency of uniqueness and individuality more so than acquiring objects. The stories people can tell are what sets them apart and Las Vegas perfected the service-based entertainment for those craving an experience. William Fox in *The Desert of Desire* (2005) makes a similar argument regarding Las Vegas’s niche for generating an experience worth remembering but emphasizes the experience as connected to a gesture toward having “great wealth,” which reconnects the offerings of Las Vegas entertainment more directly to consumerism than Rothman (Fox, 2005, p. 168).

Population totals reported by the US Census Bureau for Clark County, NV parallel Rothman’s history of the slow growth of the city over time along with a somewhat significant spike in the 1990s (See Table 3.) (Popular Division, 1995). Clark County population totals between 1940 and 1990 seem miniscule when compared to current population estimates totaling over 2 million residents (data gathered from 2016). Between WWII and present day, the City of Las Vegas evolved from a small town to a thriving metropolis.

Clark County is by far the most densely populated area of the entire state of Nevada and encompasses the majority of the southern tip of the state border. Population totals listed under “Las Vegas” seemed inadequate numbers for the context of locals affiliated with Las Vegas. Areas nearby that technically have different mailing addresses (e.g., North Las Vegas, Henderson, and Boulder City) have all been linked with Las Vegas both economically and culturally. Population totals from Clark County allows for the inclusion of these close neighbors to Las Vegas who, historically and currently, are very much part of the economic development and culture of the city.
The earliest non-native residents of Las Vegas were Mormon settlers who grew crops and built a fort in 1855, now prosaically named the Old Las Vegas Mormon Fort, which still stands as a State Historic Park ("Mormon Station," n.d.). The beginnings of the current city of Las Vegas is not a continuation of this settlement, but rather, a re-awakening built on top of the mostly abandoned fort (Rothman, 2003). In the early 20th century, Las Vegas functioned primarily as a railroad town and tawdry entertainment was tolerated, if not welcomed, to best cater to travelers’ desires. Las Vegas depended entirely on the success of the railroad as a repair station, and accepting travelers was part of the deal. Even the most morally-conscious residents of Las Vegas turned a blind eye to the gambling, drinking, and "quasi-legal" sex trade because they knew the success of the city was dependent on keeping travelers happy (Rothman, 2003). The economy in Las Vegas that continues to keep the lights on has been primarily service-based since the city’s beginnings.
In retaliation of a worker’s strike in 1922, the Union Pacific moved the railroad repair station (inevitably moving the travelers as well) from Las Vegas to Caliente thereby seriously threatening the city’s survival. Disputes over access to water between California and Colorado became a savior for Las Vegas in the form of the labor opportunity of the Hoover Dam project. Workers for the originally-named “Boulder Dam” typically lived in Boulder City, a gambling- and alcohol-free government town, created by Dr. Ray Lyman Wilbur who wanted nothing to do with the shenanigans in Las Vegas. However, the road from Boulder City to the dam cut through Las Vegas thereby keeping the city alive in the midst of the Great Depression. Hoover Dam was constructed in just under four years, beginning in 1931, which meant “four years of paychecks to almost five thousand workers at the height of the Depression” (Rothman, 2003, p. 6). The Hoover Dam remains a masterpiece of engineering which collects and doles out water from the Colorado River to sections of the southwest United States per the Colorado Compact of 1927.

The completion of the Dam left thousands of locals out of work and Las Vegas suffered another period of near death until federal contracts converted a nearby airbase as The Las Vegas Gunnery School during WWII. Las Vegas catered to the needs of the military and federal government just as it had catered to the railroad and the construction of the Dam. Las Vegas’s culture of libertarian individualistic freedom, a holdover of old west ideology, morphed and adapted to meet the needs of whoever wanted to be there. Las Vegas remained invested in catering to the indulgences of tourists but closed the red-light district and altered operation hours of bars and casinos per the requests of government and military personnel. Following WWII, Benjamin “Bugsy” Siegel and associates built Las Vegas’s first upscale resort, The Flamingo. As Rothman is careful to mention, fictional retellings of Las Vegas history often give Siegel creative credit for The Flamingo, which is not accurate. Billy Wilkerson, owner of a Hollywood newspaper and several restaurants, “envisioned Las Vegas as Beverly Hills in the desert” (Rothman, 2003, p. 10), while Siegel and his
fellow mobsters got involved with Wilkerson’s ideas in complicated ways, the most significant of which was introducing organized crime into casinos of Las Vegas.

Post-war Las Vegas was hungry for any industry that would bring sustenance to the city. Mob dollars were better than no dollars, and so locals welcomed the new people and new business ventures. Illegitimate money funded The Flamingo and the El Cortez, later purchased by Siegel, and thus began the fusion between the mob and Las Vegas (Rothman, 2003). Mob-based financing for large hotel-casinos was common in Las Vegas well into the 1950s. Mob influence and money remained part of Las Vegas until the 1980s when mob affiliates were forced out by the efforts of the FBI and made obsolete by the more sustainable practices of legitimate business (heavily influenced by eccentric and brilliant billionaire, Howard Hughes) (Rothman, 2003).

The Las Vegas of 1950 remained in the post-war mindset of welcoming outsiders who had money to spend or invest. The Las Vegas of 1950 had little choice but to welcome NTS and the jobs it would bring to the area and a new form of capital, separate from gambling (Titus, 2001; Rothman, 2003). Most locals of Las Vegas did not have the economic luxury of skepticism, and so the desert city of leisure and entertainment welcomed its atomic neighbor and quickly learned to capitalize on the novelty of the mushroom cloud.

By the early 1980s, the existence of NTS had become well woven into the economy of Las Vegas, NV. The Nevada Legislature Background Papers report employment numbers from 1982 (gathered by the DOE) with NTS “jobs” totaling 18,640, made up of 240 federal employees, 7,100 private contractors, and 11,300 “support jobs in Southern Nevada.” The employment information also estimates “9 percent of the workforce in Southern Nevada [were] either directly or indirectly dependent on current activities at the Nevada Test Site” (Research Division, 2016, 83-5). NTS employment information from the early 1980s are the best data available because demographic information on NTS employees is sparse, and also, as these numbers indicate, as NTS continued its
work, the presence of NTS became economically and culturally connected to the Las Vegas community.

**Early Government Communication Regarding NTS**

Chapter 3 of this dissertation analyzes the entertainment-related pop culture in Las Vegas as a participant in risk construction for the community of Las Vegas. It’s important to note here that locals involved in selling atomic entertainment were not the only participants in producing and distributing media to affect the orientation of locals to the activities of NTS. The beginnings of NTS-fueled entertainment in Las Vegas starts with government-produced propaganda that pitched NTS as new, exciting, and patriotic. As mentioned in Chapter 1, *Target Nevada*, released by the US Air Force in conjunction with the DOE and AEC, begins by introducing southern Nevada as “the valley where the giant mushrooms grow” and boasts more nuclear weapons have been detonated in this area than anywhere else in the world. The film does not list a production date, and this film is credited online to 1951 or the 1950s, more generally. The narration states that “20 blasts” have been detonated in southern Nevada; given this information (and assuming it is accurate), *Target Nevada* must have produced sometime between 5 June 1952 and 17 March 1953 (United States Air Force, n.d.). This 13-minute film is similar in genre to documentary but functions more similarly to propaganda. *Target Nevada* makes repeated gestures toward safety precautions while highlighting the military importance of nuclear testing that is couched in language that privileges Nevada as a “special” location; an area making a unique effort (but not quite sacrifice) toward national defense. Overall, *Target Nevada* would likely seem wildly outdated for most contemporary viewers, like advertisements from the 1950s and 1960s for doctor-recommended brands of cigarettes.

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7 This is accurate but incomplete. By the time of *Target Nevada’s* production, nine nuclear tests were detonated by the US in the pacific islands, one test took place in New Mexico (Trinity Test), and the US detonated two nuclear bombs in Japan as acts of warfare.
Other instances of government-based communication about NTS was delivered through brochures, flyers, and handouts. The AEC issued notices in early 1950s that there would not be a notice prior to detonations. These brochures always accompanied information reassuring locals that they were perfectly safe from the atom bomb (Titus, 2001). It is safe to say that pop culture across the entire United States became imbued with nuclear energy in the 1950s and 1960s; however nowhere was this saturation more potent than in Las Vegas.

NTS provided the Las Vegas economy with a welcome boost and Las Vegas locals were assured by their military and government that NTS put them in no danger (Titus, 2001; Fradkin, 1989). Las Vegans developed a complex relationship with the practices of NTS. Las Vegas culture, for Las Vegans, is not encapsulated by The Strip, but the themes and attitudes of The Strip inform the culture for locals. Often pop culture representations of atomic energy were blended with tongue-in-cheek references to safety concerns. For instance, an atomic themed beauty pageant in 1952 was accompanied with the tagline “radiating loveliness instead of deadly atomic particles” (NNSSA, 2013). Las Vegans developed cultural ways to deal with their safety paradox. Exposure to radiation was known to be hazardous by the time NTS was established, but the AEC was actively affirming locals of their safety and distributing safety information to the public (such as advising locals not to look directly at a detonation without sunglasses) (Titus, 2001). Las Vegas pop culture (in part) used humor to deal with safety concerns. Locals were also often genuinely persuaded by the appeals to patriotism, provided by the military and government. Locals of Las Vegas wanted to believe they were contributing meaningfully to the nation’s safety, and between 1950-1985, perhaps locals had to believe it because there was nothing to be done about it otherwise.8

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8 Protest of NTS and nuclear energy did exist but are not a focus of this dissertation because the majority of NTS protests were not generated from the community of Las Vegas, particularly in the early days of atmospheric testing.
Yucca Mountain

Nevada’s representatives have had a complicated and sometimes contradictory relationship with NTS, but the most publicized political controversy began with the Nuclear Waste Policy Act of 1987, which Nevadans nicknamed the “Screw Nevada Bill” (U.S. Department of Energy, 2004). The policy designates southern Nevada, specifically Yucca Mountain, as the place for long-term storage of US nuclear waste. Infamously, Nevada did not have a representative present during the initial meeting when legislators decided that Yucca Mountain was the best place to investigate for long-term nuclear waste disposal (Rogers & Tetreault, 2012, para. 6). Unlike the establishment of NTS, the Nuclear Waste Policy Act created an uproar in the Las Vegas community. Las Vegans fell on all sides of political opinion, but unlike previous interactions with NTS, locals were debating whether or not long-term nuclear waste disposal would be good for Nevada. The “not in my backyard (NIMBY)” arguments are on-going when it comes to the topic of nuclear waste disposal, and in reality, these viewpoints are understandable, but one problem with these political decisions is that areas with the most representatives and the most political clout are more able to protect their hometowns.

Some Nevada representatives, mainly Harry Reid, have successfully blocked the Yucca Mountain Project since 1987, but some politicians remain firm in the claim that Nevada is the best place for storing nuclear waste (Fialka, 2009). By 1987, Las Vegans were economically and culturally able to ask questions and engage in internal debates. The Nuclear Waste Policy Act also passed the year following the Chernobyl disaster (1986) which changed the conversation about nuclear energy on a global scale. The entire world become more fearful and skeptical of nuclear energy, for obvious reasons. Many Nevadans resisted the Nuclear Waste Policy Act with fervor, and in so doing, began to turn a more critical eye toward NTS. The Yucca Mountain proposal created a rhetorical spotlight for NTS and public health that had not been mainstream in previous years (Fialka, 2009)
Perhaps legislators outside of Nevada assumed getting away with Yucca Mountain would be easy since NTS had been poisoning the desert of the southwest US since 1951, but lawmakers failed to realize that the local context was very different in these two circumstances. The political battle over Yucca Mountain is an example of science, politics, and fear all colliding when making important decisions about risk. Decisions and communication about risk at NTS and Yucca Mountain are embedded in political and cultural contexts that socially create what counts as acceptable or reasonable risk and for which populations.

The Water Problem

As mentioned in Chapter 1, the most significant contemporary consequence of NTS underground testing is the contamination of Nevada’s natural groundwater (Vartabedian, 2009). Nevada’s groundwater will be too contaminated with radiation to be potable for tens of thousands of years. If the contaminated water is not drank, it does not pose an immediate health concern. But the 1.6 trillion gallons of contaminated groundwater is a health and environmental problem for Nevadans, particularly as droughts in the western United States make water a subject of contention between States. Water is an ongoing topic of importance and controversy for Nevada, the driest of these United States (Center for Biological Diversity, n.d.). Current cleanup efforts in regards to groundwater contamination at NTS are limited to assessment and long-term monitoring (NNSS, 2017). For future research, I would like to focus on Nevada’s water problem in more detail including federal allocation of funds for cleanup, government communication regarding cleanup efforts, and the growing contention over the Colorado River Compact. As climate change will continue to affect levels of snowpack, water will become a more prominent conversation in mainstream news and politics.
Political conversations about Nevada’s access to drinking water should include the groundwater contaminated by the federal government via NTS testing (if for no other purpose than bargaining for federal compensation). The amount of contaminated Nevadan groundwater is the equivalent of the maximum amount Nevada is able to receive from the Colorado Compact for sixteen years (Vartabedian, 2009), which is not a small loss for the driest state in the country.

Problems about water (and the way water is discussed) interests me greatly, and I suspect this topic will become more mainstream as levels of Lake Mead continue to cause concern (Goodland, 2018). However, due to time and space constraints, the water problem is outside the scope of this dissertation. I look forward to continuing researching the rhetoric of risk through discussions about water in the southwest United States.

The Metaphor of Las Vegas

It is commonplace to refer to Las Vegas as a metaphor for how American life is either lived or avoided. Las Vegas stands in as an easy referent for large-scale consumerism, hedonism, reverie, or masquerade. Las Vegas’s own quite successful advertising slogan of “what happens in Vegas, stays in Vegas” draws on this cultural conversation to present Las Vegas as standing apart from “the real world.” Las Vegas exists as culturally separated from everything else. In Hunter S. Thompson’s Fear and Loathing in Las Vegas (1971), the narrator Raoul Duke describes Las Vegas as a place to find the American Dream, but the novel creates Las Vegas as a motif for a deviant version of the American Dream. Las Vegas becomes a place where too much is possible and there is too much stimuli: ”This is not a good town for psychedelic drugs. Reality itself is too twisted” (p. 59). For Duke and his companion Dr. Gonzo, Las Vegas becomes a focal point from which the promise of the American Dream radiates. As such, the realization of these promises are overly concentrated in
Las Vegas, like eating a packet of dry Kool Aid powder, it’s too sweet, too bitter, and flavorful to the point of rejection. Duke and Dr. Gonzo identify this rejection as “fear:”

“I hate to say this,” said my attorney as we sat down at the Merry-Go-Round Bar on the second balcony, “but this place is getting to me. I think I’m getting the Fear.”

“We came out here to find the American Dream, and now that we’re right in the vortex you want to quit.” I grabbed his bicep and squeezed. “You must realize,” I said, “that we’ve found the main nerve.”

“I know,” he said. “That’s what gives me the Fear.” (p. 60)

Throughout Thompson’s novel, Las Vegas is not a fantasy-like unreal place; Las Vegas is too real. It presents the American Dream in hyperfocus (both in positive and negative ways). A decade later in France, theorist Jean Baudrillard wrote something similar about Las Vegas in *Simulacra and Simulation* (1994), a treatise on postmodern theory (originally published in 1981 and translated to English in 1994). Baudrillard described Las Vegas as the “absolute advertising city” and as a city functioning as one large advertisement for itself creates a “stupefied, hyperreal euphoria” for the consumer (p. 91). Baudrillard’s comments on Las Vegas were in relation to advertisements as an “empty and inescapable form of seduction” which is related to his well-known theories on simulacra (a copy of which there is no clear referent or original) (p. 92). One of Baudrillard’s examples of a simulacrum is Disneyland:

The Disneyland imaginary is neither true nor false: it is a deterrence machine set up in order to rejuvenate in reverse the fiction of the real. Whence the debility, the infantile degeneration of this imaginary. It’s meant to be an infantile world, in order to make us believe that the adults are elsewhere, in the "real" world, and to conceal the fact that real childishness is everywhere, particularly among those adults who go there to act the child in order to foster illusions of their real childishness. (p. 13).
Las Vegas often serves as another example alongside Disneyland as a simulacrum (although Las Vegas appears in the text as an example for a theory on advertising) because the similarities are obvious and have only become stronger since 1981 (which describes a Las Vegas before most of the “miniature” monuments lined The Strip as they do now: Luxor Hotel and Casino, Paris Las Vegas, New York-New York Hotel and Casino, etc.) (Smith and Bungi, 2002). For both Baudrillard (1994) and Thompson (1971), Las Vegas is hyperreal, and this hyper reality serves as an obscurity. Las Vegas obscures what postmodern life “really” is and what the American Dream “really” values.

This dissertation analyzes communication about the nuclear testing at NTS as part of this hyper reality. Conversations from multiple participants (government bodies, technical reports, popular press, and pop culture) construct a version of risk associated with NTS as something other than risk (e.g., patriotism, legal culpability, or entertainment). Local rhetoric about NTS participates in obscuring the material risks of nuclear detonations and conceals the real people who died from radiation exposure. In this context, hyper reality is another “articulation” of cognitive “invisibility” for the locals of Las Vegas that results in material consequences (Kuchinskaya, 2014). Legislators used the metaphor of desolation to select southern Nevada as the national domestic testing site prior to 1951. Discussing the southwest United States as “relatively unpopulated” functions to decrease the importance of the people that do, in fact, live there. These discussions of unpopulatedness also function as an erasure of the natives to whom this land seems to belong.

Reducing any community to mere metaphors for some other community’s way of life functions similarly to obfuscate the lived experience of people. Unlike Disneyland, Las Vegas is a fully-functioning city where people are born, live, work, and die. Las Vegas does not function as a metaphor for the people who live and work there; it is a real place with its own people and problems. Rhetorician Jeff Rice argues in Digital Detroit (2012) that conversations about a place can change the place itself or the experience of being in that place. Local Las Vegans are not outside of
the conversations about Las Vegas; locals participate, exploit, and are affected by common narratives about their city. What is “real” is not limited to what is material; however, when metaphors for a place function to obscure material suffering, the metaphors might need revision. Thompson (1971) wrote, "For a loser, Vegas is the meanest town on Earth" (p. 54). The truth is that Las Vegas is mean and nice, rich and poor, ornate and rustic, childish and mature, artistic and mundane, and all the other contradictions and complexities of any place that holds over two million individuals together in one group. The health and environmental consequences of NTS nuclear testing matters because the people matter and the place matters.

**Conclusion**

The history of atomic science, the creation of NTS, and the growth of Las Vegas informs the chapters that follow by presenting an important context for the relationship between NTS and Las Vegas locals. The historical context provided in this chapter presents a general rhetorical relationship between NTS and the community of Las Vegas as author and audience; this relationship is reciprocal, recursive, and changing over time. Historical context provides a snapshot of Las Vegas locals’ general orientation to NTS, or put differently, it offers a view of the “attunement” between locals and NTS (Rickert, 2013). The chapters that follow analyze presentations of risk in Las Vegas popular press (Chapter 4) and Las Vegas pop culture (Chapter 3) that are informed by historical and economic context. The subsequent chapters move forward in time from the 1950s through the 1980s (with some references to present day), and it is important to contextualize the growth and changes of both NTS and Las Vegas through these decades. Subsequent chapters analyze artifacts of pop culture and local popular press through the lens of rhetorical presentations of risk. The primary finding of the following chapters is a presentation of risk through *meiosis*, or intentional understatement. Manifesting through various uses of language and visual rhetoric (analyzed in more
detail in upcoming chapters), the common thread among Las Vegas communications about NTS is a meiosis of risk without a clear sense of degree for the discourse community to recognize the meiosis as an understatement.
CHAPTER 3: LAS VEGAS POP CULTURE AND THE NEVADA TEST SITE, 1951-1985

I love Vegas when I'm loaded,
I love it when I am not.
I love Vegas, just like Kruschev loves being indignant,
More than even my wife Jeannie loves being pregnant.
I, I love Vegas every moment

--Dean Martin, “I Love Vegas” (1963)

Bright light city gonna set my soul
Gonna set my soul on fire

--Doc Pomus and Mort Shuman, made popular by Elvis Presley (1964)

“Celebrating a mushroom cloud... is like rejoicing in the Black Plague”


The atomic “snow” globe pictured below is a souvenir currently for sale at the National Atomic Testing Museum in Las Vegas (See Figure 3.). The atomic snow globe is a realistically painted mushroom cloud ever-exploding amid floating specs of sparkling glitter. This snow globe is simultaneously entertaining and horrifying; it is representative of the hybrid between risk and kitsch common in Las Vegas pop culture discussed in this chapter. The hazard of the mushroom cloud is packaged in a pop culture artifact that is lighthearted in tone. The overall effect of the “snow” globe
strips the potential hazard (or risk) from the conversation, and as a souvenir, it gestures toward memorializing the mushroom cloud as lost entertainment from a past era. It creates nostalgia for the nuclear weapons detonated less than sixty miles from the most populated area in the state of Nevada (see Chapter 2 for population totals).

Figure 3. Snow Globe Souvenir from National Atomic Testing Museum

Between 1951-1985, entertainment on the Las Vegas Strip became fused with the iconography of the mushroom cloud. It is also common for pop culture from Las Vegas to be about Las Vegas. Jean Baudrillard (1994) categorizes Las Vegas as a city that exists as an advertisement for itself, and while Chapter 2 offers critique of those who use Las Vegas as an example of a simulacrum, Baudrillard was not wrong about Las Vegas advertising. Each of the epigraphs are
examples of pop culture artifacts (two songs and one short story) from Las Vegas that are also about Las Vegas. Much of the pop culture in Las Vegas both historically and currently is celebratory of the city, and between 1951 and 1985, it was equally common for Las Vegas pop culture to celebrate the mushroom cloud.

Although NTS detonated nuclear weapons from 1951-1992, this chapter’s analysis of pop culture artifacts in Las Vegas, NV emphasizes artifacts prior to 1986. As criticisms of nuclear energy began to rise, the atomic stardust in pop culture on the Las Vegas Strip began to dissipate. The Chernobyl disaster of 1986 created a kairotic moment for global criticism and fear of atomic energy at every level of expertise (Kuchinskaya, 2014). Nuclear-related pop culture began to lose cultural cachet as criticism of nuclear energy become more mainstream. Nuclear-related pop culture no longer held the cultural capital it enjoyed in the Atomic Age of the 1950s and 1960s, so in the mid-1980s, pop culture in Las Vegas began to create intentional distance between the entertainment of The Strip and the nearby nuclear testing facility. This analysis focuses on pop culture in Las Vegas during a time in which representations of atomic energy in pop culture were most common. The data set does not include of all pop culture artifacts in Las Vegas but focuses on several examples as representative of a pervasive theme. Nuclear traces have yet to completely disappear from Las Vegas pop culture, as the atomic “snow” globe demonstrates, but its traces are much more faint in contemporary Las Vegas pop culture than in previous decades.

This chapter uses the term “artifact” to refer to particular elements of pop culture from Las Vegas’s past. “Artifact” is intended to encompass a wide range of objects and events in order to be as inclusive as possible. For example, some artifacts used for analysis are literal beauty pageants, while others are postcards, snow globes, or freestanding signs for hotel-casinos on The Strip. The term “artifact” is used to draw attention to the object or event itself, rather than only a photograph of the original. The historical nature of this research means that the majority of the artifacts in this
data set no longer exist (or they exist in a revised form, like the freestanding sign for The Stardust Hotel and Casino which now takes residence at the Neon Boneyard Museum of retired Las Vegas signage). Other artifacts analyzed for this research are historical events, rather than objects, and so all that remains of these parties and pageants are the photographs and the stories. For these reasons, the artifacts of pop culture discussed in this chapter are presented here as either photographs or stories but the analysis is often bent toward the original object or event.

**Pop Culture: Mass, Mid, and High**

Scholars of popular culture studies, Lee Harrington and Denise Bielby (2001), claim “no academic writing on popular culture can proceed… without first attempting to define the term,” (p. 2) and the introduction to their interdisciplinary collection of pop culture scholarship offers a condensed literature review of the various definitions of pop culture that remain active in contemporary work. Citing Raymond Williams (1983), Harrington and Bielby (2001) locate the four primary definitions of “popular” as: 1) items or practices that a lot of people enjoy, 2) the items or practices considered “low” on a high-low cultural divide, 3) items or practices intentionally produced to be consumed by the masses, 4) items or practices produced by the people who enjoy it (p. 2). Harrington and Bielby (2001) claim use of a more “inclusive” definition from Mukerji and Schudson (1991) that popular culture “refers to the beliefs and practices, and the objects through which they are organized, that are widely shared among a population” (p. 2).

For the circumstances of Las Vegas between 1951-1985, all of these definitions of pop culture gain relevance in certain contexts, or as the lens of analysis shifts. Class implications, for instance, share importance between pop culture studies, circumstances of Las Vegas from which this data set was produced, and fallout from NTS. As Harrington and Bielby (2001) note, the high-low culture divide is complex, and it is not always easy to label an artifact of pop culture as either “high”
or “low” based on any single set of criteria. Arguably, the divide between high and low culture is even more complex on The Las Vegas Strip because economic capital often does not align with cultural capital. Many forms of entertainment on The Strip considered “low” culture in terms of content are also expensive, and some forms of “high” culture can lose prestige simply by being present on The Las Vegas Strip.

Cultural critic Dwight MacDonald (2011) wrote a manifesto in defense of the preservation of high culture through a derision of “masscult” and “midcult” in Masscult and Midcult: Essays Against the American Grain (originally published in 1960). Throughout his work, MacDonald refers to “High Culture” as two capitalized words but intentionally shortens the word “culture” when referring to mass produced art to distance it from his definition of culture. MacDonald argues that masscult, synonymous with kitsch, offers its audience no “emotional catharsis nor an aesthetic experience, for those demand effort” (p. 4-5). Masscult, for MacDonald, cannot even be considered proper “entertainment” but is merely a “distraction” for a public that is simultaneously too uncultured to demand better art and exploited by producers of bad art that sells (p. 5). Midcult is the “bastard” child of masscult who earned a decent education; for MacDonald midcult is masscult for the rising educated class (p. 25). College graduates as a demographic rose sharply in the US following WWII which created a new audience for a new type of masscult (i.e., midcult). Midcult is a hybrid between “High Culture” and masscult because it shares properties with both. Midcult is similar to masscult because it is mass produced and offers predictability in both form and content; however, midcult references or imitates the forms and expectations of High Culture which successfully appeals to the educated class’s sense of intellect and awareness of culture. MacDonald views midcult as a more insidious threat to the preservation of High Culture than masscult because of its disguise as being

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9 Discovered via Anne Helen Peterson’s Too Fat, Too Loud Too Slutty (2017) where she offers a feminist reading of cultural systems that have historically ignored or degraded art by, for, and/or about women.
similar to High Culture. MacDonald would have his perceived problems with culture solved through an educated class with enough discernment to fully engage with High Culture by preserving the great art of the past and identifying great art in the present. For MacDonald, midcult distracts the educated classes from participating in the continued identification of great artists by pacifying them with valueless masscult that satisfies their sense of enlightenment.

Masscult is not a threat to High Culture because *Ace Ventura: Pet Detective* (1994) could never be mistaken for a work of High Culture like *Citizen Kane* (1941), but *Titanic* (1997) simultaneously appealed to the masses and won several prestigious awards. *Titanic* is midcult which is masscult masquerading as High Culture. MacDonald’s analysis, of course, ignores any consideration of how systems of power operate to keep marginalized people out of High Culture, both as receivers and producers of text. MacDonald is aware that his analyses of culture (along with his proposed solutions) are elitist, and he is okay with that because he assumes working in art is a meritocracy and values of “good” art are objective. MacDonald argues that “discrimination” is necessary to identify any one text or artist as better than another, so elitism is inherent to any system that separates good from bad. This charitable view of discrimination assumes a level playing field for all participants (which, of course, has never existed). The assumptions are that any truly great art (or artist) will be recognized as such and social systems of privilege and access are irrelevant or nonexistent and that High Culture will always be correctly recognized as such by people who know how to appreciate it. MacDonald cannot recognize that the rules of identifying art as valuable (or not) have been primarily written by straight, white men which means that the systems of discernment favor exactly that social group. While I reject MacDonald’s blatant elitism and advocate for more inclusive systems of critique that champion work from historically marginalized groups, I certainly participate in systems that separate pop culture into categories of value. I dislike a fair amount of masscult and wish it were “better” or “smarter” in some way. For example, the most watched TV show of 2018 (as of May)
was the reboot of *Roseanne*, starring Roseanne Barr, which was cancelled early due to racist comments tweeted by the show’s star (Lynch, 2018; Koblin, 2018). MacDonald categorizes all television and most movies as masscult and is generally wary of all new media. His analysis also predates the concept of “hate watching” or “hate reading” which generates high ratings that cannot be equated to a number of fans. “Hate watching” is a side effect of click-driven internet economics that encourages users to engage with material that elicits strong negative emotions (Armstrong, 2017). The practice of engaging in pop culture in order to deride it for being terrible seems a quintessentially midcult thing to do.

What is important about masscult (including midcult) is its reach of influence through popularity and ubiquity. One significant marker of a product of masscult (for MacDonald) is abundance. Prolific novelists, for example, are much more likely to be deemed masscult simply because they have written a lot of books (supposedly working from the assumption that “good” art takes more time to produce than “bad” art). Masscult reaches into the cultural milieu simply because it is everywhere and most people know about it. For example, writer Danielle Steel has published over 100 novels, has sold roughly 800 million books, and is one of the best-selling authors of all time (David, 2011). With my feet planted on the mid/high culture divide, I have never read a single word Steel has written, but I know who she is, what she writes about, and why her readers like her work. Steel is ubiquitous enough to be part of the current cultural conversation. She has reach and influence as someone who is so widely read that people who do not read her work know about it.

Masscult reaches into midcult and High Culture through ubiquity. Connoisseurs of High Culture (self-proclaimed, I’m sure) may deride but are often aware of what the plebs are watching or reading. Masscult is received by the largest audience even when some audiences are self-righteously snubbing it and others are engaging with it through “hate.” Masscult is an important influence on culture as a whole through the ubiquity of exposure to it. Including MacDonald (2011) in this
chapter has two purposes: to make it clear that I actively reject his elitist views of people who engage with masscult (and midcult). Elitist assumptions are not uncommon in discussions of pop culture and my analysis of pop culture in Las Vegas does not include pejorative assumptions about the audience’s class, wealth, or education. Secondly, MacDonald’s explanations of culture provide an avenue for identifying the reach or influence of nuclear-themed pop culture in Las Vegas. It is likely safe to categorize all of Las Vegas entertainment as masscult with perhaps a migration into midcult beginning in the early 1990s. Las Vegas entertainment reaches a very broad audience as a quintessential example of masscult. The nuclear-themed pop culture common in Las Vegas integrated the local masscult thereby informing the cultural relationship between nuclear energy and the broadest population of locals and tourists.

Spectacle and Las Vegas

William Fox, in *The Desert of Desire* (2005), explores the "culture of spectacle" in Las Vegas through analysis of world-class art exhibits, ostentatious uses of water in the desert, and the display of exotic animals on the Las Vegas Strip. In developing an argument on the idiosyncratic brand of spectacle in Las Vegas, Fox offers a compelling history of Las Vegas art and performance, an overview of American art history and major collectors, a history of water acquisition and usage in the desert city, and a history of zoo keeping. Fox explores the hybrid of low- and high-culture that exists on The Strip and traces a history of circumstances and decisions that created this hybrid out of what was once an offering of entertainment uninterested in "high-culture." This blend of high and low also parallels a complicated hybrid of for-profit and nonprofit business models found on

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10 For instance, the cover for the 2011 edition of *Masscult and Midcult: Essays Against the American Grain* is a photograph of Tropicana Avenue and Las Vegas Boulevard featuring the New York-New York Hotel & Casino. Las Vegas is not a subject MacDonald addresses.
The Strip usually, but not exclusively, to the advantage of savvy and powerful casino owners in the form of tax breaks.

Fox’s (2005) view of spectacle in Las Vegas begins, more or less, with Steve Wynn’s incredible influence over the entertainment culture of Las Vegas. Fox discusses Wynn’s Secret Garden and Dolphin Habitat at The Mirage as a spectacle of wealth and power equal to its visual or experiential spectacle:

The unexpected juxtaposition to desert and dolphins implies the wealth and power necessary to produce such a sight, which creates the spectacle that Wynn wanted: a display of how he has the resources to overcome the conventions of geography, just as he does with tax laws.

(p. 75)

For Fox (2005), the brand of spectacle unique to Las Vegas is rooted in memory and immersive experiences (p. 168). He connects spectacle to a combination of wealth, power, and latent or potential threat, with captive white tigers and the residents of Shark Reef at Mandalay Bay as examples. The spectacle Las Vegas specializes in is immersing guests in an experience of wealth and power, while keeping the audience in awe of the potential threats of that power. Spectacle in Las Vegas is a simultaneous duality: the temporary experience of living in a moment of wealth and power while marveling at the wealth and power that creates the circumstances for that experience. In this sense, spectacle and risk are intertwined at a theoretical level. Risk can be present without spectacle, but spectacle can rarely exist without risk—at minimum—risk of the collapse of the spectacle itself.

Fox’s analyses of spectacle, experiential entertainment, wealth and looming threat of power in Las Vegas are applicable to pop culture from Las Vegas of an earlier time. Before Steve Wynn’s Mirage generated experiential spectacle (imbued with risk), Las Vegas produced pop culture directly referencing hazardous nuclear bombs. Nuclear-related spectacle in Las Vegas heightens the risk Fox
identifies as inherent in spectacle because the reference to hazard is explicit and implied through power structures and displays of wealth.

The Artifacts

I used Gillian Rose (2012) to analyze the artifacts based on the artifacts' composition and social modality. A compositional analysis focuses on the image itself while a social analysis considers the site of production for the artifact (p. 21). The photos of the pageant queens and the Las Vegas postcard are analyzed based on the composition of the image while including a brief discussion of historical context. The hotel signs, atomic “snow” globe, and Fat Man wine stopper are analyzed based on the design of the object itself and not how the object appears as a composition in a photograph. Analysis of Atomic Liquors does analyze the sign depicted in the image but focuses on an event that took place in the past. For all of the artifacts, I analyzed the color, spatial organization, location, size, shape, design, and any sign/signifiers that relate to NTS, broadly writ while considering the historical context that influenced the creation, production, and audiencing of the artifact (Rose, 2012; p. 20).

The saturation of nuclear-related pop culture common in the US throughout the 1950s and 1960s was arguably the most potent in Las Vegas. “Miss Atomic Bomb” is a famous example of the fusion between nuclear energy, pop culture, and Las Vegas (See Figure 4.). There were a total of four atomic queens, the most iconic of which, from 1957 featuring showgirl Lee Merlin, was not actually the result of a beauty pageant as is commonly thought. Photographer Don English and Lee Merlin, a Sands Copa dancer, collaborated the iconic photo as a publicity stunt, likely partly in reference to authentic pageants from previous years (Wheeler, 2013; Miss Atomic Bomb, n.d.). The spatial organization of Lee Merlin’s famous photo presents a celebratory theme. The photo was shot from a low vantage point to make the subject appear larger. Merlin is brought to the forefront of the photo/landscape to create the impression that she is a large entity, which is reinforced by the landscape
in the background (telephone wires/poles and mountains) appearing much smaller than Merlin. The composition of the photo shows the subject standing large and high into the sky, and Merlin is centered in the middle of the photo to highlight her importance as the primary subject. The signs and signifiers indicate a celebratory theme as well. Analyzing visuals can focus on “clarifying the different ways in which signifiers and signifieds are attached to (and detached from) each other” (Rose, 2012, p. 113).

Figure 4. “Miss Atomic Bomb” Photograph Courtesy of Nevada Las Vegas News Bureau

Typically, advertisements and photographs “depend on signs of humans that symbolise particular qualities to their audiences. These qualities...are shifted in the advertisement from the human signifiers
and onto the product the advert is trying to sell” (Rose, 2012, p. 114-15). “Miss Atomic Bomb” is a young woman which signifies youth, innocence, excitement, and fun; Merlin looks easy-going. Merlin is a thin and shapely woman which is conventionally attractive in modern US culture (Rose, 2012, p.115; Dyer, 1982: 96-104). Sexuliazation is also obvious through her exposed skin, her coquettish stance, and the outline of her bodysuit that perfectly outlines her body while hiding particular body parts like a censored bar. Merlin’s bodysuit is in part typical of a Las Vegas showgirl costume which “teases” nudity (or the potential for nudity). As such, the photo targets the male gaze and reinforces the idea that nuclear energy, the desert, and atmospheric detonations are fun, dazzling, and sexy; they are a spectacle.

Merlin’s expression is full of joy and seems as though she was caught in mid-laughter. Her expression is happy with eyes shut and mouth open in a wide smile. Merlin’s happy expression is paralleled by her arms which are joyously thrown into the air in celebration or victory. Her arms reach vertically toward the sky visually paralleling the shape of a mushroom cloud. The subject of the photo recalls the image of a mushroom cloud in two ways simultaneously: through her bodysuit and the spatial composition of her body in relation to the landscape. The perspective on the subject makes her look large against the horizon while her arms shooting upward and wide into the sky like an above ground detonation. The cotton bodysuit is literally shaped like a mushroom cloud and the cloud is brilliant white. The bright white color of the mushroom cloud bodysuit signifies innocence, purity, and normalcy. The bodysuit also looks soft and fluffy like cotton or a natural cloud pictured behind Merlin in the sky. The illusion of softness creates distance between atmospheric tests and any risk or danger associated with them. The mushroom cloud costume color (which signifies innocence or purity) creates an association with nuclear tests as something to watch and celebrate. The audience of the image joins the joyous, sexy, tall, woman with the pure white mushroom cloud in celebration of the nuclear tests in the desert.
Lee Merlin’s photo has been famous ever since and remains current in the pop culture milieu as the imagery and inspiration for the Las Vegas-born The Killers’s song titled “Miss Atomic Bomb” (Killers, 2012). Of these four “pageant queens,” only two competed in a pageant. Candyce King was crowned “Miss Atomic Blast” in 1952 at a pageant that was part of an atomic-themed picnic, and Paula Harris earned the nickname “Miss A-bomb” in 1953 after winning a local pageant themed for the “Atomic City” (i.e., Las Vegas). Similarly to Lee Merlin, Linda Lawson was crowned and photographed for publicity; Lawson was titled “Miss Cue” in 1955 as a tongue-in-cheek reference to continued setbacks with an NTS testing sequence codenamed Operation Cue (See Figure 5.) (Wheeler, 2013). The image is focused on Lawson who is centered as the primary subject.

Figure 5. “Miss Cue” Photograph Courtesy of Nevada Las Vegas News Bureau

Lawson is wearing solid white in contrast to the dark uniforms of the men surrounding her. Through contrast, Lawson stands out as the main attraction. Lawson is being watched by the audience of the
photo and the servicemen included in the image. Lawson is the subject of a dual audience which reinforces the idea that atmospheric tests are an event to be watched. Lawson is facing the camera creating the effect of eye contact with the audience while the men watch Lawson as a prize or spectacle. Lawson’s photo makes explicit the idea that atmospheric detonations have an audience. The audience of the image focuses on Lawson while she is also being ogled by another audience.

Like Lee Merlin above, Lawson is in all white which signifies clean, pure, and innocent. A mushroom-cloud tiara is placed atop Lawson’s head, and the crown looks like a cartoon cloud of cotton. The crown functions as a caricature of a mushroom cloud, which affects the overall realness of the image. Gunther Kress and Theo van Leeuwen (2006) use the term “modality” as a spectrum of realism of visual texts. Given that I am already using the term “modality” in Rose’s (2012) sense, I have decided to use the terms “realness,” “realism,” “abstract,” or “cartoon” to identify points on Kress and van Leeuwen’s (2006) spectrum. Lawson’s mushroom cloud is less realistic, like a cartoon, which reinforces a lighthearted, sarcastic tone. The image of crowning “Miss Cue” is primarily a joke and play on words. The lack of realness of the mushroom cloud reinforces the tone of the gag.

Lawson is being sexualized through the use of a tight costume, bare legs and arms, and the setting of the photograph. The subjects of the photo are at a pool which plays on a genre of images of women common during this time period. So-called “cheesecake” photos of women laying out by a pool in bathing suits were used for all kinds of sexualization and advertising in Las Vegas throughout the 1950s and 1960s. Lawson is smiling as if to indicate happiness and honor at receiving the crown. Her arms are securing and protecting the crown creating associations between safety and stability with NTS tests. The overall visual effect of Lawson’s image presents nuclear tests as a show intended for an audience in a lighthearted tone paralleling the joke and pun of the image’s premise.

The pageant queens, both genuine and staged, are representations of atomic energy in pop culture that is celebratory in the theme (both in terms of the events themselves and the photographs
that remain). Beauty pageants and parades are pop culture events intended to celebrate and recognize. Not only are they optimistic, they are also meant to be watched. The publicity photo shoots and the genuine pageants were performances for an audience; the locals of Las Vegas were expected to watch and be entertained by atomic-themed celebration. Both the pageants and the publicity photographs functioned as spectacle (as they were intended).

During the time of aboveground testing, the city of Las Vegas is presented as if to be viewed through atomic tinted glasses (as demonstrated by pop culture artifacts common at the time). The reprinted postcard has become a pop culture icon in its own right (See Figure 6.). The subject of the postcard is Las Vegas as a site for both tourism and atomic voyeurism. Las Vegas is a place to see something very few people had seen: the detonation of an atomic bomb. With the Las Vegas Strip in the foreground and a mushroom cloud in the dead center of the image, the message of the postcard includes the atmospheric tests as a reason to visit Las Vegas. The postcard presents the bombs themselves as a spectacle, and this postcard is a replica of an original photograph. The photograph (not pictured) is in black and white and shows the Las Vegas Club and Pioneer Club signs in the forefront, the city in the background, and a small white cloud rising from the earth in the distance. The artistic reproduction of this image on the postcard enlarges and clarifies the atmospheric detonation. The reproduction enlarges the Las Vegas Club sign and the Pioneer Club sign and zooms in on them (i.e., they are closer to the viewer). The city behind the signs that appear in the original photograph are eliminated, and the mushroom cloud is enlarged and revised to be more mushroom-like in shape. The test is visible (and real) in the photograph but it is somewhat small and diffuse in shape. The postcard emphasizes the nuclear test as something worth seeing (while in Las Vegas).
The postcard privileges the spectacle of the bomb by highlighting both an ordinary appeal to Las Vegas’s tourism and a show unique to Las Vegas -- the detonation of a nuclear bomb. The mushroom cloud is centered in this postcard as a main attraction. By centering the cloud between two well-known signs, the eye gravitates to the middle of the postcard where the mushroom cloud sits. The postcard is designed like a cartoon which works to distance the viewer from the seriousness and risk of NTS testing. The tone of the postcard is fun and the mushroom cloud is painted white with a hint of yellow. It looks fluffy and innocent which reinforces a tonal dissociation between NTS and its risks.

Infamous casino tycoon, Benny Binion, was among the first to capitalize on NTS nuclear tests as entertainment for tourists on The Strip. The National Atomic Testing Museum exhibit features a
photo of Binion donning his iconic cowboy hat below large text that reads: “the best thing to happen to Las Vegas was the atomic bomb.” In the same display case sit several postcards similar to the postcard printed above from Benny Binion’s Horseshoe Casino that feature time lapse images of an aboveground “Atomic Blast” in process of detonation (NATM: Gallery, n.d.). Binion’s views are ominous from a standpoint of public health and environmental concerns, but Binion’s statement is not incorrect, economically speaking. The merger of Las Vegas pop culture and NTS was partly happenstance and partly intentional. Local business owners invested in the tourist trade, like Binion and others, intentionally marketed the aboveground detonations as an attraction, but other producers of pop culture artifacts in Las Vegas often drew on the spectacle of the bomb simply because it was there. Intertwining atmospheric testing with the pop culture of the city was not necessarily nefarious in intention. NTS and the tourism of the Las Vegas Strip are siblings; they grew into their fully-formed versions alongside each other, and as they grew, they affected one another reciprocally, creating a symbiosis of economic stability, and eventually, success. As discussed in Chapter 2, Las Vegas in 1951 was not in an economic or political position to resist the designation of NTS (not that the US government or military was open to any local opinion had the locals attempted resistance). NTS detonated its first atmospheric test a month (and a few days) after Truman approved the site. Beforehand, the work to determine a domestic testing site, operation “Nutmeg,” was top secret. NTS was already designated and actively testing before most Las Vegas locals knew anything about it. (Titus, 2001; Rothman, 2003).

In the early 1950s, when aboveground NTS detonations were routine, Atomic Liquors hosted rooftop parties where locals and tourists would drink cocktails and watch the detonations. The story of watching NTS detonations from rooftops is well remembered in local lore and is fondly retold on the website for the currently-operational bar (Atomic Liquors: History, n.d.). Atomic Liquors is the oldest free standing bar in Las Vegas and is one of the few artifacts of nuclear-related pop culture.
from the early time of aboveground testing that has retained its atomic name and theme (See Figure 7.). The color scheme of the neon Atomic Liquors sign are similar to the colors of a nuclear detonation. The image shows several Atomic Age typefaces, and the word “atomic” is printed on a yellow burst similar to action words in comic books. Comic books often use onomatopoeia for sound effects (e.g., boom, pow, whack) and these sound effects are usually placed within a burst to visually indicate sound. Research in the rhetoric of typography argues that “readers do consistently ascribe particular personality attributes to particular typefaces and text passages” (Brumberger, 2003, p. 217). The personality of the Atomic Liquors sign, through shape and style common in comic books, visually gestures toward sound. The word “atomic” printed on a burst creates an association to a visual and audible explosion, like a nuclear test at NTS.

Figure 7. “Atomic Liquors” Photograph Courtesy of Nevada Las Vegas News Bureau
Atomic Liquors is a business with an explicitly nuclear theme and was a space where NTS detonations were watched like entertainment. Atomic Liquors created a space for parties to make a spectacle of the nuclear bomb which is fondly remembered by the local community of Las Vegas. Atomic Liquors functions as a rhetorical space where collective memory of the spectacle of the bomb still lives. Rhetoric and writing studies expert, Elizbethada Wright (2005), emphasizes the link between space and memory through a rhetorical analysis of cemeteries as constructing memory rhetorically. In similar ways, the physical space of Atomic Liquors constructs collective memory of the era of aboveground nuclear testing and the memory of receiving those detonations as entertainment for an audience. The visual design of Atomic Liquors along with its history and stories preserves the attunement of Las Vegas locals to nuclear weapons tests as entertaining and enjoyable. Atomic Liquors merges present and past in one physical space which recalls simultaneous memories of nearby bombs and parties to celebrate them.

Atomic Liquors stands out as an example of nuclear pop culture in Las Vegas because, in this instance, the literal bombs functioned as a spectacle. Unlike the pageant queens or postcards, the rooftop parties were not a representation of nuclear energy. Las Vegas locals and tourists were watching literal detonations through a lens of entertainment and with a tone of celebration. Atomic Liquors as a business or building remains a representation of atomic energy in pop culture, but the rooftop parties are an instance in which the nuclear detonations themselves functioned as a local spectacle.

Other examples of pop culture are less literal than rooftop parties, Binion’s postcards, or atomic beauty queens. The Stardust Resort and Casino broke from the traditional Las Vegas themes of harkening back to an idealized old west and instead chose a forward-looking theme aimed at the stars. The Stardust’s theme and sign upon opening in 1958 were planetary and space age. The hotel became a metaphorical blend of Las Vegas swagger and nuclear kitsch in 1965 with the erection of
the iconic freestanding sign in the shape of a stylized mushroom cloud. Unfortunately, a color image of the sign was not available for reprint (See Figure 8.). The background color of the 1965 sign is a pretty light pink, which is similar to the color of atmospheric nuclear detonations (NTSOHP, 2008).

![Figure 8. “The Stardust Resort and Casino Sign: 1965” Photograph Courtesy of Nevada Las Vegas News Bureau](image)

Apparently, aboveground mushroom clouds often looked quite pink following the fade of the orange-red fire and smoke. Images and video of the blasts do not often well preserve the pink color in the cloud that became so infamous in pop culture (Titus; 2001; Fradkin, 1989; NTSOHP, 2008). The Stardust sign was a metaphorical symbol of the fusion between atomic energy and pop culture in Las
Vegas. The Stardust sign stood as a roadside attraction until 2007, but it was revised in 1991. After nuclear energy faced global criticism, The Stardust sign underwent major revision; the color was changed from pink to purple and the Googie-style typography was replaced with an unremarkable sans serif typeface. The revision of the sign (only five years after the Chernobyl disaster) further informs an atomic reading of the previous sign. The changes made to the sign are the primary signifiers that could identify it as associated with the atomic age.

The primary color of the Stardust sign that stood from 1965-1991 is light pink. The pink color reinforces the interpretation of this sign as a response to and engagement in the atomic era. Neon stars ornamenting the sign appear in a variety of colors (red, orange, yellow, and blue), but the primary colors are orange and yellow, colors again, associated with atmospheric NTS detonations. At night the stars of the sign light up in sequence creating a sense of movement. The pink background is unlit and so becomes indistinguishable from the surrounding night sky. The amination of the stars flicker and “move” upward toward (and past) the typography of the name of the hotel-casino. The movement upward is curious since a visual effect of “falling stardust” would presumably move from the sky to the earth, but instead the neon stars flicker upward toward the sky. The overall effect is upward movement from earth to the sky, similar to a mushroom cloud rising past the desert horizon toward the sky. The shape of the Stardust sign also reveals a mushroom cloud with thin, narrow poles and a ballooning center. The shape of the sign is abstract or stylized (as opposed to a realistic shape) which renders the sign more open to interpretation (or “reading”) than more realistic depictions of nuclear energy. The Googie-style typeface on the Stardust sign is quintessentially Atomic Age, and the letter “T” is designed similarly to the stars adorning the sign. The repetition of design between typeface and stars indicates sameness between elements; the atomic typeface applies to the neon stars and visa versa making the sign as a whole a pop culture representation of nuclear detonations.
The revisions to the Stardust sign in 1991 retains the shape of a metaphorical mushroom cloud; however, the revisions to the sign are further evidence to support the atomic theme of the original design because the changes made are particularly those that distance it from atomic associations (See Figure 9). The stars at the bottom of the sign have been shortened making the mushroom cloud shape less obvious. The background color of the sign was changed to purple, which dissociates the color of the sign from atomic energy entirely. The most obvious connection to the Atomic Age, the Googie-style typeface, is also the most obvious revision to the sign. The 1991
revisions of the Stardust sign seem to rid the sign of its atomic elements which further reinforces the claim that sign from 1965 had atomic elements to begin with.

Other hotel-casinos on Las Vegas Boulevard (i.e., The Strip) featured atomic representations of their own. The Flamingo Hotel’s freestanding sign of 1970, for instance, looks remarkably similar in shape to a mushroom cloud, despite the fact that the theme of The Flamingo is completely unrelated to science, technology, or weaponry (See Figure 10.). A viewer could also see a metaphorical palm tree or water fountain in the shape of this sign but that interpretation only comes to mind when the image is in black and white. The Flamingo Hotel’s freestanding sign in 1970 (like their sign that shines on The Strip today) was pink and orange during the day and lit like red-flame neon at night, similar to the color of the tall wading bird of the hotel’s namesake. The colors of the sign are not at all similar to the green and brown of a palm tree (or the blue of a water fountain) which, combined with the sign’s recognizable shape, reinforces the metaphorical representation of a mushroom cloud.

Figure 10. “The Flamingo Hotel Sign” Photograph Courtesy of Nevada Las Vegas News Bureau
As mentioned in the first paragraph of this section, the social modality of an image refers to the “range of economic, social and political relations, institutions, and practices that surround an image and through which it is seen and used” (p.24). Essentially, the social modality considers the various institutions and factors that affect the production, saturation, and interpretation of an image (p. 346). For The Flamingo sign, it is important to consider the social modality and site of production; the shape of the sign looks like a mushroom cloud both because it is shaped similarly to a mushroom cloud and because the context of NTS and atomic testing is embedded into the culture surrounding Las Vegas. The Las Vegas of the early 1970s was heavily infused with representations of atmospheric detonations. I read this sign as meeting and matching the pop culture common in the local community; a community that was celebrating the bomb. It is also possible a viewer might read the sign as a metaphorical flamingo standing on one leg as the birds famously do. To my eye, flamingos standing on one leg rarely look so similar in shape to a mushroom cloud; however, I might offer the concession that the sign draws on both metaphors simultaneously. The sign is a visual merger between a flamingo and a mushroom cloud.

Some pop culture representations use atomic energy as a descriptor to indicate hipness, coolness, or other kinds of cultural cachet. For instance, Elvis Presley’s first billing in Las Vegas in 1956 labeled him “the atomic-powered singer” (NATM: Gallery, n.d.). Clearly an advertising technique and not a warning, the use of nuclear energy to describe a singer with a guitar communicates an idea that the performer is more awesome or noteworthy than other performers. This description equates atomic energy with traits pop culture often finds valuable: newness, hipness, and uniqueness. Similar examples abound in pop culture (and not necessarily from Las Vegas), like Atomic Fireball candy. The label “atomic” is not needed to describe the candy as hot in flavor which would be redundant of the name “fireball.” Atomic is used in similar ways to the advertisement for Elvis. It functions to make the candy “extra” in some way, either extra hot or extra hip (or both). Figure 11. is focused on a small
souvenir in the center of a display case filled with artifacts of nuclear pop culture. The object in the center is a wine stopper with a metal figurine of Fat Man, the nuclear bomb dropped on Nagasaki by the United States during WWII, as the ornament. I suppose the stopper is meant to keep Californian wine fresh while playfully reminiscing one of the most deadly acts of active warfare in world history.

Figure 11. “Atomic Souvenir” Photograph Courtesy of Nevada Las Vegas News Bureau

Visual artifacts engage with reality in context with rhetorical situatedness in time and place. Kress and van Leeuwen (2006) identify a visual artifact as “bound up with the interests of the social institutions within which the images are produced, circulated and read” (p. 47). Artifacts of nuclear energy in Las Vegas converge the contexts of the discourse community of Las Vegas and NTS activities. These artifacts highlight the orientation of celebration toward NTS by locals of Las Vegas.
Artifacts of pop culture that celebrate NTS tests target the audience to view the risks of NTS as spectacle.

**Risk Spectacle**

Scholars and journalists have established pop culture’s ability to participate in lay understandings of risk. One of many examples is the cultural shift in associations with sharks following the release of *Jaws* in 1975. The original summer blockbuster, along with its lower-quality sequels, participated in the social construction of risk related to sharks. Negative pop culture representations of sharks affected beach-based tourism and damaged the literal shark population (Choi, 2010). The Discovery Channel attempted to ameliorate popular misconceptions by launching *Shark Week* in 1988, with a focus on environmental activism and sympathy toward their primary subject. In recent years, *Shark Week* has been criticized for drifting into sensational programing that, similar to *Jaws*, emphasizes sharks as a threat (Stockton, 2016; Cohen, 2014).

The primary difference between examples of pop culture participating in the construction of risk, like *Jaws* and *Shark Week*, and NTS is the emphasis on (potential) hazard. *Jaws* as an artifact of pop culture amplified the potential for sharks to be hazardous (which created new problems), but the emphasis on hazard is not synonymous with the atomic-related pop culture of Las Vegas. NTS entered the discourse community of Las Vegas, not a potential hazard, but as an epideictic celebration through pop culture. The atomic pop culture in Las Vegas, in tandem with reports from popular press (see Chapter 4), create an inversion of Ulrich Beck’s *Risk Society* and expands Julie Staggers’s theory of “risk acceptance” to create *risk spectacle* (Beck, 1992; Staggers, 2006). For the locals of Las Vegas, risk entered the local discourse, not ask risk, and not even as acceptance, but as spectacle.
A risk society requires six primary criteria: 1) A risk society is forced into unity through a shared hazard that threatens disaster. The threat of the hazard is not simply an accident in a colloquial sense, but a man-made consequence of industrialization or “modernization;” the hazard is a byproduct of modernization and the risks are catastrophic and irreversible (Beck, 1992, p. 21). 2) In a risk society, risk is a byproduct of industry and economic development, which means systems that produce wealth are also producing risk; productive forces become destructive forces (p. 20-1, 23). 3) Risks are socially defined and constructed in a risk society. Catastrophe exists in the present but risk looks to the future and is a construct of understanding about what is possible and what should be done (p. 23). 4) Hazards of a risk society are not contained by borders. A risk society’s hazard is catastrophic to the extent that it affects everyone on a global scale over time. As such, a risk society is a “world risk society” (p. 23). 5) Social class differences in a risk society may determine who is afflicted by risk most quickly, but ultimately, the risks will affect everyone in a “boomerang effect” onto the producers of the risk and the wealthy. A risk society’s hazards are “global” rather than “personal” in consequence because they affect those who do not choose to embark on a risky endeavor (p. 21, 23). 6) In a risk society, the potential for catastrophes “threaten to become the norm.” Living under the “political potential of catastrophe” creates a “reorganization of power and authority” to avoid or alleviate risk (p. 24).

Risk spectacle is a negative image of a risk society, simultaneously the same thing and its opposite. Like a film negative and its print, in a risk spectacle the light areas of a risk society become dark and visa versa. The primary image remains clearly discernible. A risk spectacle remains a community forced into unity by a common hazard and the danger is “global” rather than personal since the risks of NTS regard primarily with nuclear fallout (Beck, 1992, p. 21). The “unknown and unintended consequences” remain a “dominant force” for society (p. 22). In risk spectacle, the hazard is not ignored; it is acknowledged but termed “entertainment.” In a risk society, the production of
wealth begets the production of risks, while risk spectacle generates wealth in part through risk. Destructive forces are also productive forces. Risk spectacle is the modernization of modernization, or put another way, it is the popularization of modernization. It makes the “risks of modernization” popular (p. 21). The risks of NTS are implicit in terms of fallout but also explicit in terms of identifiable aboveground detonations. A risk spectacle cannot exist without some explicit reference of which to make a spectacle. While the risk spectacle celebrates, it remains at risk of its hazard. The spectacle cannot be interminable; a risk spectacle, like a risk society, suffers from “irreversible harm” that “outlasts generations” (p. 23, 22).

Risks are socially defined and constructed in a risk society so it may seem that “entertainment” is merely one way to define or construct risk by a community. In the case of Las Vegas and NTS, risk was defined as not-risk which cannot be simply one of many ways to define or construct risk because it is precisely its opposite. Las Vegas between 1951-1985 constructed NTS as pop culture, entertainment, and kitsch, not risk. The unique blend of local pop culture and local fallout in Las Vegas is an oxymoron. It is a this-risk-is-not-risk society, which is a risk spectacle. William Fox (2005) argues that effective spectacle “must be threatening at a discernible level” to captivate the audience in awe of power which is certainly applicable to Las Vegas through NTS testing (p. 98). The threat Fox discusses is of the type that could lead to a (big) problem but not a disaster. NTS detonations as a spectacle are threatening at a level on par with any other spectacle available for enjoyment on The Strip. As such, the construction of a spectacle as a threat is diluted and risk spectacle continues to construct a marvel rather than risk.

Pop culture, like risk, is not easily contained by borders and Las Vegas’s primary trade in welcoming tourists is inherently border crossing. The atomic pop culture produced in and by Las Vegas has traveled beyond city borders and become widely-recognizable. Las Vegas is internationally (in)famous and its atomic pop culture has spread to become part of what Robert Johnson calls the
“atomic mindset” (Johnson, R., 2012). For Johnson, the atomic mindset is global; there does not exist a living person in the world who has not been “romanced by the atom” (Johnson, R., 2012, p. xi). The oxymoronic radioactive entertainment of Las Vegas has spread to a global gaze. In the sense that a risk society is a “world risk society,” so a risk spectacle is a world risk spectacle. Everyone gazes and everyone pays.

The possession of wealth and the affliction of risk become intertwined in risk spectacle. Risk remains stratified across socioeconomic lines, as in a risk society, but the possession of wealth is in part attributable to the spectacle of risk (Beck, 1992, p. 23-4). The spectacle itself produces wealth but the spectacle is also risk, which complicates the “origin and diffusion of knowledge about risks” (p. 24). In a risk spectacle knowledge of risk becomes enjoyment [of risk]; the risk itself is hidden from communicative practices and works toward its invisibility. The physical invisibility of fallout facilitates a “production of invisibility” which is a cognitive and “infrastructural” invisibility (Kuchinskaya, 2014). Because fallout cannot be seen, it is more difficult to think about, make data about, and develop systemic solutions for. Knowledge production [about risks] in risk spectacle is a visible invisibility. A risk spectacle produces knowledge [about risk] by pointing to the risk with marvel; as the marvel gains momentum the risk is rendered invisible. Kuchinskaya’s “production of invisibility” moves from invisibility of sight to invisibility of thought and solution (2014). The risk spectacle is a production of invisibility but the production turns the visible [risk] into an invisible [risk] through pop culture and entertainment. It is an invisibility of tone or “attunement” (Rickert, 2013).

A risk spectacle remains a “catastrophic society,” like a risk society, but the “political potential for catastrophes” does not “threaten to become the norm” (Beck, 1992, p. 24). In risk spectacle, what should be politicized becomes unpolitical. A sense of looming catastrophe is rendered inert by the simultaneous visibility of spectacle and invisibility of risk. Risk is a forward-looking construction of what can happen while a catastrophe exits in the present (Beck, 2007). The threat of catastrophe is a
contradiction in risk spectacle. It is a violation of logic; it both exists and does not exist. When risk is visibly invisible and functions as spectacle, the community is unaware of the potential for catastrophe. Should a catastrophe occur, the celebration will end and the community will suffer disastrously, but the invisibility produced by spectacle obstructs the construction of norming the potential for catastrophe in that society. Risk spectacle is a catastrophic society that celebrates with unawareness. Las Vegas watches as the mushroom cloud detonates and holds parties as radioactive particles fall. The interpellation of radioactive fallout into parties is a risk spectacle (Althusser, 1990).

A risk spectacle is inherently temporary. Over time (years, decades, generations), the spectacle will fade and the risk will become apparent; it will demand attention as risk. Contemporary Las Vegas remains a risk spectacle; however, the spectacle has begun to lose splendor over the past three decades. Las Vegas is a risk spectacle in transition of realizing its folly. Current pop culture in Las Vegas is less saturated by atomic energy than it was between 1951-1985 but some artifacts of nuclear-infused pop culture remain. Locals and tourists are drinking cocktails at Atomic Liquors in the recently gentrified Downtown area (also known colloquially as “Old Vegas”). The snow globe pictured in the introduction to this chapter is currently for sale at the National Atomic Testing Museum gift shop and on the museum website (NATM: Gallery, n.d.). The snow globe is a complicated artifact. It is the only artifact discussed in this chapter that is contemporary, not historical. It is simultaneously a spectacle and reminiscent of a spectacle.

The spectacle of the bomb does not exist in Las Vegas in precisely the same way it did between 1951-1985, but the spectacle from that time lingers. Unlike the pageant queens and hotel signs from previous decades, the snow globe’s mushroom cloud is painted in the realistic colors of smoke and fire. The artifact is stamped with warning symbols meant to indicate radioactive and biohazard material. The composition of the atomic snow globe is primarily one of realism through the color scheme and structure of the cloud. The realism of the mushroom cloud (and therefore
danger) is diffused by the shining glitter that surrounds the cloud when the object is shaken. The atomic snow globe has a solid black base and is stamped with well-known warning signs, but the warning signs are not genuine. The artifact itself is not hazardous; the warning symbols function as entertainment.

The biohazard warning symbol was created in 1966 by researchers at Dow Chemical. The goal was to create a unique warning symbol that was “memorable and meaningless” for the broadest possible audience (Baldwin, 1967). The biohazard and nuclear warning symbols are abstract; they do not reference a clear hazard (like the warning for fire including an icon of fire). The biohazard and nuclear symbol are used to warn about hazards that are usually invisible, or imperceptible to the naked senses. The atomic snow globe includes the biohazard and nuclear warning symbols but reappropriates both as a farce. The warning symbols on the artifact are realistic and painted in red, yellow, and black, but the sense of risk is hidden under kitsch and nostalgia. The mushroom cloud stands in the center as glitter falls around it; the glitter sparkles prettily in the sunlight. The snow globe is an artifact that represents a risk spectacle in transition. The spectacle remains and harkens back to a time in which the spectacle was even more marvelous, but the risk cannot be as invisible as it was before. Risk is presented through warning symbols and artistic realism, but the risk remains muted. The risk is still literally covered in glitter.

Conclusion

A risk spectacle is a celebration of risk that renders the potential for catastrophe socially (but not technically or scientifically) inert. Pop culture’s participation is necessary for a risk spectacle to occur. A risk spectacle can occur anywhere pop culture about a hazard exists. Pop culture at all levels of class-based “value” mediates and informs cultural orientations about a vast variety of topics including the potential to participate in the social construction of risk. Risk spectacle is self-sustaining
while the spectacle continues to create a cognitive invisibility of risk which can obfuscate avenues to deal with the risk [as risk] (e.g., politics, voting, planning, medicine, etc.).

Identifying a risk spectacle in real time most likely requires insider’s knowledge of either the discourse community and/or the hazard. It is entirely possible that an ongoing risk spectacle exists but most simply receive it as entertainment.

“Apart from finding the United States negligent in permitting radiation and in failing to evacuate and decontaminate..., this court specifically found negligence on the part of the United States because of the failure of the Baneberry operations plan to spell out in writing the said mandated safety procedures. … On the other hand, defendant has proven by a preponderance of the evidence that radiation did not cause… the leukemia of Harley Roberts and William Nunamaker.”

-- Transcript of court ruling; Dorothy Roberts, etc., and Louise Nunamaker VS The United States of America (1979).

On 18 December 1970, an underground nuclear test, Project Baneberry, cracked through the earth and vented into the atmosphere. An international test ban treaty had been signed in 1963 which prohibited the signatory nations from detonating nuclear weapons in the atmosphere, in space, underwater, and “in any other environment if such explosion causes radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control such explosion is conducted” (Bureau of Arms Control, 1963). The Baneberry Vent was not an intentional atmospheric test, but given the full terms of the treaty, a breach of territory would qualify as a violation. The radioactive steam and dust leaking into the atmosphere posed a potential international political problem as well as a public health problem. This chapter situates the Baneberry Vent in the scholarship of risk communication by analyzing technical documents’ report of the accident in
comparison to popular press reports. The goal is to explore how the risks of the Baneberry Vent were communicated to-and-by experts in technical communication in comparison to the presentation of risk for non-experts in popular press. This chapter explores differences in presentations of risk through language use for public consumption versus programmatic/governmental consumption in regard to the Baneberry Vent. “Experts” in this context comprise engineers, geologists, physicists, physicians and other researchers employed by the United States Atomic Energy Commission (AEC), the federal agency that oversaw nuclear science and technology between 1946-1974.

A variety of expertise was needed to research and compose the technical report of the Baneberry accident, which is titled the *Baneberry Summary Report* (BSR). The BSR summarizes causes of the accident, estimates range of contamination, and overviews safety procedures and is authored by the AEC itself (1971). This chapter contributes to the body of risk communication scholarship by offering a side-by-side analysis of risk presented in technical communication and risk presented to the general public regarding the same nuclear accident. Both the technical document and popular press reports are analyzed through the lens of *ethos* and (de)emphasis of risk. The goal of this chapter is to gain an understanding of risk perception regarding the Baneberry Vent for the community of Las Vegas, Nevada. I begin with background information on the Baneberry Vent followed by an explanation of methods for collecting two datasets: the BSR technical document and popular press reports from Las Vegas newspapers. Methods are followed by a critical rhetorical analysis of language used in the BSR and local press reports related to their presentation of risk. The analysis of popular press reports is grouped into subheadings to combine reports that function in similar ways. I conclude this chapter by contextualizing popular press reports from the time of The Baneberry Vent (1970-71) to popular press reports after the BSR was declassified as evidence of how presentations of risk can shift in popular reporting for the community of Las Vegas over time. This
chapter intends primarily to analyze popular press reports in comparison to technical documents in order to increase understanding of the role of expertise in risk communication and to understand risk perception among non-experts in the community of Las Vegas. Closing with popular press reports from more recent time periods gestures toward future research in documenting how presentations of risk may change through time in popular press reports.

The Vent

Project Baneberry was a capped shaft underground test, which means a nuclear device was detonated at the bottom of a vertical hole in the ground, capped by a backfill of dirt, gravel, and “plastic stemming materials” (AEC, 1971, p. 2). The shaft method was by far the most common method for NTS underground testing. Other methods of underground testing include the tunnel method in which tests were detonated in a hole drilled horizontally in the earth and the least common crater method in which tests were intentionally placed at shallow levels in order to produce a “throw out” of earth (U.S. Department of Energy, 2015, p. 181). Most shaft tests were capped but some were intentionally left uncapped to produce a “roman candle effect” upon detonation (U.S. Department of Energy, 2015, p. xiv; 120-21; 181-84) [see table in Chapter 2]. Project Baneberry was a routine NTS underground test in every sense other than the substrate selected for drilling. The Baneberry Vent was caused by geological factors rather than equipment malfunction. The hole for the Baneberry detonation was drilled in montmorillonite clay that naturally holds more water than geological materials surrounding previous underground tests (AEC, 1971, p. 5). The detonation caused a quick temperature rise in the water, creating extra energy and pressure that found an outlet through a fissure in the earth 300 feet away from site of detonation. Radioactive steam and dirt poured through the fissure for twenty-four hours following the shot (p. 2). This accident was followed by an extensive cleanup operation and an investigation into the causes of the vent. By May
1971, the official documentation of the vent, the BSR, was issued by the AEC that included analyses of contamination and exposure. Approximately 900 people were “surveyed” for contamination, 86 were decontaminated, 66 were evaluated for thyroid health, and 18 were sent for full-body evaluations. The highest dose of exposure from the vent fell upon Harley Roberts and William Nunamaker, listed in the official report as “two security guards” (p. 8). In fact, the BSR states their “exposure to the lens of the eye was almost equal to the exposure limit” (which was an exposure of 2.4 rems out of an allowable 3) (p. 8-10). Less than four years following the Baneberry Vent, both Roberts and Nunamaker died of leukemia within months of each other. Dorothy Roberts and Louise Nunamaker later “filed a suit under the Federal Tort Claims Act” for the wrongful deaths of their husbands (Fradkin, 1989, p. 140). In 1979, the court ruled the United States negligent in both properly decontaminating Roberts and Nunamaker following the vent and through failing to have clearly defined safety protocol for Project Baneberry; however, the court also ruled that radiation exposure was not responsible for “the leukemia of Harley Roberts and William Nunamaker” (Baneberry Collection, 1979-89). The federal dose limits were accepted by the court, so “the plaintiffs had proved negligence but not causation” (Fradkin, 1989, p. 140). Dorothy Roberts and Louise Nunamaker continually appealed the court’s ruling until their deaths (1993 and 1995, respectively), and to my knowledge, the families of these victims were never compensated (“Baneberry suit,” 1996).11

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11 Although Dorothy Roberts and Louise Nunamaker were never compensated, their court case is often credited as a landmark case in both the future lowering federal standards for acceptable exposure and setting a precedent for suits filed in later decades, with more successful but often still un(der)funded settlements. (“Baneberry suit,” 1996; Rogers, 2007a; Rogers, 2007b).
Methods

The BSR (AEC, 1971) is a sixteen-page technical document that details causes of the accident, containment, exposure, and decontamination procedures. Given that the BSR was formally authored by the AEC as an organization and the wide range of various technical expertise needed to conduct the research, this document seems a multi-authored work researched by various experts employed by AEC. No individual authors are listed as contributors anywhere in the document. Figure 12. features the BSR cover page and the table of contents as a supplemental summary of the content of the document as a whole.

I read the BSR (1971) in full and consulted several texts to corroborate the events of the report and explore health risks not (fully) explained in the report (Ramspott, 2010; NTSOHP, 2008; National Research Council, 1999; Bulletin of the Atomic Scientists, 2018). Any information from the BSR presented in this research as accurate has been corroborated by *The Baneberry Vent: A Geologist Remembers* (2010), Larry Ramspott’s personal narrative account of his role in the preparation for Baneberry and damage control following the vent and/or relevant interviews from *The Nevada Test Site Oral History Project* (NTSOHP) (2008) housed in the Special Collections library at University of Nevada, Las Vegas. Ramspott’s narrative, although a personal account, is quite credible and is not overly self-serving, particularly given that the geological factors which caused the accident were under his purview of expertise and supervision. The interviews accessed through *NTSOHP* (2008) are credible in similar ways and have been thoroughly vetted and fact-checked by the creators and curators of that archive.

Presentations of risks in the BSR were compared to presentations of risks through reporting from the two most prominent local Las Vegas newspapers, *The Las Vegas Review Journal* (*Review Journal*) and the *Las Vegas Sun* (*Sun*), all of which are available on microfiche at the University of Nevada, Las Vegas. The *Review Journal* and the *Sun* were the two most widely read newspapers in 1970-71 (and remain the most popular print news in the area); the *Review Journal* tends to appeal to a conservative audience while the *Sun* appeals to a more liberal audience. Searching for relevant articles through a periodical database software, like Alchemy Search, proved unuseful for this study because the database of newspaper articles from 1970-71 are searchable only by date and headline. The word “Baneberry” does not appear in a local headline until 1978, so these searches did not return comprehensive results from the time of the accident. The data from newspaper articles needed to represent how popular sources reported the Baneberry accident in “real time,” so I manually scanned microfilms around several dates indicated as important by the BSR (See Table 4.). Reviewing several months of daily news
in two publications proved to be the most effective method to ensure comprehensiveness and minimize any bias in the selection of search terms.

Table 4. Baneberry Related Incidents Identified in the BSR

<table>
<thead>
<tr>
<th>Date</th>
<th>Baneberry-Related Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 December 1970</td>
<td>Project Baneberry vented into the atmosphere.</td>
</tr>
<tr>
<td>20-22 December 1970</td>
<td>Radiation surveys conducted at NTS.</td>
</tr>
<tr>
<td>26-27 December 1970</td>
<td>Highest level radioiodine found in milk in Nevada.</td>
</tr>
<tr>
<td>31 December 1970 - 10 January 1971</td>
<td>AEC halted milk distribution in Beatty, NV due to radioiodine levels.</td>
</tr>
<tr>
<td>22 January 1971</td>
<td>Decontamination of NTS began.</td>
</tr>
<tr>
<td>1 February 1971</td>
<td>Cleanup at NTS completed.</td>
</tr>
<tr>
<td>May 1971</td>
<td>BSR (AEC, 1971) issued.</td>
</tr>
</tbody>
</table>

I scanned daily newspapers for the date-ranges listed in Table 4. looking for articles reporting the Baneberry Vent, news about radioiodine found in milk, information about decontamination procedures of NTS, and any mention of the cleanup completion. I scanned the entire month of May for any mention of the publication of the BSR (published on an unspecified day in May 1971), of which there was none. While scanning microfilm, I found articles about the events I was looking for; however, I also often found articles I did not expect to find. In gathering this dataset, I captured any news related to NTS, AEC, nuclear energy, Baneberry, and environmental concerns (e.g., pollution or...
paper waste) to read in full. This search yielded comprehensive results including direct reports of the vent along with other relevant conversations related to NTS that inform the context of the time and place. I found several common topics of NTS-related reporting including employment and economic concerns, fears related to Soviet strength, and speculation of test-ban treaty breaches with potential consequences thereof.

For context, I also captured articles from the *Review Journal* and *Sun* from 1975 related to the deaths of Harley Roberts and William Nunamaker, unnamed in the *BSR* as “two security guards” (AEC, 1971). I also searched for the earliest mention of the declassification of the *BSR* in a popular media source (the technical document was declassified due to the Roberts and Nunamaker lawsuit mentioned above) which was found in *Los Angeles Times* in 1977; the *Los Angeles Times* article references the lawsuit but does not mention the deaths of Roberts and Nunamaker (“U.S. releases photo,” 1977). Additionally, I collected local periodicals from the 1990s and later (available online) using keyword searches via Alchemy Search related to the Baneberry Vent as a comparison of presentations of risk in popular reports from a more recent time period. I housed all captured news articles in Evernote, and to back-up this data, I have copies of this dataset on a hard drive and on an external USB.

I explored local news sources to determine if, when, and how the vent was being reported to the locals of Las Vegas. Specifically, I analyzed popular press reports through the lens of *ethos* and any emphasis or deemphasis of risk associated with the vent. Las Vegas is not the only city in the southwest to be affected by the presence and practices of NTS. Southern Utah, for instance, suffered significant fallout from above-ground detonations since what NTS considered prime testing conditions blew wind toward southern Utah (Williams, 1992; Fradkin, 1989). The “downwinders” of southern Utah arguably suffered the most greatly as a result of NTS atmospheric testing, and some excellent research has been done on this community (Williams, 1992; Fradkin, 1989). I selected Las Vegas as the focal point for non-expert reporting for the following five reasons: 1) at only 60 miles in distance, Las Vegas
is physically the closest city to NTS; 2) because of the proximity, Las Vegas is a geographical area affected by fallout and NTS accidents (AEC, 1971; Fradkin, 1989); 3) the majority of NTS employees lived in Las Vegas with their families, making Las Vegas almost like a company town of NTS (NTSOHP, 2008); 4) enough Las Vegans were employed by NTS to intertwine the successes and failures of the test site with that of the Las Vegas economy (Borders, 1971); 5) Las Vegas’s entertainment culture co-opted NTS practices for profit and spectacle (NATM: Gallery, n.d.), as discussed in Chapter 3.

This project employs no formal coding process to constitute analysis but rather conducts a critical rhetorical analysis to explore the presentation of risks through the lens of ethos or appeals to expertise, authority, or federal guidelines. This analysis is also focused on an emphasis (or deemphasis) of the dangers associated with the Baneberry Vent.

**The Baneberry Summary Report**

The research conducted to create the BSR had three primary purposes: 1) to determine the cause of the vent, 2) assess effects on public health and 3) assess range of fallout (to determine that fallout was contained within US territory, per the agreement of the Limited Test Ban Treaty of 1963 mentioned above). Research was collected from persons, personal items, land, air, and milk from dairy farms across the western United States. The primary finding in analyzing the composition of the BSR is a consistent ethos-based appeal to federal standards for acceptable radiation exposure. The BSR reports contamination and exposure are within the “occupational standards in AEC or Federal Radiation Council occupational guides for normal peacetime operations” (AEC, 1971, p. 8), and the document repeats this appeal throughout.

Aptly named after a poisonous desert plant, Project Baneberry’s contamination reached grass eaten by dairy cattle, creating radioiodine (or iodine-131) in milk in various cities and towns in
Nevada (AEC, 1971, p. 14). Radioiodine is a public health problem because it can cause thyroid cancer (Institute of Medicine & National Research Council, 1999, p. 2). The harmful effects of radioiodine on the human thyroid were known long before 1970. Radioiodine was being used in 1942 as a medical treatment to “slow down (i.e., partially kill)” overactive thyroid function, and definitive research on the harmful effects of what is now called “the milk pathway” of radioiodine to the thyroid was published in 1963 by a scientist affiliated with the AEC (Gerber, 2007, p. 84; 97). According to the BSR, the AEC halted dairy distribution at “one farm close to the Test Site” for “a few days” as a safety precaution, although the BSR is careful to mention that “this action was not required by Federal Radiation Council Protective Action Guide” (AEC, 1971, p. 15). The BSR’s visual map locating areas where radiodine was detected is limited to locations in Nevada; however, the text reports radioiodine was also present as far from NTS as “Bakersfield, California; Jerome, Idaho; Powell and Laramie, Wyoming; and Mount Pleasant, Utah,” but the map does not represent these findings (See Figure 13.) (AEC, 1971, p. 13-14; Fradkin, 1989, p. 139). The BSR’s data visualization of locations surveyed for radioiodine are limited to those in Nevada, even though radioiodine found following the vent was not limited to Nevada. This data visualization offers a literal visibility to communities in Nevada affected by fallout, but through its limitations, creates an invisibility of affected communities outside of Nevada. Downwinders in southern Utah have historically been the most directly affected by NTS-related nuclear fallout, but the cities in southern Utah seem to have not been surveyed at all. The cities in southern Utah that appear on the map are not marked as surveyed, and there is no record in the text of locations outside of Nevada that were surveyed where radioiodine was not found. While Nevadans were certainly at risk of fallout from NTS, this data visualization renders the risk of communities most at risk invisible.
The BSR estimates inhalation doses from the vent reached as far north as Salt Lake City, UT and Idaho Falls, ID (AEC, 1971, p.15) and concludes the vent caused no violation of the test ban treaty and all exposure to people on- and off-site were within limits set by either the AEC or Federal Radiation Council (AEC, 1971, p. 16). Although the research conducted to produce the BSR largely centered around public health effects of fallout, the use of language in the report repeatedly returns
to federal operational standards. For instance, the BSR's summary of radiation exposure to workers at NTS during the time of the vent is completely in reference to federal standards for allowable doses (See Figure 14). The data collected to make claims about levels of radiation affecting persons is health-related data. The language of the BSR does not mention this data in terms of health or medicine, and there is no mention of any kind of follow-up monitoring for anyone exposed (on- or off-site) (AEC, 1971, p. 8). This section of the BSR mentions those who received the highest doses of radiation as a result of the vent; doses that were “almost equal to the exposure limit.” The BSR does not mention Harley Roberts or William Nunamaker by name, and mentions nothing about any continued monitoring or care (AEC, 1971, p. 8). Both NTS employees died of leukemia less than four years later.

3.2.2 Onsite Doses to Persons

The highest radiation doses to persons onsite occurred on the day of the tent and resulted from cloud passage over Area 12. Based on initial film badge readings and thyroid monitoring, no exposure of onsite personnel was in excess of the occupational standards in AEC or Federal Radiation Council occupational guides for normal peacetime operations. The highest exposures (see Table 1) were received by two security guards and were about 30 percent of the Federal Radiation Council’s quarterly guide for whole body and about 37 percent of the guide for thyroid exposure. The exposure to the lens of the eye was almost equal to the exposure limit.


The language of the BSR consistently presents information about health in relation to federal guidelines for exposure. Maintaining radiation exposure as within permissible doses serves the best interests of both NTS and the AEC, and documenting all exposures as within these limits protects the AEC from culpability. The BSR’s primary rhetorical tactic is to present health- or environmental-related information through a lens of legality. Research conducted by the AEC to produce the BSR
was largely environmental- or health-related data collection, but the language of the BSR belies an emphasis not on health risk but an emphasis on legal risk. Appeals to legal risk stand out in the report as an abrupt contrast to discussing effects of doses of radiation to the thyroid of an infant, not necessarily in terms of tone but in terms of placement of value and importance (AEC, 1971, p. 15).

The BSR follows any sentence about potential health risk with a repetition of federal guidelines. For example, from the section regarding inhalation exposure, the sentence that begins “The highest estimated inhalation dose in the offsite area was 90 mrem to a hypothetical infant thyroid…” is immediately followed by a sentence that repeats federal standards and references the BSR’s repetition of these limits: “As noted previously, the Federal Radiation Council radiation guide for thyroid is 1,500 mrem per year” (AEC, 1971, p. 15). The repetition of federal standards increases their importance throughout the document. It is not uncommon practice for textbooks in technical communication to instruct writers to highlight important information or action items (McMurray, 2017). The BSR employs tables, charts, and maps [see image 3] to highlight information through document design and data visualization, and the BSR also uses federal exposure limits repetitively which signifies their importance. Guidelines for acceptable radiation exposure were federally determined and mandated. According to the Environmental Protection Agency (EPA) archives, the original guidelines for radiation protection were established in 1960 and revised in 1961; these guidelines were not revised again until 1987 (U.S. Environmental Protection Agency, 2017). When the BSR references federal standards for acceptable doses of radiation, it is referencing guidelines a full decade old that would not see further revision for another seventeen years. There is no mention in the BSR of likelihood for health problems or any kind of continued or future monitoring of individuals or communities exposed; the closest gesture toward any concern for the future of those exposed are measurements of “infinity external exposure,” which is a calculation of a particular dose.
over an entire lifespan (AEC, 1971, p. 12). The language of the technical document uses research of doses to persons and places to make claims about federal exposure standards. I have termed the repetition of federal dose limits as an ethos-based appeal to authority and a rhetoric of legality, meaning that the language of the BSR belies a concern for legal risk above all others. The technical document presents research on potential health risk while repeatedly appealing to legal risk, or a lack of federal culpability for the vent (as determined by federal limits).

The BSR’s appeal to legal risk applies not only to the language of reporting health and environmental hazards from the document but to the legitimacy of the document itself. The BSR’s table of contents page includes a disclaimer that is worth quoting:

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Atomic Energy Commission, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights. (AEC, 1971)

The technical document for the Baneberry Vent, researched and authored by the AEC, repeatedly appeals to standards of exposure set by the AEC in part to plausibly claim there had been no breach of the test ban treaty while simultaneously limiting the accuracy and completeness of their own research and documentation. The choice to qualify the legitimacy of the entire document is a clear attempt at legal protection, and it is also a paradoxical ethos-based appeal to authority. The BSR consistently addresses health and environmental concerns through references to the federal guidelines for exposure while simultaneously appealing to their own authority to offer an incomplete or inaccurate report.
Las Vegas Newspapers

Information from BSR, along with uses of language, were compared to local reports of the Baneberry Vent in local newspapers at the time of the accident. The BSR was completed in May 1971 and was declassified in 1977 for use in court proceedings. This research does not intend to suggest that journalists writing for the Review Journal or the Sun prior to 1977 read the BSR before publishing news about the accident, nor does this research intend to cast any undue fault or blame on journalists of this time period. The comparison between the BSR and local press as two datasets is intended to provide insight into how experts were discussing risks of the vent similarly or differently than popular sources. Typically, reports from Las Vegas popular press in Las Vegas rely on unnamed AEC spokesperson to support their claims; however, AEC protocols for interaction with the press and “the instructions regarding press information on Baneberry issued from AEC headquarters directed Nevada personnel to ‘stress specifics with respect to absence of health hazards’” (Fradkin, 1989).

Analysis of the discussion of risk associated with the Baneberry Vent in popular sources provides insight into how risk was constructed by Las Vegas as a discourse community and/or risk society (Beck, 1992). Popular reports of the accident in real time provide some evidence of the common ways in which the general population of Las Vegas oriented themselves to the vent and to NTS more broadly. Accepting Ulrick Beck’s theory that a risk society is a community forced into unity around a shared (potential) hazard, popular press reports of NTS activities offer one way of peering into how the risk society that was Las Vegas of early 1970s 1) were informed about risk and 2) discussed risk among each other (with recognition that journalists who write and publish local news are not outside the risk society but communicating from within it).
In contrast to information from the BSR, local news articles repeatedly report “no danger” (“AEC says,” 1970), “no health hazard” (Manes, 1970), “low-level” radiation (“AEC says,” 1970), and the “relatively low-yield” size of the Baneberry shot (Hickey, 1971). To be clear, the BSR does not claim there was no health-related danger; it only claims exposure was under federal limits (AEC, 1971). Popular media reporting defuses the rhetoric of risk used by the AEC (1971) as if “under the legal limit” were the same thing as “not dangerous.”

Local news coverage of the vent repeatedly states there was no risk to public health. Federal regulations for exposure to radiations for peacetime operation were never a hard line between radiation exposure that is not dangerous versus dangerous. Federal limits were set and re-set based on a complicated compromise between new science/technology, politics, and risk assessment (Fradkin, 1989; Institute of Medicine & National Research Council, 1999). This compromise is somewhat evident throughout the BSR, which does not imply that legal limits are also the limits of risk (AEC, 1971). On the other hand, a front-page headline from the Sun two days following the accident reads, “Leak at Test Site Harmless” and reports NTS workers in “no danger of radiation sickness” and that “none received more than what one would get from a normal set of chest x-rays” (“Radiation Leak,” 1970). Reporting the vent as “harmless” is incorrect but comparing the level of exposure to X-rays is incorrect in a more specific way. It is unclear if this comparison came from a spokesperson from the AEC or from the reporter themself. This claim is incorrect to a point that cannot be easily explained, but in fairness, very little popular press reports were factually incorrect in the manner of this comparison to X-rays. The repeated report that the vent was not dangerous suggests that local reporters were told this by AEC representatives, so that information was what was written.

Las Vegas popular press is peppered with claims of a lack of any danger. Three days following the vent, a front-page story from the Review Journal reports “levels of radioactivity fell far
below that which could harm human beings” (Associated Press, 1970). In response to an outside claim that radiation can cause leukemia, an article from the Sun relies heavily on counter-arguments based on federal standards for “safe” levels of exposure in peacetime operations: “the doses we calculate are well within Federal Radiation Council standards” and “...even a long exposure to the air mass would not produce an unacceptable dosage” (“Say cancer,” 1970). The Sun later reports radioiodine “levels [in milk] were not dangerous” compared “with Federal Radiation Commission guideline[s]” (“Fallout traces,” 1970). The Review Journal follows suit by stating “levels of radionuclide iodine were not dangerous,” “milk was not harmful,” and “levels compare with federal guidelines… which is the safe amount a person can be exposed to…” (“Raw milk,” 1970). Reporting a lack of hazard from the vent continues into February 1971 as the Review Journal reports “AEC personnel can be exposed to” federally sanctioned limits “without danger” (Hickey, 1971).

The most egregiously misleading article from this dataset is a Sun report that begins with a quote from Dr. Lawrence E. Holder, a medical advisor to the Southwestern Radiological Health Lab. Dr. Holder’s claim is that “all inquiries… concerning nonoccupational injuries or illnesses possibly due to Atomic Energy Commission nuclear testing activities have been proven negative” (“Disproves area,” 1971). This claim reads as if it were a claim about public health and Holder’s ethos as a medical doctor further implies a health-related connection. The evidence Holder is using to make the claim above is that eighteen people lost a suit brought to court related to health problems they believed to be caused by radiation exposure (“Disproves area,” 1971). Holder’s claim is presenting a legal conclusion as synonymous with scientific evidence regarding public health. Complaints of those who filed suit “included nine skin lesions, two lung conditions, thyroid conditions, four psychiatric problems, and one malaise condition” (“Disproves area,” 1971), all of which can be effects of radiation exposure (Fradkin, 1989). Dr. Holder’s claim is a knowing conflation of legal risk and health risk through presenting a court rulings as scientific evidence.
“Disproves area,” 1971). Occupational injuries or illnesses are not mentioned in the article at all. The analysis of popular press reports reveals a tension between legal culpability, scientific provability, and the understanding of risks among locals living near NTS.

Cause and effect that is scientifically provable is complex when dealing with the effects of radiation. The health consequences of radiation exposure are not always immediately evident, and the time it takes for consequences to manifest can make data more difficult to collect and cause and effect more difficult to establish. Olga Kunchiskaya’s (2014) work on “the production of invisibility” notes how the literal invisibility of nuclear fallout can create an ideological invisibility. Because nuclear fallout “does not destroy houses” and “contaminated forests look exactly like uncontaminated ones,” the environmental and health effects are likewise often invisible. When dealing with radiation exposure, what is scientifically provable is complicated, and it depends on who is making the data (Kuchinskaya, 2014). Similarly, scientific probability does not always translate to legal culpability; the court and the laboratory are different discursive arenas. They have different goals and different criteria for investigating topics and reaching conclusions. The lived experience of NTS workers and locals near NTS is a relevant part of this conversation, and how locals understand risks is complex and difficult to determine. If the lived experience of people near NTS differs from scientific approval and/or legal ruling, it creates a particularly vulnerable position for communities nearby a radiological hazard.

An article in the Review Journal responds to an unspecified Boston periodical that claimed pilots working at NTS in 1953 “have died of leukemia or become ill,” the Review Journal avoids the discussion of risk by appealing to a lack of evidence for the causes of cancer: “a radiological scientist here [Las Vegas] claims a number of factors contribute to the disease [cancer]” (Hickey, 1971). When confronted with a claim from the aforementioned Boston publication that “no one, including the AEC, knows how much or the type of radiation the pilots and communities have received,” an
unidentified AEC representative responds once again with an appeal to a lack of evidence: “nobody can prove what causes cancer in most cases” (Hickey, 1971). The AEC official’s response, aside from being an answer that does not quite address the claim, is another example of language used in local popular press that draws attention to legal proof and away from health concerns.

Appeals to federal standards for radiation exposure are also present in a much later article from the nearby Los Angeles Times (“U.S. Releases,” 1977). The LA Times reports in 1977 the recently declassified documents from the Baneberry Vent by describing the accident and reporting “although the radiation was released unexpectedly, the device was small by NTS standards, and instruments indicated that the release posed no danger to the public” (1977). The appeals to federal standards from the LA Times article are particularly frustrating given that Harley Roberts and William Nunamaker died of leukemia three years before this article was published.

Meiosis of Risk

Reporting from the Sun is typically more critical of NTS than the Review Journal. For instance, the article announcing the accident from the Review Journal calls the vent “a radioactive air mass” with radiation levels “well within permissible levels for humans” (“AEC says,” 1970). The announcement from the Sun describes the vent using the negative descriptors “a dirty cloud” and “dangerous dust;” however, this same article also tells Las Vegans the “leak posed no health hazard” and “current estimates are that no one was exposed to more than a permissible dose” (Manes, 1970). While very little reporting from popular press is untrue, several common phrases used to discuss the Baneberry Vent are misleading. Common phrases used in popular press that diffuse or understate risk include references to the “low-yield” size of Baneberry, attributing the shutdown of NTS to factors unrelated to the vent, and casting the southwest United States as “relatively unpopulated”
All three types of meiosis are discussed more fully in the sections below.

**Low-yield Test.**

A common understatement of the dangers of the Baneberry Vent is through a reference to the “small” size of the test. Local news repeatedly refers to the size of the Baneberry shot as “relatively low-yield for NTS standards,” and while this statement is completely factual, it is also somewhat misleading (Manes, 1970). The Baneberry yield is listed in the BSR as “less than 20 kiloton[s]” and is listed at 10 kilotons in current records from the DOE (AEC, 1971; U.S. Department of Energy, 2015). Anything less than 20 kilotons is a relatively low-yield for NTS (compared to NTS’ highest-yield aboveground test of 74 kilotons and underground tests ranging up to 200 kilotons) (NTSOHP, 2008; U.S. Department of Energy, 2015). Repeatedly referring to the Baneberry shot as “low-yield” works to deemphasize risks associated with the vent, and the claim is misleading because Baneberry was comparable in size to the 16-kiloton bomb dropped on Hiroshima during WWII (Kerr, et al, 2005). Relatively “small” nuclear weapons are still nuclear weapons; the Baneberry shot was not “small” and the vent was not insignificant.

**Unrelated Factors.**

NTS shut down Area 12 following the vent to investigate the cause of the accident and to decontaminate the area, creating a layoff of approximately 945 people (Borders, 1971). The *Review Journal* accurately reports on 22 December 1970 that “high levels of radioactivity” were preventing an investigation of the causes of the accident. The article also downplays the risk of radiation by devoting significant print space to unrelated factors for NTS closure: “...the discontinuance of work in Area 12 was related to the fact that Christmas week and the period immediately following Jan 1
are times in which no tests are usually conducted at the Test Site” and “snow was heavy at the site Monday, and operations, especially at higher elevations, would have been hampered regardless of other forces” (“Week-long layoff,” 1970). The article admits Area 12 was contaminated with radiation but understates the importance of that information by incorporating unrelated factors. There is radioactivity, but there is also Christmas and snow. Choosing to reference reasons other than radioactivity for the closure function as a de-emphasis of risks of the Baneberry Vent in popular press.

**Relatively Unpopulated.**

An article published in the *Review Journal* less than a week after the vent reports radioactivity “was well within permissible doses for humans and posed no danger,” but also takes the trouble to describe the radiation was “carried over relatively unpopulated areas of Nevada, Utah, Colorado, and Wyoming” (Associated Press, 1970). Based on the logic of this report, the radiation from the vent was not a big deal for two reasons: the levels were not dangerous to people and there were not many people in these areas anyway. Language describing the southwest United States as un(der)populated is common in national conversations about nuclear testing and nuclear waste disposal, but it is surprising to find this particular language in popular press from Las Vegas (Fradkin, 1989; Fialka, 2009). An appeal to the idea that southern Nevada is “relatively unpopulated” reads as internalized unimportance.

It seems unusual for a person to think about their hometown and surrounding areas as “relatively unpopulated” because this phrase inherently casts the people that actually do live in these areas as unimportant. Terry Tempest Williams (1992), local of southern Utah, describes the rampant and often fatal history of breast cancer in her family by addressing this rhetoric of un(der)population: “When the Atomic Energy Commission described the country north of the
Nevada Test Site as ‘virtually uninhabited desert terrain,’ my family and the birds at Great Salt Lake were some of the ‘virtual inhabitants’” (1992, p. 287). Barely more than a month following the vent, the Sun reported an increased estimate that “radiation has been measured in 13 western states as a result of the leak” (“Scientists seek,” 1971), which makes the “underpopulated” argument apply to a greater number of unpeople.

**Outliers.**

One important outlier to the theme of deemphasizing risk in popular press appears in the Sun in May 1971 which claims “AEC scientists knew -- or should’ve known -- they were testing in dangerous ground” (Barrows, 1971). The article stresses that the Baneberry Vent was the fault and responsibility of the AEC and does not use federal standards of radiation exposure to avoid a discussion of risk. Without mentioning them by name, this article notes the nearly maximum permissible dose placed upon Harley Roberts and William Nunamaker and subtly offers skepticism of the claim that “workers exposed… were given clean bills of health” (Barrows, 1971). As the only article between 16 December 1970 - 31 May 1971 found that openly criticizes NTS or the AEC for the vent and presents the accident as a likely health hazard, it strikes a harsh contrast to the much more common presentation of risk to the public in Las Vegas news, which was: the Baneberry Vent was not dangerous to anyone on- or off-site (the full article is available in Appendix D).

The language used in popular press from Las Vegas regarding the Baneberry Vent from the 1990s uses language that is much less willing to avoid or deemphasize risk. For example, an article from the Sun includes the phrase “radiation dangers” in its title and primarily discusses the Baneberry Vent through the lenses of public health and the denial of legal compensation to those exposed (“Baneberry suit,” 1996). The local climate for discussions of nuclear dangers was much different in 1996 than it was in the 1970s.
Conclusion

The BSR (AEC, 1971) uses a repetitive and consistent appeal to the authority of federal limits for acceptable doses of radiation. The federal limits, however, were not necessarily the limits of risk but the limits of legal liability. The BSR’s primary rhetorical move is to present information about environmental or health risks then cap that information with a repetition of federal standards. Local popular press reports consistently present the lack of risk associated with the Baneberry Vent (save for a single outlier), and function in various ways to minimize the risks of radiological fallout.

The *meiosis* of risk in the BSR and popular press further informs and contextualizes the *risk spectacle* for the discourse community of Las Vegas. As discussed in Chapter 3, a *risk spectacle* is a mirror image of Ulrich Beck’s risk society in which a group is forced into unity around a shared hazard but calls the hazard “entertainment.” The *risk spectacle* of Las Vegas is founded on a pervasive *meiosis* of risk in popular press and technical documentation. A *risk spectacle* is created by artifacts of pop culture but cannot exist without the support of popular (meaning both widespread and non-expert) discourse. Neither popular press or technical documentation about Baneberry is celebrating nuclear energy in the way pop culture representations celebrate it (see Chapter 3), but arguably, pop culture would not be able to celebrate without the *meiosis* of risk from popular press to support it.

This dissertation examines the crosshair between technical communication, popular press, and pop culture through the lens of rhetorical presentation of risk. The primary idea behind exploring these seemingly disparate areas of inquiry is exactly to demonstrate that they are not disparate at all. Popular press, pop culture, and technical communication are connected through common users and people affected by their (unexplored) intersection. Pop culture, like technical communication, is an often unconsidered shaper of the world and its operations and

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understandings. Pop culture mediates many noteworthy topics and participates in conversations about legitimate problems (e.g., race, gender, sexuality, science, medicine, criminal justice, etc.). Technical communication often shapes policy for how operations are carried out in professional fields, and likewise, pop culture participates in these conversations meaningfully (and consequentially).

This dissertation attempts to provide connective tissue between studies in technical communication to areas of study not yet considered relevant to scholarship in tech/comm. This dissertation also attempts to connect historical problems to contemporary ones by contextualizing the current political climate with a historical account of government-sanctioned lies and misdireccts.

Longform historical studies can help provide insight in dealing with contemporary problems. Particularly, in the months directly following the inauguration of Donald Trump, popular left-leaning political commentary described the US political situation as “unprecedented,” a tendency which has since been critiqued as an ahistorical response (Zelizer, 2017). Through popular sources and channels, people have tried to deal with the current political climate by terming it as different from what has happened before. The historical bend of my research presents information that may help inform and navigate the present. While there are elements of the current administration that seem new and disconcerting, this is not the first time the US government and military have deceived the public, and this is not the first time a person with popular fame has won an elected position (professional wrestler Jesse Ventura was elected Governor of Minnesota in 1999, actor Arnold Schwarzenegger was elected Governor of California in 2003, and actor Ronald Reagan was elected Governor of California in 1967 before being elected President of the United States in 1981). My research attempts to bring popular sources into scholarly conversations in part to highlight the importance of popular sources as participants in risk construction for particular communities. This
research adds to the plethora of scholarly production that demonstrates that ours is not a world of ideals. Very few things function in ideal ways all the time.

Sean Spicer’s brief service as the White House Press Secretary in 2017 resulted in several televised lies (Lizza, 2017). In Spicer’s role as a communicative conduit between the executive branch of government and the general public, his easily disprovable statements were often met with panic. Popular forms of communication reiterated the idea that Spicer’s behavior was “unprecedented.” Popular reactions of fear and outrage are fair, given that it is generally not good practice for a government or government official to lie to or mislead the public; however, this is not unprecedented either. The current US administration is not the first to deceive and mislead its public. Longform historical work serves as a reminder of problems and solutions from the past that help inform the present.

A positive unprecedented aspect about the current administration is that public awareness of the deceit is not limited to fringe groups, but there are new problems to deal with like fake news and “fake news” (Fake news is false or misleading journalism and/or false claims made by people in positions of power while “fake news” is the act of decrying legitimate information in order to discredit it and/or its author). Increased accessibility to the internet for the general public arguably makes deception easier to notice; however, the saturation of information and opinion creates difficulty in parsing through everything that is available. The current problem is not finding information, it is finding accurate and credible information. When government bodies are involved in disseminating inaccurate information, it makes this problem even more challenging. Historical work in rhetoric can offer a perspective that exposes problems we have dealt with before so we can better solve problems that really are new. Incorporating analyses of uses of language and exploring the “production of invisibility” in science may provide insight into proposing new solutions for new problems (Kuchinskaya, 2014).
CHAPTER 5: TECHNICAL COMMUNICATION AND POP CULTURE

The research of this dissertation demonstrates the value of incorporating pop culture into analyses of technical communication. The primary claims of this project deal with new theories and findings regarding the construction of risk, meaning the claims are contributing primarily to technical communication as a scholarly field more so than studies in pop culture. This project, in part, is a gesture toward the fruitful outcomes of including pop culture in scholarly work for scholars of technical communication.

This chapter provides a model for the application of this research to the classroom. While researching issues of risk in technical documents for NTS and Las Vegas, pop culture became an important part of that conversation. As a researcher, pop culture presented itself as a factor that could not be ignored when discussing presentations of risk for the community of Las Vegas. Based on this research project, I am convinced that pop culture can inform analyses of technical communication for other sites as well. Furthermore, I am also convinced that the inclusion of pop culture in scholarly conversations in technical communication will add value to the field.

I suspect that the recommendation to explore pop culture in the scholarly discussion of technical communication might be a hard sell. I expect there to be intellectual push back because, historically speaking, calls to include pop culture conversations in the academy have consistently been met with resistance (Harrington and Bielby, 2001; Jenkins et al., 2016). Pop culture studies has made significant headway in legitimizing their work over the last three or four decades, but pop culture remains on the “low” end of the high-low culture divide. As such, it can be difficult for
scholars who find value in popular works to put them on a syllabus or course schedule next to canonical texts, or works on the “high” end of the cultural divide. I expect no different from scholars of technical communication, and to be fair, the overlap between technical communication and pop culture is not always immediately obvious. Skepticism is understandable given that pop culture and technical communication seem like very different fields of scholarly production and practice. This dissertation, in part, attempts to create a Venn Diagram between the fields of technical communication and pop culture and expose how exploration of the overlap between the two can be useful.

Divisions of high- and low-culture are not meaningless. Cultural divisions often rest on elitist premises (see the discussion of Dwight MacDonald (2011) in Chapter 3), and admittedly my own attempts at an egalitarian view of cultural divisions still cannot concede a charitable opinion of The Bachelor (2002-present). The Bachelor is an ABC reality television series in which one man meets roughly twenty-five women in the first episode and eliminates one woman each week to culminate in a season finale with a marriage proposal. I find the series blatantly sexist and heteronormative, but it is fantastically popular. The Bachelor is preparing to launch its twenty-third season in early 2019 and has inspired several dating-related spin-off shows (“The Bachelor,” n.d.). I study the value and relevance of pop culture and can still be guilty of judgment of some areas of masscult beyond being a “critical fan.” Writer and transgender rights activist Janet Mock (2014) coined the term “critical fan” in keeping with Roxane Gay’s (2014) concept of being a “bad feminist.” Both writers argue that fans can simultaneously enjoy problematic artifacts of pop culture while maintaining critical awareness of social problems presented or duplicated by the artifact. For example, I consider myself a critical fan of the popular HBO series Game of Thrones (2011-present) because I simultaneously enjoy each episode and call out creators for sexist and racist storylines. The term critical fan cannot apply to my opinions of The Bachelor and its popularity because I am not a fan of the show and my
immediate reaction is to think that viewers are wasting time watching the series. Elitist ideas about the value of pop culture run deep in our culture; some types of pop culture still carry more cultural capital than others.

Many factions of higher education function on exchanges of cultural capital, and in academia, cultural capital is also often connected to economic capital. Scholars who deal with subjects considered “low culture,” generally speaking, can be vulnerable in academe (Harrington and Bielby, 2001). Institutions and people do not allocate economic resources for things in which they place no value. If the legitimacy of pop culture in technical communication studies is difficult to explain, then it will also be difficult to acquire resources to produce this work. In a subfield of English studies that has played second-fiddle to literature studies since the advent of English-A at Harvard in the late nineteenth century, scholars in rhetoric and composition well know that cultural capital matters (Berlin, 1987). Additionally, technical communication as a subfield of rhetoric and composition can also experience misunderstanding and marginalization (Miller, 1979). Scholars of technical communication are often placed on the “low” end of the culture divide in contrast to “high-culture” studies of rhetorical theory (Reave, 2004). Studies in technical communication can be misunderstood and misapplied as simply vocational training, which carries less cultural capital than fields understood as purely academic. I am advocating for the inclusion of a “low-culture” topic (i.e., pop culture) in technical communication, which is a field that can be marginalized by rhetoric and composition, which is itself a field that can be marginalized within English studies. My focus on power relationships as a researcher and pedagogue aims to repair systems that may underrecognize marginalized populations. Power structures and monetary factors are non-human participants in the success of everyone affiliated in the academy (Daer and Potts, 2014). An emphasis on pop culture works to complicate assumptions of power and prestige, while attempting to merge the academy with the world around it.
Politics and Technology

Chapter 4 of this dissertation concludes by connecting long form historical studies in technical communication to contemporary political problems. Specifically, I address a common reaction to the current executive branch as being “unprecedented” in its willingness to lie to the public (Zelizer, 2017). Chapter 4 points out that the current administration is not the first to have lied to or mislead the American public, as is demonstrated by an analysis of historical technical documents issued by the Atomic Energy Commission (AEC). Additionally, the current administration is not the first time pop culture has informed or shaped politics, rather than the other way around. It seems a normal occurrence for politics to inform or shape pop culture, like “Weekend Update” from Saturday Night Live (1975-present) where cast members act as news anchors to humorously deliver and comment on news and politics. However, when the arrow moves in the other direction and pop culture shapes politics, it seems unusual and is often not discussed positively. This research attempts to bring pop culture into scholarly conversations in part to present the commonality of pop culture informing or shaping political structures and power dynamics.

When the arrow of influence moves from pop culture to politics or policy, the arrow is not moving the “wrong way.” Pop culture has always participated in shaping more “legitimate” structures of culture, which I am terming “non-pop culture.” The arrow has always been two directional with pop culture and non-pop culture affecting each other reciprocally, even when people did not like it. It is not new or unprecedented for pop culture to shape politics, policy, power dynamics, etc., but noteworthy moments of pop culture affecting non-pop culture, like who is elected to the office of the president, can feel like a violation of how things are supposed to work. But that is a limiting view of the ways language and communication shape the world, common conceptions, and operations of systems. Pop culture participates consequentially in social systems of which scholarship in technical
communication is invested: risk assessment, accessibility, workplace practices, power dynamics, safety, etc. (Grabill and Simmons, 1998; Sullivan and Porter, 1997; Palmeri, 2006; Longo, 2000). Scholarly production that incorporates pop culture as a potential participant in social systems may offer a more inclusive perspective and may generate new solutions.

Silicon Valley, with technology giants like Apple and Google, is also steeped in pop culture in ways that affect the production and business of technology. Silicon Valley’s enmeshment with pop culture is complex and results in both positive and negative outcomes, but the notion that pop culture and Silicon Valley affect one another reciprocally is incontrovertible. Elizabeth Holmes, CEO of failed tech startup Theranos, in essence modeled Steve Jobs’s persona and it worked so well she bilked investors for hundreds of millions of dollars for fraud technology that did not work. Job’s pop culture presence is at the heart of the Theranos case. Journalist John Carreyrou details Holmes and Theranos in his recent book Bad Blood: Secrets and Lies in a Silicon Valley Startup (2018) in which he identifies the imitation of Steve Jobs’s persona and style provided Holmes cultural clout that resulted in significant funding for new tech that was essentially a scam (Hartmans, 2018).

Silicon Valley is similarly, but less nefariously, influenced by HBO series Silicon Valley (2014-present), a satirical sitcom revolving around the pull between existing tech giants and tech start-ups. A long-form review in The New Yorker discusses the reciprocal relationship between the HBO series and habits of tech professionals in Silicon Valley (Marantz, 2016). In particular, the review mentions that after the show did a scene with several startups repeating how their technology would "make the world a better place," actual tech companies started banning that phrase from presentations (Marantz, 2016). The show also sparked conversations about a lack of racial and gendered representation of tech professionals on the show to which the show’s creators responded that footage of the crowd at a tech conference were filmed at an actual tech conference. Silicon Valley exposes and reinforces the lack of racial and gendered diversity in the real Silicon Valley. The tech industry,
writ large, and its pop culture representations work in an endless feedback loop with each other. The direction of influence is not moving in one direction, but rather, the system of influence between the production and business of technology is a mutually influential, dialectical system of impact and creation.

**Pop Culture**

This research includes pop culture in technical communication scholarship to demonstrate a particular instance in which pop culture participates in orienting a particular discourse community to a local hazard. If pop culture can meaningfully participate in risk construction for a particular discourse community, then it is reasonable to assume it can participate in technical communication, writ large. Technical communication is involved in many conversations, including: social activism, disability studies, gender studies, studies of power dynamics, science writing, public understanding of science, etc. Pop culture is likewise involved in every single one of these conversations. Pop culture participates in both lay and expert understandings of these topics and issues. If pop culture is a mediating influence of understanding, it is reasonable to question whether or not pop culture is reinforcing or changing existing conversations about social activism, disability, gender, power dynamics, and science. Technical communication and pop culture seem to be disparate areas of inquiry. In fact, they seem like opposites. What is technical is not popular and visa versa; however, what is technical informs what is popular and what is popular can inform what is technical. They are related in the sense that they affect one another. Technical communication scholarship often works to explore the ways in which technical writing can create systems and affect the lived experiences of people in the world. Pop culture studies works to achieve similar goals in theorizing how pop culture creates meaning that shapes lived experience in the world like social relationships, personal expectations, and workplace expectations, to name a few. Pop culture studies can inform technical
communication in terms of how they participate in tandem to construct social systems and epistemology.

Pop culture is a relevant part of the same social issues scholars of technical communication address. Bernadette Longo, in *Spurious Coin* (2000), demonstrates how technical communication can create or reinforce power dynamics in the workplace. Her research is a clear example of the ways in which technical communication can create or reinforce systems that directly affect the lived experience of a person (or group of people). Workplace power dynamics are similarly represented, duplicated, and challenged by artifacts of pop culture. The network cable TV show *Mad Men* (2007-2015), for example, represents, challenges, and duplicates gender-based and race-based power dynamics in the workplace. Set in 1960s New York, the show attempts to accurately portray the workplace of an advertising firm of the mid-modern period. This popular historical fiction represents gendered and racial power dynamics through narratives of powerful white men and the professional struggles of white women and people of color. The show presents this narrative to a contemporary audience with tongue-in-cheek references to workplace technology “simple enough for a woman to use” which effectively challenges, or at least calls into question, contemporary gendered dynamics of power and access. *Mad Men* unfortunately also duplicates existing workplace power dynamics through employing more white men than any other demographic as actors. Scholars of technical communication are uniquely positioned to offer intellectual work that connects popular representations of issues connected to technical communication, ideally for the benefit of practitioners (and the general public whose world is shaped in part by technical communication).

Scholarship in technical communication that includes pop culture as part of the conversations we are invested in can also inform pedagogy in technical communication. It is important for pedagogy in technical communication to connect technical composition to the world outside of the academy. All systems of communication inform and affect one another; no discipline
exists in a vacuum. Connecting pedagogy in technical communication to issues in pop culture can create a more dialectical relationship between the practice of technical communication and social problems that play out across varied media in pop culture. The Netflix original series Orange is the New Black (2013-present), for instance, follows the individual stories of characters who are inmates in a women’s prison. The Netflix series is a fictional adaptation of Piper Kerman’s (2011) memoir of her experience in prison. Throughout the series, Orange is the New Black consistently creates tension between technical policies and the lived experience of inmates. The show presents technical communication as a major factor in the operation of life in prison, and the show follows inmates as they appeal to change technical language written about them. Transgender actress Laverne Cox plays inmate Sophia Burset who suffers discrimination as a transgender woman from fellow inmates, prison officers, practitioners of medicine, and the technical regulations of what classifies an inmate as male or female (thereby affecting the institution of their incarceration because most US prisons are segregated based on sex/gender). Scholars of technical communication already know that technical language can harm people, help people, and leave particular groups out of consideration entirely, but what we do not often talk about is how this same conversation manifests in pop culture. Social problems as presented through pop culture are an important and influential part of the collective conversation about these social problems. The primary connection is from social problem (related to technical communication) to social problem (presented in pop culture). Pedagogy in technical communication programs that encourage students to find connections between social problems in technical communication and the same social problem in pop culture could fulfill learning outcomes related to critical thinking, analysis, rhetorical awareness, identifying power embedded in language, and interrupting power dynamics of social systems. I do not argue that programs in technical communication should arbitrarily include pop culture in the classroom, but rather, as pop culture artifact Orange is the New Black demonstrates, I am arguing that scholars in
technical communication need not ignore popular contributions to conversations about our field of study. Pop culture is already participating; scholars in technical communication simply need to acknowledge pop culture as a participant.

**Pedagogy**

In attempt to avoid adding to “mission creep” for technical communication programs, the example provided here for including pop culture is limited to one writing project/assignment. Programs in technical communication have a great deal of content to cover and content considered necessary is only increasing as competency with digital media becomes more important (and more robust) (Zoetewey and Staggers, 2004). The primary goal of including pop culture in our assignments and/or syllabi is for students to make stronger connections between social problems that can be either reinforced or interrupted by technical communication and conversations about the same social problems that take place in the most widely received form of media: mass culture. Pop culture participates in conversations related to issues in technical communication but the two fields have wildly different goals. Pop culture’s primary rhetorical purpose is entertainment while technical communication’s goals are rooted in instruction and regulation. These differences mean that while pop culture and technical communication may be involved in discussing similar topics, they do so in very different ways. Many current creators of pop culture are invested in representing socially diverse characters so that marginalized social groups are more well represented in pop culture. Scholars of technical communication are also invested in social equity, and incorporating pop culture could create another avenue for discussing inclusivity and intersectionality.

The example provided here includes two primary elements: a mostly traditional assignment for an entry-level technical communication course and a proposal for an addendum to that assignment to include pop culture. The example provided in this chapter is idiosyncratic to a
particular course, university, and city; however, the example is intended to provide a framework for including pop culture in technical communication curricula, broadly speaking. The example provided here is intended to demonstrate how including pop culture could work in a classroom, but can be adapted to suit individual program/course needs and desired learning outcomes.

The technical communication assignment discussed in this chapter is titled “Case Project: Ethics and Communication with MRSA Infections of the Tampa Bay Buccaneers” which is the final major writing project for my students majoring in health science (the full assignment requirements are available in Appendix E). The demographic of students in this course are sophomore- to senior-level undergraduates pursuing careers in medicine, including nursing, physical therapy, physicians, and physician assistants. The course was built and offered by the English Department (in collaboration with faculty in health sciences) and was a requirement for earning a degree in health science at the University of South Florida in Tampa. In this course, students are introduced to a humanistic approach to technical communication related to medicine. Writing assignments that precede the final case project include employment documents (or application materials for graduate school), genres common in professional settings, proposals for communication technologies that solve (hypothetical) medical communication problems, and reflective writing. There are a total of six deliverables for the final case project; students work in groups of three or four to produce five deliverables (discussed below), and students work individually to produce one deliverable (a reflective assignment). The addendum to this assignment is provided to students after their completion of the case project and tasks students with finding an artifact of pop culture related to their work on the case project. As a group, students present their chosen artifact and use it to reflect on their rhetorical choices as authors of technical documents.

The scenario for the case project draws on real-world problems by asking students to engage with news from local headlines. In late 2013, the Tampa Bay Buccaneers NFL team experienced an
outbreak of MRSA (Methicillin-resistant Staphylococcus Aureus) which was likely contracted and spread in a locker-room environment during practice. The team’s kicker Lawrence Tynes had the most severe infection of any player which rendered him unable to practice or compete. Tynes was placed on the physically unable to perform (PUP) list and his infection was classified as a non-football related injury (NFI) by the NFL. Players on the PUP list receive different financial benefits depending on the classification of their injury; NFI designations leave players with less benefits than injuries considered related to football (the most notable difference is a lack of contributions to the player’s pension). Different classifications are sensible given the possibility that a player could injure himself playing with his kids at home rather than injuring himself on the field. However, the MRSA outbreak was not clear cut, and Tynes appealed his NFI designation through the player’s union (NFL Players Association or NFLPA). Tynes believed his injury was workplace related but his employers did not agree. There are no nation-wide standards for cleanliness of NFL locker rooms, and there is no language dealing with infection as an injury in the collective bargaining agreement (CBA) between the NFLPA and the NFL. Tynes’s infection became a worker’s compensation issue technical documents in the NFL and NFLPA were not equipped to regulate.

The five deliverables students are tasked with producing as a group are: a planning memo, a press release, a proposal for locker room cleanliness protocol, and a proposed addition to the CBA. The planning memo is drafted and submitted prior to all other deliverables for the purposes of project management, accountability for research, and considerations of rhetorical awareness (for each of the other deliverables). The press release asks students to produce a concise explanation of the local MRSA outbreak with consideration of their audience; students need to balance informing the public of events without inciting panic. Both the proposal for locker room cleanliness protocol

12 Sadly, Tynes’s infection ended his football career entirely; his appeal and subsequent lawsuit was finally settled in early 2017 but the terms of the settlement are confidential (“Buccaneers,” 2017).
13 This was true as of 2014 and has not changed to my knowledge.
and the addition to the CBA are quite complex writing tasks. Firstly, neither of these documents exist. Tynes’s infection and appeal of his worker’s compensation classification created a need for their existence that had not happened before. Students are creating technical documents to fill a real-world gap in both NFL and NFLPA documents. In order to produce these documents, students need to gain an understanding of two primary content areas: NFL worker’s compensation and MRSA infections. Given that students of this class are earning degrees in health science (and not football), they are provided with sources to explain NFL worker’s compensation practices, the importance of players’ pension given the short average length of players’ careers, the functions of the NFLPA and their CBA with the NFL, and information on Tynes’ infection and appeal. Students are given no such list related to MRSA, so student groups must research in their field to discover how MRSA is contracted, treated, contained, and prevented. Students must use this research to develop specific protocol for cleaning NFL locker rooms to prevent (or contain) a MRSA outbreak. Students must also use this medical expertise to create an addition to the CBA that ethically allows for both party’s interests. Adding to the CBA requires strict adherence to form and content of the existing CBA, and students should determine where in the contract their addition belongs.

Students submit final drafts then have a class discussion about their work and rhetorical choices. The class also discusses Tynes’s case and decides where they stand in regard to his appeal of the NFI designation. Following this discussion, students are presented with a second assignment that tasks them with finding an artifact of pop culture related to their work on the case project. Students are expected to synthesize the case project with an artifact of pop culture and reflect on their rhetorical choices in relation to new considerations presented by the artifact. The single deliverable of this assignment is a group presentation in which students explain the artifact they found and reflect on their rhetorical choices, successes, and omissions as technical communicators. This assignment is similar to the statement of goals and choices (SOGC) Jody Shipka’s (2011)
students complete to reflect and evaluate the rhetorical effectiveness of their authorial choices. The pop culture presentation assignment builds on Shipka’s idea of reflection with a rhetorical focus and adds a lens of pop culture by which students may be able to see parts of the conversation they had not previously considered.

Obviously, particular synthesis and analysis depend on what artifacts students find and how they connect it to their composition of technical documents. By way of example, a student group could synthesize the case project with an episode from the ABC TV series Grey’s Anatomy (2005-present) that follows the drama-filled lives of surgeons in a fictional Seattle hospital. “Sleeping Monster” is the twenty-first episode of season nine of Grey’s Anatomy in which a major character, surgeon Miranda Bailey (played by Chandra Wilson), loses three of her patients to post-surgical MRSA infections. In the episode, the CDC investigates the cause of the infections and discovers a technical failure in the surgical gloves which allowed Dr. Bailey’s non-symptomatic strain of MRSA to pass to her patients during surgery. The episode emphasizes the emotional trauma of (potential) culpability, and presents the narrative from primarily the point of view of surgeons. The case project centers around Tynes and his infection which is a patient-centered focus. Including Grey’s Anatomy in a reflection of rhetorical choices made to create the deliverables for the case project could provide students an opportunity to consider a more nuanced understanding of how technical failures affect multiple parties both legally and ethically/emotionally. “Sleeping Monster” could also broaden a student’s understanding of writing that is considered technical communication. In the episode, the first place surgeons and administrators look to determine the cause of the infection is their medical records.

Creator of Grey’s Anatomy Shonda Rhimes has become famous for socially diverse casting decisions and next-level dramatic storylines. Rhimes has also produced the incredibly popular ABC series Scandal (2012-2018) and How to Get Away with Murder (2014-present) for which Viola Davis
became the first Black woman to win an Emmy for best lead actress in a drama series in 2015. Any given episode of *Grey’s Anatomy* could challenge a viewer’s assumptions about racial and gendered demographics in the medical field through diverse casting that exposes social problems of privilege and access. Since Lawrence Tynes is a white football player, race does not often become part of the conversation in the case project. However, racism is a major issue in the NFL, and racism is often relevant in issues of player’s rights given that the demographic of players is predominantly made of people of color while the demographic of team owners and managers is overwhelmingly white. Race, privilege, and access are important parts of the context for conversations about player’s rights that is not immediately evident when focusing on Tynes’s case in particular. A socially important synthesis between “Sleeping Monster” and the case project would be a recognition of race-related problems in the NFL (reinforced by power dynamics) and how authors of technical documents protecting players should consider this context.

The combination of the case project and the pop culture addendum combines technical communication, popular press, and pop culture to emphasize the connectivity between them. Curricula in technical communication should, in my view, be connected to mainstream (i.e. popular) conversations so that technical communicators will understand their work as situated in a larger context of influence and consequence. Students of technical communication are already learning the gravity of consequences for communication failure through scholarship that examines communication failures that result in disaster and loss of human life. This training is vital in any technical communication program, and the proposal to include pop culture does not assume it will replace that instruction. It simply includes popular press and pop culture as other avenues for participation in conversations relevant to technical communication. The primary purpose is to provide students with the task of synthesis and analysis and let them find what they determine as important or noteworthy. Students of technical communication at any level could benefit from
locating connections between their work as authors of technical communication and their engagement with media outside professional life. Connecting professional work in composing technical communication to personal life and interests imbues technical communication with pathos of a different kind than only learning about disaster. It broadens the scope of pathos-based connections to technical communication to include the full range of human emotion represented in pop culture: celebration, humor, satire, love, romance, etc.

Conclusion

Each chapter of this dissertation folds into the next to demonstrate what technical communication, pop culture, and popular press have to do with each other. I did not begin this research project with an intention to argue that pop culture has a place in scholarly conversations of technical communication, but I discovered that pop culture participated significantly in the conversation about NTS in Las Vegas, NV. The pop culture of the Las Vegas Strip became relevant as I began investigating rhetorical presentations of risk for the discourse community of Las Vegas. Pop culture on the Las Vegas Strip was participating in the conversation about risk in Las Vegas; all I had to do as a researcher was notice and ask a question about it.

This chapter does not attempt to argue that programs in technical communication apply pop culture in the classroom to arbitrarily create a connection between the two (or in attempt to persuade students that technical communication is fun). The recommendation provided here is a call to explore how pop culture may be already participating in the same conversations discussed in classrooms or in technical communication scholarship. As scholars of technical communication, we will not discover anything about how pop culture participates in our work if we do not ask questions about it.
REFERENCES


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APPENDICES
Appendix A: Copyright Permissions for Native Shoshone Land Map and Las Vegas Sun article from UNLV Libraries

UNLV Libraries
Collection Development Policy

Purpose of Policy Statement
This collection development policy for the UNLV Libraries is intended for the guidance of librarians responsible for building collections that support the curricular and research needs of the University. The policy is also an instrument for communicating UNLV Libraries’ collection policies to the University community and other users. The policy statement defines the scope of existing collections, serves as a planning document to direct future collections and provides a measurement for progress in the collection development program.

Library Mission
The UNLV Libraries support the mission of the University to emerge as a premier metropolitan university, embracing the traditional values of higher education adapted for the global community in the 21st century. The Libraries build collections and provide access to information and services to support teaching, learning, research and creative endeavors. The Libraries foster information literacy, working with the UNLV community to think critically, create new knowledge, and be life-long learners.

Intellectual Freedom
Intellectual freedom is an essential value to any university. UNLV Libraries is committed to providing a balanced collection representing a diversity of perspectives on issues. The UNLV Libraries support the American Library Association’s:

Library Bill of Rights
The Freedom to Read Statement
Diversity in Collection Development

and the American Film and Video Association’s Freedom to View Statement.

Electronic Resources Use Policy
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(hereinafter “the Production”): Title: The Spectacle of the Bomb: Risk Communication, Pop Culture, and The Nevada Test Site.  
Description: Dissertation research project to partly fulfill requirements for a Doctor of Philosophy in Rhetoric and Composition.

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Appendix D: *Las Vegas Sun* Article Critical of AEC and NTS, 1971

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Appendix E: Example of Assignment Sheet for Tech/Comm Undergraduate Course

Case Project: Ethics and Communication with MRSA Infections of the Tampa Bay Buccaneers

Overview of Project

Case projects ask students to solve a communication problem that has no single right answer. Students must analyze primary and secondary texts connected to a high-stakes, real-world situation and work in teams to solve problems with/through communication. Issues in health/medicine-related communication can become very complex and can affect a large range of audiences. Using the case of our own Buccaneers’ MRSA infections, student teams will analyze the complexities of medical and public communication, ethical issues, and stakeholder interests.

The purpose of the case project is to immerse students in a real-life scenario where the technical channels of communication are extreme and/or complex. This case comes straight from real life and health care professionals are often exposed to similar problems in the professional world. The purpose of this project is to expose students to real-world communication problems in preparation for professional life. Each team will navigate through medical information and ethical issues then produce communications of their own based on careful considerations tailored to specific audiences. Be mindful of the role communication—particularly writing—in the facilitation of this issue from different perspectives, i.e., infection, treatment, safety (prevention/containment protocol), medical privacy, workman’s comp, public risk, etc.

For this assignment students will:

- identify and differentiate conventions of and genres in various professional/technical documents and professional presentations.
- illustrate and analyze audience while creating various professional/technical documents with a sophisticated awareness of audience as a reader and a writer.
- recognize and discuss important elements of how culture affects communication in collaborative workplaces.
- describe and generate strategies for effectively planning and working on collaborative projects.
- demonstrate amiable and productive collaboration in team projects.
- recognize and explain basic visual design strategies.
- demonstrate audience and rhetorical awareness in visual design while creating professional/technical documents to visually appeal to appropriate audiences.
- operate current technologies in order to produce effective documents.
- describe and explain benefits of information literacy in relation to field of study.
- assemble relevant research in order to recommend an evidence-based solution
- locate and discuss ethical issues in the field.
- apply and evaluate ethical considerations to a realistic professional scenario in the field develop professional/technical documents with a clear awareness of ethics.
- identify and explain current local and global discussions and trends in the field while relating these to students’ professional interests.
- identify professional/technical genres, organizational strategies, and appropriate tone and style.
- describe the effect of tone, organization, and style in professional/technical communication while employing these principles appropriately in various writing situations.

The Course Objectives addressed by the Case Project are:

- Compose professional/technical documents and oral presentations for multiple audiences and specific purposes using appropriate technologies
- Collaborate effectively as a member of a multidisciplinary writing team

ENC 2210 Technical Communications for Health Sciences
• Employ visual design strategies to produce rhetorically effective documents, visuals, and presentations
• Design and implement information literacy strategies
• Articulate ethical issues in health science writing
• Negotiate current social cultural contexts for the field of health science
• Apply and adapt professional/technical writing conventions, including genre, tone, and style for particular writing situations

Background Information

In October 2013, the third player for the Tampa Bay Buccaneers was infected with MRSA (Methicillin-resistant Staphylococcus Aureus) which is a bacterial infection that is difficult to treat because it’s resistant to a lot of antibiotics. This sparked questions and investigative reporting regarding the safety and cleanliness of the team’s equipment and locker room. A third-party doctor reviewed the Bucs facility in September and evaluated the practices not “a very high risk” but commented that “football,” generally speaking, “is a high risk factor for MRSA infections.” Player Lawrence Tynes, with the most severe infection, is out for the season and has appealed the Non-Football Injury (NFI) classification that denies the player some financial benefits. Other players who may feel healthy enough to play must be evaluated against the risk of public health and further infection. Begin by reading the full report from the Tampa Tribune from 12 October 2013 for background information.

The Situation

You, along with the other 2-3 students in your group, have been hired as an expert third-party team by the NFL Players Association (NFLPA), the NFL players’ union, to evaluate the MRSA situation in Tampa Bay. In your capacity as medical experts, you will need to communicate well about both the situation and your recommendations to various audiences. This is what the NFLPA will actually do to resolve some of the issues in this case, so this is a very real world way of solving problems. Your expertise has been commissioned by the NFLPA to ensure safety, well-being, and fairness for the players involved (and future players who could be affected). However, the NFLPA enlists a third party for the sake of fairness to management as well. This means that your team is expected to evaluate the situation as fairly and objectively as possible because you are not directly affiliated with either group nor does your team have a personal or financial stake in the outcome(s) because the fee your team will receive from the NFLPA will be the same regardless of your teams’ findings and recommendations.

Following is a list of deliverables your team must produce. Each deliverable must demonstrate rhetorical awareness, genre analysis, and visual rhetoric. Meaning all documents should 1) fit the criteria listed on this assignment sheet and fit into the context of your situation as a third-party team of experts; 2) be formatted most appropriately for the audience of that text; 3) be consistent with audience expectations through word choice, content, and document design. [Remember, everything on this assignment sheet is a list of issues that the deliverables must address. This is not a template or a fill-in-the-blank worksheet].

Deliverables

Students will create the following deliverables for the Case Project:
• Planning Memo
• Press Release
• Proposed Addition to the CBA
• Protocol Recommendation
Deliverables: Specifications

Planning Memo

Instructors may ask for this assignment to be submitted prior to the submission of other deliverables. The audience for this deliverable is your instructor and (potentially) other classmates. In one page total, this memo should 1) explain the problem, 2) inform your instructor of your team’s position (do you side with Tynes or the NFL?), 3) address each deliverable and detail how you plan to tailor each document to its intended audience, 4) propose any and all research questions your team needs answers to.

Press Release

Press releases communicate events as objectively as possible to particular audiences typically for print or online news. Readers of news sources are stakeholders in some form, i.e., related to an issue geographically, demographically, culturally, etc. The main purpose is to apprise the selected audience of events, and in this case, the events regard the MRSA infections of the Buccaneers’ players.

Proposed Addition to the Collective Bargaining Agreement (CBA)

In no more than 800 words, write a proposed addition to the CBA regarding Lawrence Tynes’s grievance. This document should be an addition to the contract that allows for situations similar to Tynes’s. The CBA is a mutual agreement of terms between the NFL player’s union (NFLPA) and the NFL, so your addition must ethically reflect both parties’ interests. To create this document, consider the NFL designation and its consequences in relation to what you learn about MRSA and how the infection is affecting (will affect) Tynes. Your addition to the CBA should adhere to the existing CBA in genre, form, and content; you also need to label your addition to indicate where in the CBA your addition belongs. Remember that your team has been hired because of your medical expertise, so your reasoning for supporting either Tynes or the NFL should be rooted in information about MRSA.

Protocol Recommendation

In a maximum of 700 words, recommend a realistic solution to the NFLPA’s call for “a league-wide, comprehensive and standardized infectious disease protocol.” Write an proposal to the NFL Safety Committee arguing what locker room cleanliness protocol the NFL should adopt. Consider any current NFL health and safety guidelines and information regarding the prevention of MRSA and containment of an outbreak.

Team Minutes

For each meeting, including those in class, the group must make an entry in a team work log. The instructor may provide a customizable template on Canvas. Team minutes are an important part of team planning and collaboration. This running log helps group members synchronize project tasks, record collaborative decisions,
record delegation of tasks, etc. Refer to Team Writing: A Guide to Working in Groups by Joanna Wolfe for an in-depth explanation of team minutes and collaborative work. Also, instructors often use team minutes to determine group and individual grades for the project and for the class.

Reflective Memo

This is the only deliverable that must be completed by each student individually. Prepare a one- to two-page memo of the process used to complete the deliverables above. The audience for this deliverable is your instructor. Draft this memo near the completion of the other deliverables. You may use the following questions to guide your analysis and/or add your own:

- How are the deliverables targeted for their intended audience (address each major deliverable)?
- How is the group establishing ethos in the documents and presentation?
- How does your understanding of document design inform the visual choices made in each deliverable?
- How does the research and/or background reading shape your decision?
- How well did you manage your time for this project? What might you do differently next time?
- Was the workload fair and balanced across all team members? Explain.
- How well did the group plan the project? What might you have done differently?

Background Reading / Resources

Listed below are several NFL-related resources provided by the NFLPA to help your team make informed decisions about Tynes’s grievance. However, the NFLPA has not provided any resources related to MRSA because your team is assumed to have medical expertise. This means a combination of two things: 1) your team members may already be experts in MRSA infections and/or 2) your team members know how to find current information about MRSA infections, treatment, and containment. This means that your team is responsible for reading the background information the NFLPA has provided and researching current information regarding MRSA infections, treatment, prevention, containment, long-term effects, public risk, etc. This research will inform your team’s overall decisions, but will be most beneficial for creating the Addition to the CBA and the Protocol Recommendation deliverables.

Background Reading


NFLPA Press release 8/2013 https://www.nflplayers.com/Articles/Leadership-Corner/Important-End-of-Pre-Season-Information-for-Players/

NFLPA Non-Football Injury Information https://www.nflplayers.com/search/Non-Football+Injury/n-s/

Wikipedia Pup list http://en.wikipedia.org/wiki/Physically_Unable_to_Perform#Non-Football_Injury

Pension Information http://blog.futureadvisor.com/nfl-players-must-go-long-on-retirement/

Pension Information http://sports.stackexchange.com/questions/1864/do-sport-players-have-pension-rights

NFL Career Length http://www.livestrong.com/article/15527-long-average-career-nfl-player/


Full Collective Bargaining Agreement (CBA)

Resources


NFL Rulebooks http://www.nfl.com/rulebook

NFL Digest of Rules http://www.nfl.com/rulebook/digestofrules

Tampa Bay Team Capsule http://static.nfl.com/static/content/public/image/history/pdfs/TeamCapsules/TB_2013.pdf